



**POLITECNICO**  
MILANO 1863

School of Industrial and Information Engineering

Master of Science in Management Engineering

**TRIADIC SUPPLIER NETWORK RELATIONSHIP**  
**IN NEW PRODUCT DEVELOPMENT**

Case Study Research with Service Suppliers

Supervisor: prof.ssa Margherita Pero

Co-supervisor: Jinou Xu

Author:

Nataliia Roskladka 876065

Academic year 2018-2019

## Table of Contents

ACKNOWLEDGEMENTS .....	4
Figures Index .....	5
Tables Index .....	6
Abstract.....	7
Sintesi del lavoro.....	12
CHAPTER 1 – Introduction .....	17
1.1. Topic and thesis purpose .....	17
1.2. Research field and relevance.....	18
1.3. Thesis structure .....	22
CHAPTER 2 – Literature review: Triadic relationships in supply networks .....	24
2.1. Relationships in supply network .....	24
2.2. Triadic relationships during NPD process .....	28
2.2.1. Relationships during NPD process .....	28
2.2.2. Triads.....	29
2.2.3. Theories in supply network relationships study .....	32
2.2.4. The impact of relationships in supplier network on NPD performance .....	35
CHAPTER 3 – Literature review: Information and knowledge sharing in the triad .....	41
3.1. Information sharing in the triad .....	41
3.2. Knowledge sharing in the triad .....	47
CHAPTER 4 – Research model and protocol.....	50
4.1. Research purpose and research questions .....	50
4.2. Research model.....	52
4.2.1. Supplier-supplier relationship .....	52
4.2.2. Buyer-supplier relationship.....	56
4.2.3. NPD performance .....	59
CHAPTER 5 – Research Methodology .....	64
5.1. Case study methodology.....	64
5.2. Defining the unit of analysis .....	66
5.3. Selection of cases.....	67
5.4. Data collection .....	70
CHAPTER 6 – Data Analysis and Results Interpretation.....	74
6.1. Data analysis .....	74

6.1.1. Summary of the data collected and within case analysis .....	74
6.1.2. Cross-cases analysis .....	92
6.2. Findings .....	120
6.2.1. Research question 1 .....	120
6.2.2. Research Question 2 .....	125
6.2.3. Research question 3 .....	126
CHAPTER 7 – Discussion.....	131
CHAPTER 8 – Conclusions.....	134
8.1. Theoretical contributions .....	134
8.2. Managerial Implications .....	136
8.3. Limitation and further research developments.....	138
REFERENCES .....	141
Book.....	141
Journal paper .....	141
Research report.....	146
Online-only material.....	146
APPENDIX A - Research protocol.....	148
APPENDIX B - Case Studies .....	150
Triad 1 .....	150
Triad 2.....	157
Triad 3.....	172
Triad 4.....	192
Triad 5, Triad 6, Triad 7 .....	204

## ACKNOWLEDGEMENTS

This part of the thesis is not strictly required by the guidelines, but if it goes from the bottom of my heart, I believe it should take place before describing everything that has been done in the fames of this research.

And everything that has been done was professionally guided by my supervisors Margherita Emma Paola Pero and Jinou Xu (Valentina). The very special thanks go to you, Margherita for your always well-directed comments and reviews, for helping structure the findings, for challenging questions all along research that made my results more strong and robust. And also special thanks go to Valentina for your extreme availability, infinite support and very precise feedback that you have been providing me with. Thank you very much for all the effort you have dedicated to me and this research!

Endless gratitude goes to all interviewers that have agreed to open me some insight about the business of the companies you work for. It has enriched my investigation a lot, by fulfilling it with empirical examples of real cases and helped making conclusions from the research more viable and useful! I really hope that the outcomes, obtained thanks to your input could be potentially useful for everyone who is interested in the impact of relationships on innovation performance of the companies. Thank you, Andrii, Andriy, Alp, Eloisa, Marco, Roberta, Sergii, Svitlana, Tommaso for finding time to talk, for your openness and for your collaboration! It was extremely important for performing the analysis of the research model and making the investigation viable. Thank you also all those company representatives who have come back to me with their replies nevertheless it was not appropriate to consider the activities they are in charge of into the analysis. Thanks to you all I could come up with the findings I have described here and prove what has been discovered by reading literature. I wish you continue the work you love so that it brings even bigger fruits to you and people around!

The warmest gratitude to my family and the closest friends and everyone else who believed in me and this research as well as in future results that hopefully may be useful for everyone who is interested in the topic.

## Figures Index

Figure 1. Types of the triads depending on the supplier's role during NPD project.....	31
Figure 2. Research questions in the logical order.....	52
Figure 3. Construct 1: Supplier-Supplier Relationship .....	55
Figure 4. Construct 2: Buyer-Supplier Relationship.....	58
Figure 5. Construct 3: Outcomes from NPD project .....	61
Figure 6. Complete research framework .....	62
Figure 7. Research framework and research questions .....	63
Figure 8. Buyer's satisfaction from collaboration in the triad 1 .....	76
Figure 9. Buyer's satisfaction from collaboration in the triad 2.....	79
Figure 10. Buyer's satisfaction from collaboration in the triad 3.....	82
Figure 11. Buyer's satisfaction from collaboration in the triad 4.....	84
Figure 12. Buyer's satisfaction from collaboration in the triad 5.....	86
Figure 13. Buyer's satisfaction from collaboration in the triad 6.....	89
Figure 14. Buyer's satisfaction from collaboration in the triad 7.....	91
Figure 15. NPD innovation score .....	91
Figure 16. Aggregated index of the buyer-supplier relationship.....	101
Figure 17. Interdependence of buyer-supplier relationship and the level of NPD innovativeness .....	102
Figure 18. Aggregated index of the supplier-supplier relationship .....	110
Figure 19. Interdependence of supplier-supplier relationship and the level of NPD innovativeness .....	111
Figure 20. NPD project 1 performance.....	115
Figure 21. NPD project 2 performance.....	116
Figure 22. NPD project 3 performance.....	116
Figure 23. NPD project 4 performance.....	116
Figure 24. NPD project 5 performance.....	117
Figure 25. NPD project 6 performance.....	117
Figure 26. NPD project 7 performance.....	117
Figure 27. Graphic representation of the collaboration in examined triads .....	119
Figure 28. Dynamic of each component of supplier-supplier relationship among triads.....	124
Figure 29. Impact of buyer's attitude on the relationships between its suppliers.....	125
Figure 30. Evaluation of the quality as a part of NPD performance .....	127
Figure 31. Evaluation of the delivery as a part of NPD performance .....	128
Figure 32. Evaluation of the flexibility as a part of NPD performance .....	128
Figure 33. Evaluation of the costs as a part of NPD performance .....	130

## Tables Index

Table 1. Triad 1 – Buyer-Supplier-Design Agency; launch of the new brand of yogurt .....	74
Table 2. Triad 2 – Buyer-Supplier-Supplier; development of a new integration system .....	77
Table 3. Triad 3 – Buyer-Supplier-Design Agency; launch of a new POS material .....	80
Table 4. Triad 4 – Buyer-Supplier-Supplier; development of a support program for patients	82
Table 5. Triad 5 – Buyer-Supplier-Supplier; packaging development .....	85
Table 6. Triad 6 – Buyer-Supplier-Design Agency; launch of a new format of packaging ....	87
Table 7. Triad 7 – Buyer-Supplier-Supplier; packaging production and delivery .....	89
Table 8. Interview extracts on each variable of the buyer-supplier relationship .....	93
Table 9. Quantitative evaluation of the buyer-supplier relationship.....	100
Table 10. Correlation between variables of the buyer-supplier relationship construct.....	100
Table 11. Interview extracts on each variable of the supplier-supplier relationship.....	105
Table 12. Quantitative evaluation of the supplier-supplier relationship construct.....	109
Table 13. Correlation between variables of supplier-supplier relationship .....	109
Table 14. Evaluation of each variable of the NPD performance .....	112
Table 15. Quantitative evaluation of supplier-supplier relationships with conditional formatting.....	123

## Abstract

This study is dedicated to the investigation of the relationship in supply network during the process of new product development (NPD). The relationship between actors involved in NPD process are not considered singularly, but in the triad. Triad here is referred to the relational context, including three actors: one buyer and two suppliers (Wu, Choi and Rungtusanatham 2010). In this study several types of triad are considered, depending on the type of supplier involved: either its role is to supply goods or services. Among those suppliers who provide services the design agency is distinguished. There is highlighted the value of supplier expertise as the companies who work with different buyers of the same or similar industries. Therefore, companies-suppliers are more likely to acquire higher qualification in the specific field, which is not among the core interests of the buyer (since it is outsources externally). Consequently, design agencies are expected to have even higher level of specific skills and competencies, because they work with very diverse industries, always performing the activity, they are specified in. They act as “knowledge brokers with superior design expertise” (Ates, Ende and Ianniello 2015) in the field, in which the buyer is not likely to be an expert.

The relationships are considered as a mix of three components: mutual interaction between the parties, maintaining this relation, knowledge sharing and information sharing. The last one is surely necessary to make the relationship happen, since it includes the communication process and exchange of the data, relevant to both parties. The second one is referred to sharing experiences gained by a party from previous project, that could be valuable to develop the current one. The content of mutual interaction variable differs depending on the parties between which the interaction takes place. In case it is about buyer-supplier relationships, it implies risk and benefits sharing, face-to-face meetings, constant feedback exchange, cultural satisfaction with way-of-working of business partners. If it is about supplier-supplier relationships, it is referred to the mutual assistance between parties, readiness to help each other out in case of a break-down, etc. (Richardson and Roumasset 1995). In both cases, it implies the mutual trust and mutual understanding. The more parties trust each other, the higher level of mutual interaction was defined in a specific example.

The trust and willingness to build relationships are the basic requirements to establish this relationship. Relationships appear between two parties when both recognise a need of such relationships (Choi and Wu 2009 (b), Luzzini, et al. 2015). And the way relationships develop between parties directly depend on the attitude of each party. It is evident that that a dyadic relationship is influenced by the surrounding relationships (Choi and Wu 2009 (b), Najafi-Tavania, et al. 2018, Yang, Zhang and Xie 2017, Zhu, Su and Shou 2017, Wu, Choi and Rungtusanatham 2010). So, in case of a triad, the way the relationships between suppliers

can evolve depend on the buyer's intention towards the collaboration with its suppliers and among its suppliers.

The main objective considered for constructing relations between parties is the NPD project. Thus, the study is aimed to discover how triadic relationship impact the performance of NPD. Particularly, how relationships in supplier network impact this performance, which is, actually, the research question 3 of this investigation. The first research question instead is aimed at exploring the nature of relationships between suppliers and verifying either the abovementioned components really construct the relationships. It has been decided to dive in this question, since references for dyadic relationships as buyer-supplier relationships are much better presented in the literature. Instead the relationships between suppliers, particularly between different kinds of suppliers are lesser investigated.

The second research question was dedicated to exploring the interconnection of relationships between buyer & supplier and supplier & supplier. Specifically, the impact of every component of one relationship on the corresponding components of the other relationships. The research model was developed, containing three building blocks: buyer-supplier relationship and buyer's intention towards its development; supplier-supplier relationship; and outcomes from NPD project. The first research question is directly related to the supplier-supplier relationship; the second one is related to the connection between the buyer-supplier relationship and supplier-supplier relationship; and the third one is related to the outcomes from the NPD project. The research model was built with the theoretical framework by a social network theory.

All research questions were completely answered by following the case-study methodology. First of all, it is essential to mention that this research is qualitative research: the investigated elements are closely related to the human phenomenon. Relationship management embed significant part of personal attitude, so the study is going to examine it qualitatively.

This study is not aimed at testing the existing theories but come up with new ideas and then check them on some use-cases. Exploratory case study type has been chosen since the investigation is aimed at exploring how a complex process and the primary aim is to make a qualitative research.

The triadic relationship is represented as the unit of analysis of this study, since all the study is focused on the components, constructing relationships, types of relationships, their practical meaning and daily detection.

The research adopts a multiple case-study approach, performing the empirical part of the research by involving several case-studies. It is expected to bring more rich and robust results



by verifying the research model on several cases and having more data to answer research questions. Since the same unit of analysis is going to be analysed for each single case, this investigation follows a holistic approach.

The selection of case-studies was primarily based on successful cases selection, meaning that the company should be leader in its market by revenue and be one of the first companies investing the most in the research and development. An additional criterion was also applied such as presence of the company branch in Italy or in Ukraine to make easier the process of interviewing and improve the chances of getting fruitful results by talking to interviewees in person in their mother-tongue. The process of cases selection implied heterogeneity, meaning choosing representative of different patterns of behaviour. This is absolutely in line with the study – exploring the differences of relationships in different triads.

Data collection process was done in three steps: researcher observation, checking the available data from the previous researches and conducting semi-structured interviews. All interviews were lasting around 30 minutes and mostly were conducted with the representatives from purchasing department. After each interview, the records and notes were transcribed in the most detailed way, then the data was triangulated with one, found before: annual reports, extracts from the web-sites, previous researches... This way, the data were collected and ready to be interpreted and analysed.

All cases were analysed within and cross-cases to ensure the completeness in building the answers to the research questions. There were seven triads considered in this research.

Within case analysis each triad is described in detail with the characteristics of the involved actors, the description of a referent NPD project, the goals the project was following and the final output of the project, represented by a matrix within two dimensions (satisfaction of the buyer from the outcome of the NPD performance and level of collaboration in the triad). Besides, the level of NPD innovativeness was defined in each project and reported for all triads in the end of a relative section.

After, the cross-case analysis was performed by finding the evidences from each interview on the description of each variable of each construct. Triadic relationships and NPD performance were represented separately by a table, where all their variables were reported in the columns and each row was corresponding to each triad. So, on the intersection there are presented the quotations from the interviews to describe a certain aspect of a research model. The result of a cross-cases analysis on each construct of the research model was ending up with the chart, displaying the inferences found.

Results analysis are presented on each research question separately. For the first research question, it has been verified that all relationship components are relevant and the research model is viable in general. There was found a high correlation between the all pairs of variables of the construct. There were three clusters of supplier-supplier relationship identified: with the high level of collaboration, medium and low. The table 15 with the scores, coloured by Excel conditional formatting on each variable of the supplier-supplier relationship visually confirms it. The triads with the high level of collaboration also had highly innovative projects, and all components of their relationships were evaluated as high.

The second research question is answered by the bubble chart of interdependence between buyer-supplier relationships, supplier-supplier relationships and NPD innovativeness. There is evident that when a buyer tends more towards collaboration, the NPD project requires higher innovativeness, and so the relationship between suppliers are closer.

The third research question is answered by considering each variable of the NPD performance and NPD innovativeness in the research model separately. It has been found that the flexibility of suppliers is directly proportional to the buyer's attitude towards collaboration: the higher collaboration a buyer wants to establish in a triad, the higher flexibility of suppliers he obtains. Quality and delivery performances have shown similar results. Most likely it is because the perception of a project delivery is very connected with the quality of a product or service developed: when a buyer is satisfied with the final quality of a product, he is likely to estimate the delivery also high. The cost variable has found weaker support than the others within the examined dimensions, because each company-buyer had different expectations on the costs of a project, different priorities (for ones the costs was not among main drivers of a project, for the others it was a decisional variable). Apparently, more cases should be investigated to find stronger support of data to make inferences upon it.

This study has a potential to be developed in the future by considering the limitations, presented in the chapter 7 of this work. If the research could have lasted longer, more case-studies could have been constructed, providing more data to build the inferences and answer research questions. The investigation could be done, expanding the focal element of the research from the triad to a network, since some cases could provide very interesting outcomes about interrelated behaviour of three or four suppliers, involved in the NPD project. Also, the study could be enriched by adding one more unit of analysis – NPD team, and exploring more in detail the differences in NPD performance, depending on who takes part in the project development.

The reflection from the interviewee is presented in the section managerial implications, where could be found particularly interesting takeaways on the research. Mostly, they are related to the relationship management during the NPD project, insight about how to make preparation better to the project, which consequently, will lead to improvement of its final performance.

The relevance of the study is exemplified in the first chapter of the study, underlining significance, novelty, importance of the study and its possible application to a very broad audience.

## Sintesi del lavoro

Questo studio è dedicato alla ricerca della relazione nella rete di fornitori durante il processo di sviluppo del nuovo prodotto. La relazione tra attori coinvolti in questo processo non è considerata singolarmente, ma nella triade. La triade fa riferimento al contesto relazionale, inclusi tre attori: un buyer e due fornitori (Wu, Choi and Rungtusanatham 2010). In questo studio vengono considerati diversi tipi di triade, a base del tipo di fornitore coinvolto – il suo ruolo è quello di fornire beni o servizi. Tra quei fornitori che forniscono servizi, l'agenzia di design si distingue. Viene evidenziato il valore della competenza del fornitore come le aziende che lavorano con diversi buyers dello stesso settore o di industrie simili. Pertanto, è più probabile che le società-fornitori acquisiscano qualifiche più elevate nel campo specifico, che non è tra gli interessi principali dell'buyer (dato che è esternalizzato esternamente). Di conseguenza, ci si aspetta che le agenzie di design abbiano un livello ancora più elevato di abilità e competenze specifiche, perché lavorano con industrie molto diverse, eseguendo sempre l'attività specificate a loro.

Le relazioni sono considerate come un mix di tre componenti: interazione reciproca tra le parti, mantenimento di questa relazione, condivisione delle conoscenze e condivisione delle informazioni. L'ultimo è sicuramente necessario per far sì che la relazione avvenga, poiché include il processo di comunicazione e lo scambio di dati, rilevanti per entrambe le parti. Il secondo si riferisce alla condivisione delle esperienze acquisite da una parte del precedente progetto, che potrebbe essere utile per sviluppare quella attuale. Il contenuto della variabile di interazione reciproca differisce a seconda delle parti tra le quali avviene l'interazione. Nel caso si tratti di relazioni buyer-fornitore, si implica condivisione dei rischi e dei benefici, incontri faccia a faccia, scambio di feedback costante, soddisfazione culturale con il modo di lavoro dei partner commerciali. Se si tratta di rapporti fornitore-fornitore, si fa riferimento all'assistenza reciproca tra le parti, la disponibilità ad aiutarsi reciprocamente in caso di guasto, ecc. (Richardson and Roumasset 1995). Entrambi i casi implicano la fiducia reciproca e la comprensione reciproca. Più le parti si fidano l'una dell'altra, il livello più alto di reciproca interazione è stato definito in un esempio specifico.

La fiducia e la volontà di costruire relazioni sono i requisiti di base per stabilire questa relazione. Le relazioni appaiono tra due parti quando entrambi riconoscono la necessità di tali relazioni (Choi and Wu 2009 (b), Luzzini, et al. 2015). E il modo in cui le relazioni si sviluppano tra le parti dipende direttamente dall'atteggiamento di ciascuna parte. È evidente che una relazione diadica è influenzata dalle relazioni circostanti (Choi and Wu 2009 (b), Najafi-Tavania, et al. 2018, Yang, Zhang and Xie 2017, Zhu, Su and Shou 2017, Wu, Choi and Rungtusanatham 2010). Quindi, nel caso di una triade, il modo in cui i rapporti tra i fornitori

possono evolversi dipende dall'intenzione dell'buyer nei confronti della collaborazione con i suoi fornitori e tra i suoi fornitori.

L'obiettivo principale considerato per la costruzione di relazioni tra le parti è il progetto di sviluppo del nuovo prodotto. Pertanto, lo studio ha lo scopo di scoprire come la relazione triadica abbia un impatto sulle prestazioni di sviluppo del nuovo prodotto. In particolare, come le relazioni nella rete dei fornitori influiscono su questa performance, che è, in realtà, la domanda di ricerca 3 di questa indagine. La prima domanda di ricerca è invece finalizzata ad esplorare la natura delle relazioni tra i fornitori e a verificare che le suddette componenti costruiscano realmente le relazioni. È stato deciso di approfondire questa domanda, poiché i riferimenti per le relazioni diadiche come relazioni compratore-fornitore sono presentati molto meglio in letteratura. Invece, le relazioni tra i fornitori, in particolare tra i diversi tipi di fornitori, sono meno studiate.

La seconda domanda di ricerca è stata dedicata all'esplorazione dell'interconnessione delle relazioni tra acquirente e fornitore e fornitore e fornitore. In particolare, l'impatto di ogni componente di una relazione sui componenti corrispondenti delle altre relazioni. È stato sviluppato il modello di ricerca, contenente tre elementi costitutivi: relazione compratore-fornitore e intenzione del compratore verso il suo sviluppo; relazione fornitore-fornitore; e risultati dal progetto di sviluppo del nuovo prodotto. La prima domanda di ricerca è direttamente correlata alla relazione fornitore-fornitore; il secondo è legato alla connessione tra la relazione acquirente-fornitore e la relazione fornitore-fornitore; e il terzo è correlato ai risultati del progetto di sviluppo del nuovo prodotto. Il modello di ricerca è stato costruito con il quadro teorico da una teoria dei social network.

Tutte le domande di ricerca sono state completamente risolte seguendo la metodologia caso-studio. Innanzi tutto, è essenziale ricordare che questa ricerca è una ricerca qualitativa: gli elementi investigati sono strettamente correlati al fenomeno umano. La gestione delle relazioni integra una parte significativa dell'atteggiamento personale, quindi lo studio la esaminerà qualitativamente.

Questo studio non ha lo scopo di testare le teorie esistenti, ma di inventare nuove idee e quindi controllarle in alcuni casi d'uso. Il tipo di studio esplorativo è stato scelto poiché l'indagine è finalizzata ad esplorare come un processo complesso e l'obiettivo primario è quello di effettuare una ricerca qualitativa.

La relazione triadica è rappresentata come l'unità di analisi di questo studio, poiché tutto lo studio è focalizzato sui componenti, sulla costruzione di relazioni, sui tipi di relazioni, sul loro significato pratico e sulla rilevazione quotidiana.

La ricerca adotta un approccio caso-studio multiplo, eseguendo la parte empirica della ricerca coinvolgendo diversi casi studio. Si prevede che porterà risultati più ricchi e robusti verificando il modello di ricerca su diversi casi e avendo più dati per rispondere alle domande di ricerca. Poiché la stessa unità di analisi verrà analizzata per ogni singolo caso, questa indagine segue un approccio olistico.

La selezione dei case-studies era basata principalmente sulla selezione dei casi di successo, il che significa che la società dovrebbe essere leader nel suo mercato per fatturato ed essere una delle prime aziende che investono di più nella ricerca e sviluppo. È stato inoltre applicato un criterio aggiuntivo come la presenza della filiale della società in Italia o in Ucraina per facilitare il processo di intervista e migliorare le possibilità di ottenere risultati fruttuosi parlando di persona agli intervistatori nella propria lingua madre. Il processo di selezione dei casi implicava eterogeneità, ovvero scelta rappresentativa di un diverso modello di comportamento. Questo è assolutamente in linea con lo studio – esplorando le differenze delle relazioni in diverse triadi.

Il processo di raccolta dei dati è stato fatto in tre fasi: osservazione dal ricercatore, controllo dei dati disponibili dalle ricerche precedenti e conduzione di interviste semi-strutturate. Tutte le interviste sono durate circa 30 minuti e per lo più sono state condotte con i rappresentanti del dipartimento acquisti. Dopo ogni intervista, i record e le note sono stati trascritti nel modo più dettagliato, quindi i dati sono stati triangolati con uno, trovato prima: relazioni annuali, estratti dai siti web, ricerche precedenti ... In questo modo, i dati sono stati raccolti e pronti per essere interpretato e analizzato.

Tutti i casi sono stati analizzati all'interno e casi incrociati per garantire la completezza nella costruzione delle risposte alle domande di ricerca. C'erano sette triadi considerate in questa ricerca.

Nell'analisi caso per caso ogni triade è descritta dettagliatamente con le caratteristiche degli attori coinvolti, la descrizione di un progetto di sviluppo del nuovo prodotto di riferimento, gli obiettivi che il progetto stava seguendo e l'output finale del progetto, rappresentato da una matrice entro due dimensioni (soddisfazione dell'buyer dall'esito delle prestazioni di sviluppo del nuovo prodotto e dal livello di collaborazione nella triade). Inoltre, il livello di innovatività del prodotto sviluppato è stato definito in ciascun progetto e riportato per tutte le triadi alla fine di una sezione relativa.

Successivamente, l'analisi cross-case è stata eseguita trovando le evidenze di ciascuna intervista sulla descrizione di ciascuna variabile di ciascun costrutto. Ogni costrutto era rappresentato da una tabella, in cui tutte le sue variabili venivano riportate nelle colonne e ogni grezzo corrispondeva a ciascuna triade. Quindi, all'incrocio, vengono presentate le

citazioni delle interviste per descrivere un determinato aspetto di un modello di ricerca. Il risultato di un'analisi cross-case su ciascun costrutto si è concluso con il grafico, visualizzando le inferenze rilevate.

L'analisi dei risultati viene presentata separatamente per ciascuna domanda di ricerca. Per la prima domanda di ricerca, è stato verificato che tutte le componenti della relazione sono rilevanti e il modello di ricerca è praticabile in generale. È stata trovata un'alta correlazione tra tutte le coppie di variabili del costrutto. Sono stati identificati tre gruppi di relazione fornitore-fornitore: con l'alto livello di collaborazione, medio e basso. La tabella 15 con i punteggi, colorati in base alla formattazione condizionale di Excel su ogni variabile del costrutto, lo conferma visivamente. Le triadi con l'alto livello di collaborazione hanno anche progetti altamente innovativi e tutti i componenti delle loro relazioni sono stati valutati in alto.

La seconda domanda di ricerca è data dal grafico a bolle dell'interdipendenza tra relazioni buyer-fornitore, relazioni fornitore-fornitore e innovatività del prodotto sviluppato. È evidente che quando un buyer tende più alla collaborazione, il progetto di sviluppo del nuovo prodotto richiede maggiore innovazione e quindi la relazione tra i fornitori è più vicina.

Alla terza domanda di ricerca viene data risposta considerando separatamente ciascuna variabile del costrutto 3 nel modello di ricerca. È stato riscontrato che la flessibilità dei fornitori è direttamente proporzionale all'atteggiamento dell'buyer nei confronti della collaborazione: la maggiore collaborazione che un buyer vuole stabilire in una triade, la maggiore flessibilità dei fornitori che ottiene. Le prestazioni di qualità e di consegna hanno mostrato risultati simili. Molto probabilmente è perché la percezione di un progetto di consegna è molto connessa con la qualità di un prodotto o servizio sviluppato: quando un buyer è soddisfatto con la qualità finale di un prodotto, è probabile che stimi anche la consegna. La variabile di costo ha trovato un supporto più debole rispetto alle altre all'interno delle dimensioni esaminate, perché ogni azienda-buyer aveva aspettative diverse sui costi di un progetto, priorità diverse (per i costi non erano tra i principali driver di un progetto, per gli altri era una variabile decisionale). Apparentemente, altri casi dovrebbero essere studiati per trovare un supporto più forte dei dati per fare inferenze su di esso.

Questo studio ha un potenziale da sviluppare in futuro considerando i limiti, presentati nel capitolo 7 di questo lavoro. Se la ricerca fosse durata più a lungo, sarebbero stati costruiti più casi di studio, fornendo più dati per costruire le inferenze e rispondere alle domande di ricerca. L'indagine potrebbe essere fatta espandendo l'elemento focale della ricerca dalla triade a una rete, poiché alcuni casi potrebbero fornire esiti molto interessanti sul comportamento correlato di tre o quattro fornitori, coinvolti nel progetto di sviluppo del nuovo prodotto. Inoltre, lo studio potrebbe essere arricchito aggiungendo un'altra unità di analisi, il team di sviluppo del nuovo

prodotto, ed esplorando più in dettaglio le differenze nelle prestazioni di sviluppo del nuovo prodotto, a seconda di chi partecipa allo sviluppo del progetto.

La riflessione dell'intervistato è presentata nelle implicazioni gestionali della sezione, dove si possono trovare ritagli particolarmente interessanti sulla ricerca. Per lo più, sono legati alla gestione delle relazioni durante il progetto di sviluppo del nuovo prodotto, intuizione su come rendere la preparazione migliore per il progetto, che conseguentemente porterà a un miglioramento della sua performance finale.

La rilevanza dello studio è esemplificata nel primo capitolo dello studio, sottolineando il significato, la novità, l'importanza dello studio e la sua possibile applicazione ad un pubblico molto ampio.



## CHAPTER 1 – Introduction

This chapter will present the argument of the research and the purpose of study, highlighting its relevance and novelty. After, the structure of the thesis is introduced.

### 1.1. Topic and thesis purpose

This thesis is aimed at discovering the nature of relationships in supply network, and the impact relationships may have on the performance of the new product development process.

Current market of goods grows rapidly and continuously, making grow also the interest about how to continue providing customers with products they would constantly continue buying. Dramatic changes have occurred in the economic environment – in particular, technological, nature changes, (Kotler and Keller 2012) which also leads to changing of customer behaviour. New companies that have appeared ten, twenty years ago now are the leaders in the market, far beyond other players. Leading companies keep their positions by extremely fast reacting to changing customer preferences. Current customer is already got to use for appearance of innovation on the market, so that he event expects it with the certain frequency. Therefore, development of innovation capabilities become a primary priority of companies. Interesting notice, however, that “companies rarely innovate by themselves” (Edquist 1997). A paradigm of open knowledge, technologies, human workforce and other external resources takes a confident position in the current innovation development (Luzzini, et al. 2015). Therefore, appears a need for companies to spread their networking to foster innovation capabilities. One of the objectives of this study is to understand how companies decide to manage their relationships within their supply network.

There are a plenty of thought-provoking scholars, investigating how relationships in supply network may look like (Ateş, Wynstra and Raaij 2015, Gao, Xie and Zhou 2015, Pathak, Wu and Johnston 2014, Sarang P., et al. 2018, Galaskiewicz 2011, Kim and Choi 2015, Ring and Ven 1994, Choi and Wu 2009 (a), Sjoerdsma and Weele 2015, Zeng, et al. 2017). Interestingly, some of them (Sjoerdsma and Weele 2015, Touboulic, Chicksand and Walker 2014, Galaskiewicz 2011) point out that by measuring the quality of relationship between companies it may be possible to predict the performance of a company, in particular – performance of a new product development (NPD) process. Some researches (Liu, et al. 2017) even prove that personal relationship workers can maintain among themselves could increase the project performance. Managing interpersonal relationships, however, is lesser presented in the research fields, but could have a significant impact on the joint organisational performance (Meyer, Niemann and Kotzé 2017, Ateş, Wynstra and Raaij 2015).

The work was developed using the most relevant resources, which were studied, carefully filtered and applied as a supportive base. The empirical part of the study was conducted with leading companies from different industries with insights from the working experience. This way the study is intended to serve as a reliable resource for the researchers on the investigated topic.

## 1.2. Research field and relevance

Every year profitable organisations publish their reports claiming as the very first thing their revenue or net sales. Each company strives to augment its volumes every year, reasoning it the growing need in the planet, also every year it sets stimulating profitability indexes to achieve. To achieve those objectives the buyer should know what exactly to offer its customers by understanding their tastes (Lafuente, Vaillant and Leiva 2018, Luzzini, et al. 2015). Current customer is already used to have abundant choice while selecting a product (Kotler and Keller 2012). This is due to continuously growing variety of products on the market. Surely, it depends on the industry, however, it is already recognised as a tendency over the last decade (GS1 2016).

That is one of the reasons why companies are kind of forced to develop their innovative capabilities to be able to offer novelties to the market (Ferreira, et al. 2015, Fossas-Olalla, et al. 2015, Luzzini, et al. 2015). This way they would get a chance to keep their positions on the market (Lafuente, Vaillant and Leiva 2018). Undoubtedly, it is a challenging task today for manufacturers (Kotler and Keller 2012). Also, because nowadays, supply grows much faster than demand does. That is why investigating the process of new product development is especially interesting in the today context.

Another trend appearing over the last years is return of companies towards the vertical integration (Garthwaite, et al. 2018, Walker 2017, Walker n.d.). There are plenty of reasons behind this factor, like willingness to increase transparency over the supply chain, protect its core competencies by uniting the supply chain up- and down-stream (T. Johnsen 2005), costs improvement and other financial indicators (Bonaccorsi and Lipparini 1994), and other. It worth to point out the variety of possibilities to implement the collaboration along the supply chain. Vertical integration has been used since 20<sup>th</sup> century to eliminate uncertainties (Handfield and Bechtelb 2002). However, it is not always the best solution to achieve desired abovementioned improvements. Anyway, any type of collaboration makes companies to review their management of relationships among the supply chain links. Earlier or later this will impact the performance of the companies, including the mode of performing innovation activities. That is where the idea of exploring relationships during the new product development comes from. So, the research field of this study is triadic relationships during NPD process.

The *significance* of explored problem consists in a need to constantly improve its innovation capabilities by applying the latest tools. Exploiting the power of relationships is one of the possibilities to benefit to innovative performance (Edquist 1997, Schøtt and Jensen 2016). This process, in fact, needs conscious evaluation of how to maintain relationships in such way that would positively impact the results of innovation activities and in the same time would not put under the risk the competitive advantage of the business. Relationships management is a very delicate process, which requires involvement of different roles and functions within one company from the operational executives to the top management (Johnsen, Howard and Miemczyk 2014, D.-Y. Kim 2014). The strategy of collaboration between business partners should be agreed till small details to make sure all parties are following the same scheme and the whole business will benefit from it (Higgins 2018). The responsibility of maintaining this process also contains in the art of negotiating (Ring and Ven 1994). While submitting the cooperation, both sides should evidently see the future benefits of this cooperation. Otherwise, it cannot sustain because the feeling of inequality appears (Touboullic, Chicksand and Walker 2014), which clearly can be a base for conflicts. Taking relationship management as a tool for performance improvement means including personal attitude on the working context (Tangpong, et al. 2015). It means that the actors of NPD process will have to agree upon the interests of each side in the project, deal with different opinions and characters. This diversity could provoke tensions and misunderstandings, which could lead to mixing personal and professional relationships and create additional costs from human and economic perspective (Puck, Neyer and Dennerlein 2011). It is not trivial to grasp all alternatives for each issue and present utility related to each alternative. There are plenty of issues that can be a reason for conflict appearance, such as prices, lead times, quality issues, contractual terms, payment details, etc (PwC 2013). Those were all related to the product, but there are also resources that should be spent to make the relationships closer, which is even more challenging in terms of future benefits evaluation. Because collaboration activities require time, effort and money from both sides: suppliers and manufacturer, to organise communication and coordination in the best way (Wynstra and Pierick 2000).

However, the diversity from engaging different actors in process could actually give the value the actors are looking for (Gao, Xie and Zhou 2015). Different background, level of skills and competences are exactly those factors that people could use to make sure that all the aspects during the product development are covered. Therefore, relationship management is critical task that is aimed at future value creation (Smals and Smits 2012), that is why it is assumed to have a strategic importance for an organisation.

The investigated problem is *applicable* to all profitable organisations. Buyer is one of the actors of the focal triad in the study, and by definition manufacturer is person or company that makes

goods for sale, meaning aiming for profit. There are two principal ways to improve profitability (Kotler and Keller 2012). First, by increasing the price of existing products, and therefore, the margin will grow. Second, make volumes grow, keeping the same price of the product or lowering it. The first way will be viable if customers perceive the price increase fair. Meaning they will notice the changes in the product and value this product worth to be bought again. In this case, incremental innovations are relevant to be applied. The second way of increasing volumes contains in giving customers more incentives to buy. It could be implemented by different promotions, offers, discounts, etc. However, this is not likely to improve the profitability, at least not that significantly. Besides, those options are short-term solutions, which the company would not be able to sustain over a long period of time. Even if a company could afford to suffer its profit margin by prolonging special offers for a certain product line at the expense of other products, customers cannot perceive such long-term offers as outstandingly valuable for them (Kotler and Keller 2012). Therefore, the organisation should offer to the customers something new that would catch its attention and makes it take a decision to consciously increase its purchasing volumes. In this case, the radical innovation should take place. So, both cases prove that the process of new product development is required to be always fruitful to achieve the profitability improvements of an organisation. Thus, the *problem scope* is appealing to a very broad group of organisations.

Surely, the idea of studying incremental and radical innovation is not new. However, since studying this process includes reviewing the use-cases from the companies that actually present the results of their innovations on the market, this process is always full of updates. The more the companies move forward their innovative capabilities, the more customers expect from them in future. It is all about continuous innovation. The company should constantly improve its innovative capabilities to be able to always pleasantly surprise and satisfy the customers. Customers are becoming more demanding every day, so the manufacturer is required to constantly push its innovativeness further. To win this challenge, more and more buyers find applicable the concept of open and collaborative innovation (Luzzini, et al. 2015, Fossas-Olalla, et al. 2015) that implies the engagement of other links of the supply chain to create opportunities for knowledge acquisition. The issue of sharing the companies experience, its techniques and skills is fragile because the firms always strive to save their competitive advantage, they try to be extremely sensitive in their knowledge sharing with their external partners (Ritala, et al. 2015, Zhou, et al. 2014). Therefore, firms go for building the relational ties to grow the trust and favourable environment to feel safe in sharing knowledge and information and to profit from it in the future (Wang and Hu n.d., Zhou, et al. 2014). This work is focused on studying how the relationships in supply chain can impact the innovation performance, particularly – the performance of NPD project. There is a proof that

such impact exists (Wynstra and Pierick 2000, Yan, Yang and Dooley 2017) and the aim of the study is to understand how exactly it functions during NPD process. There is already so many methods and strategies discovered (Sarang P., et al. 2018, Ateş, Wynstra and Raaij 2015, Ferreira, et al. 2015), following which should positively contribute to innovativeness of the company. But since this process should be continuous, there always new ideas appear. Moreover, it is also proven that the idea of open innovation effectively benefits evolving of innovations in the company (Luzzini, et al. 2015), It implies the involvement of appropriate actors of the NPD process to the phase of brainstorming and exploiting the capabilities to optimize any stage of the project. Since open innovation concept starts finding its application more frequently as in multinational corporations as well in small and medium sized enterprises (Chesbrough, Vanhaverbeke and West 2014), it makes appear even bigger *curiosity* to explore it.

The study is aimed at finding out concrete examples of relationship impact on the results of new product development. Thus, it is considered to be *actionable*, being able to offer managerial and organisational practice. One of the objectives of this study is to highlight how relationships in supply network can concretely create value for the company and its customers when developing a new product. By reviewing existing practices and exploring the most up-to-date ones, by interviewing companies, the results of the study are expected to be interesting and useful to re-apply on other cases, with practical feedback from high-qualified employees, who gained experienced in their previous projects.

Summing up, the investigated problem is *significant* because it makes involved different roles and functions within an organisation to build the right strategy of relationships management. Besides, organisation of collaborative activities in terms of communication and coordination of the process requires such resources as time, effort and money as from supplier, as from manufacturer. Moreover, the process of new product development is always pushed by the need to constantly improve its innovative capabilities because of more demanding customers. There are a plenty of discovered tools which could make innovativeness grow and the challenge is to choose the right way to do it to maximise the wellness of all parties involved. It makes a problem *novel* and *interesting* to study. Then, this research is *applicable to a very broad* audience, since this is the area of interest of all profitable organisations. In the end, it worth to point out that the research is aimed at bringing the fruitful results due to reviewing the most up-to-date use-cases and gathering the recommendations on process optimization that would be possible to implement on the managerial level.

### 1.3. Thesis structure

Chapter 1 is the introduction to the research. It states the purpose of the thesis and highlights the relevance of the investigated topic. The relevance of the research is formulated with the focus on the significance, novelty, wide-spread application scope and expected value of results of the research argument.

Chapter 2 presents the literature review on the primary element of the study – relationships in the triad. After reading a certain number of articles on this topic, the need of making another related research has appeared. Particularly, the literature review on the key components of relationships in supplier network – information and knowledge sharing. Therefore, Chapter 3 presents the literature review on the outcomes from the available publication on this topic. The chapter is divided respectively into two section dedicated to information sharing and knowledge sharing as a necessary component of relationships in the triad during the process of new product development.

The publications were selected by the relative key words, used the logical conjunctions to connect them. Firstly, the publications were searched by looking for the “buyer supplier relationship” combination; than “NPD project”, “NPD process”, “triadic relationship”, “NPD performance”.

Secondly, the articles were filtered by the main investigated element there and the data base of the found publications was created, including the year of publication, the name and authors, the key words used in the article, brief description of a framework, the theories that are used as the theoretical support”. The most interesting publications were selected to identify the focus of the study to be able to narrow down the research.

Thirdly, new publications have been found on a specific topic that was in need to be examined deeper while developing the framework, using as the key phrases “knowledge sharing”, “information sharing”, “collaborative relationship”.

Chapter 4 states the research questions put for this investigation and the research framework, developed in this study, based on the literature review on relationships and supported by relevant theoretical approached adopted in the examined publications. In the end, there is visualised the link between the research questions and framework constructs.

Chapter 5 includes in detail the research methodology Particularly, it justifies why the case-study approached has been chosen for the research, defined a case unit of analysis, exemplified the criteria for the cases selection, described in detail the data collection process, and data analysis and data interpretation afterwards.

In this research the case-studies on 7 triads have been performed. The reference projects examined are described in the section 5.5. There all actors of the triad are characterised for

each project, the role of every actor and the goal of the project. After the description of all cases, the cross-validation analysis takes place.

Chapter 6 presents the empirical results obtained from the case-studies within each research question separately. After that, the results are visualised on the developed matrix of interdependency of the degree of collaboration between actors of the triad and level of satisfaction from the work during the project development, which is actually tended to be measured by fulfilment of Buyer's expectation from the project.

Chapter 7 includes the discussion part of the obtained results. In particular, it describes the similarities and differences of the relationships in supply network in the examined cases and the reflection of the author on the reasons of those.

## CHAPTER 2 – Literature review: Triadic relationships in supply networks

This chapter will put under the light the relevant findings from the most interesting recent publications about the relationships within the triad during the new product development. It also includes the definitions of the key terms of this study, taken from highly cited publications.

### 2.1. Relationships in supply network

Relationships appear between two parties when both of them recognise a need of such relationships (Choi and Wu 2009 (b), Luzzini, et al. 2015). If relationships between a company and its business partners are valued and important for it, they are likely to gain structural characteristics, such as continuity, complexity, symmetry and informality (Håkansson and Snehota 1995). Continuity implies relative stability over years; complexity can encompass different contacts involved in relationship and different patterns of behaviour among those; symmetry refers to balanced amount of resources possessed so the relationships are beneficial to both parties; and informality provides breaking formal limits (or lowering degree of formalization) to emerge trust and confidence between business partners.

There is an assumption (Nyaga, Whipple and Lynch 2010) that manufacturers are striving for long-term relationships with fewer suppliers to secure valued resources and technologies, harness supplier skills and strengths, and exploit quality and process improvements. To be able to create the highest value, relationship in supply network should be carefully managed in the sense that a company must decide what relational strategy to adopt with others and how to allocate resources among all relationships (Roseira, Brito and Henneberg 2010). Thus, the challenge is to realise the complexity staying behind managing existing portfolio of relationships in supply network.

Some models, describing relationship portfolio replace the degree of trust with the degree of confidence in the other party (Johnsen, Howard and Miemczyk 2014) to make easier this measurement applied in a business context. In a nutshell, the *relationships* within the supply chain could be generalized as certain exchanges between organisations, like specific investments, knowledge exchanges (Ritala, et al. 2015, Wang and Hu n.d.), combination of resources through governance mechanisms with the purpose of profit generation (Handfield and Bechtelb 2002, Melander and Lakemond 2015). A study about managing supplier relationships has presented twelve constructs, determining relationships quality (Sjoerdsma and Weele 2015). They are trust, communication, information and knowledge sharing, cooperation and coordination, relationship-specific adaptations and investments, commitment, satisfaction, dependency and power, flexibility, reputation, loyalty and



relationship history. However, the set of features to describe relationships in more detailed manner significantly varies depending on the context of the research. For example, according to the transaction costs economics theory the firm should facilitate its relationships with other organisations in such way that the cost of each transaction is minimized, so that the economic growth boosts (Narayanan, Narasimhan and Schoenherr 2015). It is aimed at minimising contracting costs, monitoring costs, adaptation costs, re-contracting costs, and superior incentives for value-creation initiatives (Johnsen, Howard and Miemczyk 2014). Thus, the intention of developing relationships may be built on costs efficiency. However, the presence of trust is well-cited component of relationship. In this context trust may minimise a need for repeated negotiations and sometimes even replace formal contracts (Narayanan, Narasimhan and Schoenherr 2015). Other research (Kim and Chai 2017, Narayanan, Narasimhan and Schoenherr 2015, Johnsen, Howard and Miemczyk 2014) has defined that improving relationships with suppliers can be used to gain higher agility performance. Kim (2017) highlights a set of indicators that could be improved by enhancing agility such as timely reaction to changes in business environment, flexibility, customization, responsiveness, decisiveness.

During the last decade the number of firms seeking for external knowledge has increased a lot (Ates, Ende and Ianniello 2015, Luzzini, et al. 2015). Companies tend to follow the concept of open innovation rather than relying on their own resources (Fossas-Olalla, et al. 2015, Luzzini, et al. 2015, Chesbrough, Vanhaverbeke and West 2014).

Looking for resources from outside of organisation, when they are unavailable internally is defined as resource dependence (Ates, Ende and Ianniello 2015). To maintain the business activity a company is constantly in need of on-going flow of resources. Recognition of lack of materials, knowledge or any other resources and approaching another party to compensate it may cause the dependency of requesting business unit, and the interaction between organisations is caused by deficiency of resources. Thus, resource dependence theory states other motivations to collaborate and considers one organisation in superior position by default due to higher access to resources.

Other motivation behind building relationships may be improving supply chain responsiveness (Handfield and Bechtelb 2002). In this context it is about *collaborative relationships*. Such relationships adopt a long-term approach with joint efforts by each partner to create unique value that neither partner can create independently (Nyaga, Whipple and Lynch 2010, Xu, et al. 2017). Collaboration is an important aspect of leveraging a supplier's strength, it is characterised by shared values, information exchange and management involvement (Narayanan, Narasimhan and Schoenherr 2015). Recent publications claim that managing

collaborative relationships differs from managing traditional adversarial relationships, and besides it requires fresh mind-sets and innovative skills and capabilities (T. Johnsen 2005). Management of relationships is about thinking of relationships to make them beneficial to constant development of new products and services to offer demanding customers, but not only about tools and software (Johnsen, Howard and Miemczyk 2014).

The approach of managing relationships may also differ depending on the type of collaborative relationships: either it is supplier-led collaboration, buyer-led collaboration, competitive/win-lose partnership, or free/voluntary collaboration (Tangpong, et al. 2015).

So, why suppliers may decide to collaborate? Through supplier relationships companies access capabilities, allowing them to satisfy their customers (Luzzini, et al. 2015, Johnsen, Howard and Miemczyk 2014).

A number of studies claim different benefits that a firm engaged in collaborative relationships can achieve, such as improved visibility (Schøtt and Jensen 2016), higher service levels (Wynstra, Spring and Schoenherr 2015), increased flexibility and agility (Kim and Chai 2017), greater end-customer satisfaction (Luzzini, et al. 2015), reduced cycle times (Bonaccorsi and Lipparini 1994) and other performance indicators, seeking by a firm, initiating relationships.

Firms are building collaborative relationships with their supply chain partners in order to achieve efficiencies, flexibility, and a competitive advantage (Nyaga, Whipple and Lynch 2010). Also, firms can decide to work together if want to reduce risks in innovation, or to obtain resources and capabilities they cannot generate internally or struggle to obtain efficiently in the market (Fossas-Olalla, et al. 2015).

Cooperation sparks synergy and induces the creation of both explicit and tacit knowledge (Wu, Choi and Rungtusanatham 2010). Partnership occurs when firms tend to create and exploit synergies of strategic core competencies (Handfield and Bechtelb 2002). Applying a collaborative solution would allow to share the risks and benefits between parties while developing an innovation (Fossas-Olalla, et al. 2015), reduce time of NPD process (Higgins 2018), increase flexibility (Schøtt and Jensen 2016), product quality and adaptability to the market (Bonaccorsi and Lipparini 1994, Yoo, Shin and Park 2015).

There are also studies claiming that since collaboration make people physically spending more time together, informal socializing ties get stronger, which in turn may foster increase in performance of the employees (Liu, et al. 2017). Thus, collaboration with suppliers may enable a buying firm to improve its innovative capabilities and NPD performance. With the more novelties appearing on the market, the complexity of innovation processes increases and increases uncertainty for the firms of having fresh resources capabilities to internalize the

innovation process (Fossas-Olalla, et al. 2015). Thus, collaboration with other firms, in particular – suppliers, becomes more relevant.

Hakansson (1989) states that collaboration can be exploited to gain three major benefits for collaborating parties: access to complementary resources, better tacit and codified knowledge transfer, and lower risk and greater sharing of research and development costs. Interesting to point out that these statements are supported by the network theory. The company-supplier usually possesses more expertise about key components for new products than the company-buyer. Suppliers become an important source of the technological and market knowledge which are necessary to develop new products and improve existing products (Luzzini, et al. 2015, Soosay, Hyland and Ferrer 2008, Liao, Hu and Ding 2017).

Summing up the reasons, inclining suppliers towards collaboration, they are related to gaining higher expertise and relevant knowledge in the interested sphere, find partners to be able to minimize the risk by sharing it, reducing the lead times of developing a novelty, reducing time-to-market, reduce uncertainty by collecting the valuable knowledge from different links all over the supply chain.

If all abovementioned arguments would be fully convenient for companies, all supply chains nowadays would be fully integrated. Obviously, there are some obstacles and risks preventing them from following this decision. Below they are described in detail.

One of the first obstacle, stated by the latest papers is the lack of commitment from the parties (Benavides, Eskinazis and Swan 2012). There is a need to demonstrate that such collaboration is beneficial to both parties, so two sides would be motivated to cultivate the robust partnership between each other. A study, which was aimed at investigating collaborative relationships between suppliers and large retailers, discovered that the strong feeling of inequity in the relationship on the part of suppliers can be present even though both parties benefiting from the collaboration (Nyaga, Whipple and Lynch 2010), meaning that suppliers perceive that they are gaining less value than they expected. This makes an impact on the relationship quality.

Competition between the suppliers also may create market efficiency as the suppliers vie to win contracts (Wu, Choi and Rungtusanatham 2010). So, eventually a buyer can benefit from their competition, since by competing among themselves, suppliers would offer more convenient conditions for the buyer to locate themselves in a better position than their competitor to make the buyer take the choice towards them.

Therefore, there are also reasons, preventing companies from establishing collaborative relationships: it is hard to put in place because of lack of commitment from other parties,

existence of the feeling of inequity. Besides, there are also benefits from the competition on the market, as it may create higher market efficiency.

## 2.2. Triadic relationships during NPD process

### 2.2.1. Relationships during NPD process

The topic of evolving relationships between supply chain links is not the new one, therefore, it seems appropriate to understand either general behaviour has changed over years and explore further consequences of those changes. Most of the recent publications state that supplier selection is getting more challenging in the fast-changing environment (Higgins 2018, Melander and Tell 2014, Schoenherr and Wagner 2016, Park, et al. 2017, Touboulic, Chicksand and Walker 2014). Some of them (Park, et al. 2017, GS1 2016) suggest an implementation of the integrated systems to be able to monitor the performance of all the links of the supply chain. The decision about the system integration requires a deep benefit-cost evaluation and makes to pop-up the issues about information and knowledge leakage, assets specific investments (Zhou, et al. 2014, Tan, Wong and Chung 2015, Ritala, et al. 2015) and one of the most critical issues to evaluate is the level of trust to maintain between supply chain links (Handfield and Bechtelb 2002, Narayanan, Narasimhan and Schoenherr 2015, Yang, Zhang and Xie 2017, Sjoerdsma and Weele 2015), which, if obtained, can be exploited for reducing cycle time between supply chain entities (Bonaccorsi and Lipparini 1994, Handfield and Bechtelb 2002), reducing costs development and production costs (Bonaccorsi and Lipparini 1994), costs of relationships (Narayanan, Narasimhan and Schoenherr 2015), improve supply chain responsiveness (Fossas-Olalla, et al. 2015, Wu, Choi and Rungtusanatham 2010, Su and Yang 2017, Handfield and Bechtelb 2002) and lead to other optimization benefits of NPD process.

Particularly important factor, contributing to improving NPD performance is establishment of supplier development program (Lawson, Krause and Potter 2015, Sarang P., et al. 2018). Supplier development refers to the buyer's initiative to increase the number of viable suppliers and improve supplier's performance (Sarang P., et al. 2018). It may include training and education, evaluation and rewards programmes, effective communication tools, joint action, top management support, long-term commitment from both sides. Efforts during NPD process to form supplier development strategy can play an important role in prompting creativity and innovativeness from key suppliers, and ultimately enhance the performance of NPD projects (Lawson, Krause and Potter 2015). Eventually, it also leads to the improvement of buyer-supplier relationship.

Interesting to point out that a large number of studies do not ignore the fact of emerging of personal ties in business relationships (Liu, et al. 2017, 314-322, Meyer, Niemann and Kotzé

2017, Håkansson and Snehota 1995, Narayanan, Narasimhan and Schoenherr 2015, Handfield and Bechtelb 2002, Liu, et al. 2017). Among the results of study, conducted by Meyer, Niemann and Kotzé (2017) two main reasons for interpersonal relationships are improved professional interest and genuine friendships. Handfield and Bachteld (2002) underline that they are important for growing trust, which consequently would improve responsiveness in supply network. Thus, it may also contribute to increasing flexibility, agility and customization during the new product development process (Narayanan, Narasimhan and Schoenherr 2015)

### 2.2.2. Triads

Additional incentive for supplier to collaborate or not to collaborate can be the influence of the buyer, using those two suppliers in the same time (Chang 2017, Touboullic, Chicksand and Walker 2014, Wu, Choi and Rungtusanatham 2010). Considering the behaviour of buyer and its two suppliers together leads to the triadic approach. In this study the *triad* is referred to the relational context, including three actors: one buyer and two suppliers (Wu, Choi and Rungtusanatham 2010). Such form of relations is appropriate to evoke collaborative synergy, which could be beneficial for performances of the whole triad. Moving from the dyadic view of considering relationships to the triadic one opens a possibility to explore the effect of one dyadic relationship on the other one and discover the effects of changing behaviour of the whole triad (Ates, Ende and Ianniello 2015, Choi and Wu 2009 (a)). Some publications describe this phenomenon, applied to the sourcing process, without calling it co-opetition.

In the network sourcing strategy triads are considered as the form of sourcing, which seeks to capture the best of both worlds of cooperation and competition, when buyer actively creates interdependencies between two suppliers (Johnsen, Howard and Miemczyk 2014). Triadic sourcing encourages collaboration amongst the three parties. Lots of examples of such collaboration practically imply developing by one supplier what has been produced by the other supplier.

So, the triad allows more comprehensive view on relationship management. To define the right strategy of running relationships, they should be well-defined and measured. One of the polar ways of considering relationships can be short-term adversarial on one side and long-term partnership on the other (Johnsen, Howard and Miemczyk 2014). However, polar cases rarely take place practically, therefore, it makes sense to consider relationships within some kinds of matrixes, containing two directions and considering four polar cases. For example, level of dependency from completely independent to fully dependent and level of confidence (from unconfident to confident) like in a relationship portfolio model by Cousins (2002); or external supply market conditions, expressed as level of supply risk, including number of

suppliers, product novelty or complexity, from low to high level, and internal relative importance of the purchase item, including costs, value, profitability, from low to high level, like in Kraljic portfolio model (1983). Such matrixes (Cousins 2002, Johnsen, Howard and Miemczyk 2014) describe multiple relationships along several (usually two) dimensions, which help define the strategy of maintaining balanced relationship.

Relationship management can follow different incentives, which are related to the aim of constructing relationships (Choi and Wu 2009 (b)). Also, triadic behaviour may vary depending on the context in which the triad functions (Tangpong, et al. 2015). Differences may appear when considering different industries, country with different government regulations, or, considering operational level, different types of suppliers. At this point, appears a need to understand how the construction of a triad could differ and how the role of actors in this triad changes within a new context.

Companies come up with the decision to outsource, or supply something from external resources when they do not see it convenient to make it in-house (Narayanan, Narasimhan and Schoenherr 2015). Usually, it relates the production of non-core products, or manufacturing the components, that require specific technical knowledge or equipment, or supplying some products or services externally would help company to reduce the lead time of the production, costs, time-to-market, etc. (Ateş, Wynstra and Raaij 2015). While developing a new product companies tend to dedicate more attention to the design aspect of a project (Perks, Cooper and Jones 2005). Evolution of design as a concept from specialized earnest in from 1920s to 1950s has arrived to a necessary subprocess of a new product development in 1990s. And in the beginning of 2000s, it has become a process leader of a product development. So, the traditional triad, defined as a network of one buyer and two suppliers can be seen from different perspectives depending on the product that is going to be developed.

A triad can include suppliers of components for product manufacturing, or services (Wynstra, Spring and Schoenherr 2015), when the components should be proceeding before it is eventually supplied to the buyer. One of the services that buyers are tending to outsource always more actively is a development of a product design. Such role is traditionally performed by the design agency (Perks, Cooper and Jones 2005). So, there are can be different types of triad during NPD process. They are graphically visualized on the figure 1.

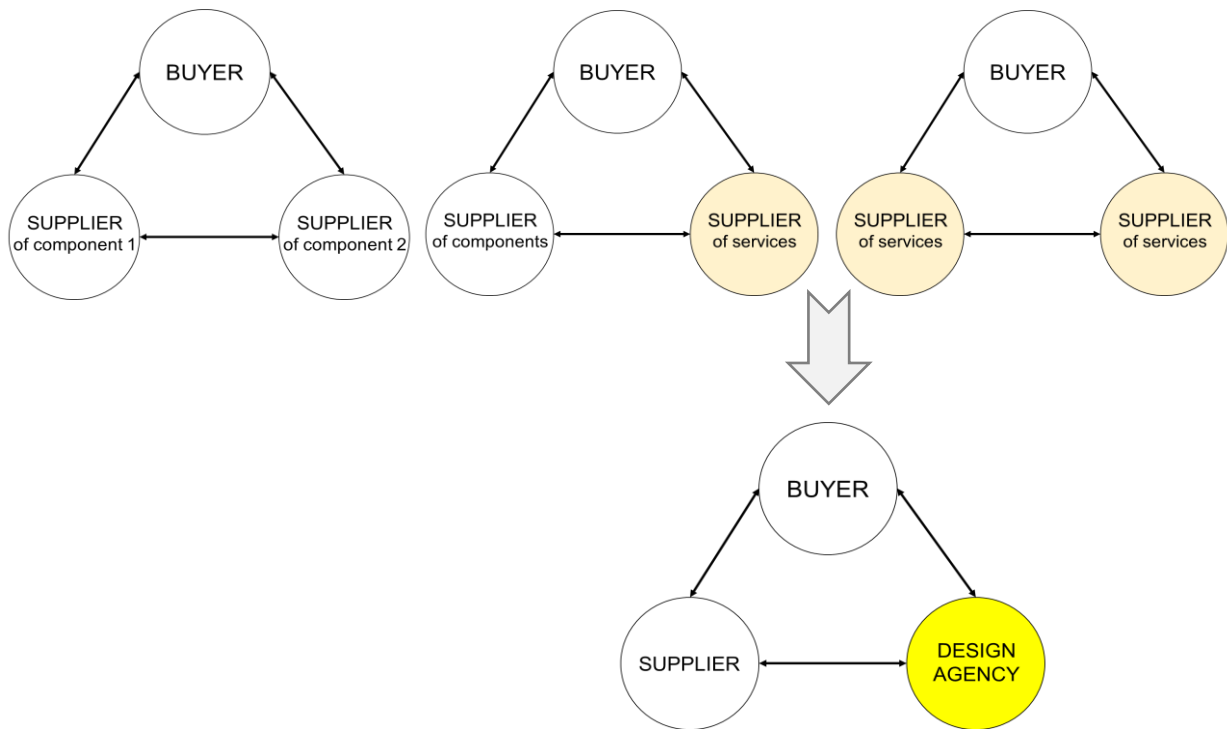


Figure 1. Types of the triads depending on the supplier's role during NPD project

The difference between suppliers of a product or suppliers of a service during the NPD process is in the technical capabilities the design agency is asked to provide while serving as a supplier in the NPD process. The integration of designers in the NPD team can improve not only product characteristics but also the financial performance of a company (Roper, et al. 2016). Designers are required to have a different set of skills at different phases of the NPD project, such as creativity, interpretation, visual literacy, aesthetic judgment (Perks, Cooper and Jones 2005). Logical question upon distinguishing triads in such types is what changes on the level of a triad in terms of developing a new product? When design is outsourced to the design agency, the design approach is very related to the technical expertise of the agency, which can create high level of dependency of buyer from suppliers (Tichy, Tushman and Fombrun 2009). Consequently, it can lead to shifting the bargaining power towards supplier side, which eventually may have impact on the costs of the NPD project.

Design as a part of NPD process can be related not only to the developing of a prototype by sketching and drawing, which are traditionally associated actions with the design functional role, but also to integration function and process leaderships, meaning managing and leading the development process, along with non-design functional actions as well as design actions (Perks, Cooper and Jones 2005). Each actions category requires a specific set of skills and competences to embed into the NPD project.

### 2.2.3. Theories in supply network relationships study

Thus, appears the need to choose the theoretical base for the research that would help follow one direction and get the comprehensive view to characterise relationship in supply network and their impact on NPD performance. The theories that have been most frequently used within the NPD context are information process theory (Ates, Ende e Ianniello 2015, Hong e Hartley 2011), resourced based view (Lii and Kuo 2016, Touboulic, Chicksand and Walker 2014, Zhao, Cavusgil and Cavusgil 2014), social network theory (Galaskiewicz 2011, Tichy, Tushman e Fombrun 2009, Hakansson 1987) and the extensions or modifications of those. Other theories such as equity theory (Jokelaa and Södermanb 2017), transaction cost of economy (Melander and Tell 2015), agency theory (Li, Zheng and Zhuang 2017) were also appearing in papers, however, usually their scope was to justify the relationships taking place within an organisation.

#### *Information processing theory*

Undoubtedly, the information sharing is one of the key elements in maintaining of relationship continuity (Sjoerdsma and Weele 2015, Wynstra and Pierick 2000, Kim and Chai 2017). Without sufficient information exchanges between parties, the relationships simply cannot be built-up (Sjoerdsma and Weele 2015). The principal theory that puts exchanges of information as a key element of relationships continuity is the Information process theory (IPT). It focuses on information processing and requirements and information processing capacity. The uncertainty according to this theory can be minimised by reducing the need for information processing or increasing the information process capacity. IPT does not fully explain the delegation of decision-making process and degree of involvement of different parties in a new product development setting (Hong and Hartley 2011). But the main premise of information processing theory is that there must be a fit between organizations' information-processing requirements and their information-processing capacity. There are a number of leverages affecting information-processing requirements (such as management of uncertainties in the working environment, creation of self-contained tasks, standardisation of work processes or outcomes (Hong, Pearson and Carr 2009) and information-processing capacity (such as investing in information systems, creation of lateral relations, like boundary spanners, co-location of resources, like using team meetings (Wu, Choi and Rungtusanatham 2010). Considering all these leverages deeply is fundamental to understand how the organisations facilitate their strategies in order to improve performance of their business. However, since the information sharing is not the only feature of relationships continuity, investigating all these leverages might shift the scope of the study, highlighting information processing too much so that other elements seem less significant. Moreover, exploring other features of relationship in such detailed way, will require to distribute the weights to evaluate the impact of each of



them on the innovation performance, which cannot be done following only this theory. Therefore, picking information process theory as a theoretical base for the framework creates incentives to make the information processing a core component of the relationships.

#### *Social network theory. Triad as a network*

Underlying the importance of the position of the party in the supply chain, social network theory pops up, since it explains the relationships within the social network based on the position the actor has within this network and structure of this network (Hong and Hartley 2011). Organizations can be viewed as social groupings with relatively stable patterns of interaction over time (Hong, Pearson and Carr 2009). Organisations are tending to focus their effort on the small set of core competencies and source other from the surrounding business networks: innovation networks and supply networks (Johnsen, Howard and Miemczyk 2014), – instead of developing and protecting technologies and competencies internally, companies choose to connect to other organisations through their business networks. A network perspective can help considering buyer-supplier relationships in a complex governance way (Su and Yang 2017). It is also often used to reveal interconnections and interdependencies among actors, resources and activities, whether these are positive and/or negative (Hakansson 1987). Networks are essential when companies search for new sources of knowledge and technologies, because incremental innovation can be sourced from the suppliers of the company that are in search of discontinuous innovation to satisfy their clients. However, network approach could also negatively affect the triadic performance by preventing parties from sharing their knowledge because of concerns over loss of competencies (Johnsen, Howard and Miemczyk 2014).

Coming from the definition of the *social network* as “a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behaviour of the persons involved” (Tichy, Tushman and Fombrun 2009), the triad can be absolutely considered as a social network, interpreting the person’s interest as the interest of the whole organisation. In fact, the aim of this study is to analyse how the relationships take place in triad (passing through the view of social network theory, – in social network, or better, in the network of buyer and suppliers) and how the behaviour of network members influences the innovation performance of the organisation, i.e. the development of a new product.

Networking approach is concerned to identify the causes and consequences of relationships evolving between organisations (Tichy, Tushman and Fombrun 2009). So, by applying this approach it would be possible to identify whether the cause of a successful organisation’s performance is the behaviour of an organisation with other organisations in its network. Social

network theory analyses different types of social relationships and how they provide context for action (Hong and Hartley 2011), which is very consistent with the scope of this study.

Performance of the company is affected by social ties through the reduction of opportunism in buyer-supplier relationships. Because opportunism might undercut motivation towards the collaboration (Su and Yang 2017). Moreover, marketing research has confirmed that is not primitive to avoid the fact of opportunism by for example, contracting or relational exchange, since these solutions are costly and cannot guarantee the fairness along the supply chain neither (Su and Yang 2017). Therefore, it is important to consider the personal interest of the party in the relationships, because it will directly affect its behaviour and consequently, its decision-making process.

To have any kind of business deal, the organisation initiates the relationships with other organisations, which could take different forms, such as strategic alliances, partnerships, coalitions, joint ventures, franchises, and other forms of network organisations (Ring and Ven 1994). The form of such cooperative relationships depends on the motivation, the organisation holds behind. The motivation can come from the role the organisation plays in its supply network. For example, the role of buyer in the supply network is the way to provide components for manufacturing a new product of the best quality and for the lower price as possible (Kotler and Keller 2012) Its suppliers instead are also aimed at supplying high quality of products to satisfy the buyer and get an opportunity to be selected for further projects, however, its goal is to sell the components for the highest possible price. Therefore, because the actors of the supply network take different *network positions*, they have different expectations from the way the relationships among them will be developing (Liao, Hu and Ding 2017). Network has a set of properties, which could help in explaining the intentions of the actors of the network towards their interaction with others (Galaskiewicz 2011, Hakansson 1987). The nature of the links is one of them. It considers four characteristics: intensity, reciprocity, multiplexity and the clarity of expectations (Tichy, Tushman and Fombrun 2009). Authors note that the degree how much clear the parties state their expectations impacts the way the relationships will evolve between the parties.

The nodes of a network – the actors of a triad – are likely to perform different sorts of exchanges, which implies the transactional context of a network: the parties exchange the information, the goods and services, friendship attitudes between themselves, influence of power goes from one party to another (Håkansson and Snehota 1995). The actors of a triad can have different strength of connection between themselves. The nature of links has the following characteristics, such as intensity, meaning how strong the parties are tied among themselves; reciprocity, meaning how much data is duplicated while flowing; clarity of

expectations; and multiplexity, implying the number of roles the actor can have in a triad during the NPD project (Tichy, Tushman and Fombrun 2009).

Each network structure owns the certain properties and characteristics such as size, density, clustering, openness, stability, reachability... connections (Tichy, Tushman and Fombrun 2009). This thesis investigates the triadic relationships, meaning that the network size contains of three actors of the triad: buyer and two its suppliers. So, the density of the network components is not relevant to investigate, since there are only three actors, but other properties could be applied to analyse the nature of relationships among the triadic actors. According to the social network approach not all the dyads should be necessarily connected and some of dyads can have multiple connections (Tichy, Tushman and Fombrun 2009, Håkansson and Snehota 1995).

There are studies that prove that the relationships between one dyad (buyer-supplier 1 or buyer-supplier 2, or supplier 1- supplier 2) can be affected by the relationships between the other dyad (Wu, Choi and Rungtusanatham 2010, Choi and Wu 2009 (b), Sjoerdsma and Weele 2015, Zhou, et al. 2014). For instance, buyer can indirectly affect supplier performance by influencing competing suppliers to interact cooperatively with one another (Wu, Choi and Rungtusanatham 2010). Consequently, the buyer benefits from the competition between suppliers when influencing its supplier performance, so that one supplier would do its best to enhance its performance more than the other to look better to the buyer.

A noticeable characteristic of supplier-supplier relationship is that these suppliers could collaborate and compete at the same context (Wu, Choi and Rungtusanatham 2010). Such dynamic was called co-opetition, and it can be measured by the level of cooperative activities between two competing suppliers in terms of information sharing, mutual assistance, and joint operations (Wu, Choi and Rungtusanatham 2010). Mutual assistance between suppliers helps them to resolve quality and technical problems in production (Richardson and Roumasset 1995).

#### 2.2.4. The impact of relationships in supplier network on NPD performance

NPD performance may be interpreted by different terms, which are described in the following section. After the examples of how relationships may be interrelated with the outcomes of NPD project are presented.

NPD is critical for firms to create and maintain competitive advantage in the market; therefore, acquiring external information and resources is essential (Wu, Choi and Rungtusanatham 2010). Rapid technological development and changing end customer needs make it increasingly important for firms to tap external suppliers for new knowledge and expertise

(Yoo, Shin and Park 2015, Lawson, Krause and Potter 2015). Cooperation and coordination positively affect the NPD performance, as it strengthens the relationship between supplier and buyer (Sjoerdsma and Weele 2015). Coordination helps to align the goals and operations among supply partners (Soosay, Hyland and Ferrer 2008, Lawson, Krause and Potter 2015).

Product knowledge is information related to both products and processes, such as a product's underlying components, features, and specifications, as well as the techniques used to develop new products (Chang 2017). Product knowledge plays an important role in product innovation performance because it informs production tasks and operational performance in a supply chain (Chang 2017, Wagner and Bode 2014)

Among factors that affect the success of NPD performance there are competitiveness of the environment, quality of decision makings technology dependency of a new product, pricing, product diffusion, component commonality, product modularity (Yoo, Shin and Park 2015). Product modularity instead may affect the design of new products in terms of buyer-supplier communication during the designing phase, time to market, product testing, experimentation of new ideas. According to the research of Melander and Lakemond (2015) improved innovation is one of the advantages from of the collaboration, besides higher flexibility, access to market information and supplier's capabilities. Novelty can be also distinguished by the degree of innovativeness as radical or incremental innovation (Fossas-Olalla, et al. 2015). The value the company can perceive out of NPD process can be classified for tangible and intangible (Smals and Smits 2012).

Firms that entering new markets are usually focused on product innovation because product innovations allow firms to respond quickly to customers' needs, increase product quality and variety, and gain market share (Fossas-Olalla, et al. 2015, Koster, Vos and Schroeder 2017). Product innovation performance refers to a firm's ability to adopt new ideas, product and processes successfully (Chang 2017). It can be distinguished between radical and incremental (Schumpeter 1934, Fossas-Olalla, et al. 2015). When product innovation takes place, a firm adapts its current product offering and provides its customers with new or improved products (Wagner and Bode 2014). Generally, product innovation is considered as a key pillar for a firm's economical and sustainable growth (Lafuente, Vaillant and Leiva 2018) because without it, it is not possible to achieve superior performance (Najafi-Tavania, et al. 2018).

Innovation is a key element in competitive differentiation, because allow firms to respond quickly to customers' needs, increase product quality and variety, and gain market share (Fossas-Olalla, et al. 2015, Lafuente, Vaillant and Leiva 2018). Innovation involves the activity of bringing the invention of something (e.g. a product, a manufacturing process, raw materials,

or an organization) to the market, or the opening up of a new market (Schumpeter 1934). Innovation capabilities of the firm can be improved by improving its absorptive capacity – firm's ability to recognize, assimilate, leverage, and deploy the available external knowledge (Bellamy, Ghosh and Hora 2014). Firms can collaborate on innovation activities with other firms in their supply chain (customers and suppliers) and with external agents to compensate for a lack of internal innovation capabilities (Fossas-Olalla, et al. 2015).

Buyer's objective for involving the supplier in NPD is to exploit in the best way the supplier's expertise and complementary capabilities (Yoo, Shin and Park 2015). It is established that relationship quality, knowledge transfer and NPD performance are strongly interconnected (Sjoerdsma and Weele 2015). The case-studies on several companies have confirmed that commonly established way-of-working that makes satisfied all actors of the triad with the NPD process itself, provides a ground for structured communication, which increases quality and quantity of knowledge sharing, and all these lead to positive contribution to the performance of the project (Sjoerdsma and Weele 2015). One of the main outcomes from the conducted case-studies noted that if buyer and suppliers evaluate their relationships and high-quality ones, it improves overall their competitiveness and their performance boosts.

Many studies suggest that collaborative relationships are associated with improved performance (Bellamy, Ghosh and Hora 2014, Chang 2017, Edquist 1997, Ferreira, et al. 2015, Najafi-Tavania, et al. 2018, Soosay, Hyland and Ferrer 2008). Cooperation performance refers to the firm's satisfaction with the outcome of the cooperation (Li, Zheng and Zhuang 2017). The extent of supplier involvement is the degree to which the supplier is engaged in the process, which is related to the timing and frequency of supplier involvement and the importance of the supplier's role (Yoo, Shin and Park 2015).

Coming from social network theory, network position might have an impact on the business performance of an organisation (Tichy, Tushman and Fombrun 2009). Thus, the collaboration between actors with different network position might have different effects on their performance (Ferreira, et al. 2015). There are evidences from the cases analysis (Wu, Choi and Rungtusanatham 2010) that interactions between suppliers (or lack thereof) would eventually affect the operational performance of the buyer's supply chain. It is also proven that thanks to supplier-supplier cooperation performance, indicators are better than if they would have been working alone (Wu, Choi and Rungtusanatham 2010, Luzzini, et al. 2015, Yoo, Shin and Park 2015).

For the projects, very relying on the relational ties, final performance primary depends on supplier performance (Zhu, Su and Shou 2017). Supplier performance may refer to how well a supplier supplies the required products to the buyer and is manifested as the operations

outcome in terms of quality, delivery, responsiveness, cost, and technical support (Wu, Choi and Rungtusanatham 2010).

Mutual commitment creates opportunities within and outside the NPD project (Sjoerdsma and Weele 2015, Jokelaa and Södermanb 2017). Commitment can be viewed as a perception or attitude towards a relationship that is expressed by certain actions, such as information sharing. Commitment improves the functioning of the relationship between the buyer and supplier (Handfield and Bechtelb 2002). It is empirically proven by the case-study analysis of some companies that mutual trust can improve relationships and the performance of the new product development project (Sjoerdsma and Weele 2015).

Interestingly, that only 10% of the companies, claiming the implementation of the collaboration activities with their suppliers could demonstrate the actual effort towards collaboration (Noor, et al. 2013). And those who did, they have indeed experienced significant improvement in their EBIT growth, which was double that of their peers.

Some studies state that technological diversity of suppliers positively impacts buying firms' new product creativity (Ateş, Wynstra and Raaij 2015, Gao, Xie and Zhou 2015). Thus, the process of careful selection of suppliers is a very important step before relationship management, which will help yielding benefits afterwards from further collaboration.

So, the NPD performance implies the development of new technical knowledge and expertise related to the planned innovation. Improving the NPD performance can lead to the enhancement of the firms' capabilities to implement innovations, develop mutual trust between involved parties, which can potentially lead to establishing partnerships and exploiting the benefits out of it, described in the previous section. Factors that contribute to high NPD performance are mutual commitment of involved actors, mutual trust, high quality of relationships, technological diversity of suppliers.

Buyer-supplier relationship could be exploited to better organise innovation processes: joint product development and cooperative ties foster supplier innovativeness (Inemek and Matthyssens 2013). Suppliers' innovation can improve new product development performance (S. M. Wagner 2012). It has a positive influence on the supply chain, beyond improvements in focal firm innovativeness and product innovation, being diffused throughout the entire supply chain (Kim and Chai 2017). Additionally, innovation from supplier side could also solve problems appearing in buyer-supplier relationship, which consequently will improve NPD performance.

Suppliers, collaborating closer with the buyer have less intentions to share the possessed information with the other supplier because of the risk of disclosure its own tactics that could enhance its position in the eyes of buyer (Choi and Wu 2009 (b)).

Literature supports the fact that triadic relationships are beneficial for NPD projects because supplier involvement may improve the main criteria of NPD performance: enhance product quality, decrease costs and time to market required for product development (Higgins 2018). Just it is essential to reach the equilibrium behaviours of major decision variables in NPD performance with respect to innovation capabilities of suppliers and appropriate approach of relationship management (Yoo, Shin and Park 2015). Some researchers claim that early supplier involvement is beneficial for new product development, because it can increase likelihood of success (Schoenherr and Wagner 2016) and the closer to the end of production, the more costly gets a product, so it is more convenient to involve suppliers in the beginning of the NPD process (T. Johnsen 2005). However, not always supplier involvement leads to project efficiencies (Wynstra and Pierick 2000). Therefore, each company should find its own suitable moment for supplier involvement, based on the product characteristics and expectations of supplier role in the NPD project (Laursen and Andersen 2016).

Particularly interesting results were found by Smals and Smits (2012) investigating the dynamics of supplier value in collaborative new product development: in dynamic long-term perspective feedback effect plays a significant role in development of buyer-supplier collaborative innovation. Providing feedback increases extent to which supplier use gained competencies, knowledge and reputation in future development activities.

Thus, it is important to investigate the triadic relationships in NPD to get the comprehensive new on the purpose of building relationships, understand the way the relationships can evolve in detail, its necessary characteristics and recognise the opportunities how benefits from triadic relationships can be exploited. Supplier innovativeness plays a significant role in enhancing the partnership between buyers and suppliers (Kim and Chai 2017). Interaction among actors during the new product developments includes exchange of different kinds of resources, communication for purposes of exchanging information, tactics, technological skills and knowledge in order to make collective decisions (Wu, Choi and Rungtusanatham 2010). There is also a confirmation of interdependence of outcomes of NPD performance, relationship quality and knowledge transfer (Sjoerdsma and Weele 2015). Thus, the next section is aimed at describing the process of *information and knowledge sharing*, which is necessary for maintaining relationships within the triad during the new product development.

So, this chapter provides a brief overview of the relationship characteristics in a supply chain, a definition of a as a referent unit of analysis of this study, description of collaborative

relationships with benefits and difficulties of managing them. Also, it includes the description of the NPD performance indicators and summarized factors that contribute to improving it. The triadic relationships during NPD process are examined within different theoretical frameworks, such as information-processing theory, resource dependency theory, extended resource-based view and social network theory. The last one was presented more in depth, since it has been chosen as a supportive theory for this study. Thus, the main definitions were presented, such as social network, network position, network structure is discussed and the properties of network, following the context of triadic relationships. In addition, there are several types of triads are considered, particularly with suppliers that are providing products and services, and among the last ones the triads, including the design agency as one of the suppliers.



## CHAPTER 3 – Literature review: Information and knowledge sharing in the triad

### 3.1. Information sharing in the triad

Information sharing can refer to the extent that critical information is conveyed to a party's relationship partners (Nyaga, Whipple and Lynch 2010). Emphasising on the goal the information sharing can follow the definition could be modified in the next way: it can be considered as the exchange of the relevant production resources for profit generation (Tan, Wong and Chung 2015).

Rich relationships between trading parties positively contribute to the information sharing between them (Yang, Zhang and Xie 2017). According to the research conducted by Schoenherr and Wagner (2016) the respondents who confirmed active seeking of information from supplier, indicated their attitude towards relationships development with these suppliers. Particularly, the collaboration between buyer and suppliers has a direct influence on their information sharing (Wynstra and Pierick 2000, Chang 2017, Wu, Choi and Rungtusanatham 2010, Yang, Zhang and Xie 2017, Su and Yang 2017, T. Choi, et al. 2002). The willingness to provide useful information and resources can come from the generated goodwill because of interaction with the counterparts (Liu, et al. 2017). In addition, interaction impacts the way the information flows are structured between the parties (Li, Zheng and Zhuang 2017). There are also evidences of the reverse relation of information sharing influencing the development of the relationships between collaborating parties in the long-term perspective (Sarang P., et al. 2018). More recent studies confirm that the information sharing between two actors of the triad can affect the surrounding relationships beyond the considered dyad (Yang, Zhang and Xie 2017, Hong and Hartley 2011, Wu, Choi and Rungtusanatham 2010). This has led to the idea that the way the relationships are going on between parties and information sharing between them can be interconnected. Consequently, it is very expected that the relationships between suppliers will play a substantial role in the way they will share the information. Even on the psychological level, openness and honesty can open doors for trust, which can be seen as abundant information sharing (Sjoerdsma and Weele 2015). It is also proven that sharing of the information, as well as other resources and knowledge transfer from suppliers are fundamental elements to earn the trust of manufacturer (Oghazi, et al. 2016). Moreover, according to the network approach, a dense embedding network makes information flows more transparent not only between the parties which is sharing, and which is aimed at receiving it, but to all other actors which are embedded in this network (Li, Zheng and Zhuang 2017).

There is the idea that a firm can achieve its objectives by striving to higher information richness, which is defined as a capacity to overcome different barriers, clarify ambiguous issues or change understanding within a time interval (Wynstra and Pierick 2000). There is a framework, which characterises the information richness in terms of its nature of performance, feedback, channel, source and language. It states that the higher information richness is, the more it is completed and effective. Low information richness includes only numeric language, visual channel only, very slow feedback, impersonal source and it is only formal. High informational richness instead is performed face-to-face, includes also body language, audio channel in addition to visual, personal source and has immediate feedback.

Information sharing can be represented as the type of collaborative activity, besides dedicated investments and joint relationship effort (Nyaga, Whipple and Lynch 2010). The conceptual model of this study includes information sharing as an element of the constructive block, called collaborative activities, which impacts the relationships outcomes through the key mediating variables (such as trust and commitment). Among relationships outcomes there are satisfaction with relationships, satisfaction with results, performance. Therefore, the framework confirms the influence of information sharing on the outcomes the party gains from the relationships.

The information processing theory suggests that the information sharing can be seen as data that should be gathered on the required argument to be able to decrease appeared uncertainty (Hong and Hartley 2011).

Agency theory assumes that the information – is a commodity that can be purchased, following the most efficient ways to govern principal-agent relationships. The amount of information needed should be in line with the role of the agent in the supply chain and it should be used to ensure the cooperative relationships. However, the problem can arise when two different actors, for instance buyer and suppliers have different goals, information sets and risk preferences (Chang 2017).

What information can be shared during the NPD process? Involving other parties in different stages of product design different information could be disclosed, like sharing information about costs, discussing future product development plans, or jointly providing supply and demand forecasts (Nyaga, Whipple and Lynch 2010). There is a variety of information types that can be shared: for example, technical, commercial and planning (Wynstra and Pierick 2000). Within the information processing theory, the so-called information exchange is mostly related to market information, like costs of different options and technical details. Joint planning with suppliers enables sharing of information about production, product design, and long- and short-term plans prior to the actual production process, responsibilities and

expectations together (Wu, Choi and Rungtusanatham 2010). It takes place with the purpose to enable manufacturers to adjust their production plan and product development schedules.

There are certain conditions exist to make information sharing possible to serve as an effective tool for during NPD process such as synergy between sharing parties and coordination, IT-enabled solutions, networking...The sharing of information requests synergy and coordination efforts between multiple alliances but not only direct transfer between actors of the triad (Yang, Zhang and Xie 2017).

Rapid communication is needed for the project performance. Communication ties should be short, so the parties could communicate quickly and efficiently (Wynstra and Pierick 2000).

One of the ways to enhance connections within the firm or even within the supply chain (or its focal part) is to apply the information technologies (IT) solutions, which will induce higher network density. The research performed by Li et al. (2017) has proved the hypothesis that IT-enabled informal interaction positively influences network embeddedness. Enabling such solutions would help spreading and monitoring the information faster, more completely and efficiently, to all the actors and in the most transparent way. Also, it has good chances to augment firms' abilities to track business transactions of other parties (Li, Zheng and Zhuang 2017).

In general, according to the research about social exchanges, the network stimulates the sharing of ideas and relevant information (Schoenherr and Wagner 2016).

Providing abundant information sharing leads to the following advantages, presented in the next paragraphs. When fostering the firm growth and higher performance, a firm must coordinate its activities in a turbulent environment, which practically means fighting structural uncertainty and unreliable market information in a timely manner (Zhu, Su and Shou 2017). Organisations gather and process information to reduce uncertainty around (Wang, et al. 2016, Higgins 2018). Uncertainty here intended as missing information (Yang, Zhang and Xie 2017) in the sense that there is a gap between what a firm is aimed to find out and what firm possess already. Uncertainty in new product development process can include lack of structure, of processes sequence, of tasks performance, inability to quantify progressive activity (Higgins 2018). So, the information sharing can help reducing uncertainty and thus making clearer and richer the project performance. There is also the extension of this outcome, which consists in the statement that information sharing reduces uncertainty and consequently it makes the trust growing, as well as commitment in the relationships (Nyaga, Whipple and Lynch 2010). Some studies note that sharing of information between buyer and suppliers, which is critical for the NPD performance, could be forced by high technological uncertainty (Zhao, Cavusgil and Cavusgil 2014). Simple information asymmetry appearing in formal and

informal interaction can have an impact on the innovation capabilities on an organisation. Liu, et al. (2017) argue that unequal possessing of the information can lead to the radical discoveries. Sometimes, the decisions should be taken with very limited information (Laursen and Andersen 2016). However, having several interpretations of the same phenomenon might create ambiguity, which may complicate the decision-making process, which puts in risk the performance of a firm. But on the contrary, high degree of causal ambiguity provides more opportunities to apply supplier knowledge (Laursen and Andersen 2016, Tangpong, et al. 2015). Timely informativeness between parties, which are connected by business ties, is crucial to catch instable customer behaviour, be aware of updated technology, in short – minimise market unpredictability (Zhu, Su and Shou 2017). Information sharing between parties can lead to quick identification of technical problems and thereby reducing time to respond to market needs (Fossas-Olalla, et al. 2015). Aggregated information will make a firm more confident about marketing products approved by the customers (Luzzini, et al. 2015). Lowering information asymmetry between buyer and suppliers can also make easier evaluation of supplier performance (Handfield and Bechtelb 2002, Yoo, Shin and Park 2015).

Communication is a necessary part of everyday life, which is obviously essential in the business world (Chang 2017). Coming from the definition of communication, as formal and informal sharing of information between firms to fulfil a coordination and alignment function between parties (Sjoerdsma and Weele 2015). The extent of communication depends on the communication methods, their magnitude and frequency, and the nature of the information exchanged (Ateş, Wynstra and Raaij 2015).

Information sharing is a key element to build-up the communication. It is also one of the measures for the level of cooperative activities between suppliers along with mutual assistance, and joint operations (Wu, Choi and Rungtusanatham 2010). On the degree how appropriate and effective the communication will be performed depends the relationship development (Sjoerdsma and Weele 2015).

The key element in relationship continuity is fairness, which can eventually lead to commitment (Jokelaa and Södermanb 2017). Fairness here is referred to fair treatment of a business partner in terms of information sharing and decision making. It deals a lot with the perception of the behaviour of the other party towards economic and social aspects.

One of the advantages from the supplier collaboration is the access to the market information and capabilities (Melander and Tell 2015). Sharing market information can effectively prevent opportunism and generate trust (Zhu, Su and Shou 2017, Oghazi, et al. 2016). With the trust developed from the strong relationship, trading partners are more likely to transfer complex information (Yang, Zhang and Xie 2017). Significant number of studies state that trust

increases the willingness to share the information and knowledge (Handfield and Bechtelb 2002, Sjoerdsma and Weele 2015). The relation between information sharing and trust generation is reciprocal. A number of abovementioned studies assert that trust fosters information sharing. Other studies point out that the information sharing is one of the determinants which leads to the trust and commitment (Handfield and Bechtelb 2002, Jokelaa and Södermanb 2017).

According to transactional costs of economy theory, informational asymmetry could also decrease the trust and impact the costs of maintaining the relationships, because the party that possesses relatively more information has potentially higher bargaining power during the negotiations, which weakens the other party's position, and, in turn, make the contractual costs increase (Li, Zheng and Zhuang 2017). In addition, information sharing during the informal interactions may also contribute to developing of business partnership by getting to know the preferences of the other parties in other areas and then exploiting it to while preparing to negotiate (Su and Yang 2017).

The process of information sharing should be clearly defined in terms of what information to share and the subject to whom this information can be disclosed. Such structure in the supply chain will minimise chances for the buyer to experience information leakage and other potential risks of information sharing process (Tan, Wong and Chung 2015). Clear structure in the supply chain might also contribute to effective information flows among its links (Ateş, Wynstra and Raaij 2015). And the nature of information flows can impact the NPD performance (Perks, Cooper and Jones 2005). It can be achieved by getting valuable information from low-tiers suppliers about the latest manufacturing advances and technological innovations (Wagner and Bode 2014). This is an additional evidence that suppliers can contribute to NPD performance by providing important information from the market, and so that it gives additional reasons to establish strong ties in the supplier network.

Coordination problems and lack of timely information exchange are cited among the major causes of failure in joint NPD activities (Hong and Hartley 2011, Ates, Ende and Ianniello 2015). Informational contribution from suppliers assumes some responsibility for product development (Wu, Choi and Rungtusanatham 2010). A finding by Nyaga, Whipple and Lynch (2010) points out information sharing encourages parties to commit to the relationship. Information together with capabilities, knowledge and ideas coming from suppliers through collaborative process are helpful for manufacturers' product development (Wu, Choi and Rungtusanatham 2010). As it was mentioned previously, that NPD process implies cooperation between involved parties, information sharing is necessary element of their interaction. Considering all the benefits, coming out from the maintaining the cooperation

activities such as improved visibility, higher service levels, increased flexibility, greater end-customer satisfaction, and reduced cycle times (Nyaga, Whipple and Lynch 2010), information sharing can be considered as an initial factor that will eventually lead to those benefits. Sharing critical information and communication is the key for value creation (Wu, Choi and Rungtusanatham 2010). Because information and knowledge sharing within buyer-suppliers triad during the new product development contributes to generating new ideas and foster innovation (Sjoerdsma and Weele 2015). Case-study researches that have been conducted on several companies have proven that information sharing has positive effect on the innovation performance of the companies (Wagner and Bode 2014). One of such examples, which is relevant to mention here is the survey, that has been done for the North-American automotive supplier industry, in particular suppliers to Toyota, Honda and Nissan companies were considered. This study has confirmed that goals alignment between parties, which is also done through sharing of information, has positive and significant impact on the willingness of suppliers to innovate. One of the managerial recommendations obtained from this survey is the importance of absorptive capacity of the company for cultivating innovative ideas from outside of the firms. Absorptive capacity is essential to exploit innovative ideas by recognizing the value of new information, assimilating it, and applying it to commercial ends (Wagner and Bode 2014). According to them, the buyers should focus its effort to construct and constantly develop the absorptive capacity, which will help exploiting and transforming all possible benefits from supplier's innovative ideas (Najafi-Tavania, et al. 2018).

Among drawbacks of excessive information sharing there are ambiguity, leakage, core competencies and competitive advantage protection, opportunism that are discussed in the following paragraphs.

As it was mentioned above, overwhelmed information sharing could be a reason of ambiguity appearance which could obstruct performance improvement due to difficulties in decision making (Laursen and Andersen 2016). A number of studies also raise a topic about the information leakage while maintaining excessive information sharing among organisations (Tan, Wong and Chung 2015, Melander and Tell 2014).

Opportunism, defined as self-interest with guile (Zeng, et al. 2017), is ubiquitous in channel relationships. Examples of opportunism include shirking duties, withholding or distorting information, breaking promises, and failing to fulfil obligations (Zhu, Su and Shou 2017, Kim and Choi 2015). Developing trust, integration, commitment and solidarity between in triad can definitely prevent creation of opportunism (Tangpong, et al. 2015, Wang, et al. 2016).

Summing up, this section provides several definitions of what information sharing may refer to, describes what types of information could be shared during the NPD process. There are

also a long list of advantages and disadvantages of the information sharing extracted from the relevant publications and summarized here.

### 3.2. Knowledge sharing in the triad

In supply networks knowledge sharing for a firm is an opportunity for mutual learning while working together and enables partners to truly create new value (Wang and Hu n.d.). Knowledge sharing facilitates the generation of resources and skills essential for product innovation (Sjoerdsma and Weele 2015). In the NPD context knowledge sharing between two companies is a set of experiences, skills and competences, which may be both tacit and explicit in nature (Lawson, Krause and Potter 2015, Sjoerdsma and Weele 2015).

Triadic collaboration, oriented towards implementation of high-level innovation gives access to valuable knowledge, which is difficult to capture by firms, acting alone (Luzzini, et al. 2015, Wang and Hu n.d.). Experience and knowledge about key components of the product, technical problem solving, skills, access to complementary resources (Fossas-Olalla, et al. 2015), better tacit and codified knowledge transfer could be the needs that would drive a company towards establishing collaboration with its business partners.

Knowledge sharing can give a very positive contribution to the NPD performance (Ferreira, et al. 2015, Perks, Cooper and Jones 2005) since there is a positive correlation between knowledge acquisition and product innovation levels. Performance is positively interrelated with learning and innovation. Innovation capability in its turn depends on the knowledge creation (Ferreira, et al. 2015). Because the more knowledge an organisation gains, the more it realizes the potential to absorb the knowledge around (Najafi-Tavania, et al. 2018). Ability of the firm to apply the information gained from external (and internal) sources is a key of the innovation capability during the new product creation process (Liu, et al. 2017). Increased supplier knowledge causes greater information sharing and hence improved supplier involvement and performance (Fossas-Olalla, et al. 2015). Knowledge transfer and sharing within the firm is crucial to generate new ideas (Ferreira, et al. 2015). Choi et al. (2002) declares that knowledge sharing between suppliers may imply a contribution to resources, i.e. technological know-how, and expertise, i.e. human resources to achieve mutual goals, and such interaction is an indication of a cooperative type of relationships.

A very remarkable element for making knowledge sharing happen is the presence of trust between parties (Sjoerdsma and Weele 2015, Handfield and Bechtelb 2002, Schøtt and Jensen 2016). The quality of relationships plays a fundamental role in the knowledge sharing (Wu, Choi and Rungtusanatham 2010): actors of the triad should be willing to pass their knowledge to the others, they should feel the motivation to do so and they should be comfortable in this. According to Liu et al. (2017), environmental characteristics and the nature

of an exchange relationship may influence knowledge sharing. Transparency of the process is identified as a noteworthy contributor to make trust appear, which consequently, will lead to between quality of relationships and foster knowledge sharing. The case-studies research has confirmed that the satisfaction with the relationships helps establishing structured and fruitful communication, which contributes to quantity and quality of knowledge sharing (Sjoerdsma and Weele 2015). It is highlighted that individual satisfaction with the relationships, coming from the cultural and working style features, plays an important role in creating the favourable environment for sharing knowledge.

Diverse background of supplier could foster knowledge sharing when interaction between parties takes place (Ateş, Wynstra and Raaij 2015). Through the access to diverse sources of information suppliers are able to extract the most valuable one, that will improve their innovation capability and consequently contributes to NPD performance.

Presumably, some publications consider knowledge sharing as a knowledge transfer context, since the characteristics of such processes may be similar. Knowledge transfer between exchange partners is an important practice that significantly improves a firm's competitive advantage and performance (Liao, Hu and Ding 2017, Liu, et al. 2017). Inter- and intrafirm knowledge transfer affects NPD outcomes (Sjoerdsma and Weele 2015, Lawson, Krause and Potter 2015, Perks, Cooper and Jones 2005) All these studies support positive interconnection between knowledge transfer and NPD performance. Knowledge transfer can be performed in different ways, such as managerial oversight, incentives, and training programs (Liu, et al. 2017) trust and shared values (Handfield and Bechtelb 2002).

Knowledge can be categorized in various dimensions, such as explicit and tacit knowledge (Liu, et al. 2017); knowledge about customers, competitors, suppliers, and regulatory agencies (Wu, Choi and Rungtusanatham 2010); and product and end market knowledge (Luzzini, et al. 2015) Product and end market knowledge is especially important for buyers because they need this information for new product development (Wu, Choi and Rungtusanatham 2010).

Among the knowledge characteristics can be selected relatedness, ambiguity, complexity (Sjoerdsma and Weele 2015), quality, quantity and credibility (Liu, et al. 2017, Touboulic, Chicksand and Walker 2014).

So, this chapter provides the proof of importance of information and knowledge sharing in the process of building and maintaining triadic relationships during the process of new product development. It may bring the following set of advantages, such as access to market information, increasing synergy between actors involved in the NPD process, foster the networking of a company, meaning enhancing the connection of a firm with other links in the supply chain, stimulating sharing of ideas and relevant information. It also prevents information



asymmetry, fosters relationship continuity, improve cooperating activities, cultivates trust and helps developing business partnership. However, it is important to keep in mind the risks of associated with the information sharing, like opportunism, leakage of valuable data, wastes because of potential ambiguity created. Knowledge sharing is a different concept from the information sharing. It is about sharing experience, gained from the previous projects and re-application this knowledge to the new concept. Diverse background of suppliers allows a buyer to expand its existing awareness about product knowledge with new information, coming from the market. Transparency of processes in supply network positively contributes to cultivating trust between parties, which consequently impacts the quality and quantity of knowledge sharing. Both mechanisms – innovation and knowledge sharing – are critical factors, influencing the effectiveness of learning for innovation ability (Liao, Hu and Ding 2017). So, it is particularly useful for development innovations.

## CHAPTER 4 – Research model and protocol

### 4.1. Research purpose and research questions

Buyer-supplier relationships are widely illustrated in the reviewed publications (Tangpong, et al. 2015, Luo, Sha and Huang 2013, Chang 2017, Choi and Wu 2009 (a) , Liu, et al. 2017, Narayanan, Narasimhan and Schoenherr 2015, Nyaga, Whipple and Lynch 2010, Su and Yang 2017, Ates, Ende and Ianniello 2015, Ateş, Wynstra and Raaij 2015). Triadic relationships can be considered from the following perspectives: relationship between buyer-supplier 1, relationship between buyer-supplier 2 and relationship between supplier 1-supplier 2 (Choi and Wu 2009 (b)). Buyer-supplier relationships may imply willingness to share and receive information and knowledge (Luo, Sha and Huang 2013, Nasr, Kilgour and Noori 2015, Handfield and Bechtelb 2002, Yang, Zhang and Xie 2017), individual social interactions (Liu, et al. 2017), mutual interdependence, organisational cooperation (Handfield and Bechtelb 2002, Wynstra and Pierick 2000). Unlike buyer-supplier relationships, supplier-supplier relationships are rarely studied (Fossas-Olalla, et al. 2015, Wu, Choi and Rungtusanatham 2010, Hong and Hartley 2011). Therefore, this study could summarize previous findings on this topic and enrich it by the empirical investigation.

There are researches studying how cooperation between buyer and suppliers could contribute to NPD performance (Bonaccorsi and Lipparini 1994). Firm's performance could be also impacted by the social ties through the reduction of opportunism in buyer-supplier relationships – social ties deter partner opportunism and consequently enhance firm performance (Zhu, Su and Shou 2017). Since supplier-supplier relationship is lesser investigated topic, this research could go further with exploring the impact of supplier-supplier relationship on NPD performance, following the research context of this study – NPD process.

This research is intended not only to present the summary of available publications on the topic, but also developing a research framework that could be verified and completed by the empirical testing. Verification of the developed model by interviewing real companies is expected to enrich the research so it may be also beneficial for the companies itself, making them reflect back wins and learnings of their NPD projects and helping to formulate the valuable inferences to improve future performance.

The first research question of this study is aimed at filling up the gap, raised earlier, about the characteristic of supplier-supplier relationship. The idea is to get the comprehensive picture of how interaction between two suppliers can look like. Answering this question would help explore practically what elements may include the relationships between two suppliers.

*Research question 1.*

*How can be described relationships between two suppliers during the new product development process?*

Some studies proof the impact of one dyadic relationship on another (Wu, Choi and Rungtusanatham 2010, Yang, Zhang and Xie 2017, Choi and Wu 2009 (b), Zhu, Su and Shou 2017, Najafi-Tavania, et al. 2018). Particularly, the way buyer cooperates with its supplier could influence the way how relationship evolve between suppliers. The snag here was to recognise what exactly changes in the affected dyadic relationships. Thus, the second research question addresses *how* of a complex process.

*Research question 2.*

*How does the buyer-supplier relationship impact the relationships between suppliers?*

Answering to this question it is expected to be find out practical elements of interaction in the triad related to each components of relationship. The trick of this question consisted in the fact that this question cannot be directly asked to either of the actors of the triad. Thus, the challenge was to come up with such sub-questions which could make a responder share how exactly this “influence” was identified and experienced and where exactly the changes have appeared.

With these two questions the relationships in the triad are expected to be covered, so that by answering them a comprehensive view about how the relationships look like and what they practically mean should be obtained.

The third and the key question of the research is how those relationships impact the innovation performance of an organisation. The impact of relationships on the performance of the company is claimed at several case-studies (Sjoerdsma and Weele 2015). From the literature review, it was also possible to identify possible characteristics of NPD performance of the company. Therefore, the research question 3 was aimed at discovering what components of the NPD performance are impacted by the particular elements of the relationship. So, the question was formulated in the following way.

*Research question 3.*

*How does triadic supply network relationship impact the new product development project performance?*

Graphically they are illustrated on the figure 2, following the logical connections among them.

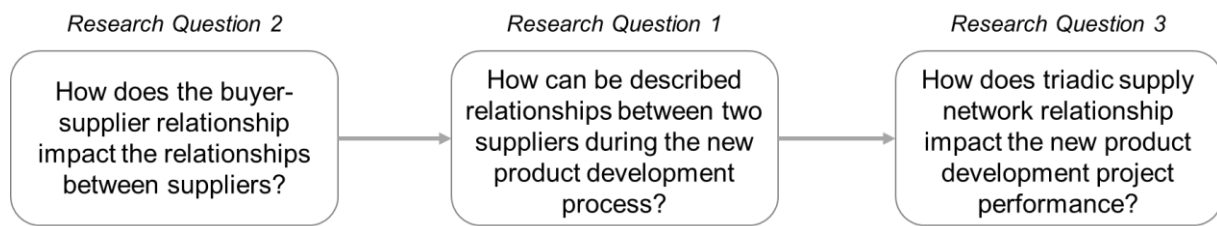


Figure 2. Research questions in the logical order

## 4.2. Research model

The focal process of this study is the new product development. As evident, the initiator of the new product launch is the buyer of this product. Suppliers are necessary actors in this process in case a product is not aimed to be produced in-house (Melander and Tell 2014).

Following the scope of this study, first two building blocks of the model will be dedicated to relationship investigation. Firstly, the relationships between suppliers – actors, providing necessary components for the developing new product would be examined. Secondly, the model would cover the relationships of buyer-supplier 1 and buyer-supplier 2, keeping the context of a triad.

In the end, detailed investigation of NPD performance takes place and how it gets impacted by triadic relationships. Based on the outcomes gained from the literature review, the components of the research model are defined, described below in details on their characteristics and the way they could be measured.

### 4.2.1. Supplier-supplier relationship

In this context relationships are considered in the supplier network. Supplier network here is defined from the triadic perspective. Meaning that it is referring to a composition of suppliers of a common buying firm with the aim of cooperation in order to provide a buyer with the solutions for a new product development project (Yang, Zhang and Xie 2017). Following the social network theory as the theoretical support, there is known that the relationship between buyer and its suppliers would impact the relationship between suppliers (Choi and Wu 2009 (b), Yang, Zhang and Xie 2017, Zhu, Su and Shou 2017). Tendentially, there two ways of cooperation between two suppliers: in case buyer equally treats both its suppliers, or buyer implicitly or explicitly expresses preferences towards closer collaboration with one of the suppliers. In the first case, regardless how good buyer treats its suppliers, the suppliers are tending to cooperate between themselves. In the second case, the competition between those two arises and they are not likely to establish close relationships. These situations overall are

considered in the context of balanced relationships, which is in line with the social network theory (Choi and Wu 2009 (b), Galaskiewicz 2011).

The first variable which could measure supplier-supplier relationship is *mutual interaction* between suppliers. It is estimated as high, when the collaboration between suppliers is close, mutual assistance takes place, there is open flow of resources, mutual trust and mutual understanding (Handfield and Bechtelb 2002, Wu, Choi and Rungtusanatham 2010, Sjoerdsma and Weele 2015, Richardson and Roumasset 1995). In case of a close collaboration, according to social network theory, supplier network could be considered as a dense network, which assumes a high level of interconnections and shared routines (D.-Y. Kim 2014). Actors of such network are tightly connected with each other, they develop intense communication, share excessive information, obtained from multiple sources. In such network, the relational and structural embeddedness are likely to evolve. High structural embeddedness implies obtaining the value from the triad (or more complex network, but they are out of scope of this study) from the position that the firm has in this network. Relational embeddedness is viewed as the strength or the quality of a relationship (D.-Y. Kim 2014). The relational dimension refers to the degree of mutual respect, trust, and close interaction that exist between a firm and its partners (Bellamy, Ghosh and Hora 2014). Such context provides an environment for the joint work across the network with free flow of resources, mutual assistance and shared understanding (Yang, Zhang and Xie 2017). Mutual assistance refers to willingness to help in case of break-downs, maintenance of the systems and any other activities to support each other during the NPD process (Richardson and Roumasset 1995). It entails close observation how a firm (supplier) works with its clients (buyers), conforms the requirements, achieves the mutual goals (Liu, et al. 2017). Open flow of resources implies the readiness among suppliers to apply the competences and skills of each other in case there is a need of experience exchange. Such way of relationship can be also characterised by shared understanding, perception of sharing risk and benefits, harmonised interaction, which includes friendships, social interaction, community and leisure activities (Liu, et al. 2017). Some studies underline the importance of informal social interaction, which could be practically measured by the discrete events over a certain period of time, such as a number of conversations over the last month, having a lunch together, etc. (Liu, et al. 2017). It is stated that such socialization could facilitate the knowledge sharing between the parties, which could be then used during the new product development process.

In case a buyer expresses willingness to collaborate closer with one of two suppliers, he created a so-called structural hole in the triadic relationships, which triggers competitiveness between suppliers. In the language of the social network theory such triad can be interpreted as sparse network (D.-Y. Kim 2014). It is characterised by providing non-redundant

information, restraining entrepreneurial behaviour. Such relationships are not likely to include shared understanding, high level of mutual assistance or social interaction. Participants in the sparse network have few common contacts and pay attention to increase the efficiency of the information flow (D.-Y. Kim 2014).

Particularly, an impact of dyadic relationships on another dyadic relationships in the triad is represented by the way how the information will be shared between parties (Choi and Wu 2009 (b), Yang, Zhang and Xie 2017). The more organisation grows, the wider network it builds around so that the access to the information increases (Hong and Hartley 2011). Considering the triad, the relational strength of the buyer towards supplier is negatively associated with the information sharing from supplier's side (Yang, Zhang and Xie 2017). Suppliers with the relative relational strength with the buyer has lower intention to share information with the other supplier. Correspondingly, suppliers with a relatively weaker relationship with the buyer have much higher intentions towards information sharing because they bear lower risks on sharing their own strategy. The type of information supplier can possess might be similar for both suppliers since they bear equal "role" in the triad. As for the variable of the construct, information sharing refers to the exchange of information between suppliers, with the aim to fulfil the objectives set in the NPD project.

Knowledge, acquired in previous projects by suppliers, by working with the same (or other) buyer, could be applicable for new projects. Knowledge acquisition could be enhanced by maintaining informal interactions between cooperating parties (Su and Yang 2017). Important to point out that knowledge acquisition cannot guarantee performance enhancement by itself because it does not include that that gained knowledge will be exploited (Liu, et al. 2017). In case suppliers work closely, *knowledge sharing* is appreciated from both sides, since they have the same position in the network. Knowledge acquisition refers to the extent to which a firm obtains information resources from its exchange partners (Zhou, et al. 2014). If suppliers are collaborating for a certain period, it the process of knowledge acquisition and knowledge application could take place between the same actors. In this case, it is even more effective, since it is less probable that the information will be lost, because both parties possess it, therefore, it is redundant in the dense supply network. Knowledge application is an organization's timely response to technological change that exploits information, knowledge and technology and mutual interaction between cooperating parties to enhance its innovation capability, generating new products and processes (Liu, et al. 2017, Su and Yang 2017).

Measures that could be suggested for knowledge sharing process are quantity, quality and credibility (Touboulic, Chicksand and Walker 2014, Sjoerdsma and Weele 2015, Liu, et al. 2017, Zhou, et al. 2014, Su and Yang 2017). Quantity refers to the degree to which transferred

knowledge is sufficient and complete (Liu, et al. 2017). It could be measured by the amount of communication sessions, meetings, and documents exchanged. Credibility refers to the degree to which a firm in relationship believes the other party that transferred knowledge is reliable and trustworthy (Nyaga, Whipple and Lynch 2010, Liu, et al. 2017). In case there is no or low competitiveness between suppliers, knowledge sharing process is expected to be accurate, complete, and trustworthy, which potentially should improve the personal relationship by increasing the trust level (Su and Yang 2017).

So, the supplier-supplier relationship in the research model consists of three main blocks: mutual interaction between supplier 1 and supplier 2; the way they share knowledge and experience; information they share and the way it takes place. Each block can be represented by the set of characteristics, which will make easier to identify them while exploring the use-cases from the companies. Thus, mutual interaction includes shared understanding, open flow of resources, close collaboration (according to the perception of the collaborating parties), and social interaction. By knowledge sharing it is intended the process of reflecting knowledge and experience gained in previous projects and re-applying them to the new ones, adapting them to the requirements of the buyer. The tighter the links in the supplier network, the more excessive the information sharing is expected to be. Suppliers in their network have equal chances on possession a particular type of information because they have the same position in their triadic network. However, relational strength with a buyer impacts their incentives towards information sharing between suppliers. Graphically the construct is illustrated on the figure 3.

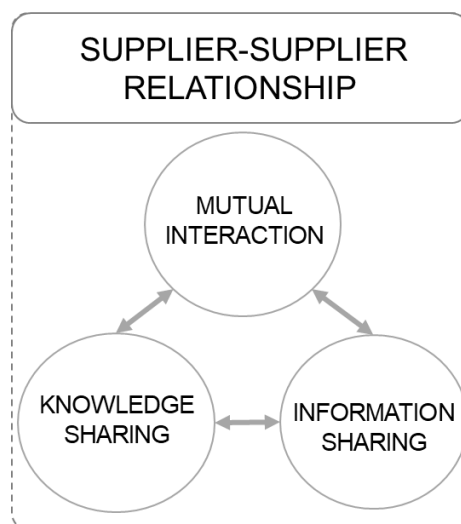


Figure 3. Construct 1: Supplier-Supplier Relationship

The research is expected to verify by the case-studies either relationship in supplier network could be represented by the mix of abovementioned components.

#### 4.2.2. Buyer-supplier relationship

There is a significant number of publications, exploring dyadic buyer-supplier relationships (Bellamy, Ghosh and Hora 2014, Choi and Wu 2009 (a), Liu, et al. 2017, Zeng, et al. 2017, Meyer, Niemann and Kotzé 2017). Since the initiator of the new product development is a buyer, as it was mentioned previously, the key component, influencing buyer-supplier relationships is the intention of the buyer towards the cooperation with its suppliers (Chang 2017, Touboulic, Chicksand and Walker 2014), which is presented in the research model as the separate element, influencing buyer-supplier relationship itself.

*Buyers intention* towards buyer-supplier and supplier-supplier collaboration here means willingness of the buyer work together with supplier, and the degree of how close buyer wants its suppliers to collaborate between each other (Wu, Choi and Rungtusanatham 2010, Touboulic, Chicksand and Walker 2014). In this case, it very depends on the goals of the buyer in the project and on benefits the buyer sees from the work together (Chang 2017). Buyer's influence (as it is called in other studies) could be measured as the level of specific activities in managing competing suppliers (Wu, Choi and Rungtusanatham 2010). It can also imply the clarity of expectation according to the social-network theory (Tichy, Tushman and Fombrun 2009). This degree of willingness to closely collaborate or buyer's intention is expected to be identified either high or low. Active position of the buyer, corresponding high degree of willingness to collaborate could be represented by high degree of supplier involvement in the NPD process, meaning if the buyer sees the supplier as its extension in purchasing and production processes and maintains complete awareness of supplier technologies, capabilities, and limitations (Chang 2017). Such intention corresponds to the cooperative, promisingly long-term relationships, aimed at maximizing the value to both sides, exploiting mutual knowledge and experience to benefit from open innovation concept.

Low buyer's intention implies that buyer expects to trust suppliers less and wants to keep full coordination of the process in its hands. It may also entail a simple co-existence of actors in the triad, arm-length relationships, contractual trust only. In general, this element of the is subjective enough, since it directly depends on the buyer's decision, which may be driven by a plenty of factors, related to the product complexity, company policy, government regulations, market situation, etc. Thus, the framework does not clearly state the set of characteristics to control, but instead this component of the relationships is aimed to be evaluated according to buyer's opinion.

Obviously, buyer's intentions are clearly known only for the buyer itself and based on it the interaction with its supplier evolves. Therefore, in the model it is presented as a separate element that influences the buyer-supplier relationship. At this point it worth to remark that



social network theory suggests measuring the clarity of expectations of the buyer to understand how much supplier was aware about the way he could satisfy the buyer (Tichy, Tushman and Fombrun 2009). The way how buyer wants to manifest its intention and the responsive behaviour of suppliers are considered in this framework as their *mutual interaction*. Practically, it assumes participation to cross-functional meetings, sharing risks and benefits, constant feedback exchange, etc (Chang 2017, Wynstra and Pierick 2000, Wu, Choi and Rungtusanatham 2010). Inalienable component of mutual interaction, affecting buyer-supplier relationships is their personal attitude they comprise while maintaining the interaction. The results of the several case-studies (Sjoerdsma and Weele 2015) highlighted an importance of cultural satisfaction with way-of-working of business partners. Personal relationships are defined as establishment of closeness, friendship, and mutual affection through daily contacts, social interactions, community activities, and leisure activities (Liu, et al. 2017). Social network theory claims that exploiting the position in the triad not only has an impact on the performance improvement but also favours promotion of such useful routines as problem solving, conflict resolution, and project management (Hong and Hartley 2011). Mutual interaction between parties practically implies not only what they do, but how actually they do it, i.e. the way they conduct meetings, negotiate, communicate with each other, take decisions together etc. Literature confirms that the higher interaction between parties, that is expressed in abovementioned details the richer could be results of collaboration, – higher quality of developed product (Liu, et al. 2017, Wu, Choi and Rungtusanatham 2010).

For example, face-to-face contacts are particularly important for the exchange of know-how and experience (Wynstra and Pierick 2000). *Sharing knowledge* plays an important role in the process of product development and in the way how relationships between two parties evolve during the NPD process. Knowledge sharing for NPD refers to a set of experiences, information and knowledge, sphere of application technical skills to implement the idea. (Chang 2017, Sjoerdsma and Weele 2015). It includes knowledge, skills and competences of the new product development team, that influence the innovation strategy related to NPD, as well as possession of specific assets and resources (Luzzini, et al. 2015). In the project of NPD, it is fundamental to exploit all possible experience gained during previous projects. It is important to reflect back wins and learnings from the past and re-apply obtained knowledge. Knowledge application is an organization's timely response to technological change that exploits knowledge and technology to generate new products and processes (Liu, et al. 2017).

Fundamental element of any kind of cooperation is the *information sharing* between the cooperating parties (Gao, Xie and Zhou 2015, Tan, Wong and Chung 2015, Sarang P., et al. 2018). The summarized definition of the information sharing that is used for the framework is formulated in the following way. Information sharing is represented by the exchange of

information between cooperating parties in order to perform the activities together, following the objectives of this cooperation.

Different level of actor involvement in the NPD process leads to different kinds and amount of information to be shared. They could exchange general information related to the market trend, estimation of consumer needs, current techniques, available tools and new technologies, etc. Such information could be classified as strategic. It helps to understand the general approach to follow while go-life with a project, imagine the scales of the activities needed, have a rough idea about costs and benefits.

Lower details of information instead to can be generalised as operational. It includes the data about the capacity required to implement the project, volume and variety of a product range, lead times, pricing, quality checks, etc. Suppliers needed these data are to be able to implement technically the requirements of buyer. Instead strategic information is shared with suppliers when buyer intends to involve it deeper, which consequently implies higher level of trust and leads to higher level of risk of information leakage and other risks related to protection of core competencies of the buying firm.

Unlike a subjective component of buyer-supplier relationships like buyer's intention towards collaboration, components such as knowledge and information sharing could be measured by the amount of knowledge and information exchanged between parties accordingly and frequency of such activities. Still, it is up to the buyer to decide whether that amount of data was enough to rich the goals set in the project and it is up to the suppliers to decide if it was enough to fulfil expectations they had in the project.

Graphically construct 2 is presented on the figure 4.

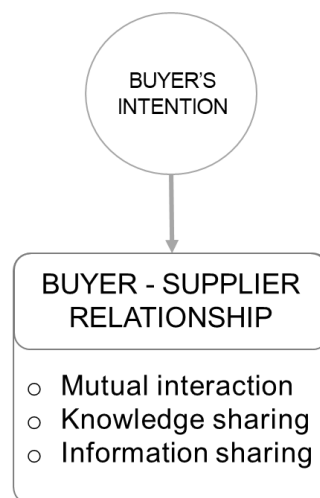


Figure 4. Construct 2: Buyer-Supplier Relationship

It includes the buyer's intention towards cooperation in the triad as a separate leverage that defines buyer-supplier relationship; mutual interaction during the new product development process between buyer and each of its suppliers; the way the buyer and each supplier share knowledge between each other; and type and frequency of information sharing, distinguishing operational and strategical data, which eventually would help identifying how close the actors are collaborating and how their relationship evolve during the process new product development.

#### 4.2.3. NPD performance

Literature on the NPD performance suggests a set of definitions to describe the innovation performance, which can be used for building this construct. Product innovations essentially consist of new combinations of knowledge rather than entirely new knowledge, invention and innovation involve uncertainty, both regarding the inputs (e.g. available knowledge and technologies) as well as outputs, e.g. demand characteristics and opportunities for acceptance and diffusion of the innovation (Melander and Tell 2014, Fossas-Olalla, et al. 2015, Najafi-Tavania, et al. 2018). Therefore, one of the variables of NPD project can be *innovativeness* of the product developed.

Innovation performance can be considered as the product or process innovation performance, innovation capabilities of the business (as buyer, as suppliers). Each actor in the triad has its own objectives in the project of NPD (Melander and Tell 2014). Generally, the goal of buyer is to launch the successful novelty, and the goal of supplier is to provide the highest level of satisfaction of the buyer, spending as minimum resources as possible (Lawson, Krause and Potter 2015). In this framework, the elements of NPD performance are a summary of the indicators which help a buyer to evaluate suppliers: quality, delivery, responsiveness, sales, service and/or technical support, and costs (Yoo, Shin and Park 2015, Wu, Choi and Rungtusanatham 2010, Bellamy, Ghosh and Hora 2014, Melander and Tell 2014, Chang 2017, T. Johnsen 2009, Handfield and Bechtelb 2002). Taking supplier performance as the criteria for valuation the NPD performance of the project covers the goals that buyer follows and the check-points which suppliers tries to respect for buyer during the NPD project. The only element from abovementioned seems to be more relevant during the exploitation of the product, is the technical support from suppliers. After the product or component is delivered, there are could be other contractual terms on after-sales support and maintenance than during the product development. Delivery as a criteria of NPD performance may refer to the way the product or service was delivered to the buyer, the correspondence with the requested timing, quantity, quality (Lawson, Krause and Potter 2015).

Statistical research on the benefits of supplier involvement for a certain range of companies had explored in detail the variables that affect the NPD performance (Yoo, Shin and Park 2015). Long list of variables can be grouped in: market condition parameters (such as sales volume, market preferences, price sensitivity); cost parameters (research and development costs, production costs); increase of benefits (costs-based); decrease in inefficiency (from buyer and suppliers sides).

Decision about supply base selection usually is made base on the strategic importance of the product (Ateş, Wynstra and Raaij 2015), which is mainly defined considering the trade-off between *quality* of product and required *costs*. Therefore, costs and quality are certainly necessary components to evaluate the innovation performance. Quality of designing a product may be summarized by the following attributes: reliability, durability, serviceability, aesthetical and other attributes that relate directly to design issues in the NPD stage (Yoo, Shin and Park 2015)

Some researches measure firm performance only by financial indicators, such as sales growth rate, market share growth, the growth rate of profit, return on investment (Zhu, Su and Shou 2017). This is suitable if performance is going to be compared with other companies because quality standards and costs structure can vary significantly from company to company. Besides, such indicators are useful for overall performance of the company but are too general for the performance on a single product launch. Successful products generate satisfactory income by providing high and stable volumes. Thus, *sales* volume seems suitable indicator for the framework since it is the most spread in use, which is necessarily included in all financial reports. A study about managing supplier relationships suggests a very simple approach to measure NPD performance, - only three criteria: time to market, cost and quality (Sjoerdsma and Weele 2015).

Last publications underline that that goals of current purchasing strategy go way beyond a simple cost reduction but are more targeted for *quality* increase, *flexibility* and *innovation* (Luzzini, et al. 2015). Flexibility plays an essential role in the majority of processes nowadays, due to fast-changing dynamic environment (Melander and Tell 2014). It is considered to be a weighty advantage that gives a possibility of fast-responsiveness to market needs (Fossas-Olalla, et al. 2015). But in the frames of the research model it is interpreted as the responsiveness to the needs of buyer, initiator of NPD project. This is also the reason why too-specific contract agreements are considered as disadvantageous, – do not let the flexibility to be exploited. It is particularly important for highly technological industries such automotive (T. Johnsen 2009): the research states that speed, flexibility, productivity and quality are the key performance measurements. Flexibility is very appreciated feature during establishment

of collaborative relationships (Melander and Tell 2015). Therefore, it is interesting to explore how much it can contribute to the innovation performance overall.

Market risk and uncertainty are greater when degree of originality is greater, or innovation is extreme (Fossas-Olalla, et al. 2015). That is why it is important to take into account the potential effect on reputation after the novelty launch. In some cases, reputation of doing business with leading-edge firms is one of the values expected from supplier involvement besides financial benefits and technological knowledge with product design (Smals and Smits 2012). Successful innovations provide sustainable competitive advantage to the firm on the market, so the reputation of the company can absolutely be impacted by the innovation performance. Remarkable example can be a scandal about palm oil in KitKat, which made a dramatic effect on the product of Nestle group in general (Kilvert 2018). Thus, reputation is an extremely important element in the NPD performance, which, in fact, should be considered from the very beginning of the project.

When actors of the triad perceive their relationships as high-quality ones, it creates a favourable environment for knowledge sharing, which makes their experience richer during the process of NPD and consequently, their satisfaction higher after all. Follow-up sessions in the end of the project may help to point-out all wins and learnings of the project, which should lead to competence enhancement for implementing the next one.

Summarizing the literature review on different parameters that are used for measuring innovation capabilities the level of innovativeness and NPD performance could be distinguished. NPD performance could be measured by quality of the product, defined by the buyer; delivery as a complex indicator, sales volumes, costs and general experience gained during NPD project after collaborative working within the triad. Graphically it is represented on the figure 5.

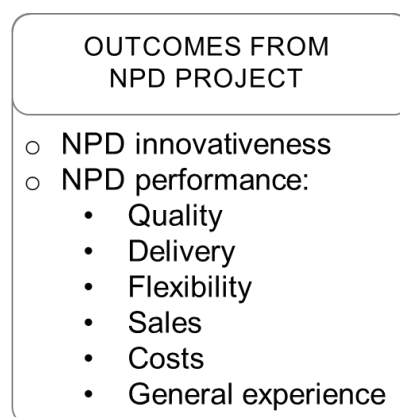


Figure 5. Construct 3: Outcomes from NPD project

It is expected that every would have its own numerical parameters for each of those indicators and the framework would investigate how relationships within the triad could impact each of the indicators and how much the quality of relationships could help fulfil each of the indicators.

Thus, the framework would investigate the interdependence between three constructs. Following the logical sequence of the building blocks, the complete picture of the framework arises on the figure 6.

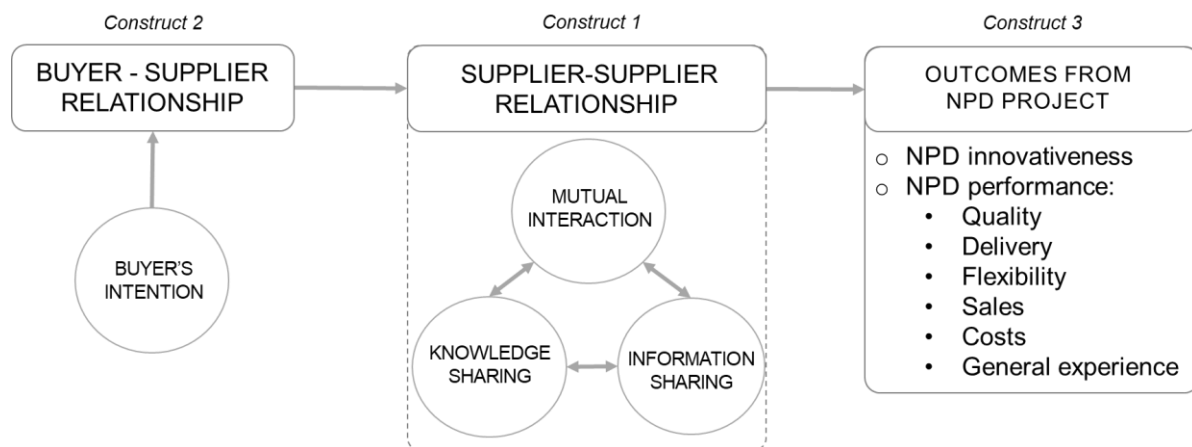


Figure 6. Complete research framework

After the framework description, it is possible to introduce the researched questions, presented above in details, in relation with the framework constructs. Research question 1 is directly related to the first construct, placed in the centre of a research model – supplier-supplier relationships. By examining real-life case studies, the aim is to verify either listed components are relevant and complete the concept of supplier-supplier relationship. Research question 2 is aimed at discovering how buyer-supplier relationship impacts supplier-supplier relationship – what components are affected and how. Research question 3 is aimed at understanding how triadic relationship in supply network impact NPD project performance.

Graphically the relation of each research questions with the appropriate element of the research model is represented on the figure 7.

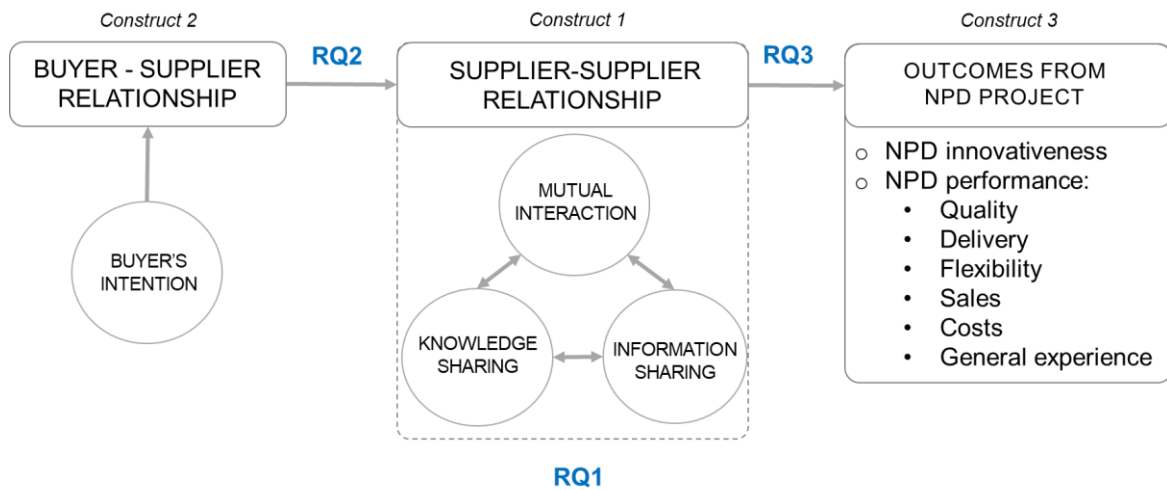


Figure 7. Research framework and research questions

The research questions were split in several and rephrased accordingly to be asked during the interview to buyer and supplier. So, there are two versions of the research protocol with the rephrased questions, keep the aim to explore the same element of relationship or NPD process. Each research protocol includes five main questions and a set of follow-up questions, aiming at clarifying or completing an answer from interviewee. Detailed research protocol is presented in the Appendix A.

## CHAPTER 5 – Research Methodology

In this chapter will be provided the description and justification of the research type that has been selected for this investigation – the case-study approach. Following the algorithm of the performing the case-study analysis, the explanation of the research methodology is presented in detail, starting from the definition of a case-unit of analysis, description of the cases selection criteria, data analysis and interpretation of findings.

### 5.1. Case study methodology

Coming from the scope of the analysis, presented in detail in the section 3.1 Research field and relevance of the study, the appropriate method for this study is the *qualitative research* (Strauss and Corbin 1998). Mainly this is due to the fact that the focal element of investigation under scrutiny is the relationships in supplier network and the research question is touching the *how* of a complex process, which is consistent with the qualitative research. Moreover, the focal element is closely related to the *human phenomenon*, since the component of personal perception cannot be excluded from the relationships.

The topic of the research inclines to observe the behaviour of the triad, to understand the way actors interact with each other, to explore the nature of the relationships to be able then to discover their impact on the performance of the company. Therefore, no hypothesis was put forward beforehand but instead the case will leverage the concept of relationship in supplier network as a starting point and is supposed to provide a comprehensive view on how particular relationships can affect the NPD performance by empirical research. Therefore, performing data analysis in the statistical manner is not suitable to be applied. All of this indicates that the appropriate method for this research is the case-study approach.

*Exploratory* case study type has been chosen since the investigation is aimed at exploring *how* a complex process and the primary aim is to make a qualitative research (Jack and Baxter 2010). Therefore, the appropriate steps were followed to perform the research as the case-study. Firstly, the problem was set. Keeping in mind the question either the idea of the research is interesting to anyone, the problem was verified on its significance, novelty, curiosity, appliance to broad audience and actionability. The clarification of all these points is presented in the section 3.1. It is important to notice that the process of finding supportive arguments for the check-list has been done thanks to the literature review, which could give a comprehensive overview of the analysis problem.

After a problem was set, the objectives were defined and formulated as the research questions, described in the same naming section 3.2., the theoretical base for the study was chosen. Selection of the theoretical support was done through navigation in the available



publications on the topic. Among the reviewed theories that seemed appropriate to the study there were research-based view, information processing theory, and social network theory. Other theories that have been used in the examined papers could not cover the scope of the analysis comprehensively.

The social network theory has been used as a support to build the research framework, since its focus on discovering the changes of behaviour of individuals based on the behaviour of surrounding environment. Evidently, individual's behaviour is reflected to the behaviour of the companies in their roles within a triad.

### *Variables Measurement*

This section provides a description on how relationship variables were measured in order to quantitatively evaluate them from the interview explanations.

#### *Variables for supplier-supplier relationship*

Mutual interaction between suppliers primarily includes mutual assistance, which implies willingness to help when one supplier faces a break-down, needs a maintenance of system or other support activities. It is classified as high, when suppliers are ready to demonstrate such types of interaction, there is present open flow of resources between suppliers, shared understanding and personal context. When such interactions appear less intensively, it is identified as low.

Knowledge sharing between suppliers as well as between buyer and supplier is referred to the set of experiences, skills and competences that could be exchanged between suppliers during the NPD project. Since suppliers usually supply not only one buyer, but may participate to different NPD projects, they could reapply acquired competences to the new sphere and share it with the other supplier. There is a high level of knowledge sharing when its quality and credibility (defined by abovementioned features) is high enough, and low level, when suppliers felt lack of knowledge exchanges: it has been below his expectations.

Information sharing between suppliers refers to the exchange of information between cooperating parties to fulfil goals of NPD project. It is identified as high, when the amount and frequency of information shared is fully satisfactory for collaborative parties. It is identified as low, when parties feel significant lack of information so that it complicates the NPD process.

#### *Variables for buyer-supplier relationship*

Mutual interaction between buyer and its suppliers is identified as high when there are present evidences of risk and benefits sharing, there are face-to-face meetings, constant feedback exchange, cultural satisfaction with way-of-working of business partners. It is indicated as low, when the abovementioned activities are expressed less, in lower degree. For example,

meetings are often replaced with the phone calls or e-mails, and there are no much intentions to interact from both sides.

Knowledge sharing between buyer and its suppliers is defined as the set of experiences, information and knowledge, sphere of application technical skills to implement the idea, possession of specific assets and resources that could be exchanged between buyer and its suppliers. It is identified as high in case the exchange of abovementioned elements in the definition is abundant enough to contribute to the development of NPD project. When there is poor knowledge sharing, which is not satisfactory for the actors of a triad, it is defined as low.

Information sharing between buyer and its suppliers is the exchange of information between cooperating parties in order to perform the activities together, following the objectives of this cooperation. Information sharing is evaluated as high, when the parties communicate frequently, there is high responsiveness from both sides, they share strategically important information, and its amount is fully satisfactory for collaborative parties. It is identified as low, when parties feel significant lack of info so that it complicates NPD process.

#### *Variables for NPD performance*

The performance of the NPD project includes: quality of the final product (service); flexibility of suppliers and its effect on the final project performance; delivery – if the project was delivered in times the buyer wanted, if the results fulfilled expectations, or too many things should have been fixed before delivery; sales volumes according to the forecast (if available); costs – either they are in line with the expectations; and effects on general experience of the buyer after working with suppliers, impact of their image and competences enhancement after the project.

## 5.2. Defining the unit of analysis

After the research was framed in the theory, the unit of analysis should be identified. The unit of analysis defines what the “case” is in a case study, meaning what exactly the study is aimed to explore. The unit of analysis can be individuals, organizations, decisions, social programs, processes, changes (Yin 1984). So, the idea is to select the element, which will be the object of investigation and to which all findings and conclusions will be related. Also, it is important to notice that the unit of analysis should be selected in a such way, so that it will be possible to compare different cases. Consequently, it would allow respecting the condition of a replication of a case-study, meaning that the research could be used also by others.

The unit of analysis depends on the primary research questions, formulated in the section 4.2 of the previous chapter. The aim of the study is to understand the nature of relationships in the triad during the NPD project. This is the principal element of investigation. To specify the

focus of a study, NPD process is taken as the surrounding context for exploring the relationship of the actors involved. The idea of this investigation is to understand how important the relationships are during the new product development, in the sense that how they could be exploited and how it is possible to benefit out of them. Specifically, roughly there are two big types of relationships that the study considers: relationships between buyer and supplier; and relationships between two suppliers. Particularly, the involved actors are those, who belong to the focal triad: buyer and two its suppliers. Thus, the *triadic relationship* is represented as the unit of analysis of this study, since only triad is able to encompass the components of interest, including constructing relationships, types of relationships, their practical meaning and daily detection.

Such unit of analysis seems to be general enough do not limit the scope of the study, since they can include different components to consider.

To better understand the reasons behind adopting one or another approach in relationships management, the research findings are expected to be built based on the outcomes from several examined cases. Therefore, this research is defined as a *multiple case-study* because of exploring several cases within the same research context. Using the multiple case-study approach is expected to bring more rich and robust results, because it should reinforce the generalization of results (Yin 1984).

So, buyer-supplier relationships and supplier-supplier relationships are possible sub-units of analysis. It is important to consider relationships as a mix of its three components – mutual interaction, knowledge sharing and information sharing, since they are expected to be very interconnected. Besides, separating each single component of relationships and analysing it within different context would not be relevant and value-added, but would significantly increase complexity in terms of data gathering. It makes this investigation to follow a *holistic approach*, since the same unit of analysis is going to be analysed for each single case.

### 5.3. Selection of cases

Selection of case-studies was primarily based on successful cases selection, meaning that the company should be one of the first among ones that investment in R&D the most and it also a leader on its market by revenue. An additional criterion was also applied such as presence of the company branch in Italy or in Ukraine to make easier the process of interviewing and improve the chances of getting fruitful results by talking to interviewers in person in their mother-tongue.

Before starting approaching the companies for the empirical research, the logical question appeared: “What companies to choose?” Answering this question has started with reflecting

back the aim of the study and understanding what cases would help get the most comprehensive view of the investigation. The process cases selection has been performed through the empirical sampling, which may refer to considering success cases as the exceptional situations. The idea was born to explore the cases of the best NPD performance and verify either it was correlated with high-quality relationships in supply network.

Literature review on NPD performance has shown that it is very closely related to innovation capabilities of the company. Therefore, the first step was looking for the companies, rated as the most innovative by different institutions. Not much surprisingly, googling the phrase “the most innovative companies” gives the list with organisations, big portion of which do not possess physical assets, such as Netflix, Facebook, Spotify, Instagram (Fast Company 2018). Traditionally, as well as during last decade, the list starts with Apple (technology company that literally dictates the style that will be surely liked by the majority of smartphone users (Statistica 2018)), and goes on with Square (payments company, dedicated to serve small businesses), Tencent (application for messaging), Amazon (the biggest electronic commerce and cloud computing company (Wikipedia 2018)). In business, innovativeness means developing something that surprises potential customer in a pleasant way. Otherwise, innovation would not find its application and therefore, cannot find its place on the market. To understand market needs, companies involve their research and development departments so that they get more awareness on how to proceed with their innovation strategies.

Therefore, the first measurable criteria to select cases is the investment in *R&D*. Comparing of several reports (recode 2018, Statistica 2018, Strategy& 2018) has shown very similar/same results. So, the report from consultancy company PWC (Strategy& 2018) was defined as trustable resource. Many companies indeed check their performance by comparing their R&D investments and revenues or the sales increase in the product line where investments were done.

Applying only this criterion to run the research brought some doubts due to the fact that R&D spending do not necessarily guarantee the successful performance of the company, since the list of companies with the biggest R&D investments and the biggest companies on revenues are different.

According to Forbes research (Forbes 2017), successful performance of the company can be illustrated by its revenue. Since the research is aimed at investigating the behaviour of manufacturers and its suppliers, they all are aimed to be profitable organisations, this criterion is reasonable to consider. So, the companies that are leaders in the industry by revenue were selected.

Keeping focus on triadic relationships, the idea was to select such a triad that would share some insights about their relationships with suppliers and the process of a new product development. One of the assumptions after the framework construction was the positive interrelation of supplier collaboration with the performance of NPD, meaning the higher the supplier collaboration, the higher the performance is expected to be. In fact, the McKinsey report "The power of supplier collaboration" (Noor, et al. 2013) demonstrates empirical evidence that those companies which were aimed at developing collaboration with suppliers were realizing improvements in their performance.

It was extremely interesting to find a case which would really tell about the true collaboration of supplier. Considering the aim of the research to investigate triadic relationship during NPD process, the selection was firstly focused on searching the appropriate buyers and look for the relevant product to take as a reference, for which its suppliers would be collaborating. After a certain number of interviews, the difficulty to get in touch with suppliers became evident so the decision to turn the approach on interviewer selection was made. Therefore, the initial contact for some interviews was the supplier for the focal triad. Therefore, the ideas to try contacting directly the supplier was born to ask about their relationships with the client. Impressive number of researches and studies on the topic of supplier collaboration are published by the consultancy firms. That is how the idea to check whether they implement it themselves on practice by supplying consultancy services to their clients.

The presence of the company branch in Italy or in Ukraine was preferable, since it could simplify communication by speaking the language of everyday life, which made easier to perform an interview and get the fruitful results and it made indeed.

So, the phase of theoretical research on the cases that would suit the best for the investigation, has ended, leaving as a result a list of selected companies. Afterwards, process of approaching companies has started.

Contacting companies has also left its footprint on the final list of companies involved in the empirical research. Mainly it was due to the fact that not all the information is easily available through the secondary sources to make sure that all selection criteria are respected. Therefore, from the list of 20 companies 4 companies were dropped because the branch in Italy or in Ukraine did not deal with the manufacturing, meaning did not directly work with suppliers but instead was occupied only by distribution, for example and interviewing such company could not enrich study fruitfully.

Two more companies were dropped out from the list because their representatives come back with the reply that everything, they do is confidential, so they cannot give an interview. Other 6 companies did not reply, so the interview was not scheduled at all, and remaining two more

companies that were interested, unfortunately, were not available to schedule the interview until end of November because of tight agenda.

Since the multiple case-study approach has been chosen for the research, replication and heterogeneity were two possible approaches to follow. Replication assumes selection such cases to duplicate results from previous researches to proof the similarity. Heterogeneity implies selecting cases, which are representative of different pattern of behaviour, which is exactly what this study is aimed at – exploring the differences of relationships in different triads. Heterogeneity was respected by selecting companies from different industries to compare different typologies of relationships that the actors of a triad adopt while developing a new product. Thus, *heterogeneity* approach suits to this investigation, since different decisions are examined which are related to the same phenomenon.

Following the heterogeneity approach requires to set the characteristics and typologies of the unit of analysis a priori. Characteristics of relationships components, such as mutual interaction, knowledge and information sharing are indeed defined through secondary sources and described in the section 4.3 – research model.

#### 5.4. Data collection

The data were collected, following 3 principles:

- 1) Multiple sources of evidence “data triangulation”
  - a. Researcher observation – scouting the web-sites of a focal company, reading its annual reports, looking for manifestation of the chosen unit of analysis – how the focal company tends to maintain the relationships with its suppliers.
  - b. Use of archival data – pre-existing documents, results from the previous researches, videos, etc.
  - c. Conducting interviews.
- 2) Create a well-organised case-study data base using notes, documents, found during the previous steps and creating the tables to structure the data obtained.
- 3) Applying the chain of evidence approach – when summarizing results, be sure to be able to trace inferences backwards.

The key step of the data collection process was delivering semi-structured interviews. Before coming to this step, however, it was needed to find an appropriate contact person in a focal company. Since the expected results should be related to the impact of relationships on the NPD performance, the employee should be involved in the purchasing department, to give insights about the relationships with suppliers and from marketing department to share about the new product that was actually developed. Sometimes, employees from R&D departments

or any other with a different name of a department under the supply chain department that is in charge of it. Thus, the organigram of the company was reviewed if it was available. So, the right person was searched thorough the LinkedIn network, and approached via message or e-mail with the request to have an interview. This way, the data-base with the contacts was created and approached gradually. The response rate was not 100%, but still higher than expected – more than half companies approached had replied. However, unfortunately, it was not always possible to schedule the interview, since the existent brunch in Italy could be dealing only with the distribution, so no actual example of the new product development could be taken as a reference. Besides, some contact persons have refused giving the interview because of confidentiality issues.

For the ones, who have agreed to have a face-to-face interview, or at the call via phone or skype, the research protocol with the questions was sent before interview, so that the interviewee could get to know with the aim of analysis and have an overview of the arguments that are going to be touched during the interview. Two research protocols were developed: for the buyer company and the suppliers. Both are presented in the Appendix A. There are two versions of each protocol in two languages: English and Italian (to make interviewers comfortable, the interviews were conducted in their mother tongue). The research protocol of the supplier was intended to investigate the same questions, but from the supplier perspective. Therefore, the questions are slightly modified to let the supplier share its own point of view of the investigated situation.

To make sure the data is validated by multiple sources, the data about the focal company were firstly collected from the secondary sources, like the web-sites of a company, its annual reports. So, the first step was the *researcher observation* of the available data. It implied exploring the peculiarities of the industry, in which the focal company operates, its main competitors – key players of the industry, its scale in terms its revenues, investments in the research and development, the width of portfolio, in terms of number of brands. The last one was considered since the NPD is about launching novelties and enriching the product portfolio of a company. Thus, if a company has several business lines and large portfolio of brands, it is more likely to develop innovations more frequent, therefore, it has higher chances to be a successful new product developer.

Available data from the previous researches on this company have been checked and critically reviewed. LinkedIn social network, for example, contains lots of presentation on the slides share platform, which are done by other researchers on the particular topic. Of course, such source of information was not the primary reliable source, however by applying a triangulation

approach, if the data found from other sources was matched in the one, found from the previous researches, it has been also considered in the analysis.

The interview was developed in the semi-structured way. Each interview has been started with the appreciation of the contact person for finding time to share his or her experience, introducing the scope of analysis and asking general introductory question about the possible NPD project we could take as a reference and the role of a contact person in this project. Each question in the protocol was aimed at discovering a certain aspect of the application of the research model on the examined case. Of course, those questions were completed with the follow-up questions in order to clarify and enrich the obtained information. Generally, open-ended questions were asked to guide the interviewee share his or her experience.

If the interviewee was agreed to record its speech, it has been done and after the interview the records were transcribed. Otherwise, very detailed notes were taken during the interview and the transcription was done right after the interview, so it was almost as detailed as with the records. Each interview transcript is presented in the Appendix B.

So, for the triad 1 the project leader of the NPD project was approached and interviewed twice. After the first interview, missing data was identified, and research protocol was slightly modified to get more comprehensive view of the project. The project leader was the brand manager from the marketing department. For the triad 2 two suppliers were interviewed – two consultancy companies, one of which was in charge of consulting a business part of a client, and the other was responsible for the technical implementation of the project. So, the interview was conducted with Functional Strategy Manager from the company of a business consultant and with Business Analytics Consultant from the technical consultancy company. For the triad 3 the Purchasing department was approached, and the interview has been approved by the Contract Manager. From the company of Buyer 4 the interview was with Head of Indirect Procurement. For last three triads, the purchasing department was approached, and operational purchaser has made described three different NPD projects during the interview that allowed to examine triadic relationships in three different triads.

All interviews were lasting around 30 minutes, excluding the part of the knowing each other and conclusive talk afterwards.

After all, the NPD innovativeness of each project is evaluated by the author with the scale from 1 to 7, since such scale has been adopted by the relevant publications, performing the linear-scale evaluation (Wu, Choi and Rungtusanatham 2010, D.-Y. Kim 2014, Luo, Sha and Huang 2013, Ferreira, et al. 2015). In this scale 7 would correspond to the implementation of the radical innovation, – novelty that has never been implemented before in the focal field, and the range from 1 to 6 would correspond to the incremental innovation, where 1 implies



adoption of small changes and 6 – making of very significant changes but the novelty is still considered as the incremental innovation.

The semi-structured nature of the interviews made it possible to start from some key issues identified through the research question – thus avoiding the risk to make the interviewee speak on out-of-scope topics. Of course, the lateral findings were interesting to discover but it was important to keep focus on the scope of investigation and also let any innovative issue emerge from the open discussion.

## CHAPTER 6 – Data Analysis and Results Interpretation

This chapter reflects the empirical analysis performed for the study based on the interpretation of the relevant findings, introduces in the section 5.5 of the previous chapter and this is presented separately for each research question.

### 6.1. Data analysis

This phase of the research has been done, following the next steps. Firstly, a summary of all data collected has been made; secondly, all interviews have been analysed within and cross cases; thirdly, the data were triangulated with findings from other sources; and fourthly, the findings were interpreted, considering all available data.

#### 6.1.1. Summary of the data collected and within case analysis

For each of the examined triad the table with the description of NPD project is created, including quotations from the interviews. There are presented roles of each actor of the triad, the goal of NPD project and the sequence of actions, performed by each actor along the NPD project – a sort of algorithm that has been followed. Each table is completed with the explanation on the level of collaboration in the triad and innovativeness of the implemented NPD project. Collaboration has been evaluated within two dimensions: satisfaction of the buyer with the collaboration (from very negative experience to very positive) and closeness of collaboration (from arm-length to strategic).

##### *Triad 1*

The first triad contains Buyer 1 as the multinational company in fresh dairy industry. Fresh dairy products account for more than 50% of the company's revenues, sharing with other business lines. For this reason, the reference project of a new product development was taken from this division, and it is the launch of a new brand of yogurts. This brand was born from the presence of most likable heroes by the target audience on the packaging. To use those heroes, Buyer 1 was required to adopt franchising, so one of its suppliers, considered in the triad 1 is the Supplier S1.1. – licensor of the heroes for the new yogurt brand. The second supplier of the triad is the design agency, invited to develop a new packaging design for this novelty.

The steps of the NPD project 1 are presented in the table 1.

*Table 1. Triad 1 – Buyer-Supplier-Design Agency; launch of the new brand of yogurt*

Buyer 1 is fresh dairy products manufacturer. NPD steps are briefly described in the following list:

Supplier 1 is the owner of copyright of the heroes used for creating a new brand. Role – provide licenses to use the heroes belonging to the company of Supplier S1.1.

Supplier 2 is the design agency. The role of Supplier 1.2. in this project is to develop a new design for the packaging of a new yogurt.

Project 1 – launch of a new brand of yogurt. The main goal of the project was to cover a new segment of population, so to expand the target audience by enriching the product portfolio. Consequently, to increase sales of the corporation.

1. To expand the consumer base and enhance sustainability of kids segment the portfolio review has taken place. Desired target audience to cover was children of 7-14 years old. Thanks to the research, run by Marketing department of the Buyer 1 the most likable heroes among this target audience were discovered. This is how the idea about developing yogurt with the brand of such heroes was born.
2. The contracts required for collaboration between Buyer 1 and Supplier S1.1 was signed. After Supplier S1.1 has shared with Buyer 1 the database with the available prototypes of the chosen heroes for design of the packaging.
3. Buyer 1 has chosen the Design Agency to implement the design part of the packaging and signed the commercial contract and non-disclosure agreement with this party.
4. Design Agency in close collaboration with Buyer 1 has developed several alternatives for design of the packaging.
5. After choosing the best design, Buyer 1 has sent it to Supplier S1.1 for approval.
6. Supplier S1.1 has provided Buyer 1 with the requirements on displaying their heroes on the packaging. Buyer 1 has applied their feedback and together with the Agency updated the design and after sent it back to Supplier S1.1. The communication has been performed through the global system provided by Supplier S1.1, called Online product Approval.
7. Meanwhile, the process of tastes selection and packaging producer selection have taken place. Supplier S1.1 also has strict requirements on selection of the packaging producers. All candidates to produce the packaging with Supplier S1.1 logo should perform an International Labour Standard Audit, authorized only by certain companies.
8. Buyer 1 has asked selected potential packaging suppliers to perform this social audit according to the requirements of Supplier S1.1. After they are done, they have sent their results to Buyer 1 and they have uploaded these results to the Online Product Approval system. The suppliers who got

positive results has been granted with the special permission letter to produce the packaging with heroes from Supplier S1.1.

9. The first batch of yogurts was required to be tested on the nutritional quality according to Nutritional Standards of Supplier S1.1. After approval, the final packaging gets the special stamp from Supplier S1.1, and only afterwards the yogurt can be produced in batches to be distributed among the retailers.

In the end of the interview, the interviewee was asked to evaluate the general experience they have gained after collaboration with each of the suppliers and the level of collaboration according to their perception of work. The satisfaction of the supplier performance in the project was evaluated on the scale from 1 (very negative experience) to 7 (very positive experience). The level of collaboration was evaluated from 1 (arm-length relationships, contractual trust only) to 7 (potentially long-term strategic collaboration, goodwill trust). Four quadrants obtained from the intersection of these two dimensions are the following ones: low level of collaboration and supplier performance will imply negative experience and arm-length collaboration; high satisfaction from the supplier performance and low collaboration; positive experience from supplier performance and strategic collaboration; and negative experience from supplier performance during strategically important projects. The results are visualized on the figure 8.

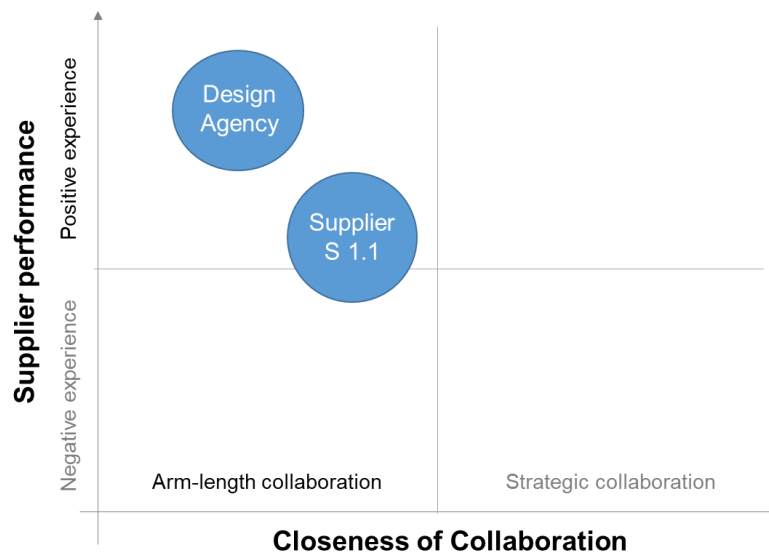


Figure 8. Buyer's satisfaction from collaboration in the triad 1

Buyer 1 is the leading dairy manufacturer that has a rich experience in launching innovations. Its way of working, level of skills and competences has been already proven as successful for years. Thus, the company tends to provide the suppliers of packaging (particularly, design agency, plastic and cardboard producers, franchiser) with the detailed technical specifications of its needs to execute within the required time frame. Thus, the level of collaboration with such suppliers is defined as low due to the policy of the company.

Since the project is dedicated to the establishment of a new brand of yogurts, it is not radical innovation for the company, because company owns a broad portfolio of brands, and yogurts take the major part of it. This project is the example of an incremental innovation: new tastes were created and tested, completely new packaging was developed and what make this project more uncommon is the use of license for using Supplier's S1.1. heroes for the brand. It has changed the way the company usually interacts with suppliers, the product is aimed at covering the new part of population, expanding its target audience, so using on the scale from 1 to 7, the NPD innovativeness could be evaluated for 4.5.

#### *Triad 2*

The second triad contains as a Buyer 2 the multinational company specializing in confectionery products. In this case as the reference project was taken the development of the software of financial planning. Despite it is not the core activity of the company-buyer, it leaves an essential footprint on the profitability of the company, since the software was aimed at providing transparency of the financial flows, including production and inventories. And what is even more strategically important that this project was aimed at integrating several branches of the company-buyer worldwide and provide a solid and robust integrated platform, which would allow to track the business flows of the Buyer 2 Group.

The suppliers in this case were two consultancy companies, which have been providing complementary services. One was the business consultant, Supplier S2.1 and the other was technical consultant, Supplier S2.2.

The NPD algorithm is described in a table 2 according to consultant's way of working, meaning adopting a waterfall model.

*Table 2. Triad 2 – Buyer-Supplier-Supplier; development of a new integration system*

Buyer 2 decided to extend the network of branches of the Buyer 2 Group that would be able to implement parts of	1. After buyer realizes a need for a new integrated system and decides to go-life with it, it usually conducts a tender to select the suppliers. Tender winners – two suppliers of the project, which are abovementioned consultancy firms.
---	---

financial planning, using the integrated system. The role of supplier 2.1 was to consult the buyer about the impacts of the business side of the project: impacts of the business flows, changing in benefits and efforts due to system implementation, effect on the key figures of the business. The role of the Suppliers 2.2 was to implement the requests of the buyer from the technical perspective with the support from the business consultant.

Project 2 was aimed at providing higher transparency of the financial flows and making possible to involve other branches in the process, so that the opportunities for tracking expand and managing becomes easier. The output of the process was creation of the internal hierarchy of the rights for each level of users and standardisation of the systems within different branches (countries) of the Buyer 2 Group.

2. Analysis of the requirements by the consultant companies. On the kick-off meeting, where all actors of the triad are present, everyone understands its field of responsibility and after a party starts the analysis. All actors still can constantly approach each other when needed.
3. Design of the solution – business/technical blueprint is the outcome of this stage – a document (can be 100-120 pages) with detailed description of the problem, system features, solutions requirements. Two suppliers give their input to the creation of this document.
4. Sign of the Business Blue Print document or/and the Technical Blue Print document. This stage means that the buyer agrees on the interpretation of the problem by consultants and he approves the start of the next phase
5. Implementation or development phase. Two ways can be followed during this phase. The first is *configuration* (out of the box method), which implies using the existing tools, that system already contains or *customisation* – respectively the method, that implies development of a customised solution. Business consultant supports technical consultants, assisting the process from the functional perspective of the business side.
6. Test phase: UAT (User Acceptance Test) or integration, with the participation of both functional and technical consultants. Also, there is a need to perform regression test (verification that all old functions work they were) and non-regress test (all new function test – verification that all new functions work as intended)
7. Go-life phase: transfer all the settings in the production environment.  
There are 3 environments: *production*, where the users work, *test*, where the tests are performed with the real data and *development environment*, where the system is building up (consultants, technicians have access).

8. Post-go-life support phase: the time window when the buyer can already experience the new ready system but still has a right to approach suppliers in order to apply some changes. These changes can be accepted or not by the consultants depending either they are still in the frames of a started project or they are out of borders. This phase can last several weeks/months depends on the project.
9. AMS (Application, Maintenance and Support) phase: after the project is done, another type of activity starts, dedicated to support the client (Buyer) with further activities, related to the system

The world of consultancy implies high collaboration between suppliers, extensive information and knowledge sharing for the project performance. Business consultant has higher level of collaboration with the buyer due to its specificity of work, also he is often present in the HQ, together with the buyer they perform the analysis of needs which afterwards communicated and translated to the technical consultant into a technical language. Additionally, technical consultant has lower level of collaboration with the buyer because Buyer doesn't care a lot about how the project will be done but instead of the final output of the project. The results of collaboration in the triad2 is graphically represented on the figure 9.

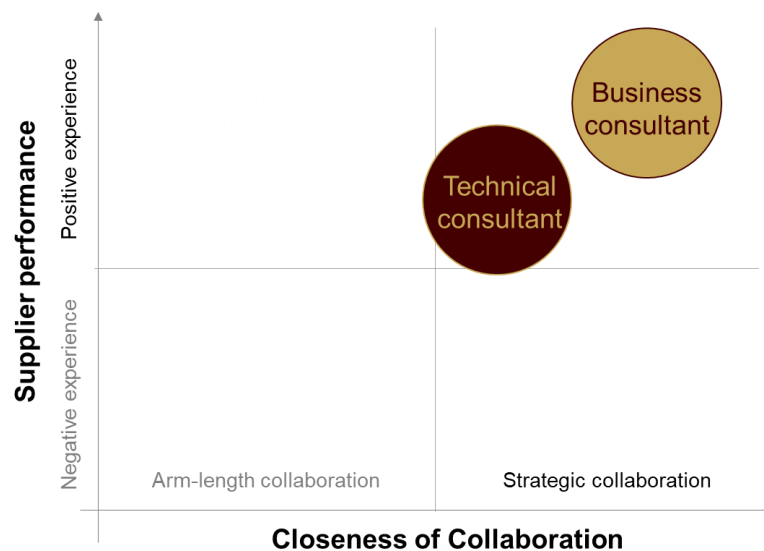


Figure 9. Buyer's satisfaction from collaboration in the triad 2

The company has decided to improve the existing system of a financial planning in several branches of the Buyer 2 Group and implement it also in a set of other branches. Some branches have had different level of adoption of this system, some of them have not use this

system at all to perform financial planning. So, the score for NPD innovativeness in this project is 6, implying the highest score in the frames of an incremental innovation.

### *Triad 3*

This example is referred to the triad, involving the design agency, as in the case of triad 1. The company of a buyer is International brewing company, owning a worldwide portfolio of regional and local brands. The product of the company-manufacturer is sold through a wide-capillary distribution network and having a powerful visualization sales support, producing a huge variety of point-of-sales (POS) materials, branded with the name of the company-buyer, corresponding the name of their iconic product. Such point-of-sales materials (as noted by the interviewer) play a key role for growing the sales volumes of the core products, because they stimulate the desire to buy the core product. Thus, the reference project is about the creation of a new branded out-of-shelf bottle holder. Supplier S3.1 is supplying one of the raw material components for this point-of-sales material and the other supplier – Supplier S3.2 is the design agency, responsible to design the graphics for the POS material. The project steps are summarised in the table 3.

*Table 3. Triad 3 – Buyer-Supplier-Design Agency; launch of a new POS material*

<p>The role of Buyer 3 plays an international responsible brewer, manufacturer of drinks and point-of-sales materials, aiming at enforcing brand visualization and provide additional intentions to sales.</p> <p>Supplier S3.1 was responsible to supply a certain component of raw materials for the POS material and then print the final product after design is developed by the design agency – Supplier S3.2.</p> <p>Goals of the Project 3:</p> <ul style="list-style-type: none"> <li>○ Support promotion activities for beer – sales increase</li> <li>○ Respect the timing of the project</li> </ul>	<ol style="list-style-type: none"> <li>1. Marketing or Trade Marketing recognises a need of a novelty. The request goes to logistics department and NPI (New Product Implementation) “office committee” is formed.</li> <li>2. The project leader puts down a table for all the actors: for the purchasing part, for marketing, for the management designs, where there are indicated the tasks and deadlines for every actor involved in the process “all the actors involved from different departments have a possibility to monitor the project”.</li> <li>3. “I am from purchasing and ... I am verifying the information that I got for the supplier...” the supplier is approached, and all necessary information is shared with him to produce the trial product.</li> <li>4. The material is verified by logistics department on its stability, resistance, shapes of the hollow punch... When materials succeed loading tries, the part with graphics goes activated.</li> </ol>
---	--



- Respect the quality control, test product characteristics
5. When the material is ready, it is communicated to the graphics supplier through the ad-hoc portal. Supplier S3.1 delivers the materials to Buyer 3.
  6. Idea on graphics comes from marketing. The design is done in collaboration with marketing and Supplier 3.2 – graphic agency. They upload graphics as long it gets accepted by marketing. “...once approved, the graphics vendor uploads the approved graphics to the portal and from there the technical carton supplier downloads it and takes it into the production”
  7. When the product is made, dried and ready to be delivered, it is sent to the warehouse of the Buyer 3 and then goes to the clients of buyers 3 – among its distribution network.

Collaboration between two suppliers was necessary to make possible the exchange of the technical knowledge between those two. However, the interaction was going on always through Buyer 3 to keep awareness and coordination of the process under control. Buyer 3 was listening to feedback from supplier how may be possible to improve the process (printing colours) and get the saving, so the interaction was proactive form both sides. Long-term relationships: evaluating on penalties when delay is happening. Diplomacy, empathy, psychology are key elements while maintaining the relationships. The suppliers are asked to innovate: to show possible ways to accomplish the task. These facts indicate on high score of the collaboration. The degree of collaboration with Cardboard supplier is higher due to longer interaction during the NPD process (after graphic agency finalises the design, it is passed to supplier S1 through the online platform to print it, after what the final printed product should be verified again either it fulfils all the expectations) Still, they have got very similar score because the interaction during the process was equally aligned among all three actors. Figure 10 displays the collaboration in the triad 3.

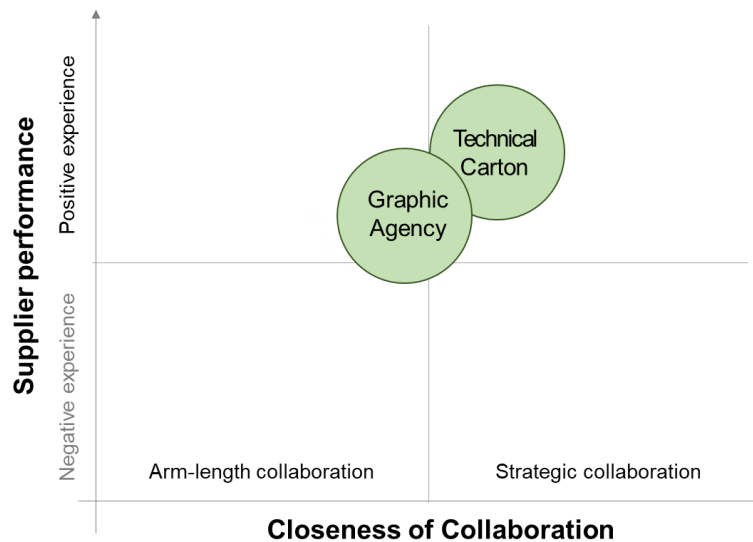


Figure 10. Buyer's satisfaction from collaboration in the triad 3

This launch of this point-of-sales material was not the pilot project for the company, since company already has a powerful image, which is visually supported. The details of the material design change instead, every time it is produced to start a new marketing campaign, or any kinds of updates take place. The NPD innovativeness in this project is evaluated for 3.5, which corresponds the medium vote on the scale, underlining that the types of such point-of-sales material has been existed already, but there is graphics used, “which are different from the traditional ones”.

#### Triad 4

Triad 4 includes as the buyer the company, that is always one of the firsts in the rating on innovativeness. In fact, it is very innovation-oriented global healthcare company, one of the largest pharmaceutical companies. Among its wide scope of products and services they take care of developing a support programs for patients, exploiting benefits of digital era and making easier the interaction between a patient and its curing doctor. For such projects Buyer 5 involves some research institutions, which play a role of suppliers. The project stages are presented in the table 4.

Table 4. Triad 4 – Buyer-Supplier-Supplier; development of a support program for patients

<p>Buyer 4 – global healthcare company, that is in charge of developing support programs for patients to make easier the interaction between them</p>	<p>1. The internal department are considered as the client, because the need goes from there. The purchasing receive it and “start investigating the main suppliers, operating in the field we know”. So, the need is recognised by the Purchasing and interpreted, completed into the clear</p>
---	--

and their curing doctor. Supplier S4.1 and Supplier S4.2 are research institution, conducting the research for the Buyer 4 on the requested topic and performing advisory of the project.

Project 4 – development of the support program for patients, using apps, phones, or any other digital technologies with the aim to make faster, simpler and more efficient the interaction between patients and their curing doctor to be able to regulate doses, to communicate faster and easier, to get advices etc.

requirements. Because “Not always what they intend to need is what they ask for”

2. The suppliers are assigned with the requests and the things the Buyer might needs “to stimulate suppliers to be proactive in the field to push them towards our [Buyer 4] expectations”
3. The process with the series of internal analysis starts together with Buyer 4 and its suppliers and then “we enhance it with added value activities considering the patient's point of view, the economic point of view...”. Buyer 4 shares all necessary information to let suppliers develop the best offer...
4. The suppliers perform the analysis to understand the market, take all their “baggage of experience” to develop the most technically innovative solution to face the current trends prepared. “The supplier must give us not only what we ask but open what he could possibly offer from the point of view of services”. Suppliers are asked to apply all their previous experience, provide the Buyer 4 with the use-cases to make sure the proposed solution is viable, competitive and effective.
5. The supplier is evaluated with the KPI (key performance indicators) and ABI (activity-based indicators) that are developed during the project has been running and they are very specific to the type of project (reach a certain type of target with the users of the program, for example). The solution is delivered to the Buyer 4.
6. Then the feedback gathered from departments is shared with the suppliers to let them improve.
7. The post-campaign and post-delivery phases take place.

Innovation is the key for the Buyer 4, so they seek for suppliers with whom they can make a partnership, with those who may be able to bring them innovation. It is among their fundamental interests – not just responding to the internal requests but to propose innovative solution. For this in a proactive way, they ask supplier to provide them with ideas, to give the movement towards innovation. They interact personally with the suppliers, telling what they need and what they might need to stimulate them for proactiveness. Buyer 4 plays openly with

its suppliers to get the biggest advantage from the power of “mutual brain”. The collaboration in triad 4 is represented graphically on the figure 11.

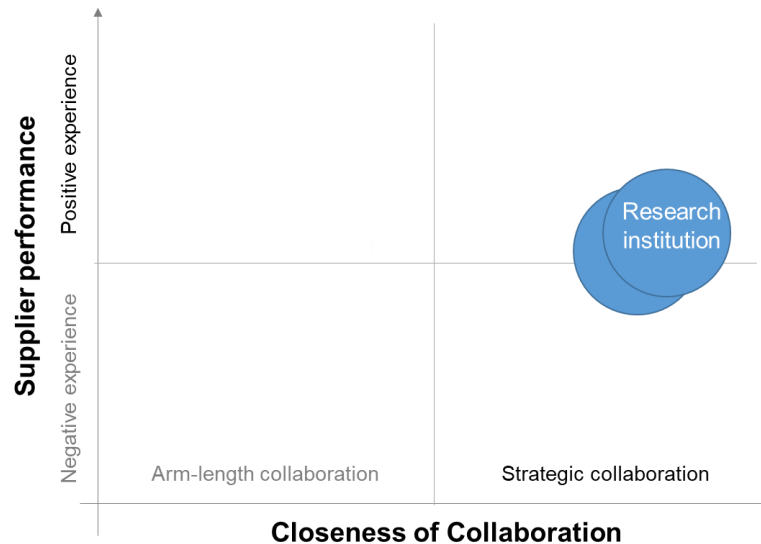


Figure 11. Buyer’s satisfaction from collaboration in the triad 4

Each project performed by the company is unique in the sense is that it is developed for the new treatment. The KPIs of the project are get developed during the project. This is the sign of high innovation required. Buyer 4 asks suppliers to exploit their “baggage of experience” to come up with the most innovative, the most effective and efficient solution. Buyer 5 is seeking to apply the latest available technologies in the digital world to follow its mission. “This program aims to give patients the tools that somehow make it easier to track the consistency of compliance with daily doses of pharma ... very often the therapy is not effective because it could not be done properly”, – states the interviewer. So, the challenge is constant. Therefore, the score of innovativeness in this NPD project is the highest – 7, corresponding the radical innovation.

#### Triad 5

In this case the role of Buyer 5 plays a multinational food processing and packaging solutions company that closely works with its customers and suppliers to provide safe food. The referred project is the standard project of packaging development. The suppliers S5.1 and S5.2 supply the components of raw materials for package production, particularly, the supplier of pouch and carton accordingly. However, Supplier S5.1 makes also the processing of the pouch by the technology, developed by the Buyer 5. In the beginning of a project Buyer 5 has shared the invented technology by central group of Buyer 5 company and they have agreed all

technical details of the process. Therefore, Supplier S5.1 can be also considered as a service supplier. The project description and the roles of the triadic actors are presented in the table 5.

*Table 5. Triad 5 – Buyer-Supplier-Supplier; packaging development*

Buyer 5 in this project is the manufacturer of packaging. For the production he involves two suppliers of raw materials components: supplier S5.1 – pouch supplier and supplier S5.2 – carton supplier.

The goal of the project is to produce the packaging, strictly respecting the requirements, coming from the client of Buyer 5.

1. The client orders a certain type of packaging. And Buyer 5 realised the need of certain raw materials
2. Buyer 5 invites its suppliers base to participate to the tender, supplier candidates deliver their presentations/have phone calls with the Buyer/present themselves via e-mail, and after internal discussion within the Buyer group, the suppliers are selected, the contracts are signed with Supplier 5.1 (supplier of pouch) and Supplier 5.2 (supplier of carton) separately.
3. On the kick-off meeting with suppliers (separately with each of them), all the conditions are agreed regarding the delivery of product, the quality, the technology to use, etc. The supplier is warned about possible changing circumstances when he is required to be flexible, when unexpected orders arrive. However, the bargaining power in case of Supplier 5.1 is in the hands of Buyer 5, and in hands of Supplier 5.2 in case of carton supply.
4. The company of Pouch supplier has a Key Account Manager working specifically with the Buyer 5, since it is a major client for Supplier 5.1. So, in case additional orders come, the production plan of Supplier 5.1 can be changed. The Supplier 5.2 instead is not that flexible, because “Buyer 5 is a drop in the ocean” in their base of clients. So in case they are capable to satisfy the extra need, they do it, if not, they are not likely to change their working plan.
5. So the pouch is produced and “it happened that they [Supplier 5.1] carried us [Buyer 5] the tape not by car, but by taxi” to shorten the delivery time to minimum, instead of waiting for the next truck scheduled.
6. Contemporary, the supplier of carton is delivered according to the agreed delivery schedule.
7. The production phase takes place and the product follows other phases which are out of the border of a triad 5. The

relationships among Buyer 5 and its 2 suppliers are closed for this project, – after the Buyer 5 is sure of the quality of the supplied raw material components.

Due to specificity of paper companies, particularly, the fact that packaging industry is not among their focal interests (because there are bunch of other industries, requiring supply of paper and carton) collaboration with Buyer 5 is arm-length. Still, personal relationships are important and sometimes help to change order conditions in case it is unpredictably caused by a new order from a client. If they could satisfy buyer without additional effort, they did it, if not, they did not perform extra work. The collaboration with pouch suppliers instead is higher because they recognise that their buyer brings them most of income and it is not so easy to find another, because the material is not widely-applicable. Therefore, they try to improve themselves by suggesting new ideas on production improvements. However, those solutions cannot be applied right away because everything should be agreed with the client of buyer. But in case the client asks for possible improvements, the Buyer 5 can come back to the proposed solutions from suppliers previously and implement it. And this way to grow up in the eyes of buyer. If the central branch of buyer company decides to apply a new technology of pouch production, collaboration also increases, since they should establish new conditions of working together. Satisfaction from cooperation with pouch suppliers is pretty high, since majority of the evaluation criteria are respected: some pouch suppliers value their relationships with the buyer so much that they are ready to unexpectedly increase order quantity, decrease lead time and change delivery conditions (deliver by taxi) only to make the buyer highly satisfied. Collaboration in triad 5 is represented on the figure 12.

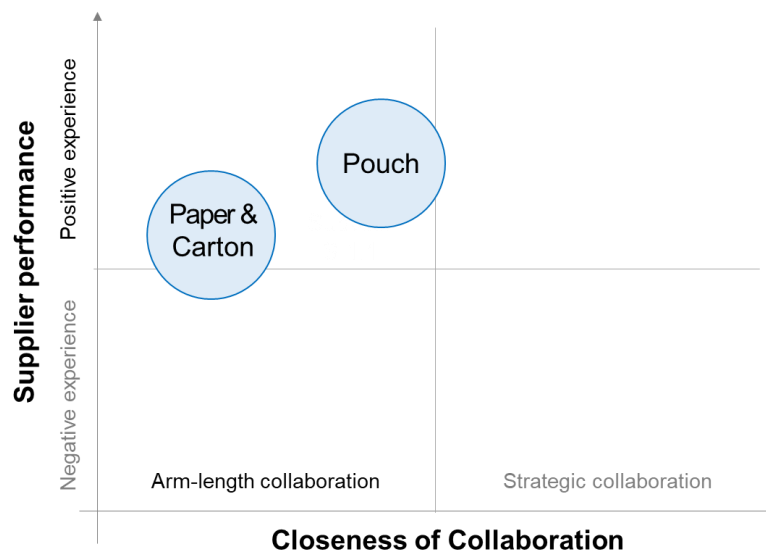


Figure 12. Buyer's satisfaction from collaboration in the triad 5

This project follows a standard procedure. The only variable in this case comes from the orders of the client of the Buyer 5. It brings to the project the changes in the production technologies, order time, delivery time, which in turn impacts the way of working of a focal triad. So, the score of NPD innovativeness is 1, corresponding to implementation of small changes in the existed processes.

### *Triad 6*

This is the third example of a triad, involving a design agency as a second supplier. Buyer 6 is a juice manufacturer, having in its portfolio different types of format of packaging to suit diverse target audience and adopt its product to different way of consumption: at home, on the way, etc. The suppliers, considered in this triad are the supplier of packaging, a large corporation of packaging solutions and the design agency, that was in charge of adoption an existed design to the new format. The project is characterised in the table 6.

*Table 6. Triad 6 – Buyer-Supplier-Design Agency; launch of a new format of packaging*

<p>Buyer 6 is the juice manufacturer, that outsources packaging production and development of the design for the packaging. These activities are performed for the Buyer 6 by the Supplier 6.1 and Design agency or Supplier 6.2 respectively. The goal of the project 6 is to re-innovate the packaging in a new format (from 0.5l switch to 0.3l and add the straw), following the market habits.</p>	<ol style="list-style-type: none"> <li>1. Buyer 6 runs a market analysis and realised that the smaller formats of drinks are accepted better by the market at the moment, so he decides to change the format of the packaging.</li> <li>2. “Buyer 6 makes a new layout – what he wants to see on the package, and then comes to us [Supplier 6.1] with this picture”. Buyer 6 meets with the Supplier 6.1 and discusses in detail the updated packaging: ... what kind of packaging it should be, what form it should have, what should be written on each side, where Buyer’s 5 logo will stand, because Buyer 5 prints, the mark is on the side or below...</li> <li>3. The Supplier 6.1 verifies if he has all the required components already available or he needs to conduct a tender in order to find a specific supplier for that particular straw, for instance.</li> <li>4. In parallel, the design, updated by the Supplier 6.2. (Design agency), according to the new format and it is passed to the Supplier 6.1. “Then we [Supplier 6.1.] develop a drawing together with the quality and design department [internally and agreed with Buyer 6 afterwards]: it can be a little paler, more saturated, the packaging can shine, it can be matte, where you need to make a hole for straw... “</li> </ol>
---	--

5. The test packaging is produced (possibly not one) and delivered to the Buyer 6. Buyer 6 they look, give their comments, like there is should be a change, there is a very unnatural green, should be richer, but not brighter...
6. The feedback is implemented and after the Buyer confirmation, the packaging can be produced in batches. The agreed design and format details should be strictly followed: all packaging batches should be equal. If something differs, the Buyer 6 has a right to give back the produced materials, assign Supplier 6.1 with the penalties for not respecting the agreed conditions of packaging production.
7. The ready batches of updated packaging is delivered to the Buyer 6 for juice manufacturing.

As purchasing Supplier S6.1 worked with already defined template from the design agency, so the collaboration with them is minimal – the agency has just provided a design for packaging, which should be printed by the Supplier S6.1. With the juice manufacturer, instead, the collaboration was higher, but still arm-length: Supplier S6.1 was executing the detailed requests of Buyer 6, was preparing the trial packs to evaluate and get feedback to be able to produce them eventually with all respected comments.

Collaboration between Buyer 6 and Supplier S6.1 was implying the mutual development of the detailed specifications (very detailed description of all packaging features), then discussing the obtained tested example and final production during a certain period of contractual time. The conditions of production should be strictly followed and no initiative from Suppliers S6.1 side was appreciated neither if it was aimed at improving the quality of packaging – everything should be agreed beforehand. So, the collaboration in triad 6 is arm-length and the buyer's experience after the project can be characterised as neutral-positive, which is represented on the figure 13.



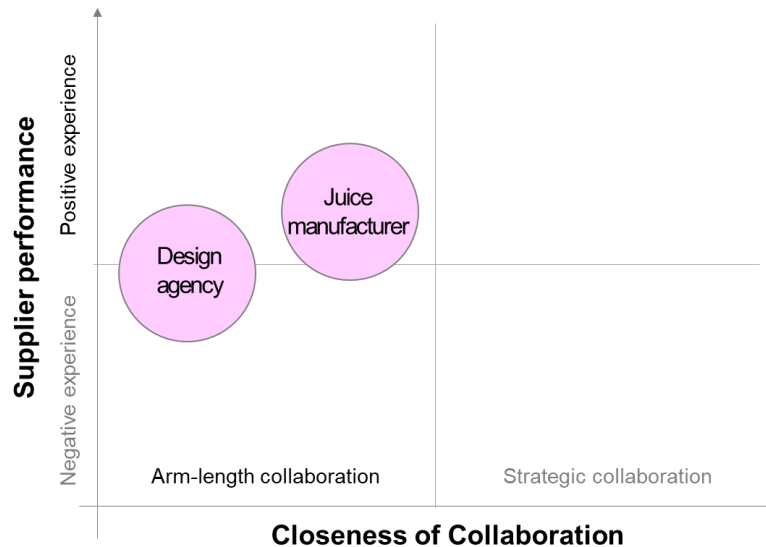


Figure 13. Buyer's satisfaction from collaboration in the triad 6

This project is the example of the implementation of changes, following the market trends. The goal was not to cardinally change the packaging, but just to adapt it so that becomes more suitable to respect new habits of customers. The score for NPD innovativeness is 2, corresponding low level of incremental innovation.

#### Triad 7

Buyer 7 in this triad is the same as in triad 5 – multinational packaging solutions company. The project is about last phase of packaging production cycle – delivery. For some clients of the Buyer 7 the orders should be delivered on the special type of pallets. There are not many firms on this market in the country of reference. Besides, each single supplier is a small player in this industry, so the Buyer 7 is required to apply multi-sourcing to be able to fully cover the demand, coming from the its clients. Two suppliers involved in this project are expected to produce the specific types of pallets and deliver them to the Buyer 7. The project is described in the table 7.

Table 7. Triad 7 – Buyer-Supplier-Supplier; packaging production and delivery

- |  |  |
|--|--|
| <p>Buyer 7 is packaging manufacturer and its task in the supply chain is to deliver the packaging on pallets. Two suppliers in the triad (Supplier 7.1 and</p> | <ol style="list-style-type: none"> <li>Buyer 7 gets an order on a certain amount of packaging to be delivered on a special sort of pallets, which may be not traditional in the operating country. Buyer 7 selects several suppliers that could source them this type of pallets. The Buyer 7 is required to pick up several suppliers, since separately none of them is able to fully satisfy the required demand on the quantity.</li> </ol> |
|--|--|

Supplier 7.2) are pallets producers.

Project 7 is a small part of the packaging production project. The main task in this project is to deliver the produced packaging to the clients on the special type of pallets, made by suppliers S 7.1 and S7.2.

2. Suppliers 7.1 and 7.2 – different players of the same sector – pallets production, which supply wood from the same source, together with other players of this sector. All wood is divided among all players of the sector, based on their production plans, which in turn depends on the orders they get from the clients, like Buyer 7 and capacities they need to satisfy those orders.
3. Buyer 7 agrees with each supplier separately the contract conditions, both parties sign the contract with defines types of pallets required by the Buyer 7, pricing and maximum volumes one supplier is able to satisfy.
4. Nevertheless, the Buyer 7 treats each supplier separately, they still can interact between each other quite close in order to monitor the contract conditions of each other. This way the suppliers pull the bargaining power towards their side by trying to improve their contract conditions opportunistically. Buyer 7 in turns does not completely obey their requests, so the negotiations take place to adjust pricing and delivery conditions.
5. So, when the packaging is manufactured by the Buyer 7, it is loaded on the pallets, provided by Supplier 7.1 and 7.2 and delivered to the client of Buyer 7.

For certain products, like pallets the Buyer 7 usually works with several suppliers at the same time. It was mainly to satisfy the required order volumes (since the capacity of one single supplier was not enough) and to minimise the risks, related to supplier's way of doing business. Buyer 7 maintains secretly the conditions under which every supplier works, but suppliers communicate among themselves and eventually conditions are disclosed, but not from the buyer's intention. Price and order volumes are directly interconnected with orders from the clients of the buyer, which is an additional reason why Buyer 7 cannot simply meet the requests of the suppliers and should be ready to satisfy extra requests of its client, which are valuable for the company of Buyer 7. There is low level of collaboration in triad 7, it is represented on the figure 14.

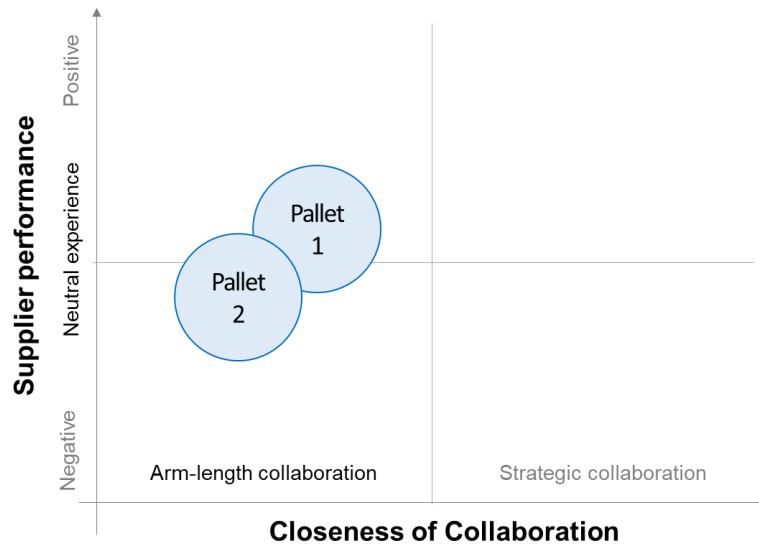


Figure 14. Buyer's satisfaction from collaboration in the triad 7

So, the last project is the example of a small part of a project 5, presented in the triad 5, dedicated to the last phase of the packaging production – delivery. The supplier 7.1 and 7.2 are producing the required by the Buyer 7 pallets and deliver them to the buyer. Buyer 7 does not influence the quality of product supplied, neither suppliers impacting the quality of packaging, loaded on their pallets. The only product verification, taking place in their triad is the stability of pallets: they should be resistant enough to deliver a certain weight of packaging. So, the innovativeness is absent in this project, since all actors simply follow their standard production procedure and suppliers just source the required product.

Generalized results on the NPD innovativeness from all the examined case-studies are provided on the figure 15.

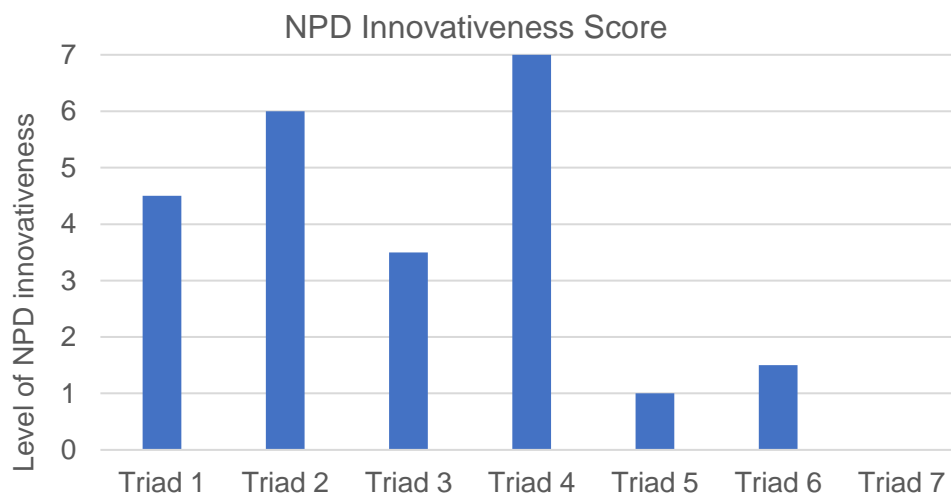


Figure 15. NPD innovation score

The figure demonstrates that the highest degree of innovation is adopted by the triad 4 and 2, triad 1 and triad 3 have the average score of NPD innovativeness, and last 3 triads implement very low (triad 5 and 6) or no (triad 7) innovation.

The figures representing the supplier performance from the interviewee perspective have displayed position of the suppliers mostly on the upper quadrants, which does not give insights about what actually drives high or low collaboration, therefore, cross-cases analysis is done through the research framework constructs and new matrixes are built.

### 6.1.2. Cross-cases analysis

The case-studies have been followed a set of selection criteria. The chosen companies are operating in different industries. As a rule, they are among the leading players on their market. There are seven investigated triads included in the study. All triads consist of one buyer and two suppliers. However, suppliers in triads differ by their functions in triad – some of them supply products, some other – services. Among those, supplying services, three out of five triads include the design agency as one of their suppliers.

#### *Cross-cases analysis by buyer-supplier relationship*

All the cases are examined using the research framework. Each variable of the buyer-supplier relationship is commented from the interview data, including the quotation by the interviewers. Based on the extracted explanation, the degree of each value of a variable is defined as low, medium or high, according to the appropriate scale of each construct.

Buyer's intention towards collaboration is evaluated as high when the willingness to deeply involve suppliers is shown by the buyer and buyer makes its suppliers collaborate to exploit benefits from collaboration. It is identified as low, when buyer's behaviour is passive, or the buyer consciously prevents its suppliers from collaboration to keep authority in the triad, for instance to lower costs or minimise effort during the project.

The data are structured according to each part of the model and are structurally presented in the following three tables. The data on the buyer-supplier relationship is presented in the table 8.

Table 8. Interview extracts on each variable of the buyer-supplier relationship

	<b>Buyer's intention towards collaboration</b>	<b>Mutual interaction between buyer and suppliers</b>	<b>Knowledge sharing</b>	<b>Information sharing</b>
	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium-Low</b>
<b>Triad 1</b>	<p>"The design concept and its format has been dictated and proposed by Buyer 1 and it was implemented using visuals that were available from Supplier 1.1 We [Buyer 1] were controlling everything. We didn't take a supercool agency because this is the licensed brand but not Buyer's one". Also, "Buyer 1 has got a lot of competences in design development". So, the Buyer 1 was not willing to make additional effort towards establishing collaboration between suppliers. On the question either collaboration could be hypothetically</p>	<p>The project leader of this launch commented: "The interaction could have been simpler and more open. I mean there is the area for improvement of the relationships to have the interaction more transparent, faster, more clear... because they didn't have answers to a number of questions..." Still, he notes positive aspects from supplier's side of interaction: "They had the Key Account Manager, which is in charge of communication with the client (buyer), the second person – responsible for OPA (Online Product Approval System) and design responsible, and the 3rd person – responsible for respecting the labour standards and they were</p>	<p>Supplier S1.1 have shared some knowledge regarding the design development of the packaging. "He has professionally indicated us the right direction to strive with the design thinking" But sometimes the feedback was missing. Regarding the advices/knowledge sharing from the design agency "it is clear that designers has their own vision. But I would not say that our agency was the best."</p>	<p>There were data-bases opened for the parties: "we have got an access to the electronic system where all databases with the hero visuals, their design templates are saved", however, parties were not disclosed enough "...they didn't have answers to a number of questions...For example regarding that ILS audit. There is a person with whom we communicate, ..., who facilitates all this process, but he is not even aware of the results of the audit we have performed! Like which</p>

	beneficial, the interviewer gave a negative answer.	sharing specific knowledge to help out in the project development". Having those persons in charge of separate issues made the interaction easier. However, it happened that "No feedback is received after the audit results have been sent..." which make the interaction less effective		are the violations and where they were noticed, either they are grave or minor... There is a lot what they can't or don't want share with us. And this makes work more difficult"
<b>Triad 2</b>	<b>Medium-High</b>	<b>High</b>	<b>Medium-High</b>	<b>High</b>
	"In most cases it is already the client himself to define a priori that if the consulting company participates to the competition with others..." or they collaborate, - notice Supplier S2.1. Otherwise "it is difficult for the consulting firm to control the work". This project was large, the collaboration is fundamental. "Business consultant works closer with the Buyer 2. They	"In reality, the interaction between us and them was almost daily, just like we were working for the same company", - shared the business consultant. "One of the elements that must be presented to the client is the team...the level of seniority, the skills... more or less the effort requested from people" "Then the customer knows when we start, on which business stream we are working, when we deliver the deliverable or intermediate...there	"Buyers know what they need", - often emphasised the supplier 2.2. They have shared all their expertise to let consultants better understand the need and expectations of Buyer 2. During the project involvement "the advice to update the system can come from consultant or from the client itself"... it	The way of working is "immediately clarified". "The type of contact and the frequency of contact with a consulting company are clarified on purpose. When we present the methodology, the approach, the work plan, we also have a chapter, which deals with how we relate with the entire project team that

	<p>are so close, because they are there, they have 1 consultant in the head quarter. They work with Buyer 2 side by side...Technical side they don't care a lot, but the details, the lowest data details" – shares supplier S2.2.</p> <p>"the client gives his opinion on this and tells us [suppliers]: intensify the meetings, on this point or check these things together, then the details of collaboration.</p>	<p>are official moments...when all of us, Supplier 2.1, are called to tell our experience at the customer's top management status". So, the interaction is close all along the project. Closer to the end "they [Buyer 2] start asking questions...because they now have the feeling of the program"- shared the supplier S2.1. So, the feedback is provided to suppliers and the work is improved.</p>	<p>is a software implementation project, usually there is a phase, which we call post-go-life", when knowledge sharing is deep and abundant</p>	<p>includes the client, us and another consulting firm ". "they can say: we want to update it, he asks again for offers, accepting one, giving them description"... End of the project is the period "to clarify the moments that are not totally clear or do a little finetuning of the solution where it is necessary".</p>
	<b>Medium</b>	<b>High</b>	<b>Medium-high</b>	<b>Medium-high</b>
<b>Triad 3</b>	<p>Buyer 3 treats both suppliers equally. He recognizes the highly qualifies technical competences of both suppliers therefore, it lets them collaborate freely. "Buyer 3 attends technical meetings" during NPD process to be</p>	<p>"An NPI (New Process Implementation) project manager puts down a table for all the actors" of NPD process. Personal relationships should be always present. Careful answering emails in a gentle way – details matter. Knowing social life is nice. Of</p>	<p>"It can happen that they share their experience with Buyer 3,... details of production – no". "In the sense that the materials they work with us are exclusive... other customers have other</p>	<p>"We have an ad-hoc portal in which we and 2 suppliers collaborate in this case..., like an online platform" "Communication is quite excessive". The buyer has admitted that they are absolutely satisfied with the</p>

	<p>aware and to “make sure it goes in line” with the goals of the project. Also “because in the end it is the Buyer 3 who approves the work from suppliers”.</p> <p>So, the process of collaboration exists, and it is though the buyer 5.</p>	<p>course, in the end the tender takes place and the decision is taken based on that, but personal relationships help to negotiate. “...we know the suppliers well, suppliers cooperate well, and we manage to have what we need obviously”</p>	<p>types of materials” “So it's not that it can be adaptable for other customers, experience that mature supplier let us know, but the material cannot be shared”</p>	<p>level of information shared for this project.</p>
<b>Triad 4</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>
	<p>Buyer 4 selects its suppliers very carefully. And “those with whom we try to make a partnership, with those who may be able to bring us innovation, bring us what has been their path, also financing services of our fundamental interest” The intention of the buyer 4 is evident: “That is why the partnership is fundamental, for authoritativeness on the part of the supplier to show us</p>	<p>Buyer strives to “involve such institutions ... asking them to play the role of the supplier... we recognised the need, we meet them... we assign them the things we need and also say what we might need to stimulate suppliers to be proactive in the field to push them towards our expectations, trying ...to bring their baggage of experience as long as they propose a solution closer and adequate to which we expected” So the</p>	<p>“the supplier must be able to seize from their capabilities the most appropriate not only to solve the patient's problems but also to correlate the need with possible current research curing” so the Buyer 4 gives insights to the suppliers and encourage them to innovate</p>	<p>“The supplier must give us not only what we ask but open what he could possibly offer from the point of view of services”, - highlights the interviewer from Buyer 4 company. “we give them all the elements to allow the supplier to develop the best offer”, which makes information sharing very abundant.</p>



	the way, not only to respond the requests”	interaction is very active, certainly directed towards close collaboration		
	<b>No</b>	<b>Medium-Low</b>	<b>Low</b>	<b>Low</b>
<b>Triad 5</b>	Buyer 5 is not intended to make suppliers collaborating, because they should precisely execute what they are told by their client. The initiative “should go from the part of the client”.	“We contacted each of them separately. I need a certain amount of such a component of a certain types in a certain volume for such a price”. “the supplier contacted us, saying that Buyer 5 is the only one who orders this pouch, we are not interested in producing it, other factories have gone ahead, and are ordering more durable pouch. ... then we switched” Above mentioned facts are evidence of the basic interaction, however, the initiative towards closer collaboration could appear (look comments to the next variables), but it did not grow without the clear initiative from the client of the Buyer 5. If it happens, “we return back to the supplier, which has approached us some	Buyer 5 stated “I don’t remember that we shared knowledge with them, but suppliers have come to us and said that they did research, and they already had experience with a client, he is satisfied, and with the same offer they come to us, in order to improve quality. Buyer has also mentioned the case when their central group decided to change the technology of making pouch, “take him [pouch supplier] and show him the offers from the main office, saying that he has	The information sharing took place mostly to discuss the details of delivery, contract conditions, negotiate on price. “If a supplier comes to us [Buyer 5] and says that he has a new material to offer us, then yes, it could be”, - comments Buyer 5 on the question either the suppliers of the two components communicated with each other, could this improve the quality of the product.

		time ago, and said that we could change something, ... we are ready”	new technological characteristics of the product and ask either they can make such a pouch for us	
<b>Triad 6</b>	<b>Low</b>	<b>Low</b>	<b>No</b>	<b>Medium</b>
	Buyer 6 provides Supplier S6.1 with the ready design from the design agency so practically, no collaboration is explicit from the side of buyer.	Buyer 6 “makes a layout – what he wants to see on the package...we start to discuss it in detail...” so the interaction practically follows the steps described in the table 6, without additional expressions to establish closer relationships.	No knowledge sharing from either of sides. When the buyer wants to implement something new, he could approach Supplier S6.1 but this case was an example of a simple execution.	Details of layout, like “what kind of packaging it should be, what form it should have, what should be written on each side, where Buyer’s 5 logo will stand, because Buyer 5 prints, the mark is on the side or below”, design adaption to the new format, etc. Thus, information on the moments of production are exchanged
<b>Triad 7</b>	<b>No</b>	<b>Low</b>	<b>No</b>	<b>Low</b>
	The project implied simple multi-sourcing. No intention	The project itself did not require close interaction between actors of the triad. In fact, “According to the	Again, due to the case specificity no knowledge sharing has taken place	The information was primarily exchanged on the contract conditions. The

	<p>towards collaboration has taken place.</p>	<p>policy of our company, we were forbidden to communicate with them [out of office], as they can bribe, or in any other way influence the decisions of the tender”, so they did not have any intention to maintain close relationships</p>		<p>following case well describes situation: “They came with a pause of three weeks. And after the second supplier, we realized that something was wrong. Because they immediately began to raise the price twice, this is a lot. We asked them for some kind of analysis, on the basis of what they want the price increase...” but suppliers have just discovered the price of each other and those, who was earning less, came with the price increase request.</p>
--	---	---	--	---

Based on the data provided in the table 8 above the quantitative evaluation of the value of each variable of the buyer-supplier relationship was performed. The results are provided in the table 9.

*Table 9. Quantitative evaluation of the buyer-supplier relationship*

	<b>Buyer's Intention</b>	<b>Mutual Interaction</b>	<b>Knowledge Sharing</b>	<b>Information Sharing</b>
<b>Triad 1</b>	Low	Med	Med	Med-low
	1.5	4	3	3.5
<b>Triad 2</b>	Med-high	High	Med-high	High
	4.5	7	5	7
<b>Triad 3</b>	Med	High	Med-high	Med-high
	4	5	5.5	5
<b>Triad 4</b>	High	High	High	High
	7	7	7	7
<b>Triad 5</b>	No	Med-low	Low	Low
	0	3	1.5	3
<b>Triad 6</b>	Low	Low	No	Med
	1	3	0	4
<b>Triad 7</b>	No	Low	No	Low
	0	1	0	1

To compare all cases, it would be suitable to use the aggregated indicator between four variables of the construct. To evaluate the pure relationships between buyer and suppliers, only three last variables were considered, since the intention of the buyer towards collaboration between suppliers does not encompasses actual interaction between actors of the triad, but only the attitude of the buyers about performing those relationships. So, first of all, the scores for each variable of the last three are tested on the correlation. The results are displayed in the table 10.

*Table 10. Correlation between variables of the buyer-supplier relationship construct*

Correlation between mutual interaction and knowledge sharing	Correlation between knowledge sharing and information sharing	Correlation between mutual interaction and information sharing
0.911	0.844	0.979

The correlation between each pair is significant, so it is reasonable to use the average or the weighted average to get the aggregated index. Generally, the weighted average could provide more precise results with respect to the simple average, since it takes into accounts the leverage each impact has on the final results, however, since there are not many cases included in the research and each case has its own peculiarities, to simplify the calculations, and reduce possible error, the simple average was taken. The decision to take the average is also driven the intention to keep the scores within the scale from 0 to 7, which are applied in the examined literature. The calculated index of buyer-supplier relationships for each triad is visualized on the figure 16.

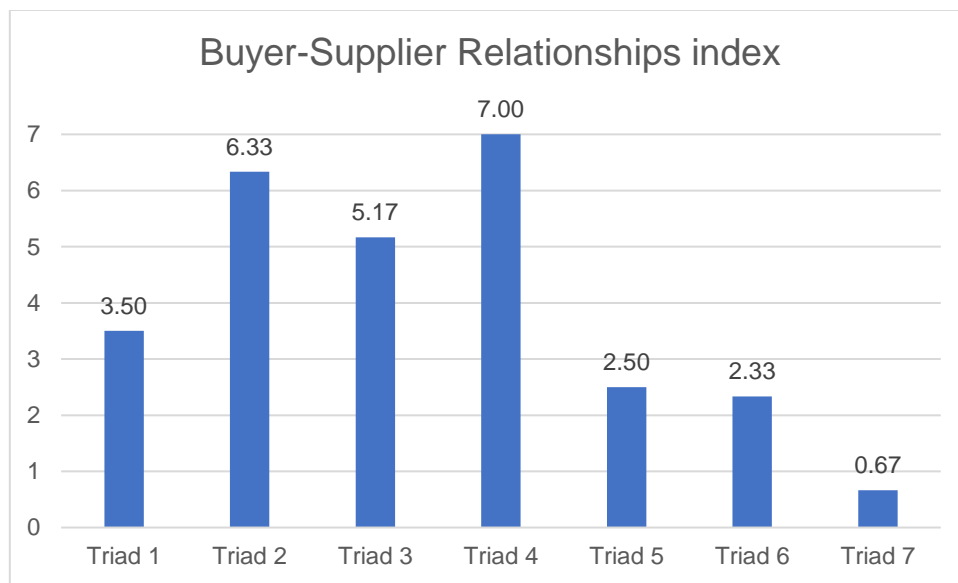


Figure 16. Aggregated index of the buyer-supplier relationship

The pattern of the figure looks pretty similar to the one, obtained on the figure 6, displaying the level of NPD innovativeness. To get the comprehensive view of the interconnection between buyer-supplier relationship and the level of innovation implied in the focal NPD project, the appropriate matrix is constructed on the figure 17.

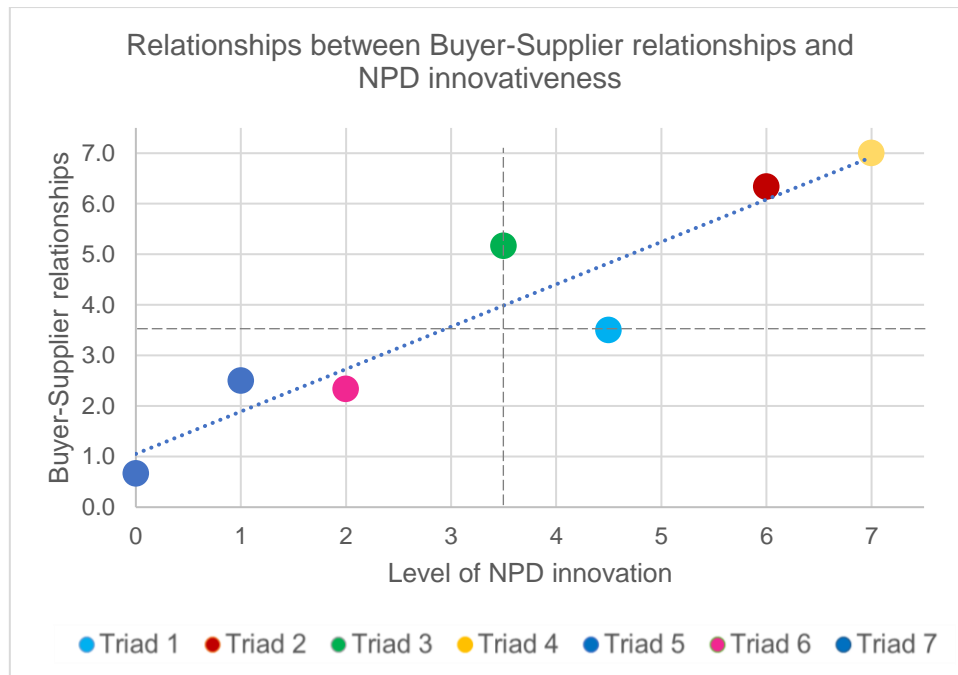


Figure 17. Interdependence of buyer-supplier relationship and the level of NPD innovativeness

In fact, the relation between buyer-supplier relationships and level of NPD innovativeness seems to be directly proportional: the more the buyer expects the product or service to be innovative, the more active relationships he maintains with suppliers. The triads are mostly divided into two quadrants: bottom-left quadrant, corresponding low level of NPD innovativeness and passive buyer-supplier relationships and upper-right one, indicating high level of NPD innovativeness and active buyer-supplier relationships.

The coordinates of a triad 4, that is positioned just on the intersection of two maximum value of two focal dimensions, confirms the highlights from the interview with the Buyer 4 that they are very innovation-driven company and it is among their primary interests. Therefore, they are ready to invest in selecting the right actors to build the triad with the perspective of establishment long-term partnership relationships between the buyer and suppliers. Looking at the web-site of a company, barely on every page stated their attitude towards innovation. Their investments in the research and development increase every year and they are becoming more and more active in participating to different workshops, talking about last news in the digital world, latest available technologies, future trends towards which the world is very likely to go.

The triad 2, which is positioned quite close to the maximum, indeed had the project of high innovativeness. However, the company itself is not characterised that active orientation towards innovation, but the score is explained rather the innovativeness of the project itself and the fact that the solution required high level of customisation. The reasons behind such

difference is that the product, described in the referred project is not among the core activities of the buyer, but still it belongs to strategically important project for the business of the Buyer 2 Group overall. The project included several branches of the Buyer 2 Group worldwide, so no doubts it had a significant impact on the business development of the buyer's company.

Two triads, lying on the "borders" of the quadrants, which state stronger position of the buyer, expressing bigger openness towards exploiting benefits from collaboration (the case of a triad 3) and lower intentions to maintain such active relationships (the case of a triad 1). In the case of the triad 3, the buyer was ready to dedicate additional effort to establish closer interaction between suppliers and appropriate environment for knowledge and information sharing, by adopting the ad-hoc portal, where all the actors of a triad has a visibility of the status on a certain project phase and conducting regular meetings where the work-in-progress could be shared and new ideas for project improvement could be discussed. The buyer of a triad 1 has accepted the responsibility of the coordination of project and lower involvement of suppliers because of available skills and competences, gained from the previous projects. The project leader has stated that the costs of the project was already higher than expected due to price for the licenses to use the heroes from the Supplier S1.1 corporation, so the company-buyer was not ready to invest too much in the project, particularly, in development the triadic relationships. Moreover, the project leader states that "the triadic relationships are more difficult than dyadic ones" and it was not convenient for them to manage the triadic ones.

On the figure 17 there is also the linear trend added to highlight that the "coordinates" of each triad is located pretty close to the diagonal of the chart, indicating the direct proportional connection between two dimensions of the matrix.

It worth to point out that the scores for each separate variable of the buyer-supplier relationship were already aggregated, considering the mixture of the relationships the buyer maintain with one and the other supplier, as well as the relationships from each supplier to the buyer. Potentially, it could be also explored by comparing their attitude separately and verifying either the relationships are balanced among actors. However, the research was not intended initially to analyse so deeply the attitude, therefore, the questions were formulated in the way that at the moment it is not possible to extract also this kind of data from the interviews. When the questions were developed, the focus was more towards understanding the influence of the relationships in general to the quality of product developed in the project, and this is discussed in detail in the chapter 6. There was also the time constrain to take into account: the interviews could not take longer than 30-45 minutes due to availability of the interviewers. However, obtaining these data could potentially enrich the investigation, therefore, it is considered as the limitation of this study. Further discussion upon it takes place in the Chapter 7 and 8.

### *Cross-cases analysis by supplier-supplier relationship*

The actual insights about relationships between suppliers was possible to discover only from the suppliers itself, or from what their buyer precepted. The table 11 presents the summary from both perspectives. The variables of supplier-supplier relationship are also roughly evaluated as low, medium or high, based on the extracts and comments from the interviews.



Table 11. Interview extracts on each variable of the supplier-supplier relationship

	<b>Mutual interaction</b>	<b>Knowledge sharing</b>	<b>Information sharing</b>
<b>Triad 1</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>
	No real interaction, Supplier S1.2 have used the library of heroes provided by Supplier S1.1 and Supplier S1.1 was responsible to verify that the graphics is coherent with their standards...and approve it	Supplier S1.1 has shared some advices on how it is better to perform the design, using their available visuals. "Regarding the design... they have nice data-bases, he has given valuable advices...But regarding the Key Account interaction – there are the areas from improvement", - notices the project leader of the launch	"All the approval process has been performed through their global platform, called Online Product Approval, where we were uploading all the information about the design, templates, scans in 3D, etc...Through this system has gone everything: all designs, calculation of nutritional value, laboratorial research, audit certificates were uploaded there"
<b>Triad 2</b>	<b>High</b>	<b>High</b>	<b>High</b>
	"it is a software implementation project, tool, anything else, it is essential...[to]... have meetings together to understand how it is proceeding [with other consultant]", - shares the Supplier 2.1, "And everyone when the activities are carrying out, organizes itself and makes a plan...in reality, when working with consultancy companies there are limits to define above all the analysis of studies, because it must	Suppliers often share their previous experience, but it is important to point out that due to the confidentiality issues when the specific example is worth to share, it is done in the anonymous way. "we have been hearing from each other every day and we, Supplier 2.1, gave input to the other consulting firm to make the report or to show data and numbers", shared the Supplier 2.1.	"The other project teams schedule the meetings with another team every week or once a month for updating... if it is necessary that the interaction is frequent, then the weekly meetings are scheduled, anyway with a predetermined frequency generally" comments the supplier S2.1 "we had these calls, monthly calls, occasional calls, fixed calls in the

	<p>be clear who has the responsibility of how it should go, but there must be anyway honest collaborative relationship between the 2 parts”, explains the Supplier 2.1.</p> <p>“business consultant tells you: ”You did this, this before, so it would be nice for you to add this button” so the Business part knows already how the users are working. To make it easier for the client, so they give these types of insights”, notices Supplier 2.2</p>	<p>“we all share our experiences anyway, like you take a call, you say: “hey, what’up?” It is a friendly talk before going to the client”, - notices the Supplier 2.2.</p>	<p>beginning of the project. The plan is done” So, the way information sharing is performed is defined in the beginning, in the kick-off meeting, or even mentioned in the contract. It is according to the agreed milestones, and it was proactive from all actors.</p>
	<b>Medium</b>	<b>Medium-High</b>	<b>Medium-High</b>
<b>Triad 3</b>	<p>Interaction between supplier takes place always through Buyer 3 if it is face-to-face, or through the online platform, to which Buyer has access as well.</p>	<p>“Among them we try to make collaborate always through us. It can happen that ... anyway they are both people who have technical knowledge. Obviously, I manage different materials: glasses, paper rolls, refrigerators ... so my technical knowledge cannot be as deep as one of these two suppliers”, - points out the Buyer 3</p>	<p>“So, I am one of those who like to be involved in communication between suppliers, trying to optimize the process, but I always do my best to be present in the communications. Even then, anyway, we are the ones who approve. So, whatever comes ... the last graphic file that is sent must be approved by me” The information sharing between suppliers is also going through the ad-hoc portal.</p>

	<b>High</b>	<b>Medium</b>	<b>Medium-High</b>
<b>Triad 4</b>	<p>“we involve more partners with specific skills, but not just two complementary ones. And then of course specific contracts in some cases but they are not so frequent or contracts of collaboration in which the role of each actor in the process is limited in line with the Buyer 4 contract in a very transparent manner and goes to pay the various suppliers for the value that been shared very clearly with the complete eventual outcome”, - emphasises the Buyer 4.</p>	<p>Suppliers task is to complete the request of the buyer. They are asked to “do just brainstorming until it immediately understands if beyond what is asked will mean anything else, which was not usually expressed”</p> <p>“What we are asking is to share their previous experience from the projects...Often there are facts presented of the other anonymous cases. But very substantial. On the contrary, it often happens to occupy respect that is comprehensively understandable with the client. But it is fundamental that we know the cases but not only theoretical solution”</p>	<p>During the project triad conducts the meetings where suppliers discuss results. “They are often matched and defined only at the end of a process, activity, expectations, corresponding cost. A KPI can be an element on which bonus / malus is modulated, so it is not the thing that can be defined much in advance that is defined by the negotiation process...like a brainstorming... There are should be shared elements” However, since the interview with the suppliers was not done, it is not possible to guarantee the information sharing only between suppliers.</p>
	<b>Low</b>	<b>No</b>	<b>Low</b>
<b>Triad 5</b>	<p>Usually actors have been following the standard procedure, so the interaction was mainly bearing operational content. Additional could be in case of unexpected orders, changed volumes.</p>	<p>No knowledge sharing between suppliers is present in this project. Buyer 5 has mentioned that potentially it could happen, but not in this project and not with exactly those suppliers.</p>	<p>The information shared between suppliers was mostly operational.</p>

<b>Triad 6</b>	<b>Low</b>	<b>No</b>	<b>Low</b>
	The interaction was always through the buyer: Supplier 6.1 and Supplier 6.2 have been sending the materials to the Buyer 6 separately and Buyer 6 was passing the respective material to the appropriate supplier.	The project is about re-design, so no knowledge sharing took place	“We, as the purchasing department, already deliver everything that is ready, and they say that we have a new SKU, and we will have to order more than something”, - notices the Supplier 6.1, underlining the fact that the information shared was operational, i.e. necessary data to be able to perform the production
<b>Triad 7</b>	<b>Low</b>	<b>No</b>	<b>Low</b>
	The project implied simple multi-sourcing. No intention towards collaboration has taken place.	Again, due to the case specificity no knowledge sharing has taken place	The project itself did not require close interaction between actors of the triad. In fact, “According to the policy of our company, we were forbidden to communicate with them [out of office], as they can bribe, or in any other way influence the decisions of the tender”, so they did not have any intention to maintain close relationships

To evaluate quantitatively the relationships between suppliers, the score was assigned to each variable.

The results are summarized in the table 12 below.

*Table 12. Quantitative evaluation of the supplier-supplier relationship construct*

	<b>Mutual Interaction</b>	<b>Knowledge Sharing</b>	<b>Information Sharing</b>
<b>Triad 1</b>	Low	Low	Low
	2	3	3
<b>Triad 2</b>	High	High	High
	6	6	7
<b>Triad 3</b>	Medium	Medium-High	Medium-High
	5	5.5	5.5
<b>Triad 4</b>	High	Medium	Medium-High
	7	5	5.5
<b>Triad 5</b>	Low	No	Low
	1	0	1
<b>Triad 6</b>	Low	No	Low
	1	0	1
<b>Triad 7</b>	Low	No	Low
	1	0	1

To compare the supplier-supplier relationships in general between triads, there is a need to establish a unique indicator, combining those three. First of all, the correlation among them was checked: it is displayed in the table 13.

*Table 13. Correlation between variables of supplier-supplier relationship*

Correlation between mutual interaction and knowledge sharing	Correlation between knowledge sharing and information sharing	Correlation between mutual interaction and information sharing
0.934	0.984	0.943

Thus, the correlation among three of them is positive. The highest correlation is found between knowledge and information sharing, and it is logical: in all cases when an actor has been

sharing the knowledge openly, he has been also exchanging all relevant information to contribute to the project development. Anyway, since the correlation between each pair is high, it is reasonable to apply the average between three of them to get an aggregated indicator of the supplier-supplier relationships as in case of the construct. The results are visualized on the figure 18.

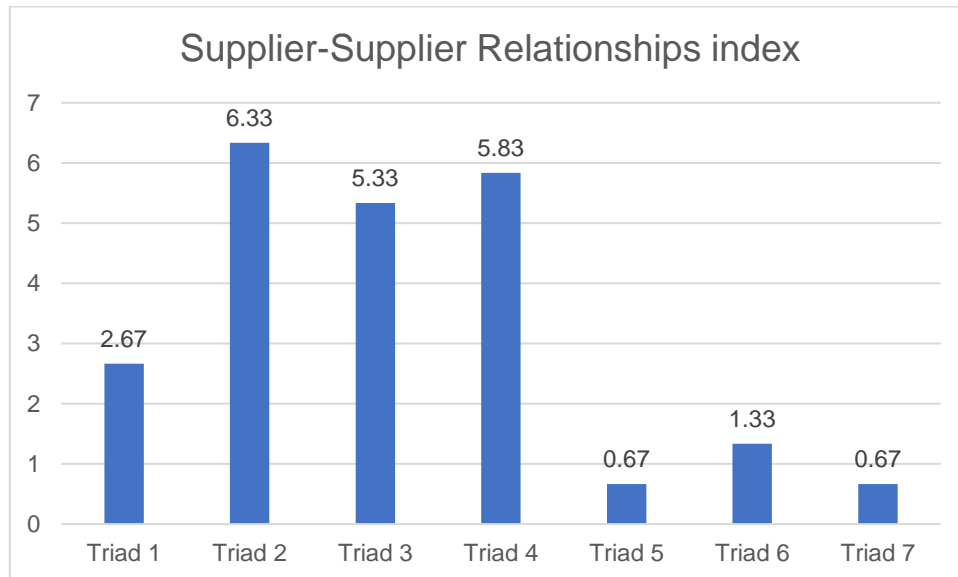


Figure 18. Aggregated index of the supplier-supplier relationship

The results look quite correlated with the level of NPD innovativeness, visualized on the figure 15.

In fact, the interdependence between these two indexes seem to be direct: when the project implies high level of innovativeness, the relationships between suppliers are also performed on the high level. The results are visualized on the figure 19.

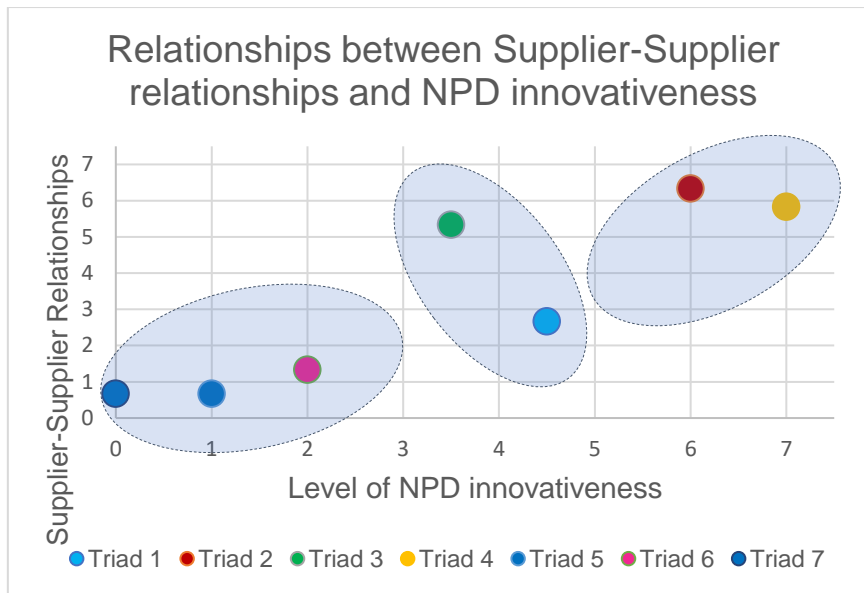


Figure 19. Interdependence of supplier-supplier relationship and the level of NPD innovativeness

The projects 2 and 4 are examples of the high level of innovation required by the buyers. Interestingly, that both cases are about the development of the service. In the triad 2 suppliers were two consultancy companies and in the triad 4 there are two research centres involved. In both cases, two suppliers have played *complementary* roles for the development of a service.

Two triads located in the centre of a chart are examples of medium level of innovativeness. What is particularly interesting in both these cases is the fact that there was a clearly strong desire by the buyer to keep severe control over all processes during the NPD. Just the buyer of the triad 1 was intentionally preventing its two suppliers from collaboration, believing that they have got enough competencies to develop a product without spending additional efforts to facilitate the collaboration of three actors; but the buyer of the triad 3, instead was open to hear from suppliers, to exploit high-qualification and technical knowledge of the suppliers to benefit to the new product developing. Buyer 3 consciously conducted common meeting where suppliers could interact and share all necessary knowledge and information between themselves, with the presence of Buyer 3. The interviewer has emphasised that in the end this is the responsibility of the Buyer to take a final decision, so it is among their interest to get the comprehensive view of the situation, to be aware of all possible alternatives, and take a wise decision, that would represent the best trade-off between all benefits and potential savings the project could bring.

Three triads in the bottom-left corner are examples of the low level of innovativeness due to specificity of product: triad 5 and triad 6 had a low level of complexity of the product, and triad 5 had the project of re-design, which was implying updating, but not development the product

from scratch. Therefore, investing in development relationships between suppliers was not really convenient in these projects.

*Cross-cases analysis by NPD performance.*

Each company has its own priorities on performing the project. The objectives of each separate actor of the triad may differ even within the frames of the same project, even all actors follow the similar goal. For example, in the case of the triad 2, the buyer’s principal goal of launching the project 2 was to increase transparency in the financial flows, make easier financial planning, exploiting benefits of integration; and the main goal of the Supplier S2.1 was to make the buyer satisfied. It seems that the goals are similar, because achieving one goal should automatically make achieved the second one. However, it depends a lot on the formulization of the tasks to fulfil the expectations on the goal achievement. The Buyer 4 has also emphasised a lot that interpreting the tasks, required by one party is not a banal thing, but it requires applying a large “baggage of experience” and competences.

Therefore, each buyer has its own “weights” on how important is one or another variable to evaluate the general performance of the NPD project. So, the buyers were asked to evaluate each of variables of NPD performance. Unfortunately, not all responses were gathered, so for the ones that are missing, the author has filled up them based on its own perception and data from the interview.

So, the final summary with the scores on each variable of the NPD performance is represented in the table 14.

*Table 14. Evaluation of each variable of the NPD performance*

	<b>Quality</b>	<b>Flexibility</b>	<b>Delivery</b>	<b>Sales</b>	<b>Costs</b>	<b>General experience</b>
<b>Triad 1</b>	6	3	5.5	6	3	4
	Buyer is satisfied with the quality of final product in general, it seems very promising	Supplier S1.1 had lots of its own standards to follow, but the other was ready for changes	The score by the project leader, motivated by “left space of improvement”	On the moment of interview, the sales were not available for the analysis, because the novelty was 1 week old,	The costs for the licensing were higher than expected, therefore, the costs for design was reduced. So,	It was the first experience of buyer working with such suppliers, and with franchising adoption. There is lots of wins and



				but similar projects give high expectations	the score is medium	learnings that could be considered next time
<b>Triad 2</b>	7	6	7	-	3	6
	The quality of the final product fulfilled the planned requirements in the beginning of a project	Suppliers were adapting to each request that was in the frames of the project	The project was launched on time and according to the plan	There is no direct impact on the sales volume thanks to the new system, but it was aimed at improving the ease of managing sales	This was the strategic project with the involvement of two big consultant companies, so the costs are high by default	The project implied the collaboration with the leaders of the consultancy market, so the experience gained is rich
<b>Triad 3</b>	6	5	6	6	5	5
	The product was approved by all departments at the appropriate level of responsibility, so in general buyer 3 is satisfied	Suppliers were open to changes, but the requirements to follow were strict enough so it may cause problems if they don't follow it	If the delivery was not in time, it may cause the delay in the launching campaign, so they suppliers managed to perform everything as requested	POS materials give direct incentives to buy a core product, so they are directly connected to sales volumes; the campaign was successful	The actual costs of the project were close to the ones planned in budget, the saving was satisfactory enough	In general buyer has evaluated experience after collaboration with its suppliers on 5, expressing medium-high satisfaction
<b>Triad 4</b>	7	7	6	6	3	7
	The project implied tight interaction	Since the ABL are set during the	Suppliers handled everything	The support service is directly	The costs of development such solution	The experience after

	between actors, so the quality of the service was constantly increasing after feedback implementation	project itself, triad was very flexible to fulfil them	according to the timeline	linked with the treatments the patient must take, so the amount is well-controlled by the developed program	is quite high because it requires running a robust research to follow last digital trends	collaboration with the triad is very positive, because the actors were carefully selected with the aim of establishing long-term relationships
<b>Triad 5</b>	2	3	2	2	5	2
	The quality of product was satisfactory for the client of the buyer; therefore, it was satisfactory for the Buyer 5	One supplier was flexible enough so that could even change the plan of its production, but the other was very rigid	The delivery was not always on time and with the right quantity, the extra orders were not well-managed	The sales of the products are directly depending on the client's orders, so if they are low, the sales are low	The costs of development were not high; the saving was reached due to the new technology, proposed by the central group	Triad 5 involved local players, so the reputation was not highly enhanced
<b>Triad 6</b>	5	2.5	5	4	4	4
	The buyer 6 is satisfied with the quality of the product, it was what they expected. It was just adaptation to the new format, so not much changed	The suppliers have been directly executing what they were telling to, so not much flexibility was	The delivery of the project was according to the plan. Nothing extraordinary was expected	The sales were not available on the moment, but since new SKU has replaced the old one, the increase to the constant	Since the project was about re-designing the existed format, the costs did not rise much by adding a straw and cutting size	The actors were the same as for the first design and they did what they were required to

		expected and got		base is not expected to be very high		
	2	1	2	1	2	2
<b>Triad 7</b>	The quality here should be standard. The score comes from the buyer without additional comments	Suppliers were requested to be flexible in volumes, but it was hard due to their capacity	Delivery was performed on poor level	No direct impact on sales of the packaging	Buyer 7 is not satisfied with the costs of the product, since suppliers were asking to increase it without a reason behind	Triad 7 involved local players, so the reputation was not highly enhanced

The charts, comparing triad's project performance, are visualized below on the figures 20-26:



Figure 20. NPD project 1 performance



Figure 21. NPD project 2 performance



Figure 22. NPD project 3 performance



Figure 23. NPD project 4 performance



Figure 24. NPD project 5 performance



Figure 25. NPD project 6 performance



Figure 26. NPD project 7 performance

So, the wider the radar-chart is spread, the better is the performance of an NPD project. From the charts it is visible that the first four triads have much higher performance throughout all NPD performance criteria. Interestingly, these results repeat the pattern, obtained on the figure 17, which represents the interdependence between buyer-supplier relationships and the level of NPD innovativeness.

The performance of triad 4 looks the strongest from the first sight. In fact, its average score is the highest – 6. In the same time, it is visible that they push forward their performance, sacrificing costs: it is clearly the variable, preventing performance to be best throughout all performance criteria. However, the project description emphasises most on innovation and quality, best experience for the client is clearly the priority for the company. Similar situation takes place in the project 2, where all variables except costs are highly evaluated, the average score is close to the triad 4 – 5.8. The only difference that sales criteria is not applicable in this case. But the project is also very innovation-oriented with high focus on customization, therefore, the costs seem to have lower priority for the company in this project.

Instead triad 3 has got the most balanced performance throughout all variables, its average score is 5.5, which is still very close to the best one. The chart indicates that the company facilitates its project in the way to maintain the trade-off between effectiveness and efficiency. In fact, these three triads have evaluated general experience from working with their suppliers with the highest score, comparing to other triads.

Triad 1 and triad 6 are again located in the cluster with medium performance. In both cases the supplier flexibility is not the first priority for both buyers, but quality, sales and delivery are turned out to be more important for the project and got high evaluation score in the end.

Interestingly, that all these five triads have clearly quality-oriented projects, triad's 7 performance has two peaks: for quality and costs, and project 5 seems to be costs oriented. Performance line for the last triad 5 and triad 7 are concentrated close to the centre of the chart, which indicates very low performance. From the shape of the chart 26 it seems that higher costs performance is achieved through sacrificing of flexibility, but it is also clear from the project description, that flexibility is not a priority for the buyer 7.

Summing up, the triads 2, 3 and 4 belong to the cluster with the best performance, triads 5 and 7 have got the lowest performance and triad 1 and triad 6 are located in the middle. Outstandingly, that only triad 3 has got balanced performance throughout all NPD performance variables.

In general, cross-cases analysis has helped to classify all the triads within three groups: the one, actors of which collaborate the most, the one with the lowest level of collaboration and the one in the middle. To the first group with the highest degree of collaboration two triads are belonging: triad 2 and triad 4. The relationships between triadic actors imply highest degree of information and knowledge sharing, the closest mutual interaction.

To the cluster in the middle triad 1 and triad 3 are belonging. In both cases, the buyer has expressed stronger position towards collaboration in the case of triad 3 and against collaboration in the case of triad 1.

The cluster with the lowest degree of collaboration includes triad 5, triad 6 and triad 7.

The relationships between actors of each triad are better visualised below on the figure 27, keeping their positions within two dimensions: buyer-supplier relationships on the vertical axes and NPD innovativeness on the horizontal one. The width of the line indicates the strength and robustness of the relationships between actors based on the scores, indicated in the table. The graphical representations in this case is performed schematically based on the scores, indicated in the tables 10 and 13.

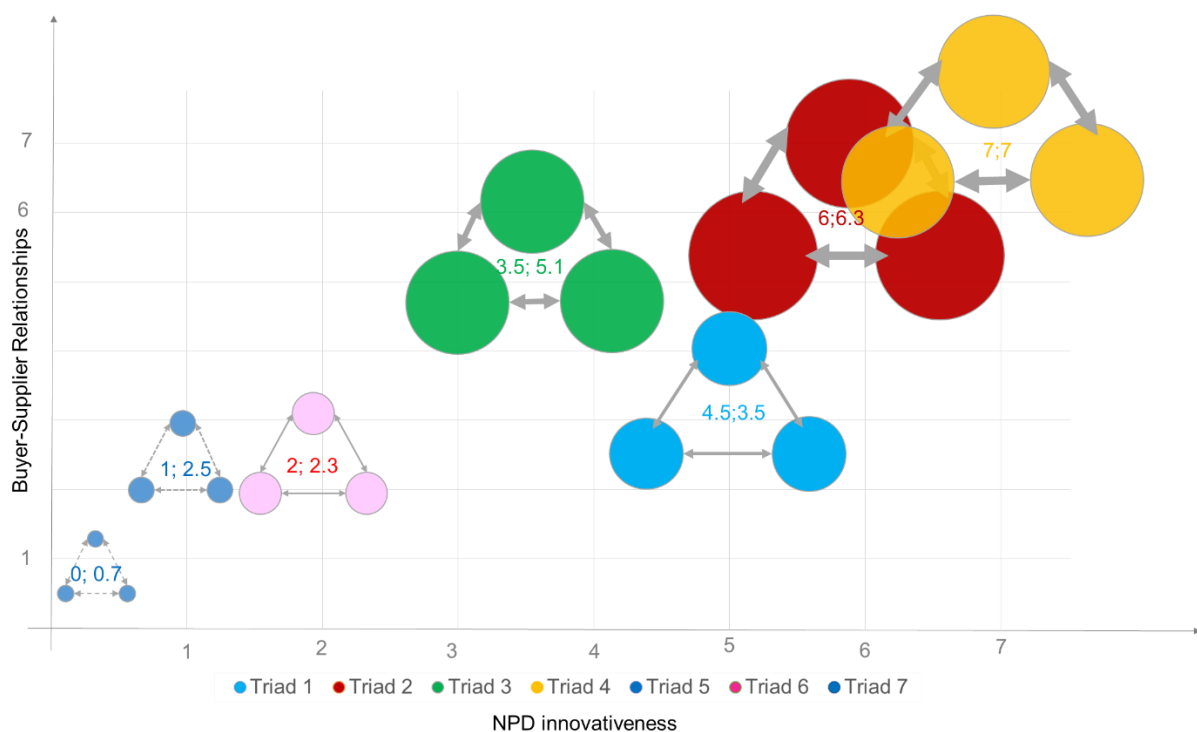


Figure 27. Graphic representation of the collaboration in examined triads

This way the difference in the order of magnitude of relationships intensity is more visible: the ties of triads 2, 3 and 4 are much stronger than the others.

## 6.2. Findings

### 6.2.1. Research question 1

The question is stated in the following way: “How can relationships between two suppliers be described?” In the language of the research framework it could be rephrased as how do the knowledge and information sharing happen during the interaction between two suppliers and what else it may include?

Examining the case-studies has opened the insights from the real-world examples and made possible to discover what happens between the actors of the triad during the new product development process. The actual facts about relationships performance in reality was possible to get only by interviewing the suppliers, which was done only for three triads out of seven, since for other cases, the contacts were not shared from the buyers. For the other triads the buyer’s perception of the situation was taken as a reference. Therefore, this study represents the mixture of different perspectives while describing supplier-supplier relationships. These perspectives are based on the interview from buyers, interview from suppliers and reflection of the interviewer, the author.

Available literature on the triadic relationships is excessive with the descriptions of relationships between buyer and supplier. Instead there are much less publications, describing the relationships between suppliers. Thus, one of the objectives, following by this investigation was to understand how the relationships in supplier network could be described.

Indeed, the case-studies have confirmed that all three variables of supplier-supplier relationship are necessary for describing supplier-supplier relationships. It has proven that this construct is viable, therefore, it made sense to continue deeper investigation on the components of relationship. The extracts from the interviews on each variable of supplier-supplier relationship are presented in the table 11 in the previous section of the Chapter 5.

The *information sharing* is the key component to maintain any kind of cooperation because it first of all, it encompasses the communication between parties. It is essential that the parties have well-disclosed access to the necessary information during the NPD process. Important to notice that the information gets disclosed from one party to another, when the party, that possesses the information sees the benefits of sharing it with the other one. However, in case of supplier-supplier relationships, this is not the main driver, since the intention from the buyer basically determines it. The impact of buyer-supplier relationships on supplier-supplier ones is discussed within the research question 2. Considering the case, when suppliers are allowed to share information, the degree of sharing depends on the level of complexity of a product or service developed and innovativeness of the NPD project. The higher the innovativeness is expected from the NPD project, the more complex it is to develop. The reason for that is the



absence of a standard procedure – well-known algorithm to follow. Therefore, the process is in needed to be well-discussed from the beginning and such cases are more difficult to facilitate. The objective is to create the timeline of the processes, a sort of Gantt chart, where all actors that should be involved in the process are stated and their roles are clearly defined there. That is where this interdependence between NPD innovativeness and information sharing appears. Suppliers 2.1 and 2.2 have highlighted that it is essential to have such document to be able to track the areas of responsibility of the actors, otherwise it is easy to get lost in a very big and complex projects. In addition, Buyer 3 also underlines the importance of this document, as it gets easier to follow all phases of a project and have a good overview of the situation.

Similar pattern is observed for the *knowledge sharing*. However, the difference is in the type of information. Unlike information sharing, this variable may encompass the data from other project, meaning other actors may be involved in the process. In this case, the privacy conditions should be respected. That is why, often the knowledge sharing takes place in a encoded way – the anonymous cases can be shared, without the references on the names of referring companies or persons. “Often there are facts presented of the other anonymous cases. But very substantial...But it is fundamental that we know the cases but not only theoretical solution”, – underlines the head of indirect procurement of the Buyer 4.

Excessive knowledge and information sharing take place on the highest level within the company of a supplier: employees that have been working on one project, can share their experience with their colleagues for development of the current project. “We do this internally in the Supplier 2.1 team. Of course, if I had an experience in that world, ... obviously I share the experience with the team. With another consulting firm, no, also because we usually have problems of data confidentiality. Because there are sensitive data, and so on, so we cannot share the experience of the other client with another consulting company”, – notes functional strategy manager from the company of Supplier S2.1.

But it worth to remember that the first driver of knowledge and information sharing is the need of such information, as it was discovered form the literature review and confirmed by the case-studies examination. The abovementioned quotes are from interviewees of the triad, representing highly innovative projects. The NPD projects, requiring lower level of innovation was focused much less on the way they share the knowledge and information between parties.

The most interesting variable supplier-supplier relationship is the mutual interaction between suppliers. It is so particular, since it differs a lot from the case to case. Maybe the quantity of case-studies is not large enough to classify the types of mutual interaction based on the project, or the companies represent their profiles and describe their project as unique one, so

it is difficult to compare cases. Literature review states that the mutual interaction between suppliers could imply the open flow of resources. This component can include a vast variety of practical elements that could be exchanged between suppliers. It could be physical resources, in case suppliers work in the same sector, like in the case of a triad 7. It could be knowledge, expertise, skills as in case of the triad 2 and 4. It could be technical competences from different fields, but that together could give a multiple impact on the project development, like in the case of the triad 3. Project 3 is the example of two complementary suppliers for producing the POS material: supplier of technical carton and graphic agency and the interaction between suppliers has helped the buyer to understand possible alternatives thanks to the technical knowledge, shared by each of the suppliers.

When the NPD projects are large, they must be well-organised and well-prepared: a dedicated file with the timelines is usually created by a team with the project leader to facilitate all the processes and the actors involved, so that the flows of goods, money and data are well-structured, so that every actors knows its tasks to perform and the deadline for it. It could be as internal (only for the buyer, as in case of a triad 3), or shared between triadic actors (in case of a triad 2). Anyway, there are elements, which should be communicated to all parties, like the tasks and the delivery date for it, and there is confidential information can take place, related only to the company, where then document was created. In such projects the details could be defined till the smallest moments, including for instance the frequency of interaction. In the consultancy projects, as in the case of a triad 2, the frequency of interaction can be even written in the contract. However, no certain rule on the interaction frequency exist. There is no connection, like if the parties will communicate often, they will develop better product. The cases-studies have underlined that in business relationships the interaction takes place when there is a certain need to have it. Simply because the effort should be spent to perform it: time, money, other resources.

Colouring the table with the conditional formatting in Excel has helped to recognise three categories of supplier-supplier relationships. The scores for each variable are taken from the table 13 and the results are interpreted in the updated table 15.

Table 15. Quantitative evaluation of supplier-supplier relationships with conditional formatting

	Mutual interaction	Knowledge sharing	Information sharing
<b>Triad 1</b>	2	3	3
<b>Triad 2</b>	6	6	7
<b>Triad 3</b>	5	5.5	5.5
<b>Triad 4</b>	7	5	5.5
<b>Triad 5</b>	1	0	1
<b>Triad 6</b>	2	0	2
<b>Triad 7</b>	1	0	1

It is visible that the triad 2, 3 and 4 maintain relationships more actively than the triad 1, which takes the medium position of interaction and suppliers from the triad 5 and 6 maintain the most passive relationships between themselves.

It is also visible that all three components are interconnected because there is a high correlation between their scores. Such classification could be also explained from the perspective of a social network theory. The triads from the green segment are the examples, where suppliers are linked between each other much stronger than the suppliers from the red segment. In case of triad 2, 3 and 4 there is a set of reasons making suppliers intensively interact between each other; the degree to which suppliers operate with the same or similar data is high, so the reciprocity in triad increases, and suppliers usually perform several roles within a project. For examples, the supplier S3.1 was in charge of projecting the hollow punch for a POS material, select and present to the buyer several alternatives for the material to be used for the product, performing the tests on stability and resistance of material, produce the final product, when the design will be created by the agency based of the results from the work-in progress by the supplier S3.1. Supplier S6.1, instead was in charge only of producing the developed packaging, so its role implied understanding a layout, developed by the buyer and follow the agreed requirements.

So, the more suppliers are up for collaboration the stronger they will be linked and the richer is going to be the transactional content (more intensive knowledge and information sharing) as expected according to the social network approach.

The figure 28 shows the dynamic of each component of relationships separately among all triads.

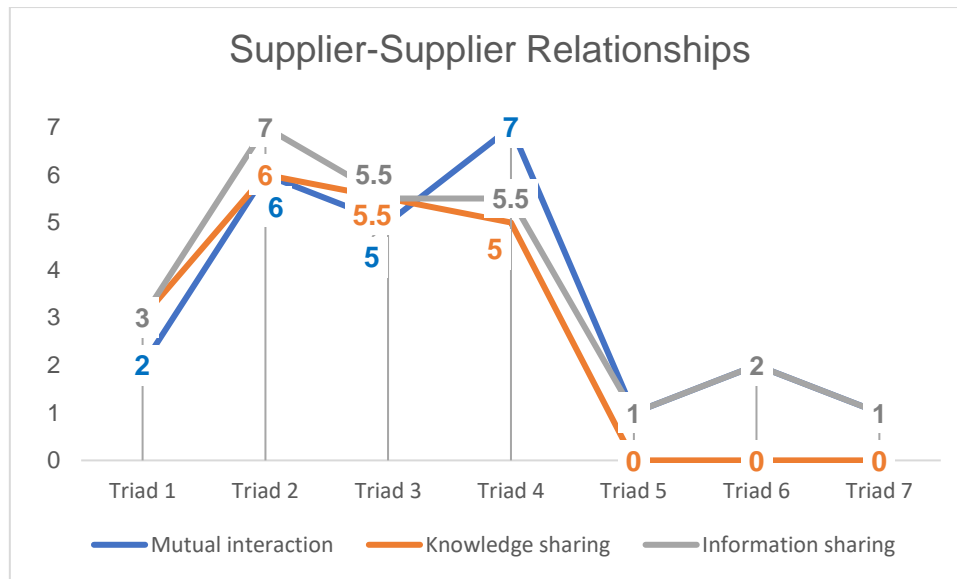


Figure 28. Dynamic of each component of supplier-supplier relationship among triads

It demonstrates that the knowledge sharing is the element, which takes place in the lower degree than two other components of relationships. It gives an idea that to make knowledge management more active, there is should be established environment for mutual interaction, implying shared understanding of a project scope and deep information sharing.

Summing up the outcomes from the interviews on the relationship performance between two suppliers, the following inferences will describe how supplier-supplier relationships could be practically represented.

- *The frequency of interaction* depends on the project needs and it is defined with all triad in the beginning (reference case is the triad 2). If a project requires constant exchange of ideas, daily contact with other suppliers, the interaction can be daily, like working in the same company – both suppliers have their own work to do but it can be a complementary work, so each was giving an input to the common work, because both have the same final goal – do a good work for the client.
- *Knowledge sharing* is excessive within the company-supplier. Sharing experience between suppliers take place usually without the reference contacts with whom this experience was – issues on confidentiality (reference cases are the triad 2 and triad 4) but it is essential.
- Depends on the buyer's way of coordinating the project, *information sharing* could be through buyer or without its presence. Usually it is excessive to satisfy the buyer in the best way.

- If two suppliers have already *collaborated* even for other client (buyer) previously, they have higher level of interaction, exchange of experiences which positively contributes to the project development (reference case is the triad 2).

### 6.2.2. Research Question 2

The question is stated in the following way: “How do buyer-supplier relationship influence relationships between two suppliers?”

Buyer is the one who coordinates the process of NPD. Because it is a buyer who initiates this process that is why the responsibility of product quality cannot be lowered from the buyer, regardless the level of supplier involvement. That is why the buyer always tends to keep the role of facilitator in the NPD projects. So, the most evidence inference from all examined case-studies was the fact that the way the relationships evolve between suppliers within the NPD project depends a lot from the buyer’s intention. To purely compare the impact of one type of relationships on the other, the first component of the contract was extracted from the calculations, so that all components inside buyer-supplier relationships and supplier-supplier relationships are equal. The interdependence of the relationships between suppliers on the buyer’s attitude represent the following chart (the figure 29).

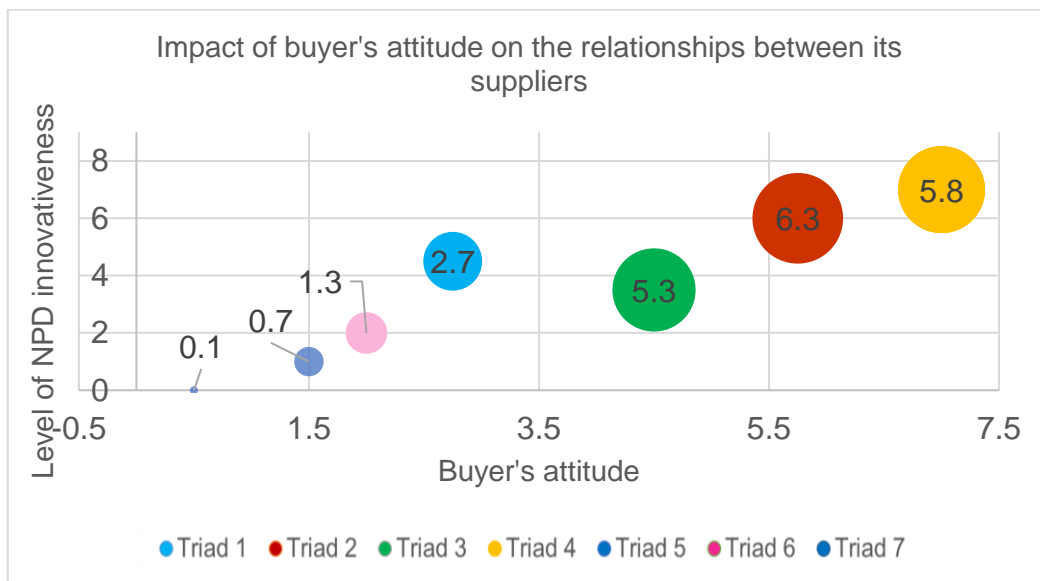


Figure 29. Impact of buyer's attitude on the relationships between its suppliers

The inferences coming from the buyer’s intention are the following. The more company-buyer is innovation-oriented (like Buyer 4), the more it is likely to make suppliers collaborating to exploit the open innovation concept and increase the level of NPD innovativeness by benefiting from the competences of its suppliers. To get to highest degree of innovation, most effective and efficient solution possible buyer may provide its suppliers with all the information. Collaboration of suppliers is welcomed if company-buyer recognises the need and potential

benefits from their collaboration (Buyer 1, Buyer 5, Buyer 6 did not see the benefits, therefore they decided to coordinate with both suppliers separately).

In big projects, where more than one supplier involved for performing complementary work together, buyer can a priori decide either he wants to exploit benefits of competition or of open collaboration to make the areas of responsibility clearly defined from the very beginning. It depends on the strategic importance of the project, on the budget the company plans to invest in this project. Consequently, it defines the effort the company will dedicate to this project in terms of time and resources: how long the project will be and who will be a part of the project team in terms of level of seniority of the employees: how many managers, how many senior executives, junior executives, etc. Otherwise, relationships management becomes too complicated and it makes hard to maintain to be able to benefit out of collaborative relationships in the triad. In some cases, buyer can explicitly ask suppliers to work together to come up with the best solution possible, to take into account all possible deviations and understand how to overcome them (reference case is the triad 4) «partnership is fundamental», – underlines the Buyer 4. When buyer decides that it is convenient for the project to establish the long-term partnership between the actors of a triad, it should imply respecting of certain rules, that the parties should discuss in the beginning: each party should see the benefits out of the collaboration, otherwise, it would not give expected fruits in the future. “*Partnership should imply mutual knowledge and mutual trust*”, – stated the Buyer 4. So, it is essential to recognise which type of cooperation the buyer wants to adopt for a certain NPD project and based on this decision, all triad is required to follow the plan they have defined in the beginning. And the decision upon the level of collaboration is grounded on the type of the NPD project: its level of strategic importance, its level of innovativeness and also the policy the company-buyer follows.

### 6.2.3. Research question 3

The question is stated in the following way: “How do triadic relationships in supply network influence the NPD project performance?”

The way the collaboration takes place between suppliers is different because of a set of reasons. Each type of the collaboration meets different business objectives and requires different levels of competencies and experience to execute it.

Evaluation of each variable of the NPD performance was from the perspective of a company-buyer. Each variable was examined within two dimensions: buyer-supplier relationships and supplier-supplier relationships. They are visualized on the dedicated charts on the figures 30-33 below.

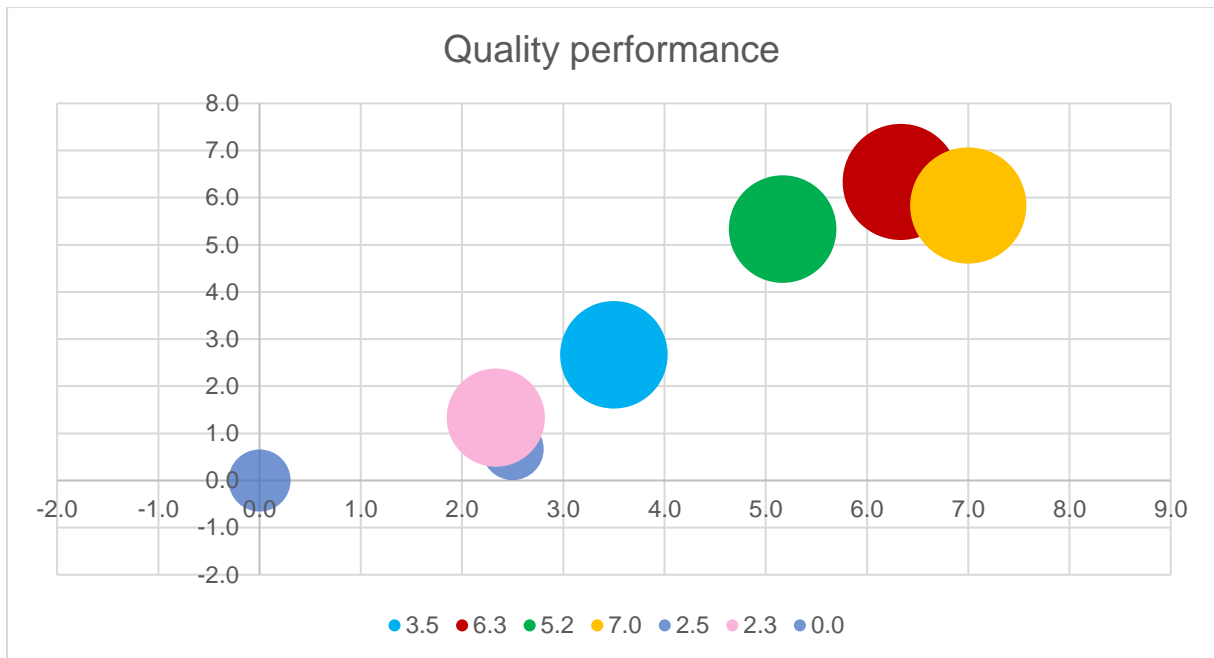


Figure 30. Evaluation of the quality as a part of NPD performance

The pattern displays the interdependence between buyer-supplier relationships and supplier-supplier relationships and the size of the bubble corresponds to the size of the dedicated variable of the NPD performance that is measured. The figure 17 demonstrates that the higher collaboration in the supply network, the higher is the level of quality of the newly developed product or service. The quality of the product or service was evaluated as a mix of the criteria of a project, that were set at the beginning of an NPD process. For some triads it was the satisfaction of the final client to which the product was delivered in the end (as for the triads 5 and 7), for other it was the respect of the check-list requirements set by the buyer, like in the example of a triad 2: “... there are the buttons that should work, the reports that should send the data, there are some warehouses, that should take the data, do some calculations, like update it every morning and show the latest version to the clients”, – notices the supplier 2.2.

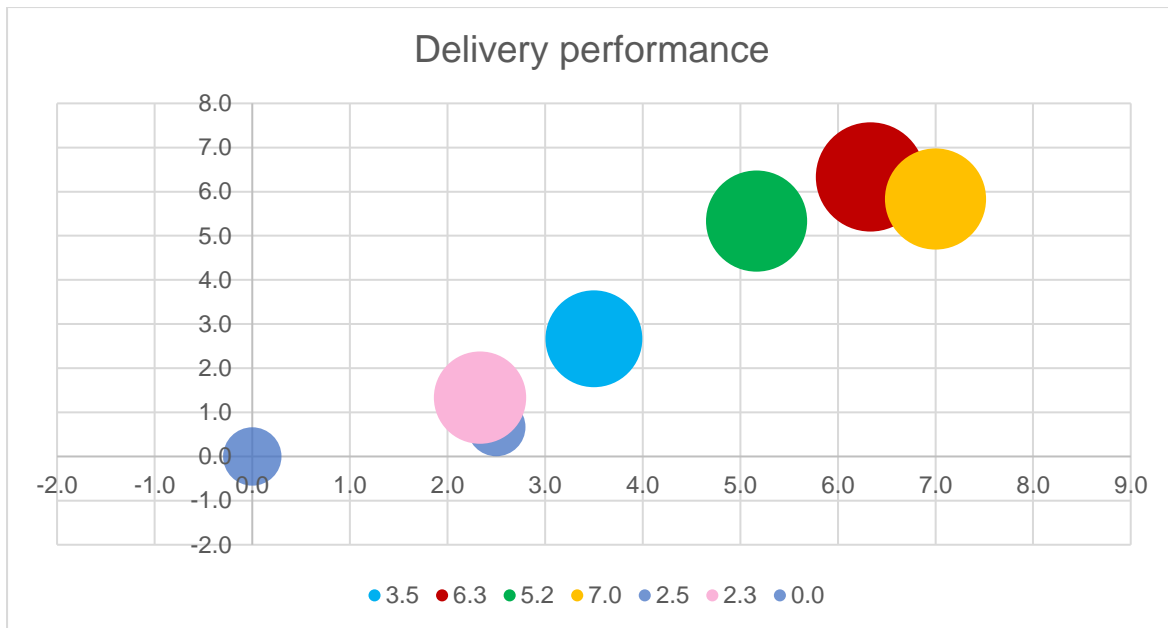


Figure 31. Evaluation of the delivery as a part of NPD performance

Delivery performance also increases with the level of collaboration in supplier network.

By delivery performance the buyers were asked to consider how the timing of a project was respected, how they are satisfied with the way of delivering work-in-progress all along the project, etc. The reason that the final score for delivery is similar to the final score of the quality might be the fact that the perception of the final delivery of a project was very related to the final quality of the product. At least when the results of supplier collaboration were in line with the buyer's expectations.

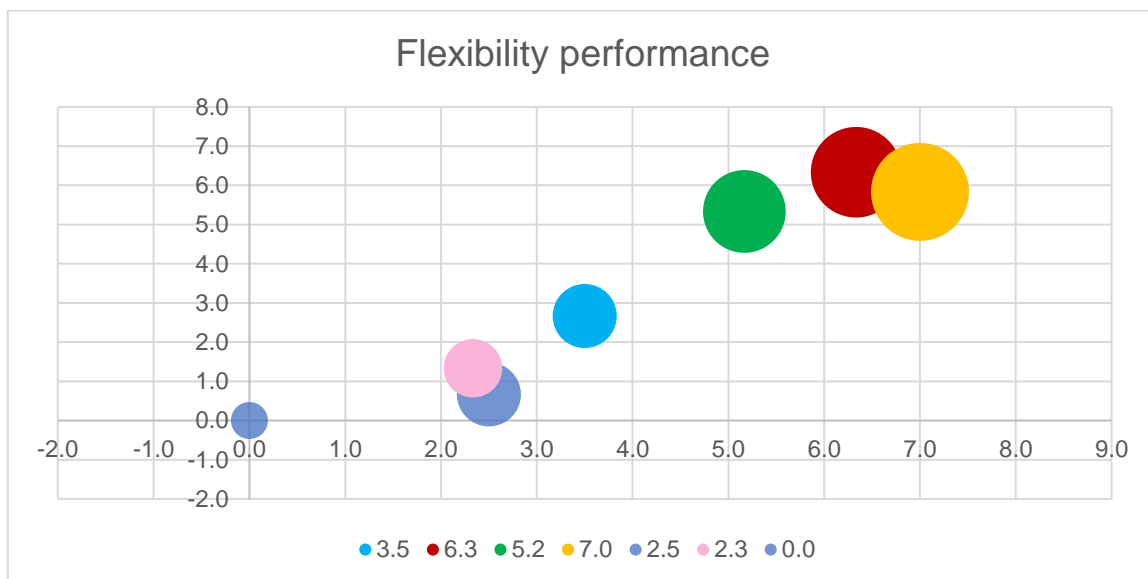


Figure 32. Evaluation of the flexibility as a part of NPD performance



The difference between the level of flexibility with different level of collaboration in supply network is more remarkable than quality and delivery. This may be explained by the fact that flexibility as a measurement of fast-responsiveness to the changes, asked by a buyer itself. It is evident that in low-complexity projects, there is a well-defined algorithm of the steps to be done during each phase of NPD process. In the projects with high level of innovativeness, the changes are more likely to happen, since the buyer is likely to not have a clear vision of how the product should look like in the end of a project. Therefore, buyer expects the need of flexibility from suppliers and so he is not likely to provide the supplier with the detailed specifications and it leads the buyer to exploit the power of open innovation to be able to come up with the best solution. In order to do it the buyer should give suppliers some degree of freedom so that the collaboration in triad increases so the buyer is able to get the flexibility of its suppliers in terms of building a solution that is highly customized to the buyer's needs.

The bubble, corresponding to the triad 5 is slightly bigger than expected since the way of working in the triad 5 is very depending on the requests, coming from the client of a Buyer 5. So, the flexibility in this project is measured by the fact how fast the supplier 5.1 and 5.2 could react to unexpected changes, coming not directly from the Buyer 5, but from the client of the Buyer 5. Thus, from the very beginning the candidates to become suppliers in the triad 5 are warned of a requested degree of flexibility, so if they agree to source the buyer 5 what he needs, they are ready to increase their flexibility.

Anyway, the order of magnitude is kept according to the expectations from the study: the more NPD project is innovative, the higher is the degree of collaboration in the supplier network, and the higher is the level of flexibility of suppliers during this NPD project.

The figure 33 below demonstrates the level of satisfaction of the buyer of the expenditures for their NPD projects. Clearly, that the expectations of costs for a project differs not only based on the complexity of the project itself, but also based on the possibilities of a buyer, meaning the how big player is the reference company on its market. If it is a project, conducted by a market leader, evidently, that such company is able to invest in a project more than a little player, or incumbent.

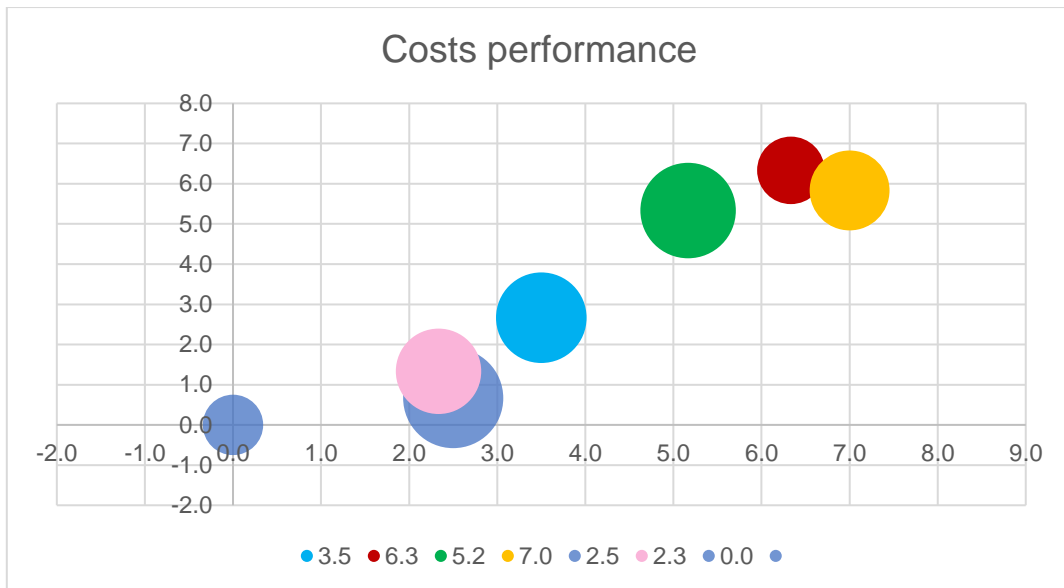


Figure 33. Evaluation of the costs as a part of NPD performance

Obviously, highly innovative solutions, or highly customised costs more than the simple ones. So, in the upper right corner there are smaller bubbles are expected than in the bottom left one. However, the triad 7 is turned out to be an exception here due to the specificity of the market: suppliers had high bargaining power, because they were several small players on the market and they have been interacting well between each other. Therefore, the buyer 7 is not satisfied by the cost performance of the project 7.

Summing up, the more triad is willing to develop the relationships in the supplier network, the more it can benefit from the flexibility of suppliers, which gives higher degree of freedom when developing a novelty, greater feedback exchange, which eventually will lead to the increase of quality of product and delivery of the project. Higher collaboration usually leads to higher costs of project; however, the collaboration is not the only driver of the costs, but the policy of the company matters (triad 1, triad 3), the behaviour of other players on the market or industry (bargaining power of suppliers from triad 7 made costs increase more than expected), priorities of the company while launching the NPD projects (if the company is very innovation-oriented, as the buyer from triad 4, the cost is not the first performance to track).

## CHAPTER 7 – Discussion

All triads taken as a reference consisted from one buyer and two suppliers, where suppliers could source products or services. Among those, supplying services, design agencies were present in three out of five examined triads in this study. Interestingly, that design in NPD project can imply not only the traditional function, but also functional integration of different parts of product and leadership function. Last one includes searching new values of product or service developed through exploring the market, presenting new product or service as a part of new life-style (Perks, Cooper and Jones 2005). Thus, supplier involvement may vary from simple sourcing of components or technical consultation to full design responsibility for components, subassemblies, or full systems (Lawson, Krause and Potter 2015)

Collaborative relationships could be very useful to enhance continuous innovation (Soosay, Hyland and Ferrer 2008). Looking at the small tasks of each employee, it is evident, that they are not directly related to the profit margin, but there is a long chain of responsibilities and achievements of the objectives that it seems not effective when an employee should follow big goals of the corporation, executing its each single task. Therefore, each employee has its own plan of the goal achievements, key performance indicators to measure the quality of its work. That is why the motivation the junior employee can have in the project may differ from the one, the manager or the project leader has due to the differences in the roles they have inside one company. This is in line with the supply network theory, which emphasises on differences of roles due to different network position (Hong and Hartley 2011). But the challenge here is to make connection between big goal and small executive task clear for employees, which will positively affect motivation of an employee and increase its proactiveness. Social network theory states that clear expectations strengthen the linkages within the network (Tichy, Tushman and Fombrun 2009), which will contribute to establishment of stable relationships and consequently bring to higher performance. It can be projected on the research context: the clearer the buyer will anticipate to supplier the expected performance in the NPD project, the more likely stable relationships between them will appear, which eventually will improve supplier performance.

Thus, it is extremely important that the objectives set for the project are clearly connected with the objectives each single employee should achieve and make it transparent how small objectives will bring to the achievement of the final goal. This is why the indicators of buyer's intention towards collaboration are not always equal to the correspondent supplier-supplier collaboration overall: there are differences in perception of the attitude towards the objective fulfilment.

Also the attitude a company has towards relationship development may be driven by the importance of such relationship in terms of benefits they can bring to the party, which is consistent with the inferences of Choi and Wu (2009) that relationships appear when two parties recognise a need in them. The case of triad 5 has confirmed that if supplier sources a widely used material, the most “important” buyer for him will be the one, for which that material would be a core component, because it will imply high volume orders and stable revenue. That is why carton supplier was not valuing a lot relationships with its buyer, which was packaging manufacturer in this case, because cartoon manufacturer can supply its products to a vast variety of other companies, apart from packaging ones, which actually make a small share of revenue for them.

The goals of all projects examined by the case-studies are all related to the business performance of the company buyer. Every year each listed public company is required to publish the annual report and honestly disclose its financial statement. And each year companies either proudly state their increase rate of their sales volumes and profit margins or declare that they are working on the improvement and their goal by 2020, 2030, 2050 is to grow even more, because every company follows its great mission to improve the life of people on the planet. For the continuous growth the company should be able to innovate (Kotler and Keller 2012), strategically changing incremental and radical innovation (Schumpeter 1934). That is why NPD innovativeness plays so important role in defining approach of buyer-supplier relationship, which consequently directly impacts supplier-supplier relationship.

The literature states that informal social interaction and personal context influence the way relationships evolve between suppliers (Liu, et al. 2017, Meyer, Niemann and Kotzé 2017). However, only two of examined cases have stated that there is might be a connection. Buyer 3 has emphasised that it is important to maintain friendly relationships with suppliers since there are always people who stay behind every process, but they cannot practically influence any strategic decision. Besides, they are helpful during negotiations which could be used differently and can increase flexibility of suppliers: when you share feelings with another person, (s)he becomes more open for changes and ready to make concessions. Suppliers from the triad 2 have pointed out that they might maintain friendly relationships since they can have different projects together for years, even with different buyers. But they always have to respect the confidentiality issues, therefore friendship ties are not directly linked with the information sharing – one of the components of supplier-supplier relationship.

The fact that information and knowledge sharing components are indeed very important in triadic relationships is confirmed by all case-studies, which is consistent with the literature. Among all triads they are directly proportional with closeness of triadic relationships. Mutual

interaction between suppliers attains different context depending on NPD project. Mutual assistance and open flow of resources get more relevant when suppliers are cooperating, so that they share their experience to help out the other party. Mutual trust and understanding are the variables which were difficult to identify between suppliers themselves, but these components are definitely asked by the buyer, who fosters supplier-supplier collaboration. In case of buyer-supplier relationship, mutual interaction was always proportional to the intensity of relationships: with higher collaboration the frequency of interaction was increasing, face-to-face meetings were welcomed, feedback exchange was active. Thus, buyer-supplier relationship components were described more precisely based on the literature review than those of supplier-supplier relationship, because last ones were underinvestigated.

Empirical study has confirmed that all variables of supplier-supplier relationship may take place, and their intensity usually depends on the NPD project itself, therefore, often defined a priori by a buyer.

## CHAPTER 8 – Conclusions

To fulfil the expectations on the purpose of the study first of all, the literature was deeply analysed on the triadic relationship during NPD process, then on each specific component of relationships within different theoretical frameworks. Comparing the focus of analysis in different theories, the social network theory was selected as a supportive base for framing the research since it has reflected the aim of the investigation in the best way: it helps explain the information flows within a network (Hong and Hartley 2011), which is exactly in line with the goal of the study – understand why the members of triad chose a particular approach for managing relationship and how it impacts the NPD performance.

Based on the findings from the literature review, the research questions were formulated to enrich the existed knowledge on the topic, particularly on the dependence of the knowledge and information sharing and mutual interaction in supplier network on the indicators of NPD performance. The research model was built also based on the discoveries from the examined literature and research questions were aligned to the constructed model. Each building block of the model is presented in detail in the Chapter 4 with the definitions and description of each its variable. To verify the viability of the research model and answer the research question, the case-studies on seven triads were examined. The data to analyse the case-studies were coming through different sources and triangulated to ensure its reliability. The interviews were conducted with the companies, representing the buyer or supplier from the triad during three months from September 2018 to November 2018. Then, the data was compared with the other findings from secondary sources, so that the results are completed. This chapter includes the final inferences on the research questions raised in this investigation.

### 8.1. Theoretical contributions

From the review of the literature, there is found a proof of interrelation between buyer-supplier relationship on the information sharing between buyer and supplier (Hong and Hartley 2011, Yang, Zhang and Xie 2017) on the knowledge sharing (Liu, et al. 2017, Ritala, et al. 2015) and that the interpersonal component is necessarily taking place even in relationships between business partners (Meyer, Niemann and Kotzé 2017). Also, it was possible to identify that the dyadic relationships impact the surrounding relationship in the supplier network (Choi and Wu 2009 (b), Wu, Choi and Rungtusanatham 2010, Yang, Zhang and Xie 2017, Najafi-Tavania, et al. 2018, Zhu, Su and Shou 2017).

The research question 2 about the impact of buyer-supplier relationships of supplier-supplier relationships could be proven than such relation exists, and the way one relationship impact the other depends a lot on the intentions the buyer has in the project.

Eventually, buyer's intention towards collaboration was extremely important to characterise the impact of buyer-supplier relationship on supplier-supplier relationship. When the buyer is inclined to grow collaboration in the triad, the actors are likely to share the information, as operational, as well as strategic (obviously, only the one that is strictly related to the project), their knowledge and establish close mutual interaction.

Relationships between suppliers are not abundantly investigated in the literature, as relationships between buyer and supplier during the new product development, therefore, one of the research questions was aimed at exploring the relationships between suppliers and the importance of the variables, listed by the research model. In the case of a second construct, the knowledge sharing variable seems to get the highest score of importance, comparing to the other ones. The thing is that mutual interaction between suppliers depends a lot on the type of suppliers – either they supply some components, if they are complementary, or should be just put together by the buyer, when manufacturing a new product; either suppliers provide complementary service, or the same one and the buyer wants to exploit the benefits of the competition... So, the variable of mutual interaction has implied different things in different cases. Knowledge sharing, instead, was equally relevant for each case. If the buyer was allowing supplier to collaborate closely to provide the buyer with the best solution, exploiting the paradigm of open innovation, then the suppliers were actively sharing their knowledge and relevant information to make the buyer satisfied. In case the buyer was intended to give suppliers just the executive roles, the knowledge was shared much less, and there were the necessary information flows, required by the NPD process itself.

By discovering the variable of the NPD performance, a lot of different publications were examined. By the performance of the NPD process the researchers could be implied so many terms, such as innovation product performance, innovation process performance, the concept of business and product innovation could be explored, the tangible and non-tangible impacts of the NPD projects, financial and non-financial performance, etc. So, the research model has included those variables which were cited the most in the reviewed publications. The examined case-studies have proven that different companies have different priorities when launching one of another innovation, and even the indicators, selected in the model, which were the most “popular” or traditional when describing NPD performance, could not be applicable to all of the cases. However, it is interesting to point out the relationships between the level of collaboration in the triad and the flexibility of suppliers: the higher is the level of collaboration during the NPD project, the more suppliers are ready to react faster and proactively on the requested changes by the buyer.

Therefore, it may be rational to understand the type of the product or service, implied by the NPD project and then analyse different criteria for evaluation NPD performance. In fact, the ideas about further research include the proposal to analyse the product nature of the relationship management approach, selected by the buyer towards suppliers and by the supplier towards the buyer and the other suppliers.

## 8.2. Managerial Implications

This section presents the take-offs about the behaviour of the companies during the NPD projects and wins and learnings, highlighted by the interviewees all along the project.

The most widely applicable takeaway from all case-studies is the importance of agreeing all conditions with suppliers from the beginning of a project. The more clear the buyer expresses its expectations upon the NPD project, the better can be the comprehension of suppliers about possible ways to satisfy the buyer. In the world of consultancy it is usual to start the project with the clear definition of the areas of responsibilities and let all parties to see it and agree upon it by signing such document. Of course, it cannot be applicable for 100% of cases – even among the examined ones there was a triad 4, which included very innovation-oriented buyer company, that was not able to provide its suppliers with the clear requirements upon the project. The buyer 4 has shared with its suppliers their current needs and also given insights about their potential needs because it is indeed challenging even for the buyer to fully understand and interpret the needs of the final customers, therefore, they actually ask suppliers to complete the request and come up with the highly innovative solution. However, such approach is expected to be adopted only by very innovation-oriented companies, and for those, which adopt more standard solutions, agreeing the tasks of each actor of the triad, timing, expected results may be very beneficial to increase effectiveness and efficiency of the triad as a whole. The example of adoption of such approach is the triad 3, where the NPD team creates a timetable with description of each task, deadlines on each phase of the NPD project, and communicates to every actor the expected output from him, instead of sharing the entire document, which could contain confidential information.

Relationship between buyer and its suppliers depend a lot on the contractual terms the actors have agreed upon before starting the project. If considering the supplier of goods or components, usually, the contract between buyer and supplier is signed for 1-3 years. After the period expires, the tender takes place again, regardless how satisfied the buyer is with suppliers. It makes sense to keep an eye on the current offers on the market, to get to know new players and finally evaluate the best proposal. Eventually, it may lead to lower motivation of the buyer-company to develop good relationships with suppliers. However, it is not that simple as it may seem to be. When close relationships are established between parties, the



negotiations may be already facilitated easier, and the supplier, previously working with the buyer can already emphasise on the actual needs of the company-buyer, since supplier could get already some insights from the previous years of work together. Diplomacy and empathy are very important in the relationship. Firstly, the period of signing contract is not that short, so during these 2-3 years, the companies have opportunities to benefit from cooperative relationships: they can gain higher flexibility, cultivate trust between each other, become more open-minded and therefore, more proactive during the future projects together. So, it is still important to develop pleasant relationships between cooperative parties, regardless either the relationships will last for decades or just several years according to one-time contract signed.

Another important point is about the governance of the company group. If a head quarter of company-buyer made a decision to move towards the centralization policy in purchasing, the suppliers of a certain product or service becomes selected globally for a large area (e.g. Europe), therefore, local personal relationships cannot influence the choice anymore. "...even if with Italy it has gone bad with this supplier, and with the other 20 countries everything was fine, it is not said that this supplier can be changed for me [Italy]. Because the relation is different... because the decision is central" – shares the contract manager from purchasing department of a buyer 3.

Buyer's policy towards relationships with suppliers may also depend on the maturity of the company-buyer. For example, the buyer 1 has pointed out that they have already got enough experience in design development, therefore, they do not feel a need to invest too much in selecting the best design agency and pay a lot for fashionable design alternatives, because they already know what their customer would like and they do not want to take a risk to try something extremely different. Oppositely, if the company of buyer 3 is open for exploiting the collaboration between suppliers because they recognise that the services they supply are not among the core activities of the buyer 3, therefore the suppliers are likely to develop higher expertise in their core operation fields and it can be value-added to let suppliers share their knowledge with the buyer 3.

What was really outstanding to find out is the evidences of innovation-orientation of the buyer 4. It is not always consistent when a company claims its striving to innovation, however, the investments, for example, in the research and development don't increase over years, since a company may have different priorities. In the case of the triad 4, instead, everything indicates the primary focus of the company buyer – follow the last trends and provide to be able to provide the best experience for their clients. They literally cultivate the culture of innovation inside an organisation and consequently it impacts their way of doing business, and particularly collaborating with suppliers. To respect their mission, they openly communicate

from the beginning of NPD process their criteria of NPD project – find the best solution by applying all “baggage” of skills and competences.

Summing up the inferences from all the examined case-studies all the variables of the research model are relevant and the model itself can be considered as viable to use in further researches. The research questions were successfully answered by analysing the interpreted data from the case-studies.

### 8.3. Limitation and further research developments

The research was effectuated with involving seven triads. This number could be increased if the research could have lasted longer and it is not guaranteed that the number of interviews conducted is enough to build the constructive conclusions, which could be widely applicable. However, the investigation of the company activity requires significant time and effort as for the interviewer, as well as for the interviewee. I would like to take an opportunity to thank again all the company-representatives who have dedicated their time to enrich this research by allowing an interview to happen. Moreover, it was a pleasure to get to know how open they are to help developing the research, so in case this research gets carried out, re-contacting the interviewees seems a good way to re-open the process of empirical research.

The companies were approached via e-mail and quite high response rate was obtained. But it was not always possible to interview the company even after getting the response from it, because some of the selection criteria were not respected. Anyway, it is satisfactory to admit, that approaching representatives of big and well-known companies could be rewarded. Sometimes, after the reminder letter was sent, the respondent has been coming back with the excuses for the late reply and the interview was taking place after. After conducting a couple of interviews there are some improvement points have appeared regarding the questions from the research protocol. To provide the coherence among the cases the questions were not changed significantly, and due to time constraint of each interview, the list of questions cannot be too long. Therefore, if continuing this research, new questions could be added to explore other aspects of the analysis.

By analysing the outcomes of the research, the idea has appeared to take the *NPD team as a unit of analysis*. Several case-studies has highlighted the importance of dedicating time to an NPD team creation. In the world of consultancy, the buyer pays a particular attention who will take part of a working team during the project: which level of seniority has each single member, how many managers are in the team and how many executives... They have their own approach in order to understand how many man-hour is needed for a project, what is the desired deadline by the buyer and how to build a team, based on the known conditions. Team

construction is very important for the company, since it defines how much the project would cost for a company, therefore it will help better build the costs structure for an NPD project.

The way the companies adopted one or another approach towards collaboration is explored in the study depending on the NPD innovativeness of the project. It is assumed that if a product requires high level of innovation, it is complex. However, it may not always be a case. So, the *product complexity* could be additional measure of the NPD performance that will impact the way the relationships are managed in a triad.

One of the challenges, appearing during the interviews was to keep guiding the interviewee within the frames of the research. Surely, the lateral findings were very welcomed, however, it was also important to complete the set objectives while interviewing the company representative. One of the issues were to select the case with two suppliers as a reference. Sometimes, interviewees have been switching from describing one case of another, changing the actors, taking part in the process of NPD, or even changing the referring project. To overcome the last obstacle, I have been drawing on the paper during the interview the project we have decided to refer. This way the interviewee had always the scheme we are talking about and it was easier to come him/her back to the main discussion. As for the issue with different suppliers, sometimes there were several suppliers of different components or services, and all of them were complementary. Thus, it could have been an interesting idea to investigate *not a triad*, containing only one buyer and two suppliers, but a *network of suppliers*, participating to the NPD project. Of course, a network can be split in several triads, taking the same buyer as a reference, however, this way the impact of relationships between supplier 1 & suppliers 2 on the relationships of supplier 2 & supplier 3 gets lost. In this study a triad was always the focal element of investigation and in case it was needed to choose the suppliers to build the reference example, the most interesting cases were chosen.

The approach to managing relationships is also depend on the type of supplier. On the figure 1 several types of suppliers are demonstrated. The study was not deeply focused on *supplier classification*, but it surely can be potentially explored in the future. After the appearance of the product-service system – an idea to sell the service in a bunch with the product to provide richer customer experience, the suppliers may also include it in their proposals to the tender. It could be consultancy support services, or training to provide additional knowledge about the use of new technologies. What was eventually discovered by the study that the approach the buyer adopts to treat design agency as their supplier depends on the experience of a company-buyer in the design sphere. However, it is supported only by 2 examples, so in order to indeed prove this hypothesis, higher number of cases should be examined. It could be also interesting to expand analysis by diving deep the *knowledge and information sharing*

components of relationship. Triad 1 and triad 3 have mentioned that they have used an ad-hoc platform to interact with suppliers. In the case of triad 1 it was an initiative of supplier S1.1, and in the triad 3 the platform was provided by the buyer 3. With development of *smart technologies*, there are infinite opportunities to make production processes more effective and efficient. Therefore, the study could be also enriched by investigating the technologies triad is using and its impact on data sharing and processing, and consequently on NPD performance.

When evaluating each variable of the research constructs, there is has been realized that the relationships are not explored such deeply as they could be. In the sense that the constructs 1 and 2 ware intended to understand the nature of triadic relationships in general. However, it could be interesting to explore the attitude of each actor separately towards the relationships with his partner. Practically it means that buyer-supplier relationships could be considered not as a one link, but as a mix of two links: the attitude of the buyer towards the supplier and the attitude of the supplier towards the buyer. This way the research could be enriched by analysing the equilibrium in the triadic relationships: either relationships in each pair are *balanced*.

So, if this study gets carried out in the future, this section could be taken as a source of ideas on how this investigation could be enriched and completed.

## REFERENCES

### Book:

- Cousins, P. D. (2002). *A conceptual model for managing long-term inter-organisational relationships*.
- Håkansson, H. (1987). *Industrial Technological Development. A Network Approach*.
- Håkansson, H., & Snehota, I. (1995). *Developing Relationships in Business Networks*.
- Johnsen, T. E., Howard, M., & Miemczyk, J. (2014). *Purchasing and Supply Chain Management: a sustainability perspective*.
- Kotler, P., & Keller, K. L. (2012). *Marketing Management 14th edition*.
- Richardson, J., & Roumasset, J. (1995). *Sole sourcing, competitive sourcing, parallel sourcing: mechanism for supplier performance*.
- Yin, R. K. (1984). *Case Study Research: Design and Methods*.

### Journal paper:

- Ates, M. A., Ende, J. V., & Ianniello, G. (2015). Inter-organizational coordination patterns in buyer-supplier-design agency triads in NPD projects. *International Journal of Operations & Production Management*.
- Ateş, M. A., Wynstra, F., & Raaij, E. M. (2015). An exploratory analysis of the relationship between purchase category strategies and supply base structure. *Journal of Purchasing & Supply Management*.
- Bellamy, M., Ghosh, S., & Hora, M. (2014). The influence of supply network structure on firm innovation. *Journal of Operations Management*.
- Benavides, L., Eskinazis, V. D., & Swan, D. (2012). Six steps to successful supply chain collaboration.
- Bonaccorsi, A., & Lipparini, A. (1994). Strategic Partnership in New Product Development an Italian Case Study. *Journal Product Innovation Management*.
- Chang, J. (2017). The effects of buyer-supplier's collaboration on knowledge and product innovation. *Industrial Marketing Management*.
- Chesbrough, H., Vanhaverbeke, W., & West, J. (2014). *New frontiers in open innovation*.
- Choi, T. Y., & Wu, Z. (2009). Taking the leap from dyads to triads: Buyer-supplier relationships in supply networks. *Journal of Purchasing & Supply Management*.
- Choi, T. Y., & Wu, Z. (2009). Triads in supply networks: theorizing buyer-supplier-supplier relationships.
- Choi, T., Wu, Z., Ellram, L., & Koka, B. (2002). Supplier-Supplier Relationships and Their Implications for Buyer-Supplier Relationships. *IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT*.

- Edquist, C. (1997). Systems of innovation approaches — their emergence and characteristics. *Systems of innovation. Technologies, Institutions and Organizations*.
- Ferreira, J., Fernandes, C., Alves, H., & Raposo, M. (2015). Drivers of innovation strategies: Testing the Tidd and Bessant (2009) model. *Journal of Business Research*.
- Fossas-Olalla, M., Minguela-Rata, B., López-Sánchez, J.-I., & Fernández-Menéndez, J. (2015). Product innovation: When should suppliers begin to collaborate? *Journal of Business Research*.
- Galaskiewicz, J. (2011). Studying supply chains from a social network perspective. *Journal of Supply Chain Management*.
- Gao, G. Y., Xie, E., & Zhou, K. Z. (2015). How does technological diversity in supplier network drive buyer innovation? Relational process and contingencies. *Journal of Operations Management*.
- Handfield, R. B., & Bechtelb, C. (2002). The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management*.
- Hong, Y., & Hartley, J. (2011). Managing the supplier–supplier interface in product development: the moderating role of technological newness.
- Hong, Y., Pearson, J., & Carr, A. (2009). A typology of coordination strategy in multi-organizational product development. *International Journal of Operations & Production Management*.
- Inemek, A., & Matthyssens, P. (2013). The impact of buyer–supplier relationships on supplier innovativeness: an empirical study in cross-border supply networks. *Ind. Mark, Manag.*
- Jack, S., & Baxter, P. E. (2010). *Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers*. Retrieved from Research Gate.
- Johnsen, T. (2005). Supplier Involvement in Product Development: Challenges and Ways Forward. *DILForientering*.
- Johnsen, T. (2009). Supplier involvement in new product development and innovation: Taking stock and looking to the future. *Journal of Purchasing & Supply Management*.
- Jokelaa, P., & Södermanb, A. (2017). Re-examining the link between fairness and commitment in buyer-supplier. *Journal of Purchasing and Supply Management*.
- Kilvert, N. (2018, July 4). <https://www.abc.net.au/news/science/2018-06-29/nestle-suspended-sustainable-palm-oil/9923238>.
- Kim, D.-Y. (2014). Understanding supplier structural embeddedness: A social network perspective. *Journal of Operations Management*.
- Kim, M., & Chai, S. (2017). The impact of supplier innovativeness, information sharing and strategic sourcing on improving supply chain agility: Global supply chain perspective. *International Journal of Production Economics*.
- Kim, Y., & Choi, T. Y. (2015). Deep, sticky, transient, and gracious: an expanded buyer–supplier relationship typology. *Journal of Supply Chain Management*.

- Koster, M., Vos, B., & Schroeder, R. (2017). Management innovation driving sustainable supply management. Process studies in exemplar MNEs. *Business Research Quarterly*.
- Lafuente, E., Vaillant, Y., & Leiva, J. C. (2018). Sustainable and Traditional Product Innovation without Scale and Experience, but Only for KIBS! *Sustainability*.
- Laursen, L. N., & Andersen, P. H. (2016). Supplier involvement in NPD: A quasi-experiment at Unilever. *Industrial Marketing Management*.
- Lawson, B., Krause, D., & Potter, A. (2015). Improving Supplier New Product Development Performance: The Role of Supplier Development.
- Li, M., Zheng, X., & Zhuang, G. (2017). Information technology-enabled interactions, mutual monitoring, and supplier-buyer cooperation: A network perspective. *Journal of Business Research*.
- Liao, S.-H., Hu, D.-C., & Ding, L.-W. (2017). Assessing the influence of supply chain collaboration value innovation, supply chain capability and competitive advantage in Taiwan's networking communication industry. *International Journal of Production Economics*.
- Lii, P., & Kuo, F.-I. (2016). Innovation-oriented supply chain integration for combined competitiveness and firm performance. *Int. J. Production Economics*.
- Liu, X., Huang, Q., Dou, J., & Zhao, X. (2017). The impact of informal social interaction on innovation capability in the context of buyer-supplier dyads. *Journal of Business Research*.
- Liu, Y., Li, Y., Shi, L. H., & Liu, T. (2017). Knowledge transfer in buyer-supplier relationships: The role of transactional and relational governance mechanisms. *Journal of Business Research*.
- Luo, H., Sha, S., & Huang, G. Q. (2013). The Impact of Information and Knowledge sharing on the Buyer-supplier Relationship and Performance in Electronics Industry. *7th IFAC Conference on Manufacturing Modelling, Management, and Control*.
- Luzzini, D., Amann, M., Caniato, F., Essig, M., & Ronchi, S. (2015). The path of innovation: purchasing and supplier involvement into new product development. *Industrial Marketing Management*.
- Melander, L., & Lakemond, N. (2015). Governance of supplier collaboration in technologically uncertain NPD projects. *Industrial Marketing Management*.
- Melander, L., & Tell, F. (2014). Uncertainty in collaborative NPD: Effects on the selection of technology and supplier. *Journal of Engineering and Technology Management*.
- Meyer, A., Niemann, W., & Kotzé, T. (2017). Exploring the dark side of interpersonal relationships between buyers and suppliers of logistics services. *Independent Research Journal in the Management Sciences*.
- Najafi-Tavania, S., Najafi-Tavani, Z., Naudéc, P., Oghazie, P., & Zeynaloof, E. (2018). How collaborative innovation networks affect new product performance: Product

- innovation capability, process innovation capability, and absorptive capacity. *Industrial Marketing Management*.
- Narayanan, S., Narasimhan, R., & Schoenherr, T. (2015). Assessing the contingent effects of collaboration on agility performance in buyer–supplier relationships. *Journal of Operations Management*.
- Nasr, E., Kilgour, M., & Noori, H. (2015). Strategizing niceness in co-opetition: The case of knowledge exchange in supply chain innovation projects. *European Journal of Operational Research*.
- Nyaga, G., Whipple, J., & Lynch, D. (2010). Examining supply chain relationships: Do buyer and supplier perspectives on collaborative relationships differ? *Journal of Operations Management*.
- Oghazi, P., Rad, F. F., Zaefarian, G., Beheshti, H., & Mortazavi, S. (2016). Unity is strength: A study of supplier relationship management integration. *Journal of Business Research*.
- Pathak, S. D., Wu, Z., & Johnston, D. (2014). Toward a structural view of co-opetition in supply networks. *Journal of Operations Management*.
- Perks, H., Cooper, R., & Jones, C. (2005). Characterizing the Role of Design in New Product Development: An Empirically Derived Taxonomy. *Journal of Product Innovation Management*.
- Puck, J., Neyer, A.-K., & Dennerlein, T. (2011). Diversity and Conflict in Teams: A Contingency Perspective. *European Journal of International Management*.
- Ring, P. S., & Ven, A. H. (1994). Developmental Processes of Cooperative Interorganizational Relationships. *The Academy of Management Review*.
- Ritala, P., Olander, H., Michailova, S., & Husted, K. (2015). Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. *Technovation*.
- Roper, S., Micheli, P., Love, J. H., & Vahter, P. (2016). The roles and effectiveness of design in new product development: A study of Irish manufacturers. *Research Policy*.
- Roseira, C., Brito, C., & Henneberg, S. C. (2010). Managing interdependencies in supplier networks. *Industrial Marketing Management*.
- Sarang P., J., Pankaj, S., Rajendra, C., & P P, J. (2018). Strategies for Buyer Supplier Relationship Improvement: Scale Development and Validation. *Precedia Manufacturing*.
- Schoenherr, T., & Wagner, S. (2016). Supplier involvement in the fuzzy front end of new product development: An investigation of homophily, benevolence and market turbulence. *Int. J. Production Economics*.
- Schøtt, T., & Jensen, K. W. (2016). Firms' innovation benefiting from networking and institutional support: A global analysis of national and firm effects. *Research Policy*.
- Schumpeter, A. J. (1934). *The Theory of Economic Development...*



- Sjoerdsma, M., & Weele, A. J. (2015). Managing supplier relationships in a new product development. *Journal of Purchasing & Supply Management*.
- Smals, R., & Smits, A. (2012). Value for value—The dynamics of supplier value in collaborative new product development. *Industrial Marketing Management*.
- Soosay, C. A., Hyland, P. W., & Ferrer, M. (2008). Supply chain collaboration: capabilities for continuous innovation. *Supply Chain Management: An International Journal*.
- Strategy&. (2018). <https://www.strategyand.pwc.com/innovation1000>.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research*.
- Su, C., & Yang, H. (2017). Supplier-buyer relationship management in marketing and management research: An area for interdisciplinary integration. *Journal of Business Research*.
- Tan, K. H., Wong, W. P., & Chung, L. (2015). Information and Knowledge Leakage in Supply Chain. *Published online*.
- Tangpong, C., Michalisin, M. D., Traub, R., & Melcher, A. J. (2015). A review of buyer-supplier relationship typologies: progress, problems, and future directions. *Journal of Business & Industrial Marketing*.
- Tichy, N., Tushman, M., & Fombrun, C. (2009). Social Network Analysis for Organizations. *The Academy of Management Review*.
- Touboulic, A., Chicksand, D., & Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. *Decision Sciences*.
- Wagner, S. M. (2012). Tapping supplier innovation. *Journal of Supply Chain Management*.
- Wagner, S. M., & Bode, C. (2014). Supplier relationship-specific investments and the role of safeguards for supplier innovation sharing. *Journal of Operations Management*.
- Wang, C., & Hu, Q. (n.d.). Knowledge sharing in supply chain networks: Effects of collaborative innovation activities and capability on innovation performance. *Technovation*.
- Wang, Y., Wang, N., Jiang, L., Yang, Z., & Cui, V. (2016). Managing relationships with power advantage buyers: The role of supplier initiated bonding tactics in long-term buyer–supplier collaborations. *Journal of Business Research*.
- Wu, Z., Choi, T. Y., & Rungtusanatham, M. J. (2010). Supplier–supplier relationships in buyer–supplier–supplier triads: Implications for supplier performance. *Journal of Operations Management*.
- Wynstra, F., & Pierick, E. t. (2000). Managing supplier involvement in new product development: a portfolio approach. *European Journal of Purchasing & Supply Management*.
- Wynstra, F., Spring, M., & Schoenherr, T. (2015). Service triads: A research agenda for buyer–supplier–customer triads in business services. *Journal of Operations Management*.

- Xu, L., Cui, N., Qualls, W., & Zhang, L. (2017). How socialization tactics affect supplier-buyer co-development performance in exploratory and exploitative projects: The mediating effects of cooperation and collaboration. *Journal of Business Research*.
- Yan, T., Yang, S., & Dooley, K. (2017). A theory of supplier network-based innovation value. *Journal of Purchasing and Supply Management*.
- Yang, Z., Zhang, H., & Xie, E. (2017). Relative buyer-supplier relational strength and supplier's information sharing with the buyer. *Journal of Business Research*.
- Yoo, S. H., Shin, H., & Park, M.-S. (2015). New product development and the effect of supplier involvement. *Omega*.
- Zeng, F., Chi, Y., Dong, M. C., & Huang, J. (2017). The dyadic structure of exchange partners' governing-agency social capital and opportunism in buyer-supplier relationships. *Journal of Business Research*.
- Zhao, Y., Cavusgil, E., & Cavusgil, T. (2014). An investigation of the black-box supplier integration in new product development. *Journal of Business Research*.
- Zhou, K. Z., Zhang, Q., Sheng, S., Xie, E., & Bao, Y. (2014). Are relational ties always good for knowledge acquisition? Buyer-supplier exchanges in China. *Journal of Operations Management*.
- Zhu, W., Su, S., & Shou, Z. (2017). Social ties and firm performance: The mediating effect of adaptive capability and supplier opportunism. *Journal of Business Research*.

#### Research report:

GS1. (2016). *Annual Report 2015-2016*.

Higgins, P. A. (2018). Reducing uncertainty in new product development.

Noor, J., Satpathy, A., Shulman, J., & Wüllenweber, J. (2013). *The power of successful supplier collaboration*.

Park, K., Bethell, M., Griffiths, D., & Sen, S. (2017). *Overcoming the threats of uncertainty*. Deloitte.

PwC. (2013). *Supplier Relationship Management. How key suppliers drive your company's competitive advantage*. PricewaterhouseCoopers Accountants.

#### Online-only material:

Fast Company. (2018). <https://www.fastcompany.com/most-innovative-companies/2018>.

Forbes. (2017, May 8). <https://www.forbes.com/sites/mikekappel/2017/03/08/6-ways-to-measure-small-business-success/#11b5cebb18f4>.

Garthwaite, C., Busse, M., Starc, A., & McCareins, M. (2018, January 5). What's Behind the Current Wave of Vertical Integration?

recode. (2018, April 9). <https://www.recode.net/2018/4/9/17204004/amazon-research-development-rd>.

Statistica. (2018). <https://www.statista.com/statistics/236550/percentage-of-us-population-that-own-a-iphone-smartphone/>.

Statistica. (2018). <https://www.statista.com/statistics/265645/ranking-of-the-20-companies-with-the-highest-spending-on-research-and-development/>.

Walker, M. (2017, January 23). The Trend Back Towards Vertical Integration is Gathering Pace.

Walker, M. (n.d.). <http://www.swotnot.com/vertical-integration-new-model/>.

Wikipedia. (2018). <https://it.wikipedia.org/wiki/Amazon.com>.

## APPENDIX A - Research protocol

Research protocol used for the buyer in English:

1. What product / service can we take as a point of reference for considering the collaboration between [buyer company name] and two suppliers?
2. What were the objectives of this project?
3. How does the collaboration with [buyer company name] and supplier 1 / supplier 2 take place?
  - a. What information do you share and how often?
  - b. Do you share the knowledge and experience from previous similar projects, that could be used for the current project?
  - c. How could relations with your suppliers be described? Are you satisfied with how the cooperation takes place? What can be the points of improvement?
4. What are the intentions of [company name Buyer] towards collaboration with suppliers?
5. How does the project end in terms of interaction with suppliers? Do you have a feedback session with them?

Italian version of the research protocol for the buyer:

1. Quale prodotto/servizio possiamo prendere come un punto di riferimento per considerare la collaborazione tra [nome azienda Buyer] e due fornitori?
2. Quali erano gli obiettivi di questo progetto?
3. Come si svolge la collaborazione con [nome azienda Buyer] e il fornitore 1/fornitore 2?
  - a. Quali informazioni condividete e come spesso?
  - b. Condividete la conoscenza e l'esperienza di precedenti progetti simili, che potrebbero essere utilizzati per il progetto in corso?
  - c. Come potrebbero essere descritte le relazioni con i vostri fornitori? Siete soddisfatti come si svolge la cooperazione? Quali possono essere i punti di miglioramento?
4. Quali sono le intenzioni di [nome azienda Buyer] verso la collaborazione con i fornitori?
5. Come si conclude il progetto in termini di interazione con i fornitori? Avete una sessione di feedback con loro?

English version of the research protocol for the supplier:

1. At the beginning of the project do you set the objectives together with the client? [Supplier company name] has different objectives than those required by the Buyer?

2. How does the collaboration between [company name of Supplier] and the customer take place?
  - a. What information do you share between you and how often?
  - b. How do you share knowledge / experience from previous projects? What could the buyer share with [Supplier company name]?
  - c. How could relations with your partners (supplier) in general be described? Are you satisfied with how the cooperation takes place? What can be the points of improvement?
3. How does the collaboration between Supplier company name] and the other supplier take place?
4. According to your point of view, what impact does the collaboration between the actors (during the development process of the new product) have on the quality of the final product?
5. How does the project end in the context of interaction with the client and the other supplier? Do you have a feedback session together with one another?

Italian version of the research protocol for the supplier:

1. All'inizio del progetto voi impostate gli obiettivi insieme con il cliente? [nome azienda Fornitore] ha degli obiettivi diversi da quelli che richiede il cliente (Buyer)?
2. Come si svolge la collaborazione tra [nome azienda Fornitore] e il cliente?
  - a. Quali informazioni condividete tra di voi e come spesso?
  - b. Come condividete la conoscenza/esperienza dai progetti precedenti? Cosa potrebbe condividere il cliente con [nome azienda Fornitore]?
  - c. Come potrebbero essere descritte le relazioni con i vostri fornitori in generale? Siete soddisfatti come si svolge la cooperazione? Quali possono essere i punti di miglioramento?
3. Come si svolge la collaborazione tra [nome azienda Fornitore] e l'altro Fornitore?
4. Secondo punto di vista di [nome azienda Fornitore], quale impatto ha la collaborazione tra gli attori (durante il processo dello sviluppo del nuovo prodotto) sulla qualità del prodotto finale?
5. Come si conclude il progetto in contesto di interazione con il cliente e l'altro fornitore? Avete una sessione di feedback insieme con uno e l'altro?

## APPENDIX B - Case Studies

Interview transcripts are present here in original language (in case it is Italian) and the translation in English.

### Triad 1

The interview was conducted in Russian, because of language preferences of the interviewer. Here is the translation in English.

*Nataliia Roskladka:* I am interested in the collaboration of two suppliers for developing packaging.

*Brand Manager:* I will tell you the story how it was, and you can ask the questions meanwhile if you have them. We have decided...from the research, we understood that we are interested in franchising for the target audience we are aimed to cover. We have got in touch with Supplier S1.1, their Polish office is in charge of serving our market. To start the project, we had to sign the commercial contract and non-disclosure agreement. After that we have got an access to the electronic system where all databases with the hero visuals, their design templates are saved. After that we have signed similar non-disclosure agreement with the selected design agency, here in Ukraine and they have developed several visual concepts according to our technical specifications and we have chosen one of them and sent to Supplier S1.1 for approval. Supplier S1.1 has a certain set of rules regarding the displaying the heroes on the product packaging, for example, that they should not interact with the product, should not see the product, touch it, etc. We have adapted the template according to all these requirements, finalized the design internally and with Supplier S1.1. All the approval process has been performed through their global platform, called Online Product Approval, where we were uploading all the information about the design, templates, scans in 3D, etc.

*Nataliia Roskladka:* The polish office should approve the design?

*Brand Manager:* Not exactly. The polish office is in charge of coordinating and modelling all the process. Direct approval comes from I don't know where, online, I assume that they get approval from the American right holders. Meanwhile we were developing the tastes and looking for the packaging suppliers. The difficulty of this search was reasoned by the specific Supplier S1.1 requirements about the audit that should perform the packaging producers, so called International Labour Standard Audit. Meaning that the enterprise which supplies the packaging with Supplier S1.1 visuals (even if it is just a sticker on the bottle cap) or any hero that belongs to Supplier S1.1 group (like Cartoon M) should perform this social audit. Moreover, they should do it only by certain authorized companies, particularly in Ukraine there were only 2 such companies.

*Nataliia Roskladka:* So, they (Supplier S1.1 Polish office) gave you the list of those authorized companies, whom you should approach, right?

*Brand Manager:* We, Buyer 1 – no. Look: we have a packaging supplier. This supplier should print a Supplier S1.1 visual. So, this supplier has to perform the social audit, authorized by those 2 companies, authorized by Supplier S1.1 (who did the training session how to control the process, what to check, what results should be and which should be the form of audit results). So, this supplier performs this audit, sends us its results and we send them to London Supplier S1.1 office. If the company doesn't meet the minimal standards of social protection of its employees, then such company doesn't have a right to produce any product that would contain the logo/hero belong to Supplier S1.1. This restriction is not valid for the design agency or any other institution that would work with the Supplier S1.1 heroes online, in the electronic format. Therefore, we have chosen a set of suppliers, made them to perform this audit. Some of them passed it, some of them didn't succeed in passing it, so those who passed got a letter-permission to produce the products with the Supplier S1.1 trade mark.

One more difficulty in the interaction was the following. They have...if you remember we have a NutriPride – the document, which describes the nutritional value of the product, mainly limits it to make it less fat, less sweet, etc. So, the Supplier S1.1 has got a similar document, Nutritional Standards, which restricts the nutritional value of the products, branded by Supplier S1.1. If you saw on the packaging there is a green sign XZ kitchen и XY kitchen. This is the trade mark, which they have created to brand the products and verify their high quality. They are not fostering this brand yet because they have got some product with such signs (including confectionary) from the past which are not sold yet, but those products don't respect new strict requirements. In general, I see that allowing this sign to be on the products they claim that they care about the nutritional profile of the products, branded by Supplier S1.1. Moreover, they have required that we do the laboratorial research but not only the virtual calculations to verify the quality of yogurts. And we had to involve certain laboratories, which are accredited their standards to verify the presence of all necessary vitamins, minerals, and other nutri-profile ingredients in our yogurt.

*Nataliia Roskladka:* Alright, so they wanted a laboratorial proof of the quality instead of comparing 2 nutritional standards of Buyer 1 and Supplier S1.1?

*Brand Manager:* Yes, they have the standards and they wanted the proof that these standards are respected. But it wasn't a big problem for us because most of the conditions they have are covered by our NutriPride which is more strict in this sense. The only issue was about the portion size. We don't have any idea why but the max portion of yogurt they have is 200g.

*Nataliia Roskladka:* Then how could you respected with the multi-pack?

*Brand Manager:* The issue was not a multi-pack, because it is 4x115g, but the drinkable, where we have 270g. To avoid this problem, we had to include the small note on the packaging that it is 2 portions.

*Nataliia Roskladka:* Nice decision!

*Brand Manager:* In reality it looks funny – a small technical note and the sign on the package. Majority of people won't even see it, and those who might see will have fun and forget it. But it was the technical way to avoid this restriction which we consider unjustified.

*Nataliia Roskladka:* but this is better than give up the idea of drinkable yogurt

*Brand Manager:* Yes. Again, all this information has gone through this Online Product Approval System. Through this system has gone everything: all designs, calculation of nutritional value, laboratorial research, audit certificates were uploaded there. All our factories have a safety certificate by FSSAI – Food Safety Standard Authority of India. We have them, so we just uploaded them there. That is how it was.

*Nataliia Roskladka:* Who has coordinated the process, Buyer 1? But the involvement of all those institutions was the requirement of Supplier S1.1 Polish office, right?

*Brand Manager:* Yes, they told me that they are ready to work in Ukraine with... and ... and they told that they accept the laboratory analysis only from those laboratories who have the appropriate ISO standard. In Ukraine there were no such laboratories, that had such equipment for those tests, therefore, the analysis was run in European laboratories (Germany, Belgium, France)

*Nataliia Roskladka:* Where did the idea to apply Supplier S1.1 heroes appear from? Buyer 1?

*Brand Manager:* Yes

*Nataliia Roskladka:* Why? Because the teenagers might like it?

*Brand Manager:* The story is the following: in kids' category there were 3 brands: Brand 1, Brand 2, and Brand 3. Last year we have taken a deep look at it and we understood that all three brands apply to the same age group: 3-6(7) years old. Therefore, we have removed Brand 2, transferred the most successful products under the Brand 3, did the re-design Brand 3 and made out of it the sweet and dessert category. Instead the Brand 1 is kept as the healthy brand with focus on calcium. Do not add the pressure on this age group and knowing the penetration of the dairy decreasing for teenagers, we have decided to build the brand that would apply to more adult children (like 7-14 years old). Thus, we run the research and understood that for boys the relevant animated cartoon is Cartoon 1, and for girls – Cartoon



2. The first license is from Company X, the second – Supplier S1.1, but then we have found out that Company X belongs to Supplier S1.1, as the Cartoon 3 [last year innovation]. They were coming to Buyer 1 for around 7 years, trying to offer us their licenses from 2012 or 2011 year but we were rejecting it until we recognised the necessity of such license and so we started working with them.

*Nataliia Roskladka:* Did the R&D run this research and understood that Supplier S1.1 is the suitable option?

*Brand Manager:* No, marketing did. R&D is more about the product itself, the packaging, but the analysis and initiative were coming from the marketing.

*Nataliia Roskladka:* So, you are in marketing currently?

*Brand Manager:* Yes, around a year, changes from Brand 2 is my job.

*Nataliia Roskladka:* I hope that the novelty will enter the market and start growing very successfully.

*Brand Manager:* Thank you.

*Nataliia Roskladka:* But did Buyer 1 decide everything upon the design, giving the agency the heroes to display?

*Brand Manager:* Yes. If you remember in the end of the last year there was a very successful novelty, Star Wars yogurts?

*Nataliia Roskladka:* Yes

*Brand Manager:* So, we have done a double-check in the beginning of this year on the likability of the heroes. Not only the brand Cartoon 3, Cartoon 2, but particularly heroes. And we have understood that 3 heroes: Hero 1, Hero 2 and Hero 3 are more popular than any other hero from the Cartoon 3 among our target audience. That is how we made sure that we are on the right way and we selected those 3 on the packaging. In general, the concept and format of the packaging was developed by Buyer 1, and it was realised with the visuals that were available from Supplier S1.1. I mean they have pretty big library of heroes in different pose, pictures, signs, icons, backgrounds which we were selecting to get the best look of the pack.

*Nataliia Roskladka:* Was it the agency who suggested the alternatives or Buyer 1 was always very involved?

*Brand Manager:* Yes, we were controlling everything. We did not take a supercool agency because this is the licensed brand but not Buyer's 1 one. And these licenses are short-term,

so nobody was ready to invest a lot in this project. And secondly, Buyer 1 has got a lot of competences in design development.

*Nataliia Roskladka:* Which were the expectations from the novelty?

*Brand Manager:* Perhaps the main and the only task for this novelty was to enter on the market with the big brand, with minimum cannibalisation, aiming for particularly that target audience which is not covered yet and get the additional volume but not take them out from the other brands with different target audience. Thus, we expect good sales but let's see how it will be in a couple of months.

*Nataliia Roskladka:* Good, thank you. Can I please share with you the interpretation of the interview, so you may confirm it?

*Brand Manager:* Ok.

*Nataliia Roskladka:* Thank you very much! Have a nice day!

*Brand Manager:* Thanks, you too!

Additional questions asked during the second interview after recognising the missing data:

*Nataliia Roskladka:* Thank you very much for agreeing to clarify everything!

*Brand Manager:* Nothing, tell me.

*Nataliia Roskladka:* For Cartoon 3 yogurts did you also use the franchise from Supplier S1.1?

*Brand Manager:* No.

*Nataliia Roskladka:* Then, it was the first experience of working with Supplier S1.1?

*Brand Manager:* Yes, it was the first experience of Buyer 1 and Supplier S1.1 collaboration in Ukraine. From all available franchise we have taken Supplier S1.1 (Cartoon N) and Cartoon M. Actually, Supplier S1.1 owns also Lucas – company to which the Star Wars heroes belong, but we did not choose those heroes this time and previously we did not use the franchise for them. We have done the double-check on likeability of heroes. In the end of last year, they have released a popular movie and we have checked of Avengers heroes are indeed more popular than Cartoon 3. And they were more popular.

*Nataliia Roskladka:* Clear.

*Brand Manager:* Because I expect that SW is more class-oriented movie for elder, who have seen also the first editions from 70s-80s.

*Nataliia Roskladka:* Got it. Listen, but Supplier S1.1 has required that the other suppliers have checked only performed ILSA and Nutritional Standards, but didn't they want to check the final plastic packaging?

*Brand Manager:* They have done the quality check of the final product – yogurt and social audit which is related to the treatment of employees: respect of working hours, working environment, necessary norms and sanctions, fire protection, and even the noise control!

*Nataliia Roskladka:* Wow, what a serious level.

*Brand Manager:* You know what I tell you? Audit has discovered something that we have corrected immediately, but still...that we did not have the rubber gloves to communicate with HIV infected employees. Go to the web-site of "Supplier S1.1 International Labour Standard" and read about it. The scope of the audit was not available to us: we did not know what we will be checked on and how. Supplier S1.1 is just cooperating with the international well-known companies, deliver the training sessions to the auditors so that they are aware what and how they have to check.

*Nataliia Roskladka:* Have Supplier S1.1 shared any particular knowledge regarding the design development of the packaging?

*Brand Manager:* Yes, shared. We had the Key account manager, which is in charge of communication with the client, 1 design responsible...

*Nataliia Roskladka:* From Supplier S1.1?

*Brand Manager:* Yes. 1 Key Account for commercial relationships etc, the second person – responsible for OPA (Online Product Approval System) and design responsible, and the 3<sup>rd</sup> person – responsible for respecting the labour standards.

*Nataliia Roskladka:* And all of them are in Poland?

*Brand Manager:* No, Key Account and design are in Poland and Labour – in London. Why?

*Nataliia Roskladka:* I intended that the communication was via e-mail, in English, not face-to-face.

*Brand Manager:* E-mails, calls, yes.

*Nataliia Roskladka:* Can I please ask the quantitative question: how would you, as a project leader, evaluate the collaboration with Supplier S1.1 in general during the NPD process? (7-point scale, 1 – very negative, 7 – very positive)

*Brand Manager:* What exactly should I evaluate?

*Nataliia Roskladka:* The collaboration in general, how you are satisfied after the work with them?

*Brand Manager:* From 1 to 10?

*Nataliia Roskladka:* To 7.

*Brand Manager:* Why to 7?

*Nataliia Roskladka:* I have the references from the papers that were presenting similar researches...

*Brand Manager:* Than the score is 5.5...

*Nataliia Roskladka:* I just need the conclusive remark how the collaboration has impacted the quality of product. And did I understand correctly that the interaction was pretty close?

*Brand Manager:* Yes, but I would say that it could have been simpler and more open...I mean there is the area for improvement of the relationships to have the interaction more transparent, faster, more clear... because they did not have answers to a number of questions... For example, regarding that ILS audit. There is a person with whom we communicate, which is in London, and who facilitates all this process, but he is not even aware of the results of the audit we have performed! Like which are the violations and where they were noticed, either they are grave or minor... There is a lot what they can't or don't want share with us. And this makes work more difficult.

*Nataliia Roskladka:* Oh, so you send the results and you don't know yet whether you succeed or not in the audit???

*Brand Manager:* Nonono, indeed! He tells I am sending that audit to the central office and please wait for the reply.

*Nataliia Roskladka:* And he didn't give a feedback?

*Brand Manager:* Absolutely, no feedback is received. The report comes (I directly receive it) from the "automated reply" and that is it. You sit and think...Regarding the design... they have nice data-bases, he has given valuable advices...Good, with design everything went very well. He has professionally indicated us the right direction to strive with the design thinking. But regarding the Key Account interaction – there are the areas for improvement...

It was not bad, they have got pretty high standards, but there are people which could improve their performance.

[Brand Manager was not like to talk more on that]

*Nataliia Roskladka:* Did the agency instead share any advices/knowledge regarding the design of packaging? Or they simply followed what Buyer 1 has dictate to them?

*Brand Manager:* Well, it is clear that designers has their own vision. But I would not say that our agency was the best.

*Nataliia Roskladka:* Can I know the name of the agency?

*Brand Manager:* I would prefer that you don't even mention this agency. Just write that we have developed the design and that is it.

*Nataliia Roskladka:* Of course, no problem. I understand the confidentiality reasons and if you want, I do not even mention the names of any company/brand.

*Brand Manager:* We have developed a design, but who exactly was involved – it is not that important.

*Nataliia Roskladka:* Alright. Did I get correctly, that the collaboration with design agency was lower than with Supplier S1.1? How would you evaluate the work with them?

*Brand Manager:* The work with design agency was the fastest one. We have always received clear suggestions, and we have followed most of their recommendations, they have also shared the examples how similar design solutions were done in other countries, so we imagine it better.

*Nataliia Roskladka:* Do you think if the Supplier S1.1 would collaborate with design agency directly, it could contribute to the product improvement: higher quality of the final product?

*Brand Manager:* For sure not. Despite the triadic relationships are more difficult than dyadic ones.

*Nataliia Roskladka:* Thank you infinite!!!

*Brand Manager:* Welcome.

Unfortunately, it was impossible to interview the other members of the triad, because of missing contacts of the design agency and Supplier S1.1 office. Approaching the last one was not eventually successful: no answer was obtained.

## Triad 2

For this triad two interviews were performed: with 2 suppliers.

The interviewer from Supplier 2.1 was Functional Strategy Manager in Supply Chain & Operations.

Here is the interview transcript with Supplier S2.1 in original version, in Italian.

*Nataliia Roskladka:* Buongiorno! Grazie per aver trovato il tempo per effettuare questa intervista! La prima cosa che vorrei chiederti è come si inizia il progetto?

*Functional Strategy Manager:* La risposta del consulente – dipende dal tipo di progetto. In generale per la mia esperienza tutte le volte che lavoravo come società di consulenza avevamo dei punti chiavi per cui in realtà la pianificazione si fa indipendentemente. E ognuno per sé nel momento in cui ci sono dello svolgimento delle attività dei punti di contatto si organizzano dedicato... se l'interazione è necessaria che sia frequente, allora si schedulano dei meeting settimanali, comunque con frequenza prestabilita be sa in modo totale. Ti faccio un esempio di un cliente con una società di consulenza e il progetto di governance e noi ci occupavamo del processo di digitalizzazione dell'azienda che stava facendo una trasformazione in un modo digitale e l'altra società di consulenza che era BIP e si occupava di tutta la parte di reporting. Quindi in realtà l'interazione tra noi e loro era quasi quotidiana e proprio come fossimo lavorassero per la stessa azienda. Perché comunque la società di consulenza per il lavoro che deve fare e ovviamente l'obiettivo finale è fare un buon lavoro per il cliente e in quel caso noi ci sentiamo tutti i giorni e noi Supplier 2.1 dava l'input all'altra società di consulenza per fare il report o per mostrare dati e numeri e quindi in realtà quando si lavora con società di consulenza ci sono i limiti per definire soprattutto li analisi di studi perché deve essere chiaro chi ha la responsabilità di come dovrebbe andare ma ci deve essere comunque un rapporto di collaborazione onesta per le 2 parti.

*Nataliia Roskladka:* Hai detto dall'inizio che questo dipende molto dal progetto quindi e il cliente che vi dice "ok, io voglio che voi lavorate insieme" oppure...

*Functional Strategy Manager:* Okay, solitamente sono progetti per cui sono più di una società di consulenza sono i progetti molto grossi e quindi magari si fa una gara solitamente si fa una gara e solitamente in questa gara sono esplicitati vari stream di progetto. Magari c'è la parte di PMO – project management office – c'è la parte di sviluppo di un progetto e di delivery. Nella maggior parte dei casi è già il cliente stesso a definire apriori che se la società di consulenza partecipa in gara con altre nella fase di PMO, non può partecipare nella fase di delivery per la ragione che è difficile che la società di consulenza controlla anche il suo operato. In linea di massima se sono i progetti molto grossi (implementazione, magari pluriennali), solitamente si fa così. Quindi il cliente apriori decide chi impedire la società di consulenza di dare su entrambi listi di progetto.

Se sono i progetti piccoli che durano poco, ovviamente la società di consulenza che è responsabile di delivery, si occupa anche di portare al cliente l'avanzamento di attività.

Nel caso in cui c'è un progetto di implementazione e questo in realtà è il rapporto per la società di consulenza che lavorano entrambe per la implementazione un tool e così via, e molto più frequente. È capitato per esempio che non a me personalmente, perché non mi occupo della parte di technology, software, ma della parte di strategia, però ho lavorato con il team di Supplier 2.1 che magari si devono occupare di SAP e lavoravano tutti i giorni con società di consulenza che lavora su SAP.

*Nataliia Roskladka:* ma intendi tutti i giorni presso il loro ufficio perché so che può capitare anche voi praticamente lavorate anche presso queste aziende, giusto?

*Functional Strategy Manager:* Nel senso che siamo sempre dal cliente?

*Nataliia Roskladka:* Sì.

*Functional Strategy Manager:* Sisi, alcuni progetti che avevo tutta la settimana da lunedì a venerdì sono stata dal cliente.

*Nataliia Roskladka:* E poi dici che siccome l'obiettivo maggiore, principale è soddisfare il cliente, voi comunque avete in Supplier 2.1 il vostro piano di lavoro.

*Functional Strategy Manager:* Certo, è la base. Nel momento in cui facciamo una proposta del progetto per il cliente, o rispondiamo alla gara, uno degli elementi che devono essere presentati al cliente è il team per capire le persone, non per il nome e cognome, ma il livello di seniority, le competenze del team, più o meno l'effort chiesto dalle persone, quindi se c'è per esempio un manager che è full time sul progetto, o part-time sul progetto, e per capire chi è, come strutturato il team di Supplier 2.1, quindi chi è lo sponsor, chi è il project leader, che è il team di delivery, su quelle competenze, su quello ambito del progetto e soprattutto il piano di lavoro, quindi il cliente sa quando iniziamo, su quale stream di attività stiamo lavorando, quando consegneremo le deliverable o intermedio finale, e ci sono i momenti ufficiali, steering committee, tutti noi Supplier 2.1 siamo chiamati a raccontare la nostra esperienza a top management del cliente lo stato di avanzamento.

*Nataliia Roskladka:* Con l'altro consulente voi anche potete fare riunioni insieme per capire come sta procedendo?

*Functional Strategy Manager:* Sisi. Se ci sono attività allegate uno all'altro – sicuramente. Se è un progetto di implementazione di software, tool, quant'altro è fondamentale. Il progetto di altro team si schedulano i meetings con altro team ogni settimana o una volta al mese per aggiornamento.

*Nataliia Roskladka:* Voi avete anche un modo di valutare l'altro consulente...se voi avete già fatto qualche progetto insieme voi avete sessione di brainstorming insieme, visto che nella

consulenza si svolgono tanti progetti e magari si può adattare qualche esperienza ottenuta dal progetto precedente...

*Functional Strategy Manager:* Questo lo facciamo internamente nel team di Supplier S2.1. C'è ovviamente se io fatto un'esperienza in quel mondo risorse per esempio, e sto lavorando per altri risorse, ovviamente l'esperienza la condivido con team.

Con altra società di consulenza no, anche perché solitamente abbiamo problemi di confidenzialità dei dati, perché sono dati sensibili, e quant'altro, per cui non possiamo condividere l'esperienza dell'altro cliente con altra società di consulenza. No. Non condividiamo queste informazioni. Qui non con altra società di consulenza non condividiamo queste informazioni. Proponiamo magari un approccio, una tecnologia, che si basa sull'esperienza dai progetti, ma senza far riferimento del fatto cosa abbiamo ottenuto.

*Nataliia Roskladka:* potrebbe succedere che due consulenti lavorano per un cliente, potrebbe essere che voi avete diversi contratti della confidenzialità?

*Functional Strategy Manager:* sì perché quando lavoriamo con i clienti firmiamo un non-disclosure agreement per cui non possiamo comunicare all'esterno cosa stiamo facendo per il cliente.

*Nataliia Roskladka:* sì-sì, ma intendo che se voi lavorate con un cliente per un progetto solo e avete disclosure agreement con il cliente e loro anche...

*Functional Strategy Manager:* Se 2 società di consulenza lavorano per lo stesso cliente, l'info si possono scambiare del cliente. Ma se io lavorato per altro cliente, non condivido l'esperienza di quel cliente con altra società di consulenza, lo faccio solo con il mio team.

*Nataliia Roskladka:* Adesso capito, grazie.

*Functional Strategy Manager:* Figurati.

*Nataliia Roskladka:* Con il cliente voi avete (dipende dal progetto) ma il cliente vi dice come vuole che collaborate tra voi stessi? Intendo se il cliente esprime qualche intensione verso la collaborazione tra di voi?

*Functional Strategy Manager:* No, in generale, fa parte dall'accordo. Nel momento in cui si fa la proposta, si fa la negoziazione con il cliente, se richiesto, altra società di consulenza, e uno degli elementi che vengono chiarite subito. Il tipo di contatto e la frequenza di contatto con una società di consulenza vengono chiarite apposta. Quando noi presentiamo la metodologia, l'approccio, il piano di lavoro, abbiamo anche un capitolo, che tratta proprio in che modo ci relazioniamo con tutto il team del progetto che include il cliente, noi e altra società di



consulenza. E quindi è definito tutto dall'inizio, e il cliente dà la sua opinione su questo e ci dice: intensificate l'incontri, su questo punto o verificate queste cose insieme, quindi i dettagli di collaborazione.

*Nataliia Roskladka:* ho fatto questa domanda perché l'idea del mio framework di ricerca è capire quanto impatta la collaborazione tra i fornitori sulla qualità del prodotto sviluppato. Quindi nel questo ambito della consulenza che voi lavorate insieme praticamente, mi diresti quanto secondo te l'impatto della questa collaborazione: più collaborazione, meglio diventa la qualità?

*Functional Strategy Manager:* Sicuramente.

*Nataliia Roskladka:* come si conclude il progetto in contesto delle relazioni con altra società di consulente? Avete una sessione di follow-up per capire wins and learnings?

*Functional Strategy Manager:* In generale no, nel momento in cui si termina il progetto, il deliverable finale, solitamente, la relazione si chiude lì. Si chiude in quel momento. Raramente c'è il follow up con altra società di consulenza.

*Nataliia Roskladka:* Con il cliente?

Con il cliente al massimo neanche, almeno che è un progetto di implementazione di software, solitamente c'è una fase, che chiamiamo post-go-life. In questa phase qui, il team si riduce da presenza sul cliente e solitamente si fa un supporto da remoto però il follow up si dà supporto cerca uno due mesi per chiarire dei momenti non totalmente chiari o fare un po' di finetuning della soluzione dove sia necessario.

*Nataliia Roskladka:* Chiaro. Functional Strategy Manager, ti ringrazio tanto. Tutto molto strutturato, molto chiaro, grazie!

*Functional Strategy Manager:* È un piacere, Nataliia, se hai il bisogno, chiamami senza problemi, scrivimi un messaggio, veramente, mi fa piacere di aiutarti!

*Nataliia Roskladka:* Grazie!

The translation of the interview transcript with supplier 1 – Supplier S2.1 in English is below.

*Nataliia Roskladka:* Good morning, Functional Strategy Manager! Thank you very much for agreeing to have an interview.

*Functional Strategy Manager:* My pleasure.

*Nataliia Roskladka:* I am doing the research on supplier relationships within the triad of buyer-supplier-supplier and now I am interested in perspective of the supplier – Supplier 2.1. Firstly, I am wondering how does the project start?

*Functional Strategy Manager:* The answer of a consultant is depends on the type of project. In general, in my experience, every time I worked in a consulting firm, we had some key points to plan independently. And everyone when the activities are carrying out, organizes itself and makes a plan... if it is necessary that the interaction is frequent, then the weekly meetings are scheduled, anyway with a predetermined frequency generally. I'll give you an example of a client from a consultancy company, it was a governance project. We took care of the digitization process of the company that was making a transformation in a digital way. The other consulting company that was X and was in charge of all the reporting part. So, in reality, the interaction between us and them was almost daily, just like we were working for the same company. Because anyway the consulting firm has the work to do and obviously the final goal is do a good job for the client. So, we have been hearing from each other every day and we, Supplier 2.1, gave input to the other consulting firm to make the report or to show data and numbers. Therefore, in reality, when working with consultancy companies there are limits to define above all the analysis of studies, because it must be clear who has the responsibility of how it should go, but there must be anyway honest collaborative relationship between the 2 parts.

*Nataliia Roskladka:* You said from the beginning that this depends a lot on the project then and the customer who says "ok, I want you to work together" or ...

*Functional Strategy Manager:* Ok, they are usually projects, for which they are more than one consulting company, are very big projects and in this case maybe you do a race. Usually, you do a race and, usually, in this race are explained various project streams. Maybe there is part of PMO – project management office – there is the development part of a project and delivery. In most cases it is already the client himself to define a priori that if the consulting company participates in competition with others in the PMO phase, it cannot participate in the delivery phase for the reason that it is difficult for the consulting firm to control his work. In principle, if the projects are very large (implementation, perhaps multi-year), it usually does so. So, the client a priori decides who to prevent the consulting company to give on both project lists.

If there are small projects that do not last long, obviously the consulting company that is responsible for delivery, also takes care of bringing the progress of activities to the customer.

In case there is an implementation project, there is actually the relationship between the consulting firms that both work for the implementation of a tool and so on, are much more frequent. It happened for example that (not to me personally, because I do not take care of

the technology, software, but part of the strategy), but I worked with the team of Supplier 2.1, who had to deal with SAP and worked every day with consultancy companies working on SAP.

*Nataliia Roskladka:* But you mean every day at their office because I know that you can also practically work at these companies, right?

*Functional Strategy Manager:* In the sense that we are always from the customer?

*Nataliia Roskladka:* Yes.

*Functional Strategy Manager:* Yes-yes-yes, some projects I had all week from Monday to Friday were from the client.

*Nataliia Roskladka:* And then you say that since the main goal is to satisfy the customer, you anyway have in Supplier 2.1 your work plan, right?

*Functional Strategy Manager:* Yes, it's the base. When we make a project proposal to the client, or we respond to the tender, one of the elements that must be presented to the client is the team to understand the people, not the name and surname, but the level of seniority, the skills of the team, more or less the effort requested from people. So, either for example a manager is full time on the project, or part-time on the project, to understand how the Supplier 2.1 team is structured, then who is the sponsor, who is the project leader, who is the delivery team, on those skills, on those within the project and above all the work plan. Then the customer knows when we start, on which business stream we are working, when we deliver the deliverable or intermediate interim. And there are official moments, steering committees, all of us Supplier 2.1 are called to tell our experience at the customer's top management status.

*Nataliia Roskladka:* With the other consultant can you also have meetings together to understand how it is proceeding?

*Functional Strategy Manager:* Yes-yes. If there are activities related to one another – definitely. If it is a software implementation project, tool, anything else, it is essential. The other project teams schedule the meetings with another team every week or once a month for updating.

*Nataliia Roskladka:* Do you also have a way of evaluating the other consultant? If you have already done some project together you have a brainstorming session together, as many projects are carried out in the consultancy and maybe some experience gained from the previous project can be adapted ...

*Functional Strategy Manager:* We do this internally in the Supplier 2.1 team. Of course, if I had an experience in that world, for example, and I'm working for other resources, obviously I share the experience with the team.

With another consulting firm, no, also because we usually have problems of data confidentiality. Because there are sensitive data, and so on, so we cannot share the experience of the other client with another consulting company. No. We do not share this information. Here we do not share this information with another consulting firm. We may propose an approach, a technology, based on experience from projects, but without referring to what we have achieved.

*Nataliia Roskladka:* Could it happen that two consultants that work for a client, have different contracts of confidentiality?

*Functional Strategy Manager:* Because when we work with customers, we sign a non-disclosure agreement, so we cannot communicate what we are doing to the customer.

*Nataliia Roskladka:* Yes-yes, but I mean that if you work with a client for the same project and you have disclosure agreements with the client and they also ...

*Functional Strategy Manager:* If two consulting companies work for the same customer, the information can be exchanged about the customer. But if I worked for another client, I do not share that customer's experience with another consulting company, I do it only with my team.

*Nataliia Roskladka:* Now understood, thank you.

*Functional Strategy Manager:* welcome.

*Nataliia Roskladka:* With the customer you have (depends on the project) but does the customer tell you how he wants you to work together? I mean if the customer expresses any intention towards your collaboration with each other?

*Functional Strategy Manager:* No, in general, it is part of the agreement. When the proposal is made, negotiations with the client, if requested, another consultancy company, and one of the elements immediately clarified. The type of contact and the frequency of contact with a consulting company are clarified on purpose. When we present the methodology, the approach, the work plan, we also have a chapter, which deals with how we relate with the entire project team that includes the client, us and another consulting firm. And then everything is defined from the beginning, and the client gives his opinion on this and tells us: intensify the meetings, on this point or check these things together, then the details of collaboration.

*Nataliia Roskladka:* I asked this question because the idea of my research framework and understand how much the collaboration between the suppliers impacts on the quality of the product developed. So, in this area of advice that you work together practically, you would tell me how much you think the impact of this collaboration: the more collaboration, the better the quality?

*Functional Strategy Manager:* Certainly.

*Nataliia Roskladka:* Perfect, thank you! How does the project end in the context of relations with another consultant company? Do you have a follow-up session to understand wins and learnings?

*Functional Strategy Manager:* In general, no, when the project ends, the final deliverable, usually, the relationship closes there. It closes at that moment. We rarely follow up with another consulting company.

*Nataliia Roskladka:* With the customer?

*Functional Strategy Manager:* With the client usually, no. Unless it is a software implementation project, usually there is a phase, which we call post-go-life. In this phase, the team is reduced from presence on the customer and usually a support is made remotely but the follow up gives support around two months to clarify the moments that are not totally clear or do a little finetuning of the solution where it is necessary.

*Nataliia Roskladka:* Clear. *Functional Strategy Manager,* I thank you so much. All very structured, very clear, thank you!

*Functional Strategy Manager:* it's a pleasure, *Nataliia,* if you need it, call me without problems, write me a message, really, I'm glad to help you!

*Nataliia Roskladka:* Thanks!

Here is the interview with the other supplier – Company S2.2, conducted with Enterprise Performance Management & Business Analytics Consultant.

*Nataliia Roskladka:* You have mentioned that Consultant X was working with Supplier S2.2 for Buyer 2. If you have an example of the project in which you were involved...

*Business Analytics Consultant:* I take a project. Consultant X is working with Supplier S2.2 but we had different projects. Let's consider a different project with another consultancy company. I won't go so much into details. Planning. Financial planning product. The company had a huge system integrated within 4-5 countries and after a certain day they decided to distribute it (this IT infrastructure) also within other branches of the company. So, they asked us to let say open a system for another one who don't have SAP yet, but they can use it online on the Web. So, we just added this integration, this expansion to the project, which allows other branches of the group integrate data without even having this system.

SAP is based on the license. If you have the license you can use it on your PC. You have 50 branches around the world. Out of...

*Nataliia Roskladka:* Branches mean?

*Business Analytics Consultant:* Branch 1 – Buyer 2 Italia, branch 2 – Buyer 2 Turkey.

*Nataliia Roskladka:* You need to have a license for each personal computer?

*Business Analytics Consultant:* I don't know how the license work, but you have to have the license for using SAP... so branches – different offices in different countries. Anyway, they are connected to the head quarter, where but each branch has its own system. some of them...out of 50... 5-6 have its advanced infrastructure and for the rest – the level is changing: from “we have something” to “we don't use it at all”. To expand the usage of the system they had before, we added some more features, like included also the process flow basically of some other countries. I mean 5 countries are the pilot ones. They are using it and the rest, other 45, they don't have this process at all.

*Nataliia Roskladka:* They have different needs these 50 companies?

*Business Analytics Consultant:* The need is the same – financial planning – planning of their sales, purchasing and staff. The 45 do not have these procedures internally, ... or some of them did, but the procedure was not standardized.

*Nataliia Roskladka:* So, the other does perform planning but they do not have the standardized procedure of doing it, right?

*Business Analytics Consultant:* Yes, they do it indeed, the head quarter sees what they do, but internally this branch doesn't have the process flows, procedures to create this end results.

*Nataliia Roskladka:* So, you were in charge of developing the integrated system for these  $n$  countries of the same group – client. And this system should differ for all countries or be the same for everyone? What is the output in the end?

*Business Analytics Consultant:* They can use...they have the hierarchy level of authorization: managers, executive employees...some of them can control, some of them can supervise, some of them can enter the data and plan and it should be very well defined. They had before, like in the system you have the hierarchy: the rights for each level of the user – internal hierarchy. And output 2. All the countries were using the same system, same reports, input fields, it was standardized. If you take 1 person from 1 country and change it to another country, – change your location, you have the same system there, - transport of knowledge. The process of planning was standardized. Everyone knew what to do and when to do. 1 person can say: “For these and these countries we open this phase of planning. For these countries we close this phase and we open the 2<sup>nd</sup> phase of the planning. So, everyone knows what is the 1<sup>st</sup> phase, what is the 2<sup>nd</sup> phase.

*Nataliia Roskladka:* So, the output 1 – hierarchy. Output 2 – ...?

*Business Analytics Consultant:* Output 2 is management of the planning process from one-unit center (Head Quarter) – ease of management.

*Nataliia Roskladka:* You are in charge of describing this management process...and how do you understand if they like it or not? What are the criteria the client checks the work if it is good or not?

*Business Analytics Consultant:* We had 1 example we have developed before: the client wanted the same thing but in different levels: they were using the supervised technology system. They were using the system already, so they knew what exactly they want, what they need but obviously, introducing a new thing to the other countries, they wanted it to have simpler level of details, less details. I don't plan for example of tiramisu. High level of details: Roskladka Manufacturer sold X packs of Tiramisu1 in Retailer1, Y packs in retailer 2; Tiramisu2: A packs of Tiramisu 2 in Ret1, B packs in Retailer 2. Lower level of details: is grouped on the product. Roskladka Manufacturers sold Z packs Tiramisu in Retailers 1, 2..n.

So, in the countries where they don't have this system, they exchange the excel files all the time. They don't track the retailers anymore, but they track the sales of tiramisu1, tiramisu2... or even dessert buyers.

So, with the system with high level of details you can plan for every single retail/store.

*Nataliia Roskladka:* Regarding the satisfaction of the client. So, they might know exactly what they want, so do they tell you the detailed specification?

*Business Analytics Consultant:* Yeah, they had the system for some countries, so they had to define what types/procedures they want to another ones. Which kind of levels...step1,2, they added some details but anyway for us they knew what to expect.

*Nataliia Roskladka:* I understood that when you come, they know what they want, but in case they don't know what they want, can they still approach you?

*Business Analytics Consultant:* sure. That happened. But actually, you have the basics. For this report you should have these fields, for these countries you have these levels of details...and you start developing the system, then you make the first prototype, you show them, you present to them and they say: "well, how did you calculate this value?" they start asking questions to define because they now have the feeling of the program... they start requesting like "oh, I would like to have this button here" so they start asking for visual effects from the colors and staff to basically the calculations: we had this problem. They were expecting the value for the calculation. And we produced another one because it wasn't super

clear or like they decided on something else before, but they realized that the calculation at that time is not right, so they may actually change the way the program works.

*Nataliia Roskladka:* From the very beginning the client decides that for this project I want several IT consultants, right?

*Business Analytics Consultant:* Yes.

*Nataliia Roskladka:* And how the process in the beginning of the project works: you know all your team?

*Business Analytics Consultant:* No actually. In the consultancy company you have the pool of resources and the managers know who is more or less free, who has a lot of work and can't even stand up. So basically, we are the pool of resources, I was quite available at that time and I worked with Buyer 2...

*Nataliia Roskladka:* You mean the pool of resources in Supplier S2.2?

*Business Analytics Consultant:* Yes, all consultancy works like this...so our company has 50 man , so you just arrange the workload, and you take the ones who doesn't have too much work and assign them, like a leadership: and he says: "ok, I know I give you a lot of responsibility but like can you show the others how it works?"

*Nataliia Roskladka:* Thus, Buyer 2 approaches a company – Supplier 2.2 and then the Supplier 2.2 decides you, you and you go there...

*Business Analytics Consultant:* Yes.

*Nataliia Roskladka:* The managers assign people... They know (I assume) the project, right?

*Business Analytics Consultant:* Yes

*Nataliia Roskladka:* And they know already who will be working with you (the other consultants), right?

*Business Analytics Consultant:* From the very beginning when the project is confirmed they made a round of meetings.

*Nataliia Roskladka:* Who?

*Business Analytics Consultant:* The client first of all, my manager, 1 senior or me... in 1 case I went there. we were in 3: the client, Supplier 2.2 and the consultancy company that was supervising the flow, process internally, the business part.

*Nataliia Roskladka:* The business part of the client?



*Business Analytics Consultant:* Exactly, the business part of the client.

*Nataliia Roskladka:* But this is another IT consultant, and this is not someone inside the Buyer?

*Business Analytics Consultant:* Yes, the 3<sup>rd</sup> consultant company gives some directions about how a business should work, how the results should be. It is like this. The client says I need this. You are the consultant 1, I am the consultant 2. We go there, and you look for the question from the business side. I look on the question from the technical side. We hear each other, we use each other's opinion. We know how the business side should work, we both know how the technical side should work. But you look from another perspective.

*Nataliia Roskladka:* Buyer knows two sides, right?

*Business Analytics Consultant:* Yes, they know what they need. Technical side they don't care a lot, but the details, the lowest data details: like which data to use, which version of office, of SAP to use, they don't care. They have the system already, so they say: we have this system. can you make some adjustments to this?

*Nataliia Roskladka:* Okay. They don't care *how* it will be done...

*Business Analytics Consultant:* For this project. Because they [*buyer*] can also say that for this version we don't have this feature in our s- system so we are going to upgrade our system, so they can add this feature.

*Nataliia Roskladka:* But they should update their system, you are not in charge of updating it?

*Business Analytics Consultant:* No-no, they should update and let say like this. Client has a lot of things. He wants to have a new picture which doesn't exist in their own version. So, they can say: we want to update it, he asks again for offers, accepting one, giving them description... but this is already another project. We can propose: you don't have this, this, in your system, it would be better for you to update your system from X to X+1... so they consider that.

*Nataliia Roskladka:* So, the advice to update the system can come from consultant?

*Business Analytics Consultant:* Or from the client itself (because they know what they want).

*Nataliia Roskladka:* Since they Buyer doesn't care how it will be done technically, but he knows the needs, they have clear criteria to evaluate the project, but from the business performance, but for your side, technical consultant, how does the evaluation go?

*Business Analytics Consultant:* As we have... there are the buttons that should work, the reports that should send the data, there are some warehouses, that should take the data, do

some calculations, like update it every morning and show the latest version to the clients... so we have these kinds of points to take care of.

*Nataliia Roskladka:* Then practically, how long did this project last?

*Business Analytics Consultant:* 2-3 months.

*Nataliia Roskladka:* And during these months, you were in the office of Buyer 2?

*Business Analytics Consultant:* No. Obviously, we had these calls, I mean because it's inconvenient to go there all the time, we use technology... we had these calls, monthly calls, occasional calls, fixed calls in the beginning of the project. The plan is done. On the official kick-off we say the delivery date – 1/01 so the development should be finished on 1.12. then the test part starts with the client, with the real data.

*Nataliia Roskladka:* In the beginning?

*Business Analytics Consultant:* In the beginning you have... before start the project you need this analysis, you know more or less how long the project should take, you need a project plan, also the client says ok, you need the system for a New Year, if the client tell that we urgently need the project until the New Year, your manager knows that there is a need for 100 man-hour so you just add resources to make it finish on the 1<sup>st</sup> of January.

*Nataliia Roskladka:* The client tells you the date, the consultant decides how many man-hours it should be, right?

*Business Analytics Consultant:* Exactly, we do the analysis, exactly. Than in the end we create work plan. Each phase we know what each phase should follow: development, analysis, meetings, use acceptance test, etc. We just make a plan, consuming resources we have. Imagine the excel file...like 2 months, ok? Starts from analysis - waterfall model – analysis, tests and staff, so you more or less have a calendar.

*Nataliia Roskladka:* Ok, do you also work close with other business consultant?

*Business Analytics Consultant:* We contact them if we really need something. If something is not clear, if we need more info, there is always a possibility to take a phone and call but in the beginning, it was quite clear all the requirements. But there is this possibility. Besides these occasional calls there are some presentations...the 1<sup>st</sup> phase ends, let's present a prototype, let's get some feedback, feedback call, test call...

*Nataliia Roskladka:* When you have these fixed calls, there are 3 actors are present: Buyer 2, business consultant, technical consultant.

*Business Analytics Consultant:* Exactly, milestones.

*Nataliia Roskladka:* What do they do that business consultant? If you do the work from the technical side...

*Business Analytics Consultant:* I am making the report, they should see some calculations, they should see the delta, the difference between the year, last and current year sales and this is the simple calculation, we know how to do it. But if there are some fractions, scores and sophisticated calculations...for this the business consultant give us the data.

*Nataliia Roskladka:* Buyer 2 does not do it?

*Business Analytics Consultant:* They do it in the end, when all the development ends

*Nataliia Roskladka:* Buyer 2 does not care how you collaborate? The Consultant 1 and Consultant2? How your interaction goes?

*Business Analytics Consultant:* Which type of interaction? You have something in mind.

*Nataliia Roskladka:* If you need any clarification, you approach the business consultant. For ex. If the business consultant has had already some similar projects, and maybe the client would like them to share their past experience with you...

*Business Analytics Consultant:* They want them to share their past experience with us? Explicitly I don't know...but we all share our experiences anyway, like you take a call, you say: "hey, what'up?" It is a friendly talk before going to the client. business consultant tells you: "You did this, this before, so it would be nice for you to add this button" so the Business part knows already how the users are working. To make it easier for the client, so they give these types of insights.

*Nataliia Roskladka:* So, I have got a feeling that this business consultant works closer with the Buyer 2.

*Business Analytics Consultant:* They are so close, because they are there, they have 1 consultant in the head quarter. They work with Buyer 2 side by side.

*Nataliia Roskladka:* Okay, in the end of the project, you meet together, show everything, you have the deadline, the test is already included, you shake the hands, goodbye... But can they approach you after the delivery of the project? Or you are in charge as the technicians to test everything within the project period, so they would not possibly have any issue to ask for?

*Business Analytics Consultant:* The client has already defined process, we develop the project, we deliver, it, do the test with the client, and the other business consultant. Everyone knows that the project is working as intended: there are no bugs, no problems, no miscalculations, like you buy a car and you know it is working. So, we ensure it is working on

that day. But obviously, if anything comes out 1-2 months later, there is a post-go life support, which is given by us. There are different teams. As developers after the delivery date we give a month or two months to give them support but after these 2 months, they can't even approach us: the project is accepted, the project is delivered. Practically they can. In theory they cannot. On paper they shouldn't. Another team which is in charge of application maintenance, which types of data, parameters, we give them knowledge transfer meeting, and now the maintenance team is in charge of this software.

*Nataliia Roskladka:* Do you do the knowledge transfer meeting to the client?

*Business Analytics Consultant:* No, to another team that does the maintenance.

*Nataliia Roskladka:* Still from your company?

*Business Analytics Consultant:* In this case another team in our company takes charge of this kind of staff. They are a huge client, you have some needs to be realized, so you have the 2<sup>nd</sup> group, the other group of people takes care of the user support. So, after 1 year they can't call me and tell, listen there is a wrong value. You should have told me it earlier. Now you should call the maintenance team. Changes of responsibility.

*Nataliia Roskladka:* I think I have asked everything I wanted, thank you very much!

### Triad 3

The interview with Buyer 3 in original language:

*Nataliia Roskladka:* Buonasera! Grazie mille per aver accettato la proposta di fare questa l'intervista. E molto importante per la mia tesi.

[Chiacchierata]

Lo scopo della mia ricerca e capire come le relazioni tra i fornitori possono impattare sul processo dello sviluppo di un nuovo prodotto, ed eventualmente, sulla qualità di questo prodotto.

Io svolgo la ricerca, utilizzando una triade di attori necessari in questo processo: Buyer – Buyer 3, la vostra azienda, Supplier 1 e Supplier 2.

Perciò vorrei chiederti di scegliere un prodotto che possiamo prendere come il nostro punto di riferimento, per lo sviluppo di cui, Buyer 3 coinvolgeva due o di più fornitori. Preferibilmente parlare di un progetto in cui eri coinvolto te.

*Contract Manager, Purchasing:* Il processo va così: in marketing o in trade marketing va nel reparto logistica c'è un settore che si chiama NPI (new Product implementation) – una sorta

di standardizzazione dei processi. Cosa fa, va MPI e dice che per la data X io voglio questo lancio. NPI è una sorta di project manager che prende tutta la tabella esecutiva del progetto.

*Nataliia Roskladka:* NPI – è una persona?

*Contract Manager, Purchasing:* È un ufficio praticamente. Diciamo un team di 3-4 persone in base alla competenza. Quindi chi sviluppa il progetto. Un NPI mette giù la tabella di marcia per tutti gli attori: per la parte di acquisti, per la parte del marketing, per gestione, mette giù una timetable. Che poi tutti i colleghi all'interno di Buyer 3 che hanno il ruolo della gestione del progetto hanno il ruolo nell'implementazione del progetto rispetto al loro ruolo, nel momento in cui viene una sorta di file comune in cui noi tutti - gli attori coinvolti dai vari uffici abbiamo una possibilità di monitorare il progetto. Quindi di solito io sono una dei primi coinvolte perché appunto sono di acquisti e mi viene dato incarico, e una volta appunto mi viene dato lo incarico, lo faccio: verifico le informazioni che mi sono date dal fornitore. Nel senso vado a guardare quelli da supermercato come si chiamano, quelli che contengono la birra fuori scaffale. Quindi quelle esposizioni lì da cartotecnica li faccio io.

Quindi a me viene data la richiesta di ... mettiamo ci sono espositori standard e espositori che vengono fatti per attività particolare. Quindi non so promozione

*Nataliia Roskladka:* A, sì-sì-sì, tipo speciali per Halloween, ad esempio, no?

*Contract Manager, Purchasing:* Sì, o più che altro ad esempio ci sono periodi in cui facciamo per alcuni brand un potenziamento. Quindi usiamo le grafiche diverse in rispetto a tradizionale.

Quindi io vado al fornitore ufficiale e lo coinvolgo dicendogli i dati che servono appunto: la fustella del materiale – come viene tagliata la cartotecnica, vengono fatte le varie prove carico dalla Supply Chain per vedere se sono stabili o meno per vedere se poi il materiale poi può essere prodotto.

*Nataliia Roskladka:* Quindi verificano...

*Contract Manager, Purchasing:* Esatto, la stabilità del materiale. Una volta che viene consegnato il materiale...

*Nataliia Roskladka:* Chi fa la verifica?

*Contract Manager, Purchasing:* La logistica.

*Nataliia Roskladka:* Quindi Buyer 3?

*Contract Manager, Purchasing:* Sì, questo tutto è il processo interno. Che però viene fatto con la collaborazione con i fornitori. Quindi i fornitori hanno una determinata stella, una determinata tutta questa grafica... già riesco a ottenere una idea dei costi. Però prima di

confermare tutto ovviamente facciamo fare le prove di carico. Se il materiale supera le prove di carico, viene attivata la parte grafica. Quindi poi ce lo fa NPI in collaborazione con me e siamo praticamente con marketing in base alla fustella che viene approvata, che è stata appunto validata con le forme e tutto quanto, mi costruisce la grafica da marketing. Tutto interno. Il fornitore per quanto riguarda la produzione...poi ci sono diversi fornitori che ci entrano in gioco. C'è il fornitore che mi fa direttamente il materiale, quindi poi lo riceverà il grafico, lo manda in stampa, lo taglia e me lo consegna.

Poi ci sono anche vari fornitori di marketing quindi quelli che verificano la grafica in base alle indicazioni dei colleghi dal marketing. Questi fornitori – le agenzie di grafica. Una volta che il marketing approva la grafica viene trasmessa al fornitore che... ci sono 2 fornitori principali. Quello che fa la parte grafica e quello che fa la produzione.

*Nataliia Roskladka:* Tu prima dicevi che prima si approva, si verifica il materiale – Supplier 1, poi si approva la grafica da marketing - Supplier 2, e poi si stampa la grafica su questo materiale [esatto], e la stampa fa il Supplier 1, giusto?

*Contract Manager, Purchasing:* Sì, fornitore 1 – quello da cartotecnica.

(drawing the picture)

*Contract Manager, Purchasing:* Esatto, e poi fornitore 2 – agenzia grafica. Quindi una volta che il materiale viene validato, quindi nel senso che la struttura è stabile e abbiamo deciso che la fustella va bene, quella fustella viene passata al fornitore 2 che fa la grafica, che farà effettivamente quelle grafiche. E poi Buyer 3 verifica e poi Buyer 3 passa il materiale. Abbiamo un portale ad-hoc in cui collaboriamo sia noi che 2 fornitori in questo caso...

*Nataliia Roskladka:* Portale? Tipo online piattaforma?

*Contract Manager, Purchasing:* Esatto, piattaforma online. Che cosa succede. Una volta che noi facciamo la fustella X, cosa viene fatto quella fustella X viene comunicata al fornitore delle grafiche. Il fornitore alla grafica la passa al marketing, finché non va approvata. Quando viene approvato, questo processo (prima) è offline, non è al portale. Poi una volta che approvata, il fornitore delle grafiche carica sul portale la grafica approvata e da lì il fornitore della cartotecnica la scarica e va in produzione.

*Nataliia Roskladka:* Chiaro, fai conto che in genere la protrazione approvo dopo che le grafiche sono approvate. Praticamente, in base alla grafica, possono esserci costi diversi: se mi stampano a quattro colori, a cinque colori, ci vogliono toni deversi, mi può cambiare il costo, quindi non è soltanto il volume che impatta i costi, ma anche il tipo del materiale.

*Nataliia Roskladka:* Ma comunque Buyer 3 decide quanti colori vuole, quale materiale vuole.

*Contract Manager, Purchasing:* Sì, marketing ti dice: io per questo grafica qua una quadricromia – una stampa che ha una gamma colori infinita praticamente, però ci sono alcuni colori che devono essere standard, quelli corporate. In quel modo sarà una stampa a cinque colori ad esempio. E se io ho una quadricromia – stampa di cinque colori, più il pantone di Buyer 3, quello sarà una stampa di cinque colori.

*Nataliia Roskladka:* Anche immagino che il costo della grafica dipende dal materiale che...

*Contract Manager, Purchasing:* Dalla materia prima no, di solito è sempre la stessa, un cartoncino standard, almeno che si deve fare qualcosa che ha una struttura particolare. Una volta che decidiamo un tipo di materiale, lo facciamo sempre in fase in cui c'è una fustella, poi come lo stampi – basta metterlo in macchina e te lo stampa. Quindi per noi è importante di capire anche le grafiche come sono fatte. Perché da lì capisco quanti colori ci sono, le classifiche che devono essere fatte, se ci sono tutti condizionamenti del colore, che li possono influire la protrazione. Quindi una volta che mi viene data la protrazione, io come control manager verifico che la protrazione sia in linea ha un saving, altrimenti la rimando al fornitore, e dico ascoltami non va bene. O faccio un intervento se non è possibile abbassare il costo, allora è il problema di grafico, se hanno messe troppe lavorazione nella grafica, quindi invece di farla troppo lucida, facciamola di meno, cerchiamo di intervenire in quel senso. Una volta che la grafica approvata, ho trovato i costi, andiamo in produzione.

*Nataliia Roskladka:* Agenzia di grafica vi suggerisce quanti colori sarebbe meglio di usare, oppure cartotecnica...

*Contract Manager, Purchasing:* Sì, assolutamente, se loro vedono un'opportunità di saving, cercano di dire che quel colore la potrebbe andare bene anche... di solito i cantoni corporate, dobbiamo usare quelli, sono verde di Buyer 3, rosso di Buyer 3, e quindi quelli cerchiamo di stamparli bene. Quello che si va in quadricromia va direttamente nella stessa macchina. Cosa succede, quello che c'è in quadricromia va stampato in cartone 1, poi 2. Quindi tu praticamente vedi file che ti manda l'agenzia, tu avrai la grafica totale, poi ha la grafica in livelli.

*Nataliia Roskladka:* Come in Photoshop?

*Contract Manager, Purchasing:* Esatto, quindi tu praticamente hai lo stampo ai livelli. Si mette la cartotecnica stesa su una macchina che si chiama ..., te la taglia, e poi va l'asciugatura, tutto quello che deve andare, sia fatto, me lo consegna...

*Nataliia Roskladka:* Al deposito di Buyer 3?

*Contract Manager, Purchasing:* Esatto, poi deposito mi assembla il materiale, perché sembra che sia taglio, ma anche piegature, perché vengono messe le birre sopra, e si consegna. Quindi questo è il giro dalla richiesta alla consegna.

*Nataliia Roskladka:* Grazie, ok, perfetto, quindi criteri che cercate di seguire sono fondamentalmente i costi, la qualità, ...qualcos'altro?

*Contract Manager, Purchasing:* Tempi ovviamente, nel senso che dipenda dall'urgenza che hai, forse vuoi pagare un po' di più per avere materie prime, poi ovviamente i tempi di produzione sono abbastanza fissi. Ad esempio, per questi fuori-scaffale dal supermercato servono 2-3 settimane per produrli. Quindi da quando io do l'approvazione alla produzione fino alla consegna mi servono 3 settimane. Per il fornitore per darmi il materiale. Tutto questo ciclo qua in genere dura 8 settimane. Quindi 8 settimane tra approvazione, richiesta dei volumi, generazione degli ordini.

*Nataliia Roskladka:* Otto settimane fino quando arriva al cliente?

*Contract Manager, Purchasing:* Sì.

*Nataliia Roskladka:* Quindi sono 2 mesi.

*Contract Manager, Purchasing:* Di cui quasi un mese è la produzione.

*Nataliia Roskladka:* E prima di sviluppare il nuovo prodotto, avete qualche aspettativa come si dovrebbero aumentare i volumi della birra con questo prodotto.

*Contract Manager, Purchasing:* Sì, vengono fatte da forecast, questi prodotti impattano tantissimo perché triggerano occasioni commerciali. Nel senso che poi ci saranno agenti di vendita e a me come vengono passati i volumi. Ce il TM che la parte commerciale, il marketing e gli agenti di vendita. Li agenti di vendita sono quelli che sono sul territorio, hanno dei clienti, finiscono gli ordini tutto quanto. Il TM invece fa tutto li analisi quindi decide quali sono le attività da fare in base al feedback che hanno con gli agenti e dicono...fanno un forecast praticamente.

*Nataliia Roskladka:* Trade Marketing fa il forecast?

*Contract Manager, Purchasing:* Esatto. Mi fanno un forecast, mi dicono per questa attività mi servono 2 mila espositori. Il problema qual è che forecast è fatto in modo totale che è sbagliato sempre. Quindi ti dico OK, questo attendibile, ma sono volumi che vanno le produzioni in corso con i suoi tempi, quindi questo può creare dei problemi. E tu ovviamente devi sempre stare a cercare di azzeccare il numero più preciso possibile, e quindi quello.

*Nataliia Roskladka:* Assolutamente.



*Contract Manager, Purchasing:* Quindi praticamente Buyer 3 coordina questo progetto e dice a fornitori ...

*Nataliia Roskladka:* Voi tra l'altro condividete quello timetable con i fornitori?

*Contract Manager, Purchasing:* No.

*Nataliia Roskladka:* Okay, quindi voi dite al fornitore che quello compito deve essere finito entro questa data, giusto?

*Contract Manager, Purchasing:* Esatto, quello che monitoriamo è che loro (Supplier 2) hanno indicazioni grafiche e la fustella, loro (Supplier 1) hanno invece i volumi, il materiale che ci serve, però su come lo sviluppo in realtà 8 settimane è lo standard, quindi potrebbe essere anche ne 10 o 12 dipende dalla velocità che abbiamo da approvare, da queste comunicazioni...

Se le opzioni che ci danno vanno bene. Perché può capitare come l'anno scorso che dovevamo approvare gli espositori che erano di solito facciamoli che le birre ci stanno una sopra l'altra ai vassoi, che appoggiamo sulla banca. L'anno scorso abbiamo provato di farli in un modo che portano il vassoio, il peso e quindi attenta c'è uno spazio alla birra e quella sopra, non erano appoggiati, quindi significa che il vassoio deve essere in grado di tenere tutte le bottiglie. Quindi cambia totalmente la fustella. Cambia la fustella, cambiano i materiali, che ormai deve essere più resistente. Quindi ormai costi aumentavano... l'anno scorso è successo che i costi si hanno aumentato tanto che noi dovevamo cambiare il progetto.

*Nataliia Roskladka:* Veramente?

*Contract Manager, Purchasing:* Sì, potrebbe succedere anche quello...

Però il fornitore alla fine ... se voi cambiate il progetto come si cambia l'interazione con il fornitore?

Allora, dipende quanti cambiamenti sono stati fatti. Nel senso che è un rischio con il fornitore con cui collaboriamo. Comunque, su 100 commissioni durante un anno, potrebbero andare anche 80. Sul volume totale i costi che il fornitore appeso per fare varie cambiature vengono ammortizzati. Se le cambiature sono veramente eccessive e numerose, allora facciamo negoziazione. Che riusciamo, tagliamo, però non è che non paghiamo.

*Nataliia Roskladka:* E loro tra i due (fornitore 1 e fornitore 2) condividono il materiale, conoscenza su quale colore meglio farlo, quale materiale?..

*Contract Manager, Purchasing:* Allora, in generale...

*Nataliia Roskladka:* La collaborazione tra di loro, come che si svolge?

*Contract Manager, Purchasing:* Tra di loro cerchiamo di far collaborare sempre attraverso di noi. Può capitare che ... comunque sono entrambe persone che hanno le conoscenze tecniche. Ovviamente io come gestisco materiali dai diversi: bicchieri, sottocoppe da cartotecnica, frigoriferi... quindi la mia conoscenza tecnica non può essere così approfondita come una dei questi due fornitori.

*Nataliia Roskladka:* Assolutamente.

*Contract Manager, Purchasing:* Quindi io sono una di quelle a cui piace essere coinvolta nelle comunicazioni tra i fornitori, cercando ottimizzare il processo, però faccio il modo di essere sempre presente nelle comunicazioni. Anche poi comunque siamo noi che approviamo. Quindi qualsiasi cosa venga...l'ultimo file grafico che viene mandato deve essere approvato da me.

*Nataliia Roskladka:* Può capitare che loro... immagino che questi fornitori lavorano anche per le altre aziende, sì?

*Contract Manager, Purchasing:* Sì, assolutamente.

*Nataliia Roskladka:* Quindi può capitare che condividono la sua esperienza con Buyer 3, tipo come meglio di stampare...

*Contract Manager, Purchasing:* Esperienza – sì, dettagli della produzione – no. Tutti 2. Nel senso che i materiali con cui lavorano con noi sono esclusivi, quindi se durante...noi li diamo delle fustelle che vengono utilizzate per il nostro flusso. Loro che avranno altri clienti hanno gli altri. Anche perché magari hanno i pallets diversi, la forma delle bottiglie paradossalmente!

*Nataliia Roskladka:* quindi non è che tutto può essere adattabile per gli altri clienti.

*Contract Manager, Purchasing:* Sì, però di sicuro, esperienza che fornitore matura ci fa sapere, però il materiale non li può condividere.

*Nataliia Roskladka:* Okay, quindi secondo te la comunicazione sia abbastanza eccessiva tra di voi?

*Contract Manager, Purchasing:* Sì-sì, per il momento per questo processo per questo materiale – sì, assolutamente.

Poi ci sono gli altri materiali che non sono così strutturati. Questo ha già un flusso, ha già vari attori che devono intervenire. Quindi c'è già un flusso standard. Quindi per questo sappiamo i fornitori bene, fornitori collaborano bene e noi riusciamo ad avere quello che ci serve ovviamente.

Ci sono gli altri materiali dove gli acquisti cercano sempre come ottimizzare il progetto. Perché alcune comunicazioni non vanno da NPI, vanno da me direttamente. Io quindi verifico con i fornitori qual è la soluzione migliore, faccio provarle, poi dopo la produzione, spendiamolo in magazzino e dopo arriva responsabile degli ordini dal fornitore ed è responsabile della comunicazione con il magazzino. Quindi abbiamo un contratto...non è che tutti gli ordini gestisco io... Noi sappiamo che questo bicchiere dobbiamo fare 1 mln di pezzi. Non li spediamo 1 mln di pezzi insieme. Nel senso che fornitore ci deve assicurare che nelle date che abbiamo un forecast, ci siamo con i materiali. Poi andiamo a fare i picking. Quindi tutta la parte di “bicchiere lo voglio così, più basso, con il logo, con un vetro diverso...”, quello tutta la parte mia. Una volta dico sì, questo va bene, andiamo in produzione, dall’altro lato interviene responsabile che fa gli ordini al magazzino e fa la parte degli ordini.

*Nataliia Roskladka:* Quindi la primissima richiesta di questo materiale è Buyer 3 che decide che vuole i nuovi bicchieri da produrre e poi Buyer 3 suggerisce ai clienti (ai bar), giusto?

*Contract Manager, Purchasing:* Questo ovviamente se viene fatta un’attività, abbiamo la domanda fondamentale. Quindi se la domanda è che viene dal nostro catalogo...ad alcuni clienti che hanno determinati volumi della birra o regaliamo i bicchieri o diamo comunque degli incentivi a: “tu mi compri 3 casse di birra, ti arriva una confezione di bicchieri gratis. Quindi incentivi di vendite e ci sono i materiali che sono standard: bicchieri, sottocoppa, ..., tutto quello che vedi in bar – sono i materiali che produciamo. Però per alcuni non ce un flusso standard, viene gestita direttamente la richiesta tramite il control manager che la riceve.

*Nataliia Roskladka:* Poi alla fine del processo che la produzione è già stata fatta, e il prodotto è spedito, avete la sessione feedback con i fornitori, tipo come è andato tutto? ...

*Contract Manager, Purchasing:* Ogni anno ovviamente facciamo una sorta di sondaggio con i nostri clienti interni. La questione che non si interfacciano la parte del ciclo passivo... per me il cliente sono i miei colleghi, perché loro hanno le richieste.

*Nataliia Roskladka:* Trade Marketing?

*Contract Manager, Purchasing:* Esatto, Trade Marketing, Marketing. Quindi cosa facciamo una volta all’anno. Prendiamo i fornitori più importanti che hanno più collaborato con noi, creiamo un sondaggio. Anche questo qua e tramite la nostra piattaforma. Quindi ci saranno 10 persone che collaborano con questo fornitore e comunque hanno un modo di valutare il servizio. Può essere la logistica per vedere le campionature, marketing che hanno stampato bene, Trade Marketing per dirmi se i clienti sono lamentati. Tutti questi verifiche qua vengono fatte tramite cliente interno – quindi con questo sondaggio o anche tramite sistema. Io in base a quello che ce l’ho in sistema con la data di consegna perché ovviamente quando io faccio

una approvazione le chiedo anche le tempistiche che nel senso se ho dato il 5/10 il materiale per i 20 giorni per la data di consegna lo aspetto il 25. Se la consegna nel magazzino viene fatta dopo il 25 ottobre, per me significa che il fornitore non ha rispettato la tempistica. Per me è anche un simbolo di affidabilità del fornitore, e più il parametro che io considero.

*Nataliia Roskladka:* E poi voi condividete questi feedback con i fornitori?

*Contract Manager, Purchasing:* Sì, ci sono i fornitori che sono soltanto a livello locale, e ci sono invece quelli che solo a livello globale e sono condivisi tra tutti Buyer 3.

*Nataliia Roskladka:* Vengono da Cental brunch di Buyer 3?

*Contract Manager, Purchasing:* Quindi ogni mese controllo che il fornitore mi ha fatto un saving perché praticamente perché cose che fanno. Se abbiamo un fornitore unico per questo materiale però cose che fanno loro usano il materiale diverse e mi devono garantire che mi danno un saving. Quindi io controllo che il saving ci sia stato, controllo le date di consegna perché ovviamente che se mi lo consegnano con una settimana di ritardo, io secondo il contratto posso chiuderli di pagare la penalties. Perché la campaign si inizia anche con la settimana di ritardo. Quindi devo sempre calcolare sempre un pochino la situazione. Se il progetto costa 3 mila euro e mi ha fatto una settimana di ritardo, e non ho avuto infatti un impatto sul commercio, lo assegno, ma non lo chiedo di pagare le penalties. Se invece abbiamo il progetto per 30 mila euro, e mi ha fatto 2 set di ritardo, lo chiedo di pagarmi.

*Nataliia Roskladka:* Sì, chiaro. Ma voi all'inizio del progetto avete tutto d'accordo?

*Contract Manager, Purchasing:* Sì, ovviamente. Tutte le varie fasi del progetto che dobbiamo rispettare le tempistiche, le approvazioni, tutto quanto, condiviso delle grafiche, sì.

*Nataliia Roskladka:* Quindi voi seguite il vostro timeline e dite a loro la dead-line che devono rispettare?

*Contract Manager, Purchasing:* Esatto. Tutto quello che viene fatto dal NPI ... il materiale da bar. Quindi coinvolti siamo noi e la logistica. I clienti interni sono Trade Marketing, Marketing, dipende da quanto e complesso il progetto abbiamo gli attori coinvolti diversi. Sono progetti che si può gestire con una persona sola, per gli altri abbiamo NPI.

*Nataliia Roskladka:* Cos'è questo acronimo NPI?

*Contract Manager, Purchasing:* New Process Implementation...forse, non mi ricordo :) Comunque, è il project manager fondamentale.

*Nataliia Roskladka:* È il processo?

*Contract Manager, Purchasing:* Sì, è project management. Quindi io sono una parte del processo, dove c'è il processo strutturato. Invece dove il materiale più semplici, NPI divento io, sono io che dico al fornitore che mi deve produrre questo grafico su questo materiale per la data ... vado da mia collega del Trade Marketing e dico tu mi devi dare i volumi dalla produzione per questa data e marketing mi deve dare le grafiche per questa data.

*Nataliia Roskladka:* Ho fatto questo schema per concludere la valutazione. [spiegazione dei quadranti]. Mi potresti valutare come siete soddisfatti dalla vostra collaborazione con il fornitore 1 e 2?

*Contract Manager, Purchasing:* Dipende dal progetto.

*Nataliia Roskladka:* Per questo progetto qua?

*Contract Manager, Purchasing:* Io so già esattamente le tempistiche che mi servono. Se vogliamo farlo con i fornitori diversi, può capitare che le tempistiche mi cambiano. In questo caso chiediamo anche un innovation dal fornitore. Però l'innovation può essere fatto sia dal fornitore che produce, sia dall'agenzia fondamentale. Magari ce un disegno particolare e noi vediamo come il fornitore riesce a farlo.

*Nataliia Roskladka:* In rispetto con la birra immagino che ci dà l'importanza un po' più bassa a questi materiali, no? Quindi se mettiamo per la birra il voto 7 (la scala da 1 a 7), cioè la collaborazione per la birra tra i fornitori magari deve essere 7, per il nostro prodotto, può essere 5?

*Contract Manager, Purchasing:* Dipende. In realtà sono abbastanza strategici. In tanto sono degli spazi che in supermercati ti danno 1 – visibilità, 2 – possibilità di acquisto perché hai scaffale e fuori-scaffale, quindi è abbastanza strategico questo materiale. Il fatto di hanno una importanza particolare. Se ad esempio lanciamo una nuova birra. Non so se hai visto che con Birra Moretti se andassi a supermercato, ti regalavano dei piatti, oppure la borsa di Buyer 3. Quindi quello era molto importante perché potenziava la vendita fondamentale.

*Nataliia Roskladka:* Ho capito. È direttamente collegato.

*Contract Manager, Purchasing:* Quindi se abbiamo invece il materiale per la forza di vendita, in catalogo, e il materiale che dobbiamo garantire, perché sono centivi e danno anche la visibilità.

*Nataliia Roskladka:* Alla fine siete soddisfatti come si era svolta la performance sia con questo sia con altro fornitore?

*Contract Manager, Purchasing:* Sì, al momento sì. Abbiamo un contratto con tutte due. Ma io sono control manager quindi gestisco la parte esecutiva proprio. Prima di me – ce il buyer. Il buyer cosa fa?

*Nataliia Roskladka:* Il cliente?

*Contract Manager, Purchasing:* No, il buyer. Sempre il ciclo passivo. Il buyer va da noi. Io ricevo la richiesta da miei colleghi per questo materiale. Però io già so quali fornitori dobbiamo usare. In base a questa analisi che riceve...

*Nataliia Roskladka:* In base a feedback?

*Contract Manager, Purchasing:* Esatto, va a valutare i nostri fornitori. Nel caso in cui si trova la soluzione migliore, lo sostituisce con un altro fornitore. E il buyer sa che questo fornitore può essere sia locale, che globale.

*Contract Manager, Purchasing:* Ovviamente quando arriva il fornitore con le condizioni migliori.

*Nataliia Roskladka:* Quindi serve questa esperienza prima perché andate a valutare quello fornitore, ma poi comunque fate i tender e comunque

*Contract Manager, Purchasing:* Esatto, sempre tender. Poi comunque se hai un fornitore globale, significa che oltre noi questo fornitore fornisce altri Buyer 3. Quindi anche se con Italia si è trovata male con questo fornitore, me con gli altri 20 paesi sono trovati bene, non è detto che te lo cambiano. Perché il rapporto è diverso. Esatto perché la decisione è centrale.

*Nataliia Roskladka:* Mi hai aiutato molto, grazie mille!

*Contract Manager, Purchasing:* Figurati :)

The interview with Buyer 3 translated in English:

*Nataliia Roskladka:* Good evening! Thanks for agreeing to have an interview.

*Contract Manager, Purchasing:* My pleasure.

*Nataliia Roskladka:* The scope of my thesis is to understand how the relationships may impact the innovation performance of the company, i.e. on the process of NPD and eventually on the quality of the product.

I am performing the analysis within the buyer-supplier-supplier triad... Therefore, I would like to pick up a project of a development of a new product that we can take as a reference. Preferably, the project, you were involved in.

*Contract Manager, Purchasing:* The process goes like this. From marketing or trade marketing there is a sector that calls NPI (New Process Implementation) that is a sort of standardization of processes. What happens. NPI tells that for the date X I want to launch this project. NPI is a kind of project manager that takes the executive table of the project.

*Nataliia Roskladka:* NPI – is a person?

*Contract Manager, Purchasing:* It is practically an office. Let's say it is a team of 3-4 people based on their competences. Therefore, those who develop the project. An NPI puts down a table for all the actors: for the purchasing part, for marketing, for the management designs a table. This way all the colleagues inside the Buyer 3 that have their role in developing this project have their role in the project implementation. It is a moment when the common file is created, and all the actors involved from different departments have a possibility to monitor the project. Therefore, usually I am one of the first involved because I am from purchasing and I am getting task, and once I have it, I am verifying the information that I got for the supplier.

In the sense that I see those from the supermarket, how they are called...that contain the beer... out-of-shelves. Those expositions from the technical carton are my job.

Therefore, I am getting the request... Let say we have standards expositions and the expositions that are done up to the particular activity. For example, a promotion.

*Nataliia Roskladka:* Yeah, I see, like for Halloween, for ex, no?

*Contract Manager, Purchasing:* Yes, or more for example for different periods, when we have the brand support campaign. Therefore, we use the graphics, which are different from the traditional one.

Therefore, I am going to the supplier and involving him, sharing the data needed: the hollow punch from materials, there are the tries that are performed from the supply chain department to see whether those are stable or less to see if the material can be produced.

*Nataliia Roskladka:* Thus, they verify...

*Contract Manager, Purchasing:* Exactly, the stability of the material. Once the material is delivered...

*Nataliia Roskladka:* Who does the verification?

*Contract Manager, Purchasing:* The logistics.

*Nataliia Roskladka:* So, Buyer 3.

*Contract Manager, Purchasing:* Yes, this is all the internal process. That is however, done in collaboration with suppliers. Thus, the suppliers have a determined star, all that graphics defined, so I already have some idea about the costs. However, before confirming everything, surely, we do the loading tries. If the material succeeds those tries, the part with graphics goes activated. Therefore, after NPI in collaboration with me and we are practically with marketing, based on the hollow punch approved, which has just been validated with the shapes and everything, the graphics come from marketing side. Everything internally. The supplier is for the production. Then there are different suppliers that enter the game. There is a supplier that gives me the material, then the graphics supplier receives it, sends it to print, cuts it and delivers me.

Then there are different suppliers working with marketing, those that are verifying the graphics based on the specifications that from marketing colleagues. Those suppliers are the graphic agency. Once marketing approves the graphics, it goes to the supplier... There are 2 main suppliers. That one that does the part of graphics and those one that does the production.

*Nataliia Roskladka:* Thus, you were telling that S1 is the one who is responsible for the material itself – Supplier 1, and then the graphics should be approved from marketing for the Supplier 2, and then the printing is performed on this material, which is done by the Supplier 1, right?

*Contract Manager, Purchasing:* Exactly.

*Nataliia Roskladka:* Supplier 1 – that for the technical carton.

(drawing the picture)

*Contract Manager, Purchasing:* Exactly, and then the supplier 2 – graphic agency. So once the material is validated, so in the sense that the structure is stable, and we decided that the punch is fine, that punch is passed to the supplier 2 that makes the graphics, which will actually make the graphics. And then Buyer 3 checks and then Buyer 3 passes the material. We have an ad-hoc portal in which we and 2 suppliers collaborate in this case ...

*Nataliia Roskladka:* Portal? Like an online platform?

*Contract Manager, Purchasing:* Exactly, online platform. What happens. Once we make the punch X, it is communicated to the graphics supplier. The graphics supplier passes it to marketing, as long as it gets approved. When approved, this process (before) is offline, it is not at the portal. Then, once approved, the graphics vendor uploads the approved graphics to the portal and from there the technical carton supplier downloads it and takes it into the production.

*Nataliia Roskladka:* Clear.



*Contract Manager, Purchasing:* Take into account that usually the protraction [production implementation] approved after the graphics are approved. Basically, depending on the graphics, there may be different costs: if I print in 4 colours, 5 colours, it takes tones deviated, I can change the cost, so it is not only the volume that impacts costs, but also the type of material.

*Nataliia Roskladka:* But anyway, Buyer 3 decides how many colours he wants, which material he wants etc?

*Contract Manager, Purchasing:* Yes, marketing tells you: I want for this graphic here a full colour printing – a printing that has an infinite colour range pragmatically, but there are some colours that must be standard, corporate ones. In that way it will be a 5-color pallet for example. And if I have a four-color print – five-colour print, plus the Buyer 3 pantone, that will be a five-colour print...

*Nataliia Roskladka:* I also imagine that the cost of the graphics depends on the material that...

*Contract Manager, Purchasing:* From the raw material no, it is usually always the same, a standard cardboard, at least that something must be done that has a particular structure. Once we decide a type of material, we always do it in which there is a punch, then how to print it – just put it in the car and print it. Thus, it is important to understand the graphics as they are created. Because I should understand how many colours there are, the classifications that should be done, if there are all colour conditioning, which can affect the protraction. So, once I am given the plan, me as a control manager verify that the plan online has a saving, otherwise I approach the supplier, and I say listen it is not good. Or I do an intervention, or if it is not possible to lower the cost, then go to graphics, whether they have put too much processing in the graphics, then instead of making it too bright, let's do less, we try to intervene in that sense. Once the graphic approved, I found the costs, we can go into production.

*Nataliia Roskladka:* Does graphics agency suggest you how many colours would be better to use, or paper...do they give you some practical advices?

*Contract Manager, Purchasing:* Yes, absolutely, if they see an opportunity to save, try to say that colour could fit well ... usually there are the corporate cantons, we have to use those, are green Buyer 3, red Buyer 3, and so we try to print them well. The one that goes in four colours goes directly to the same machine. What happens, what is in four colours should be printed in cardboard 1, then 2. So, you basically see the file that the agency sends you, you will have the total graphics, then it has the graphics in levels.

*Nataliia Roskladka:* Like in Photoshop?

*Contract Manager, Purchasing:* Exactly. So, you practically see the drawings in levels. The paperwork is laid out on a machine that is called ..., you cut it, and then it goes drying, everything that has to go, and when it is done, it goes to me.

*Nataliia Roskladka:* To the warehouse of Buyer 3?

*Contract Manager, Purchasing:* Exactly, in the warehouse they are assembling the material, because it is cut, but there are also folds that should be done, because the beers are put on. So, this is the turn from request to delivery.

*Nataliia Roskladka:* Thanks, ok, perfect, so the criteria you are trying to follow are basically the costs, the quality, ... something else?

*Contract Manager, Purchasing:* Timing of course, in the sense that depends on the urgency you have, maybe you want to pay a little more to get raw materials faster, then obviously the production times are quite fixed. For example, for these out-of-shelves from the supermarket, it takes 2-3 weeks to produce them. So, since I give the production approval until delivery, I need 3 weeks. For the supplier to give me the material. This whole cycle here typically lasts 8 weeks. So 8 weeks between approval, volume request, order generation.

*Nataliia Roskladka:* Eight weeks until it reaches the client?

*Contract Manager, Purchasing:* Yes.

*Nataliia Roskladka:* It is around 2 months...

*Contract Manager, Purchasing:* ...of which almost a month is production.

*Nataliia Roskladka:* And before you develop the new product, you have expectations as to how you should increase the volume of beer with this product?

*Contract Manager, Purchasing:* Yes, they are made by forecast, these products impact a lot of beer volumes because they trigger commercial opportunities. In the sense that then there will be sales agents and to me how the volumes are passed. There is the TM that is the commercial part, the marketing and the sales agents. Sales agents are those who are on the territory, they have customers, they finish orders all the time. The TM instead does all the analysis then decides what activities to do based on the feedback they have with the agents and they say ... they make a forecast practically.

*Nataliia Roskladka:* Trade Marketing makes the forecast?

*Contract Manager, Purchasing:* Correct. They make me a forecast, they tell me for this activity I need 2 thousand exhibitors. The problem is that forecast is made in a total way that is always wrong. So, I tell you OK, this reliable, but they are volumes that go to production in progress

with its times, so this can create problems. And of course, you always have to stay and try to hit the most precise number possible, and then that.

*Nataliia Roskladka:* Absolutely. Hence Buyer 3 coordinates this project and tells suppliers ... Btw, do you share that timetable with suppliers?

*Contract Manager, Purchasing:* No.

*Nataliia Roskladka:* Okay, so Buyer 3 tells the supplier that task must be finished by this date, right?

*Contract Manager, Purchasing:* Exactly, what we monitor is that they (Supplier 2) have graphic indications and the punch, they (Supplier 1) instead have the volumes, the material we need, but on how the development in reality 8 weeks is the standard, so it could be also 10 or 12 depends on the speed that we have to approve, from these communications ... If the options that they give us are fine. Because it can happen that last year, we had to approve expositions... usually we do them, so the beers stay on top of each other on the trays, therefore it means that the tray must be able to hold all the bottles. So, changes the cutting completely. Changes the punch, changes the materials, which now must be more resistant. So, by now costs were increasing ... last year and happened that the costs have risen so much that we had to change the project.

*Nataliia Roskladka:* Really??

*Contract Manager, Purchasing:* Yes, it could also happen...

*Nataliia Roskladka:* But the supplier at the end ... if you change the project how do you change the interaction with the suppliers?

*Contract Manager, Purchasing:* So, it depends on how many changes have been made. In the sense that it is a risk with the supplier we work with. Anyway on 100 commissions during a year, it could go even 80. On the total volume the costs that the supplier hung to make various changes are amortized. If the changes are really excessive and numerical, then we negotiate. What we do, we cut, but it is not like that we do not pay in the end.

*Nataliia Roskladka:* And they between them (Supplier 1 and Supplier 2) share the material, knowledge on which colour is better to do it, which material ...

*Contract Manager, Purchasing:* Then, in general ...

*Nataliia Roskladka:* Collaboration between them, how is that carried out?

*Contract Manager, Purchasing:* Among them we try to make collaborate always through us. It can happen that ... anyway they are both people who have technical knowledge. Obviously, I

manage different materials: glasses, paper rolls, refrigerators ... so my technical knowledge cannot be as deep as one of these two suppliers.

*Nataliia Roskladka:* Absolutely...

*Contract Manager, Purchasing:* Therefore, I am one of those who like to be involved in communication between suppliers, trying to optimize the process, but I always do my best to be present in the communications. Even then, anyway, we are the ones who approve. So whatever comes ... the last graphic file that is sent must be approved by me.

*Nataliia Roskladka:* Can it happen that they ... I guess these suppliers work for other companies too, yes?

*Contract Manager, Purchasing:* Yes, absolutely.

*Nataliia Roskladka:* So, can it happen that they share their experience with Buyer 3, like how better to print...

*Contract Manager, Purchasing:* Experience - yes, details of production - no. Both. In the sense that the materials they work with us are exclusive, so if during... we give them punches that are used for our flow. They who has other customers have other types of materials. Also, because maybe they have different pallets, the shape of the bottles paradoxically!

*Nataliia Roskladka:* Thus, it is not that it can be adaptable for other customers...

*Contract Manager, Purchasing:* Yes, but certainly, experience that mature supplier lets us know, but the material cannot be shared.

*Nataliia Roskladka:* Okay, so do you think communication is quite excessive between you?

*Contract Manager, Purchasing:* Yes-yes, for the time being for this process for this product – yes, absolutely.

Then there are the other materials that are not that structured. This already has a flow, already has several actors who must intervene. So, there is already a standard flow. So, for this we know the suppliers well, suppliers cooperate well, and we manage to have what we need obviously.

There are other materials where the purchasing always tries to optimize the project. Because some communications do not go from NPI, they go from me directly. So, I check with the suppliers which is the best solution, let me try them, then after production, let's spend them in the warehouse and then responsible for orders arrives and is also responsible for communicating with the warehouse. So, we have a contract ... it's not that all orders I manage ... We know that this glass has to be produced in 1 million pieces. We do not ship 1 million

pieces together. In the sense that supplier must assure us that in the dates that we have a forecast, we are fine with the materials. Then picking goes. So, all the part of "the glass I want it like this, lower, with the logo, with a different glass ...", that is all my part. Once I say yes, that's okay, let's go into production, on the other side Signor S intervenes and does the part of the orders.

*Nataliia Roskladka:* So, the very first request of this material is Buyer 3 who decides that he wants the NEW glasses to be produced and then Buyer 3 suggests to the customers (at the bars), right?

*Contract Manager, Purchasing:* Obviously if an activity is done, we have the demand for that basically. So, if the demand is that it comes from our catalogue ... to some customers who have certain volumes of beer or give glasses or give them anyway incentives to buy: "you buy me 3 cases of beer, you get a pack of glasses for free". So, sales incentives and there are the materials that are standard: glasses, under-glass, ..., Everything you see in bars - are the materials we produce. But for some there is no standard flow, the request is handled directly by the control manager receiving it.

*Nataliia Roskladka:* Then at the end of the process that the production has already been done, and the product is shipped, do you have the feedback session with the suppliers, like how does everything finish?

*Contract Manager, Purchasing:* Every year of course we do a sort of survey with our internal customers. The question that does not interface the part of the passive cycle ... for me the client is my colleagues, because they have the requests.

*Nataliia Roskladka:* Trade Marketing

*Contract Manager, Purchasing:* Exactly, Trade Marketing, Marketing. So, what do we do once a year. We take the most important suppliers who have collaborated with us, we create a survey. And this is also through our platform. So, there will be 10 people working with this provider and anyway have a way to evaluate its service. It can be the logistics to see samples, marketing that have printed well, TM to tell me if customers were complaining. All these checks are done here via internal customers - so with this survey or through the system. I base on what I have in the system with the delivery date because obviously when I do an approval I also ask for the timing. In the sense if I gave the 5<sup>th</sup> of October the material for the 20 days for the delivery date, I expect it on the 25<sup>th</sup>. If the delivery in the warehouse is done after October 25<sup>th</sup>, it means that the supplier has not respected the timing. For me it is also a symbol of the supplier's reliability, and also the parameter that I consider.

*Nataliia Roskladka:* And then you share these feedbacks with suppliers.

*Contract Manager, Purchasing:* Yes: there are suppliers that are only local, and there are those that only at the global level and are shared among all Buyer 3. They come from Central Buyer 3. So, every month I check that the vendor has made me a saving by things they do. If we have a single supplier for this material, however, if some things make them use different materials, I must ensure that they give me a saving. So, I check that the saving has been there, I contract the delivery dates because obviously that if you give me a week late, I can ask you to pay the penalties according to the contract. Because the campaign also started some week later. So, I always have to always look at the situation a little bit. If the project costs 3 thousand euros and made me a week late, and I did not have an impact on the trade, I assign it, but I do not ask him to pay the penalties. If he has the project for 30 thousand euros, and he made me 2 weeks of delay, I ask him to pay me.

*Nataliia Roskladka:* Yes, clear. But you at the beginning of the project do you have everything agreed?

*Contract Manager, Purchasing:* Yes, of course. All the various phases of the project that we have to respect the timing, the approval, everything, shared with the graphics, yes.

*Nataliia Roskladka:* Then you follow your timeline and tell them the DL that they must respect.

*Contract Manager, Purchasing:* It's right. everything that is done by the NPI ... So we are involved and logistics. Internal customers are Trade Marketing, Marketing, depending on how complex the project we involve different actors. These are projects that can be managed with only one person, for others we have NPIs

*Nataliia Roskladka:* What is this acronym NPI?

*Contract Manager, Purchasing:* New Process Implementation ... maybe, I do not remember :) Anyway, it's the project manager fundamentally.

*Nataliia Roskladka:* Is the process?

*Contract Manager, Purchasing:* Yes, it is a project management. So, I am a part of the process, where there is the structured process. Instead where there are simple materials, I become NPI, it is I am the one who tells the supplier that I must produce this product for the date X. I go to my TM colleague and I say "you have to give me the volumes from production for this date" and marketing must give me the graphics for this date X.

*Nataliia Roskladka:* I did this scheme to end the evaluation. [*Showing quadrants*]. So, to evaluate the collaboration. From 1 to 7 how high is it?

*Contract Manager, Purchasing:* Depends on the project.

*Nataliia Roskladka:* For this project we are referring to?

*Contract Manager, Purchasing:* I already know exactly the times I need. If we want to do it with different suppliers, it can happen that the timing changes. In this case we also ask for an innovation from the supplier. But innovation can be done by the supplier that produces it, and from the agency. Maybe there is a particular design and we'll see how the supplier can do it.

*Nataliia Roskladka:* In comparison with the beer, I guess this product has a little lower importance, right? So if we put the vote for beer 7 (the scale from 1 to 7)...

*Contract Manager, Purchasing:* Yes

*Nataliia Roskladka:* ... with the collaboration for beer between suppliers maybe it must be 7, for our product, can it be 5?

*Contract Manager, Purchasing:* It depends. In reality, they are quite strategic. In time they are spaces that in supermarkets give you 1<sup>st</sup> is visibility, 2<sup>nd</sup> is a possibility of purchase because you have shelf and out-of-shelf, so this material is quite strategic. The fact of they are of particular importance. For example, if we launch a new beer. I do not know if you have seen that with Brand X if you go supermarket, they would give you some plates, or the bag for Buyer 3?

*Nataliia Roskladka:* For the iconic brand of Buyer 3 – yes.

*Contract Manager, Purchasing:* So that is very important because it boosts the sales fundamentally.

*Nataliia Roskladka:* I understood. They are directly connected.

*Contract Manager, Purchasing:* Yes, so if we have the material for the sales force, in the catalogue, and the material we need to guarantee, because they give incentives and visibility.

*Nataliia Roskladka:* In the end are you satisfied with how the performance was with both suppliers?

*Contract Manager, Purchasing:* Yes, at the moment yes. We have a contract with both. But I am control manager, so I manage the executive part on my own. Before me - the buyer. What does the buyer do?

*Nataliia Roskladka:* The customer?

*Contract Manager, Purchasing:* No, the buyer. Always the passive cycle. The buyer goes to us. I receive the request from my colleagues for this material. However, I already know which suppliers we have to use. Based on this analysis it receives...

*Nataliia Roskladka:* Based on feedback?

*Contract Manager, Purchasing:* Exactly, it goes to evaluate our suppliers. In case the best solution is found, it replaces it with another supplier. And the buyer knows that this supplier can be both local and global. Obviously, when the supplier arrives with the best conditions.

*Nataliia Roskladka:* So, you need this experience first because you are going to evaluate that supplier, but then anyway you make the tender...

*Contract Manager, Purchasing:* Exactly, always tender. Then anyway if you have a global supplier, it means that beyond us this supplier supplies other branches of Buyer 3. So even if with Italy it has gone bad with this supplier, and with the other 20 countries everything was fine, it is not said that this supplier can be changed for me. Because the relation is different. Exactly, because the decision is central.

*Nataliia Roskladka:* You helped me a lot, thank you very much!

*Contract Manager, Purchasing:* Very welcome :)

## Triad 4

Interview in original language with Buyer 4, which has been conducted with Head of Indirect Procurement for Marketing & Sales Buyer 4 Pharma SPA

*Nataliia Roskladka:* Buongiorno! Sono Nataliia dal Politecnico... Grazie mille per aver accettato di fare la questa l'intervista. È molto importante per la mia tesi.

*Head of Indirect Procurement:* Mi dica. Vediamo se posso aiutarla.

*Nataliia Roskladka:* Lo scopo della mia ricerca è capire come le relazioni tra i fornitori possono impattare il processo dello sviluppo di un nuovo prodotto, ed eventualmente, la qualità di questo prodotto.

Io svolgo la ricerca, utilizzando una triade di attori necessari in questo processo: cioè buyer, quindi Buyer 4, e 2 fornitori.

Quindi la mia prima domanda è come si inizia il processo dello sviluppo di un nuovo prodotto?

*Head of Indirect Procurement:* Io sono un responsabile di acquisti di Buyer 4 per quanto riguarda investimenti di servizio, non di materie prime, non di sviluppo di nuove molecole. Io sono un responsabile delle macchine, telefonie, app, tutto quello che riguarda la comunicazione verso pazienti. Non so se posso supportarla raccontando di questo.

*Nataliia Roskladka:* Quindi in Italia in generale si svolge solo il supporto per questi servizi?



*Head of Indirect Procurement:* Sì, in Italia questo gruppo c'è e c'è soltanto solo sedi commerciale e produttive, quindi non so se entriamo nella questa ricerca.

*Nataliia Roskladka:* Sì, mi piacerebbe sapere comunque le interazioni con i fornitori nell'ambito dei servizi.

*Head of Indirect Procurement:* Ok, va bene, allora. Sicuramente noi abbiamo una rosa molto ampia dei fornitori con cui lavoriamo continuamente. Quelli con cui cerchiamo di fare una partnership con quelli che possono essere in grado di portarci innovazione, portarci quello che stato loro percorso anche di finanziamento di servizi del nostro interesse e fondamentale. Non siamo più... nel nostro interesse e non soltanto rispondere agli interessi dei dipartimenti alle loro richieste precise ma di proporre la soluzione per il dipartimento che noi consideriamo con i nostri clienti interni. Quindi per questo in maniera proattiva, non solo passiva dobbiamo chiedere il fornitore di darci spunti, darci il movimento verso l'innovazione. Questo è sicuramente la chiave negli acquisti. Questo è il primo aspetto. Come selezionare i fornitori – selezioniamo sulla base di KPI, tutto allegati all'esperienza consolidata con loro. Poi con criteri di innovazione, siamo molto attenti alle start-up che possiamo entrambi concorre anche con, e in qualche modo stimolare e supportare start-up innovative, siamo molto attenti allo sviluppo e non soltanto alla selezione di quanto già dipende.

Mi fermi quando se vuole...quando vuole qualche aggiornamento. Se no, continuo...

*Nataliia Roskladka:* Grazie! Mi interessa la parte dopo che la selezione è già stata fatta, come si svolgono le interazioni con i fornitori, quindi i primi incontri, settaggio degli obiettivi comuni in progetto...se possiamo prendere qualche progetto per il riferimento.

*Head of Indirect Procurement:* Sì, beh, diciamo che possiamo fare un esempio, tutto parte dal bisogno del dipartimento. Dipartimenti sono clienti interni, che ci coinvolgono chiedendoci. Devo fare ad esempio, devo sviluppare un programma del supporto paziente. Questo programma all'obiettivo di dare ai pazienti gli strumenti che in qualche modo li facilitino tracciare la compliance sul pharma, quindi rispetto delle dosi giornaliere di pharma ... poco spesso la terapia non è efficace perché non poteva essere fatta nella maniera adeguata. A questo punto per supportezza chiedono da telefonate al paziente e training a delle app che il paziente può avere per triangolare il rapporto con il medico curato, che ci dà trascinare del pharma con eventuali indicazioni oppure eventuali efficaci in pharma in rispetto al ... e noi cosa facciamo: cominciamo ad indagare quelli che sono i principali fornitori, operando in quel ambito che conosciamo. Quindi operiamo o per esperienza consolidata con i fornitori di quel ambito. Noi cosa facciamo. Andiamo a fare scouting, a cercare i fornitori, attingendo a poche note come Politecnico, come altri istituti di ricerca chiedendo loro a fare il ruolo del fornitore, riguardo il bisogno. Dopo di che li incontriamo, spiego molto dettagliato, li assegniamo le cose

di cui noi abbiamo bisogno e diciamo anche quello che magari potremmo avere bisogno per stimolare i fornitori ad essere proattivi per andare nell'ambito potenziare per incontrare le nostre aspettative, cercando di come dicevo prima di "prendere" appingere il loro bagaglio essenziale finché propongono una soluzione più adeguata a cui abbiamo pensato. All'inizio cominciamo il processo di serie di analisi dell'interno e nella valorizzazione poi del valor aggiunto che chiaramente ci dà dal punto di vista del paziente, dal punto di vista economico, pensiamo del ritorno della spesa. Questo è il modo in cui operiamo.

*Nataliia Roskladka:* Quindi il ruolo dei fornitori in questo processo è dare la conoscenza delle loro esperienze, e spingere inno... altro?

*Head of Indirect Procurement:* Beh, fornitore deve essere in grado di cogliere dal proprio capability quelle più adeguati a non solo risolvere i problemi del paziente ma anche quello che mettere in correlazione il bisogno con possibili curantamento attuale della ricerca, quindi ho bisogno che la ricerca correlata con una seria di sviluppi che potrebbero migliorare il supporto al paziente. Mi spiego meglio. Io interpreto per i clienti interni un bisogno. Non sempre quello che loro intendono come bisogno è quello che chiedono. Chiedono qualcosa ma di fatto l'interpretazione del loro bisogno. Penso che per raggiungere il bisogno, si deve chiedere in qualche modo qualcos'altro. Io invece vedo oltre come acquisti e dico ma guarda mi sa che il bisogno non è soltanto che mi chiedi ma anche quest'altro. Quindi cerco in qualche modo di completare.

I fornitori devono fare la stessa cosa. Quindi devono comprendere i fine primario della richiesta. E fare giusto brainstorming finché capisca subito se oltre quello che viene chiesto intende altro, che solitamente non è stato espresso... e quel altro soprattutto in questa fase di sviluppo tecnologico molto veloce, per me esperienza è importantissimo in rispetto a quello che viene richiesto, perché una pharmaceutical, un dipartimento macchina pharma non è solitamente oggi in grado di andare incontro per i suoi sviluppi innovativi e di capire mercato.

Facendo queste settimane ho avuto degli incontri presso MIP come il direttore degli acquisti concentrato su IoT e su IA – intelligenza artificiale. Per me è stata una scoperta per molto efficiente. Effettivamente quello che oggi è lo stato dell'arte. Il fornitore deve darci non soltanto quello che chiediamo ma aprire quello che il mondo ci eventualmente potrebbe offrire dal punto di vista di servizi.

Per questo che la partnership è fondamentale, per autorevolezza dalla parte del fornitore di indicarci la strada, quasi lui soltanto rispondere a delle richieste.

*Nataliia Roskladka:* Quindi il fornitore potrebbe essere il Politecnico o altro istituto che ha le conoscenze che sono necessari per soddisfare i clienti.

*Head of Indirect Procurement:* Assolutamente.

*Nataliia Roskladka:* Quindi voi come azienda siete interessati a condividere tutte le informazioni e le conoscenze per soddisfarvi in un modo migliore come il loro cliente?

*Head of Indirect Procurement:* sempre entrando nell'ambito nello sviluppo di molecole è ovvio che in momento in cui li chiediamo di sviluppare un servizio, li diamo tutti gli elementi perché... ovviamente a solito di un service agreement per una certezza quindi li diamo tutti li elementi per permettere al fornitore di sviluppare la miglior offerta nel prime...

*Nataliia Roskladka:* Okay.

*Head of Indirect Procurement:* Certo.

*Nataliia Roskladka:* E loro nel loro ruolo...quanto siete soddisfatti come loro condividono la sua esperienza precedente o la loro conoscenza? Potrebbe essere il caso che loro condividono le sue esperienze dai progetti precedenti, che sono simili che potrebbero essere utili per il vostro nuovo progetto?

*Head of Indirect Procurement:* Sicuramente sì. Quello che li chiediamo è quello, così. Ogni dipartimento acquisti da una scelta su una esperienza consolidata non soltanto su un potenziale espresso durante la presentazione ma ovviamente noi vogliamo vedere fatti solo quelli che effettivamente convincono maggiormente. È chiaro che poi si crea un trade-off tra quanto lecito la parte del fornitore raccontare o quali ha secondo il secret agreement con altri clienti e quanto invece sia lecito. Spesso ci sono fatti presentati degli altri casi anonimizzati. Ma molto sostanziali. Spesso invece avviene occupare rispetto finalmente comprensibile con il cliente. Però è fondamentale che noi sappiamo i casi ma non soltanto a soluzione teoria.

*Nataliia Roskladka:* Potrebbe succedere che Buyer 4 da un compito a 2 o più fornitori e in questo caso come si svolge: voi volete che questi 2 fornitori collaborano tra di loro per arrivare alla soluzione migliore oppure invece sia bello quando c'è la competizione che potrebbe anche dare i risultati migliori [Quali sono le intenzioni di Buyer 4 verso la collaborazione con i fornitori?]

*Head of Indirect Procurement:* Dipende molto da servizio che Buyer 4 vuole acquistare. Ci sono servizi dove molto importante mantenere alto livello di competizione, ci sono servizi tattici, meno strategici, dove il costo di fatto altri invece sono più strategici dove il valore espresso al servizio è superiore l'investimento e la complessità in termini di potrebbe avere, prevedere necessità degli attori, competenze nelle aree diverse, totalmente sinergici sono a buon lato collaborati, si capita. A quel punto noi facciamo ovviamente noi da Project Leader coinvolgiamo i partners. Adesso coinvolgiamo più partner dalle competenze specifiche ma

non soltanto due complementari. E poi ovviamente li andiamo a firmare contratti specifici singoli. Negli alcuni casi ma sono abbastanza... non sono tanto frequenti – contratti di collaborazione, in cui il ruolo di ogni attore del processo vende limitato allineato del contratto con il Buyer 4 in maniera molto trasparente e poi va a retribuire i vari fornitori per il valore che stato condiviso, definito molto chiaramente e la completa di eventuale outcome che viene generato. Questo è frequente. Noi ci aspettiamo che il fornitore sia unico referente anche di altri parti. Quando capiamo che i capabilities non sono facile da approvare al termine di solo fornitore estendiamo il rapporto trasparente in una maniera possibile per poi cogliere tutte le opportunità, capability delle società possa esprimere. Il fornitore magari unico a selezionarle per andarci più trasparente.

*Nataliia Roskladka:* Chiaro. Come si svolge la valutazione del fornitore?

*Head of Indirect Procurement:* Dipende. Noi per i progetti complessi segniamo degli ABI (Activity Based indicators) tutti quello che aspettiamo dall'attività in maniera molto dettagliato. Ma poi andiamo a definire i KPI molto importanti sui progetti in un certo spessore, facciamo un tracking delle aspettative. Effetto e monitoro di servizio non soltanto le attività che devono essere svolti, ma anche i risultati più qualitativi che devono essere ottenuti. Molto spesso questi KPI e ABI sono legati alla parte distributive. In qualche modo possono agire o come bonus e malus. Prima logica di partnership viene accettata molto semplice anche dal fornitore. Importante che ci sia fiducia nelle entrambe parti. Il fatto che nessuno poi cerchi di leggere questi KPI in maniera a proprio vantaggio, l'obiettivo è condividere... la partnership deve sviluppare sul terreno con solido, conoscenza reciproca di fiducia reciproca. Quindi sono soltanto degli elementi che KPI si devono permettere una maggior focalizzazione dell'obiettivo e dello sforzo per raggiungerlo. Per il modo che dicevo lo sforzo che la direzione di KPI indica. Poi ci sono attività più tattica per cui magari questo sforzo non viene perché genera anche il lavoro interno, quindi ci sono KPI più semplici, a quel punto la valutazione viene data senza troppe indicatori da seguire e tracciare.

*Nataliia Roskladka:* Praticamente questo ABI e KPI sono stati chiariti al primo incontro con il fornitore che così il fornitore sia consapevole come potrebbe soddisfare il cliente?

*Head of Indirect Procurement:* Assolutamente NO. Sono risultati di una discussione con il fornitore. Spesso vengono abbinati e definiti solo alla fine di un processo di analisi di un'attività, aspettative, di un corrispondente costo. Una KPI può essere un elemento sul quale viene modulato bonus/malus, quindi non è la cosa che può essere definita molto in anticipo sono definiti dal processo di negoziazione.

*Nataliia Roskladka:* È tipo un brain storming durante il processo, che potrebbe aiutare a sviluppare questi KPI e ABI, giusto?

*Head of Indirect Procurement:* Assolutamente! Devono essere gli elementi condivisi. Faccio un esempio per farle capire. Noi facciamo una campagna di una... La campagna M dice io voglio che si venga sensibilizzata la popolazione su una malattia che può essere curata... Valutare i migliori curi è già il momento da rispondere. Campaign si sa una campagna stampa, figura, e così via. È fondamentale che ci sia una tracciatura dei KPI. Quindi cosa vuol dire per me una campagna stampa? Vuol dire coprire un certo...raggiungere un certo tipo di target, andare quindi a identificare che mezzi vengono per che modo sollecitati dal fornitore che venga che di fatto sia misurabile nei termini di KPI, per esempio quanti pazienti potenziali o quanto popolazione di ha un certo tipo di flusso può essere un qualcosa, che viene tracciabile la campagna. Il fornitore ovviamente su questo ne prende impegno. Io mi aspetto che questa campagna generi un'attivazione di centomila persone. Approvazione di investimento che migliore di questa attivazione che traccia poi generi magari una iniziativa che vi interessa la parte del paziente. Questa è la classica campagna che viene fatta da tutti ...mese da approvazione con il TV... Sono campagne che vengono tracciate in maniera molto puntuale perché se no... si dà investimento molto importante a mano fornitori senza molte sostitutive per arrivare poi al cliente finale è molto delicato.

Faccio altro esempio. Noi abbiamo i prodotti non soltanto farmaceutici, ma prodotti anche *odc*, quindi a banco facciamo delle attività sull'integratore, visto promotion, prova all'acquisto... Anche lì KPI sono molto stringenti: quante persone vengono contattate, quanti prodotti vengono dati a prova... ci sono degli elementi che per lungo percorso di negoziazione posso misurare come una partnership. Siccome accordo è molto puntuale, preciso, per obiettivo di consolidare i rapporti con fornitore.

*Nataliia Roskladka:* Quindi praticamente un fornitore è stato dato all'inizio di progetto un compito diciamo e poi si deve sviluppare questi KPI immagino che anche il periodo del progetto sia chiaro. C'è il compito intendo e il periodo per cui questo compito deve essere fatto. Ho capito giusto?

*Head of Indirect Procurement:* Sì, esatto. La delivery del progetto è uno stato scenario. Quindi veramente devono essere rispettati. Impegno - Le ABI devono essere precisi: cosa deve fare il fornitore o quando e poi c'è il monitoraggio di post-campaign o di post-delivery o durante la delivery anche tutto deve essere definite per lunedì: cosa viene tracciato, quali aspettative ci hanno ed eventualmente i processi di altri mediation in cui viene definito anche il corso dopo: cosa si deve fare, si migliorino le indicazioni proposte.

*Nataliia Roskladka:* Ok, grazie, chiaro. L'ultima cosa che volevo chiedere è come si conclude il progetto in termini di interazione con i fornitori? Avete una sessione di feedback con loro?

*Head of Indirect Procurement:* Diciamo che ci sono i rapporti con il fornitore che prevedono corso dell'anno delle analisi qualitative, delle survey. Soprattutto quando si parla di fornitori che mettono i suoi... delle persone dedicati per il progetto. A quel punto chi sta dedicato, deve essere valutato, parlando ai nostri capi. Quindi ci stabilisce già il questionario, cosa viene richiesto, chi viene coinvolto, cosa viene valutato, il feedback intermedie, rating intermedie. E questo è una modalità. Altre volte invece dove sono i rapporti sporadici, o basati sul activity based, non sul service agreement definiti, a quel punto si fa un'analisi post-evento. Dove si parla come solleva il valore, noi non possiamo permettere troppo tempo dedicato. Quando tutti quanti gli attori sono stati attivati, possono essere i dipartimenti come la Quality, Regulatory, noi, Acquisti, si dà un rating al fornitore in maniera più chiara e trasparente, sperando che sia produttivo.

*Nataliia Roskladka:* E poi quelli risultati vengono condivisi con il fornitore?

*Head of Indirect Procurement:* A beh... un feedback è fondamentale nella maniera più costruttiva, diretta al fornitore, chiaro che non può essere un feedback interno. Feedback viene data all'esterno, a chi deve ricevere questo feedback. È il processo fondamentale per una partnership. Per migliorare il futuro.

*Nataliia Roskladka:* La ringrazio tantissimo, mi ha aiutato tanto.

*Head of Indirect Procurement:* Buona fortuna...

Interview in with Buyer 4, conducted with Head of Indirect Procurement for Marketing & Sales Buyer 4 Pharma SPA translated in English

*Nataliia Roskladka:* Good morning! I'm Nataliia from the Politecnico di Milano. Are you comfortable to talk now?... Thank you so much for agreeing to do the interview. It is very important for my thesis.

*Head of Indirect Procurement:* Tell me. Let's see if I can help you.

*Nataliia Roskladka:* The purpose of my research is to understand how relationships between suppliers can impact the process of developing a new product, and possibly the quality of this product.

I carry out the research, using a triad of actors needed in this process: meaning buyer – Buyer 4, and 2 suppliers.

So, my first question is how do you start the process of developing a new product?

*Head of Indirect Procurement:* I am a Responsible of Purchasing for service investments, not for raw materials, not for the development of new molecules, but I am a manager of machines,

telephones, apps, everything related to communication to patients. I do not know if I can support it by telling about this.

*Nataliia Roskladka:* So, in Italy in general there is only support for these services, right?

*Head of Indirect Procurement:* Yes, in Italy this group exists and there are only commercial and productive offices, so I do not know if we enter this research.

*Nataliia Roskladka:* Yes, I would like to know how the interactions with suppliers in the service sector.

*Head of Indirect Procurement:* Ok, okay, then. Surely, we have a very vast “rose of the suppliers” we constantly work with. Those with whom we try to make a partnership, with those who may be able to bring us innovation, bring us what has been their path, also financing services of our fundamental interest. We are no longer interested in costs that much today. Our departments we consider as our internal customers and the solution is for the department. So, we are interested in proactivity, not passive attitude; we have to ask the supplier to give us ideas, to give us the movement towards innovation. This is definitely the key to purchases. This is the first aspect. How to select suppliers. We select them on the basis of KPI, all attached to the advice consolidated with them. Then with criteria of innovation, we are very attentive to the start-ups that we can both compete with, and in some ways stimulate and support innovative start-ups. We are very attentive to the supplier development, not only to supplier selection of what already depends. Stops me whenever you want ... when you want some updates. If not, I continue ...

*Nataliia Roskladka:* Thanks! I'm interested in the part after the selection process has already taken place, how the interaction with suppliers happens, then the first meetings, setting the objectives in the project ... if we can take some project for the reference, would be great.

*Head of Indirect Procurement:* Yes, well, let's say we can give an example, everything starts from the department's need. Departments are our internal customers, so they involve us asking. For example, I have to develop a patient support program. This program aims to give patients the tools that somehow make it easier to track the consistency of compliance with daily doses of pharma ... very often the therapy is not effective because it could not be done properly. At this point, by request, they ask by phone calls or training programmes or apps that the patient can have contact with the doctor, who can take medicines with all indications... And what we do: we start investigating the main suppliers, operating in the field we know. Therefore, we operate from consolidated experience with the suppliers of that field. What we do. We go scouting, looking for suppliers, drawing on a few notes, involve such institutions like Polytechnic, like other research centres asking them to play the role of the supplier. About

we recognised the need, we meet them, I explain very detailed, we assign them the things we need and also say what we might need to stimulate suppliers to be proactive in the field to push them towards our expectations, trying as I said before to bring their baggage of experience as long as they propose a solution closer and adequate to which we expected. At the beginning we start the process with the series of internal analysis and then we enhance it with added value activities considering the patient's point of view, the economic point of view; we think of the return of expenditure. This is the way we operate.

*Nataliia Roskladka:* So, the role of the suppliers in this process and give the knowledge of their experience, and push innovation, right? Maybe something else?

*Head of Indirect Procurement:* Well, the supplier must be able to seize from their capabilities the most appropriate not only to solve the patient's problems but also to correlate the need with possible current research curing, so I need the research related to the developments that could improve patient support. I'll explain. I interpret a need for internal customers. Not always what they intend to need is what they ask for. They ask for something but in fact the interpretation of their need. I think that in order to reach the need, one must ask something else in some way. On the contrary, I see how I buy, and I say, but look, I know that the need is not only that you ask me, but also that other one. So, I try somehow to complete their request.

Suppliers must do the same thing. Then understand the primary ends of the request. And do just brainstorming until it immediately understands if beyond what is asked will mean anything else, which was not usually expressed ... and that other especially in this phase of technological development very fast, for me experience is very important in respect to what is required, because a pharmaceutical, a pharma machine department is usually not able to meet today for its innovative developments and to understand the market.

In these weeks I had meetings at MIP as the purchasing director focused on IoT (Internet of Things) and AI – artificial intelligence. For me it was a very efficient discovery. Indeed, what today is state of the art. The supplier must give us not only what we ask but open what he could possibly offer from the point of view of services.

That is why the partnership is fundamental, for authoritativeness on the part of the supplier to show us the way, not only to respond the requests.

*Nataliia Roskladka:* So, the supplier could be the Polytechnic or other institute that has the knowledge that is needed to satisfy customers

*Head of Indirect Procurement:* Absolutely.



*Nataliia Roskladka:* So, you as a company are interested in sharing all the information and knowledge to satisfy you in a better way as their client?

*Head of Indirect Procurement:* Always entering the field in the development of molecules it is obvious that when we ask them to develop a service, we give them all the elements to allow the supplier to develop the best offer.

*Nataliia Roskladka:* Okay.

*Head of Indirect Procurement:* Of course.

*Nataliia Roskladka:* And how satisfied are you in the degree they share their previous experience or their knowledge? Could it be the case that they share their experiences from previous projects, which are similar that could be useful for your new project?

*Head of Indirect Procurement:* Definitely yes. What we are asking is this. Each department purchases from a choice on a consolidated experience not only on a potential... expressed during the presentation but obviously we want to see facts only to choose those that actually convince more. It is clear that there is a trade-off created between what is legitimate the part of the supplier to tell or which has according to the secret agreement with other customers and how much is legal. Often there are facts presented of the other anonymous cases. But very substantial. On the contrary, it often happens to occupy respect that is comprehensively understandable with the client. But it is fundamental that we know the cases but not only theoretical solution.

*Nataliia Roskladka:* It could happen that Buyer 4 gives a task to 2 or more suppliers and in this case how does it happen? Do you want these 2 suppliers to work together to get to the best solution or it is better when there is a competition between them to achieve better results?

*Head of Indirect Procurement:* It depends a lot on the service that Buyer 4 wants to buy. There are services where it is very important to maintain a high level of competition, there are tactical services, less strategic, where the cost of others is more strategic where the value expressed at the service and higher the investment and complexity in terms of could have. To foresee the needs of the actors, competences in the different areas, totally synergetic, they should cooperate well, it happens. At that point we obviously do... the project leader involves the partners. Now we involve more partners with specific skills, but not just two complementary ones. And then of course specific contracts in some cases but they are not so frequent or contracts of collaboration in which the role of each actor in the process is limited in line with the Buyer 4 contract in a very transparent manner and goes to pay the various suppliers for the value that been shared very clearly with the complete eventual outcome. This is common. We expect that the supplier is also unique to other parties. We understand that it is not easy

to maintain only the transparent relationship in a manner that is possible to collect all the opportunities, capabilities of the companies. There is maybe a unique supplier to select to go more transparent.

*Nataliia Roskladka:* Clear. And how does the supplier evaluation go?

*Head of Indirect Procurement:* It depends. We for the complex projects we mark the ABI (Activity Based indicators) all that we expect from the activity in a very detailed way. Then we go to define the KPI very important on the projects in a certain sense. We are tracking the process according to our expectations. Effect and service not only for the activities to be carried out, but also for the most qualitative results to be obtained. Very often these KPIs and ABIs are related to the distributive part. In some ways they can act either as a bonus and malus. First partnership logic is accepted very simple even by the supplier. Important that there is a trust to both parties. The fact that nobody then tries to read these KPIs in the way to get its own advantage, the goal is to share ... the partnership must be developed on the solid ground, mutual knowledge of mutual trust. So, it is only the elements that KPI must allow a greater focus of the objective and the effort to achieve it. For the way I was saying that the effort follows the direction of indicating KPI. Then there are more tactical activities for which maybe such effort does not take place because it also generates internal work, so there are simpler KPIs, at which point the evaluation is given without too many indicators to follow and trace.

*Nataliia Roskladka:* Practically these ABI and KPI have been clarified at the first meeting with the supplier so that the supplier is aware how he could satisfy the customer?

*Head of Indirect Procurement:* Absolutely NO. They are the results of a discussion with the supplier. They are often matched and defined only at the end of a process, activity, expectations, corresponding cost. A KPI can be an element on which bonus / malus is modulated, so it is not the thing that can be defined much in advance that is defined by the negotiation process.

*Nataliia Roskladka:* Is it like a brain storming during the process?

*Head of Indirect Procurement:* Absolutely! There are should be shared elements. I give an example to let you understand. We do a campaign of one ... Well, somebody says: "I want the population to be sensitized to a disease that can be cured". The task is to evaluate the best treatment and it is already the element that should be answered. Campaign is known as a press campaign, figures etc. It is essential that there is a growth of KPI so what it means to me a press campaign. Let's say it is like to cover a certain... reach a certain type of target, go to identify what means being so urged by the supplier that it is actually measurable in terms

of KPI, for example, how many potential patients or a particular population of a certain type of ... can be something, which can be traced to the campaign. The supplier obviously takes this commitment. I expect that this can be the campaign: an activation of investment for one hundred thousand people, will improve this activation, which then is traced maybe an initiative that interests you the part of the patient. Then it is done by everyone ... are campaigns that are traced in a timely manner because otherwise ... it is very important investment by hand suppliers without many substitutes to get then the final customer is very delicate.

I give another example. We bore the products not only pharmaceuticals, but also produced odc, then we work on the bench on the integrator, since the test to the fifth therefore also the KPI are very stringent: how many people are contacted, how many products are given to test ... there are of the elements that for long negotiation path I can measure as a partnership. Since agreement is very punctual, precise, the objectification is to consolidate the relations with supplier...

*Nataliia Roskladka:* Therefore, a supplier was initially given a task at the beginning of the project and then we must develop these KPIs. I imagine that the project period is also clear. I mean there is a task and a period for which this task must be done. Did I get it right?

*Head of Indirect Procurement:* Yes, exactly. The project delivery is a final state. So, they really must be respected. Commitment – ABI must be precise: what must be done or when and then there is post-campaign or post-delivery monitoring or during delivery everything must be defined let say for Monday: what is tracked, what expectations they have and eventually processes of other editions in which the course is also defined after: what must be done, the directions proposed should be improved.

*Nataliia Roskladka:* Ok, thank you, clear. The last thing I wanted to ask is how does the project end in terms of interaction with suppliers? Do you have a feedback session with them?

*Head of Indirect Procurement:* Let say that there are relationships with the supplier that provide for the course of the year of qualitative analysis. Especially when it comes to suppliers who put their ... people dedicated to the project. At that point who is dedicated, must be evaluated, speaking to our leaders. Then it already establishes the questionnaire, what is required, who is involved, what is assessed, intermediate feedback, intermediate ratings. And this is a mode. Other reports, on the other hand, where they are qualitative, historical relationships, or based on activity based, not on the defined service agreements, at which point a post-event analysis is performed. Where we talk about how we raise value, we cannot allow too much dedicated time. When all the actors have been activated, the departments such as Quality, Regulatory, us – Purchasing, can give a supplier's rating in a clearer and more transparent way, hoping it will be productive.

*Nataliia Roskladka:* And then those results are shared with the supplier?

*Head of Indirect Procurement:* Oh, feedback is fundamental in the most constructive way to the supplier, clear then there is internal feedback. Feedback is given to the external, who should receive this feedback. It is the fundamental process for a partnership. To improve the future.

*Nataliia Roskladka:* Thank you so much, you have helped me a lot.

*Head of Indirect Procurement:* Good luck ...

### Triad 5, Triad 6, Triad 7

The interview, which has been delivered with Operational Purchaser of a leading packaging company had presented several projects that have brought to the possibility to consider 3 separate triads, where this company two times was playing the role of a buyer with its two supplier and one role of a supplier with its client as a buyer and design agency as a second supplier.

The interview transcript is presented below.

*Nataliia Roskladka:* Good evening! Thank you so much for agreeing to have an interview!

*Operational Purchaser:* For nothing.

*Nataliia Roskladka:* Could we please take for an example any project, in which you participated, where your company was a supplier and collaborated with some other supplier for one client?

*Operational Purchaser:* Yes, of course. Project for a specific raw material or product?

*Nataliia Roskladka:* By product. For example, I know the brand for which Buyer 5 was used to produce packaging. If we can take an example with the buyer and other supplier, it would be perfect.

*Operational Purchaser:* I will start. I worked in procurement. Head office of Buyer 5 is in Sweden, in Lund. In Buyer 5 I have been working for two years, in the procurement and since the factory has been closed in Ukraine, I went in Sales and worked on selling the factory that we had in Ukraine: all the spare parts, the remained materials...

Let's take one supplier who has been producing pouch for us. The pouch is the raw material for us, it is one of the parts that is needed in order to produce packaging. We have customers who give us orders. They are for us – ... [very important], we have to satisfy all their orders, since this is our source of income.

I was buying raw materials. For example, the supplier of the pouch. We were buying the same pouch for years. We have annual KPIs – cost reduction and cost saving – we should cut our costs by buying at a lower price, keeping the same quality of the product. At one point we received a request from the main office that the Hungarian factory tested the pouch and they came to the conclusion that if we take the pouch and heat it up and stretch it differently than we usually stretch, stretch it a little more under temperature, then in annual turnover we have a very good saving of pouch. Hungarian Factory was the first, that tested everything and did the Best practice, transferred everything to the head office, the head office has also tested everything, confirmed that it was indeed Best practice and sent it to all Buyer 5 factories. The quality of the package did not deteriorate, it did not begin to crease, this had no effect on the drawing, on the quality of the product in average.

*Nataliia Roskladka:* But only you contacted this supplier of pouch, the buyer was not in touch with him, right?

*Operational Purchaser:* There are local and global suppliers. For example, a supplier of paint from the United States. He is the only one, and he supplied paint for all factories of Buyer 5. We imported, ordered 3 months in advance.

The supplier of the pouch is a small supplier, we could find it in Ukraine, and did not bother ourselves with orders to do 3 months in advance, with customs, brokers, etc.

*Nataliia Roskladka:* Is there an example when the buyer would tell you to work with a specific supplier?

*Operational Purchaser:* Yes, Buyer 5 has a specific list of suppliers, their back-up. If we believe that we are satisfied with the supplier, and he is satisfied with us, the price suits us, quality, punctuality, then we do not have to changed it. In the case of a pouch, the pouch changes, and it is necessary either to change the supplier, or take him and show him the offers from the main office, saying that he has new technological characteristics of the product and ask either they can make such a pouch for us. Then it depends on the supplier. If we bring him most of profit, if he values us and they do not want to lose us, then they enter into negotiations and it depends on the supplier: either he accepts the characteristics and tries to make this pouch for us, and transport it, or says that it is not profitable for us, we do not have enough power, we do not have needed machines, we need to buy it all, we do not have enough money, or we have no desire.

*Nataliia Roskladka:* For packaging only the pouch is used, or also paper, other components?

*Operational Purchaser:* There are several layers, I was buying foil, pouch, paint, cardboard, paper. They lay down in different layers. You take the pouch, laminate it... They are the details of production.

*Nataliia Roskladka:* Did the suppliers of different components interact with each other?

*Operational Purchaser:* We contacted each of them separately. I need a certain amount of such a component of a certain types in a certain volume for such a price. The price is usually written in the contract. Our entire supplier base was kept in secret, as in any companies, and we did not disclose details to anyone. If they communicate with each other, and I am more than sure that they do communicate, it is without us, but the answer is yes. We had such a case with pallets. A supplier who produces pallets (there are usually very few in Ukraine that would produce Euro pallets), I did not ask them either they interact with each other, but then somehow one of them said that they are very well connected with each other, and they communicate with each other, and they know very well what is the price of other supplier. During some negotiations, they once told us that they just do not say that they communicate, and if they do not recognise it, it does not mean that they do not know the conditions of others – they all know perfectly where and what supplier buys the raw materials, how much it costs and how everything is carrying out. They can even meet on our territory, when loading and unloading takes place.

*Nataliia Roskladka:* What do you think, if the suppliers of the two components communicated with each other, could this improve the quality of the product?

*Operational Purchaser:* If a supplier comes to us and says that he has a new material to offer us, then yes, it could be.

*Nataliia Roskladka:* Fine. And it turns out that these 2 suppliers (1 - paint supplier, 2 - paper supplier), can say that they have thought together and decided that Buyer 5 might be interested if they work together to improve the print quality?

*Operational Purchaser:* Yes, there were such cases that suppliers came to us and told ... we, for example, close the production of such pouch, because nobody orders it from us anymore. Buyer 5 has several competitors ... and the supplier contacted us, saying that Buyer 5 is the only one who orders this pouch, we are not interested in producing it, other factories have gone ahead, and are ordering more durable pouch. Therefore, either you take another pouch from us, or you import or conduct a tender. We immediately asked the head office, the other factories what they use ... then we switched. We have such a policy that even if the product becomes more expensive, we do not display it on our packaging. The juice client can raise the price for the product, but we, as a supplier of packaging, cannot.

*Nataliia Roskladka:* But how? Don't you have price increases at all?

*Operational Purchaser:* There are of course, but it should not occur once a quarter, as one of the suppliers said that the pallets have risen in price, and that is it. And we either switch to another cost, or we will not produce these pallets anymore. We cannot raise the price of our product because of the pallet prices, because then the supplier of foil will come, and say the same thing, and of course we will not sign the new specification. We do market analysis, and we look at how much packaging may become more expensive next year. That is, we make a price list, but we do it once a year, and we re-sign contracts with our customers. As a rule, they sign up for a year, and then we extend them and make a small premium deposit, and then our task is to deal with the suppliers, the price will increase, but it should not be worthy of it.

*Nataliia Roskladka:* All orders for new packaging were dictated by manufacturers, who are your customers, and when they make a new order for a new juice package, for example, they set goals for the project, right?

*Operational Purchaser:* Of course.

*Nataliia Roskladka:* So, what are the goals of such a project?

*Operational Purchaser:* They are our customers, the juice producer says that he wants to release juice not 0.5 litres, but 0.3 litres and with a straw. He has made the market analysis and realized that such formats are going well. At the beginning he made a layout – what he wants to see on the package, and then comes to us with this picture, and we start to discuss it in detail: what kind of packaging it should be, what form it should have, what should be written on each side, where Buyer's 5 logo will stand, because Buyer 5 prints, the mark is on the side or below, then we develop a drawing together with the quality and design department: it can be a little paler, more saturated, the packaging can shine, it can be matte, where you need to make a hole for straw... Next time the test packaging should be done and possibly not even one, but several, they look, give their comments, like there is should be a change, there is a very unnatural green, should be richer, but not brighter... Such details are very important for the manufacturer of juice.

*Nataliia Roskladka:* And you do not cooperate with design agencies: what print to put on. I thought, what they convey you, it should be precisely followed, like the shades of colours, no?

*Operational Purchaser:* We, as the purchasing department, are provided with everything that is ready. They say that we have a new SKU, and we will have to order some more components. If a tender is to be held separately, if the manufacturer wants a non-standard straw, then they come to me, and I hold a tender to find such a straw to find a supplier. And as a purchasing

department, I do not take part in such negotiations, and the final version already comes to me: a new package, you need a little more paint, more packaging material, a new SKU, monitor orders for this position.

*Nataliia Roskladka:* Can we please move to that example, when you said that the supplier of ink and paper can interact with each other in order to improve the print quality? Would you be interested in sharing two information with them, or transferring knowledge from past projects?

*Operational Purchaser:* If we take Buyer 5, I don't remember that we shared knowledge with them, but suppliers have come to us and said that they did research, and they already had experience with a client, he is satisfied, and with the same offer they come to us, in order to improve quality. As a rule, Buyer 5 is not so flexible as to follow suppliers. Suppliers are active, they want to improve themselves and help us and ourselves to improve, and thus grow. But we have a database of suppliers, customers, approved packaging and mock-ups, and if we start changing some component, because we wanted so that our clients would write out fines, because we agreed on the layouts and templates that we should print. And if we take the initiative and add oil to the paint to make it shine more, the client will see that the packaging is not the same and will ask us the reasons for changing the packaging. As a result, we can get back the whole role of packaging and they would tell us to do what we want with it... That is, as a rule, the entire initiative about changing colours, shapes, straws, it should go from the part of the client. If they say, we want to rebrand the juice, then we return back to the supplier, which has approached us some time ago, and said that we could change something, we can help you, and we say, we are ready, let's start. We do not act simply by our initiative.

*Nataliia Roskladka:* Clear, thanks. And when you learned that the suppliers communicate with each other, the relationship that you maintained with one supplier could affect the relationship between them.

*Operational Purchaser:* On the relationship between them – no. They communicate with each other and, as a rule, we had an example with suppliers of pallets. They communicated with each other, as one of them later told us, and the most interesting thing was that they communicated with each other, they knew the price conditions of the other supplier. And of course, someone earned more and someone less, and they wanted to raise prices by coming to us with this offer. They came with a pause of three weeks. And after the second supplier, we realized that something was wrong. Because they immediately began to raise the price twice, this is a lot. We asked them for some kind of analysis, on the basis of what they want the price increase: either raw materials (wood) has become more expensive or something happened to their company... As a result, we raised prices, but not as much as they requested.



And after the second time, we realized that soon the third and fourth supplier might come to us ...

*Nataliia Roskladka:* Sorry, but you said that you have a base of current suppliers, and back-up, and you go to the back-up option if something happened.

*Operational Purchaser:* In fact, in this case it is not so, because the warehouse can burn, the production can stop, they will become bankrupt, and we, as an international company, do not want these problems to affect our work, so we additionally insure ourselves: Buyer 5 has 2-3 back-up options.

*Nataliia Roskladka:* And you work with them at the same time?

*Operational Purchaser:* With suppliers of pallets, for example, yes, because for the production of pallets, they, as we were told, buy trees/wood once, in some period of time, and this is the wood they share between all suppliers. And they tell us, for example that they can bring us maximum 50 pallets per month. More – they are not able to produce, but we need, for example, 200. The same with the pouch. If they can provide us with 50 rolls only, and if we need more, we need another supplier.

*Nataliia Roskladka:* Do you have any relationship with suppliers outside the office? Team building, or other social activities...

*Operational Purchaser:* No, we do not hold any team building activities, it can happen that suppliers came to our office to congratulate them on holidays, and if they want negotiations, we may perform them, that was the maximum. According to the policy of our company, we were forbidden to communicate with them, as they can bribe, or in any other way influence the decisions of the tender. As a rule, suppliers, in order to win a tender, pull a blanket over themselves as they can someone can be asked for a meeting, being a good speaker, someone invites you to their office for coffee... Therefore, for equal conditions, the tender takes place either in a telephone mode or by mail. Further from the long-list we go to the short-list, and then when 3-4 suppliers are left, we invite them to the office, communicate with them, and we conduct internal analysis and evaluate which supplier will be more comfortable to communicate with.

*Nataliia Roskladka:* So, you choose only one? I thought you saved all three and ranked them among themselves.

*Operational Purchaser:* Yes, you are right, it depends on the situation. If you need 1, choose 1, if more, choose one constant, and the rest keep as back up.

*Nataliia Roskladka:* Ok, thanks. And you can ask to assess how much cooperation between Buyer 5 and suppliers of components, for example, pouch and paper was close from 1 to 10.

*Operational Purchaser:* If we take a pouch, I would give 8.

*Nataliia Roskladka:* Why?

*Operational Purchaser:* We are not all perfect, Buyer 5 is not an ideal company, the pouch supplier is also not an ideal company, each of them has its own advantages and disadvantages. We had one pouch supplier, we gave him 80% of the company's turnover. We were for him a gold mine. They had a separate key account manager that worked with us, and this is the company that was very flexible in working with us, it was ready to do anything for us, if only we did not leave them, otherwise they could go bankrupt with the remaining suppliers. Therefore, if we need to bring something urgently, they produced, changed the production plan, it happened that they carried us the tape not by car, but by taxi, because we agreed with them. There are other suppliers who did not respond to mail, were brought at the wrong time, or someone else raised the price. Because of these shortcomings - not 10, because the assessment is common.

*Nataliia Roskladka:* But can I find out by what criteria do you rate the suppliers? Did you mention the time does it bring, in exact quantities?

*Operational Purchaser:* We evaluate the supplier by signing the contract in some way "blindly", according to how they presented their company, how we liked their cost structure, either quality is good, and then the evaluation is based on facts. For example, how long I am waiting for an order, reaction time, how much he hears what we really need: such a pouch, in such quantity, on such day. Will he do for tomorrow? If not, when? How flexible is he? No matter how much stock or raw materials we had in a warehouse, specific circumstances still happen, when a customer throws an order twice, if the promotion on juice goes successfully, they throw an unscheduled order. We, in turn, if we have not been warned in advance, we could say: "You know, you did not warn us, so your promotion will not happen." We will not do that. We say that it is better to warn us, but we will try anyway. Then it goes down to the purchasing department and purchasing begin to ring up the suppliers and ask them to bring two times more materials. And the supplier has its own suppliers, he has his own production plan. Will he be able to push his other customers back and deliver pouch to us or something else? If there is a need two times more, will he order the cars or tell us that he does not care, since they have no extra machines and no funds, and the system is already set as it was.

*Nataliia Roskladka:* You do not tell them from the very beginning that you value flexibility, and this will be one of the evaluation criteria?

*Operational Purchaser:* No, we immediately tell them that there are different situations, if we want to shorten the lead time, we ask what their reaction could be. We try not to work with non-flexible suppliers, but if we do need to work with them, as a rule, this is a monopolist company.

*Nataliia Roskladka:* Does it have any impact is the supplier has been good, he will be selected the next time?

*Operational Purchaser:* No, it does not affect the next choice, because when the tender is held, the supplier should not think that he is the only one and we will not leave him anywhere, we are already used to it and he can do anything with us, for example, give a high price and we will agree. No, we are just scouting the market and seeing that some conditions are satisfactory, and we want to keep this supplier. But we also invite other suppliers to the tender, we do everything openly, transparently, so that everything is fair. After all, they still communicate with each other.

*Nataliia Roskladka:* Thank you, and if we take suppliers of other components, for example, with a supplier of cardboard.

*Operational Purchaser:* As a rule, with paper companies, by 6. If the pouch is a supplier who understands that not everyone needs a pouch, and paper is what is needed everywhere. He produces paper on notebooks, A4 sheets, books. And Buyer 5 is a drop in the ocean, he understands that for him he is not the most important actor and he has other priorities. They are not flexible. If they can, they will, they have not sat down, they will not try too hard. Therefore, we kept above our safety stock, because they usually did not react.

*Nataliia Roskladka:* Even you did not try to develop long-term relationships, because for them Buyer 5 was not a strategically important client?

*Operational Purchaser:* I was trying to maintain good relations with everyone, because sometimes I had to ask them separately so that someone would change the order. I call them and ask for unplanned orders. And they depend on them, whether they fulfil our extra orders. Because it is up to a person is also sitting on the other side of the phone, and if this person is overloaded, he will try to bring us this extra package, but if he has a lot of work, the service will not be performed.

*Nataliia Roskladka:* That is, even with a signed contract, relationships between people are very important, yes?

*Operational Purchaser:* Yes.

*Nataliia Roskladka:* And with supplier of paints?

*Operational Purchaser:* We were ordering from a global supplier. They found a person who worked on them, and not on a Buyer 5, and sent him either to the States or to France, they taught him how to mix colours and employ this person to us on a Buyer 5, but they paid him a salary. They realized that it was easier to find a person and train him, to maintain a relationship with him, than to take a new person every time, who might incorrectly mix the components, or not know English. It is also very important that the packaging was the same all the time, so a separate person was needed. Therefore, I worked with a paint supplier in writing, and they brought me an order in a month. It was such that safety stock was in France, and they brought us in a month, but the question remained to customs and brokers. Here everything has been set up. This person is all on the track tracked on their own.

*Nataliia Roskladka:* Thank you very much, everything is very interesting! You helped me a lot!

*Operational Purchaser:* I hope all that I have told you will help you, and if you still have any questions, let me know. Good luck in writing and have a good evening!