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STRATEGIC AGILITY:

A WINNING PHENOTYPE IN TURBULENT ENVIRONMENTS

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Abstract (English)

In the past twenty years, a lot of companies have experienced significant changes in their environments:

- Technologies have evolved faster and faster and product life cycles have shrunk.
- Competition intensified and has become more complicated.
- Consumer power has increased and consumption patterns have become less and less predictable.
- Economic conditions have become more and more volatile.

Strategic and organizational models had to change as well. This paper focuses on a recent concept, more and more popular in the business literature: the concept of AGILITY. In a review of the corresponding literature, we draw a portrait of the 'agile company' and underline its main characteristic traits. We suggest that this observable approach can have a great impact on decrypting and predicting the success of companies in dynamic environments. We therefore test this affirmation by analyzing the success stories of Nespresso and Netflix to the light of the agile portrait extracted from the literature. Besides, we confront the observable-based approach of the agility concept with the rest of the recent strategic management literature and develop an original framework to classify and clarify the different streams of thought that emerged in the past twenty years. Finally, this paper develops the foundations of a new concept aiming to inspire future researches.

Abstract (Italian)

Negli ultimi vent'anni, numerose imprese hanno vissuto un cambio drastico dell'ambiente in cui evolvono. Questi cambiamenti possono essere:

- Evoluzione sempre più rapida delle tecnologie;
- Riduzione del ciclo di vita dei prodotti;
- Intensificazione e complicazione della competizione;
- Aumento del potere dei consumatori e dell'imprevedilità del loro modo di consumare;
- Maggiore volatilità delle condizioni economiche.

Di conseguenza, i modelli strategici e organizzativi hanno dovuto subire un cambiamento. Questo lavoro di tesi si focalizza su un concetto abbastanza recente, sempre più popolare nella letteratura di business management, il concetto di AGILITÀ. Attraverso un ripasso della letteratura, disegniamo il ritratto dell'impresa agile rilevando i suoi tratti caratteristici. Suggeriamo che quest'approccio, paragonabile all'osservazione di un animale, possa avere un grande impatto nell'interpretare e prevedere il successo delle aziende che competono in ambienti dinamici. Verifichiamo quest'affermazione analizzando il successo di Nespresso e Netflix alla luce del ritratto agile estratto dalla letteratura.

Inoltre, confrontiamo quest'approccio basato sull'osservazione con il resto della letteratura recente in management strategico sviluppando un quadro originale per classificare e chiarire le diverse correnti di pensiero che sono emerse negli ultimi vent'anni.

Overview (Italian)

In un mondo dove i cambiamenti diventano sempre più rapidi, complicati ed imprevedibili, i modelli strategici tradizionali vanno incontro a molti limiti nello spiegare il sostenimento dei vantaggi competitivi su lunghi periodi. Come spiegare per esempio che l'impresa Blockbuster, leader del mercato di noleggio di film in cui aveva costruito forti barriere all'entrata, abbia fallito nei confronti di una piccola start-up come Netflix? Difatti, l'incapacità dei modelli tradizionali a cogliere la dinamicità di certi ambienti ha portato allo sviluppo di nuovi modelli.

Il primo tentativo di prendere in considerazione questa dinamicità dell'ambiente delle imprese è stato condotto da Barney (1991) con la cosiddetta "Resource Based View (RBV)". Alla differenza del modello di Porter che si focalizza sugli output delle imprese e il loro posizionamento sui mercati, la RBV considera le risorse interne dell'impresa come la principale fonte di vantaggio competitivo nel lungo periodo. Imprese che possiedono risorse specifiche, poco imitabili e poco sostituibili saranno secondo questa teoria in grado di creare e sostenere un vantaggio competitivo sui loro concorrenti. In caso di cambiamenti, le imprese possono acquisire nuove risorse o riconfigurare le esistenti al fine di conservare il vantaggio competitivo nella nuova situazione. Il caso di Canon, che è riuscito ad adattarsi al passaggio dalla fotografia analogica a quella numerica grazie all'ottima ricombinazione delle sue risorse, offre una rilevante illustrazione di quest'approccio.

Basandosi su questa teoria, un filone più recente della letteratura si è posto il quesito della determinazione delle capacità necessarie all'impresa per riconfigurare le sue risorse in caso di cambiamenti. Quest'approccio, riconosciuto sotto il nome di 'Dynamic Capabilities', ha ricevuto un'ampia ricognizione da parte degli studiosi che si sono focalizzati sulla determinazione dei fondamenti organizzativi e manageriali di queste "capabilities". Inoltre, altri concetti sono emersi per provare a cogliere le nuove sfide di una situazione sempre più dinamica. Tra questi concetti, il più sviluppato è quello di Agilità e lo riprendiamo in questo lavoro.

PRIMO CAPITOLO

Nel primo capitolo conduciamo una revisione della letteratura di business management per quanto riguarda il concetto di Agilità per capire meglio i tratti specifici dell'impresa "agile".

Dall'analisi semantica della parola "agile" capiamo che tale impresa può essere vista come quella che riesce a muoversi *velocemente* e con *facilità* nel suo ambiente. Vediamo poi le ragioni che hanno spinto ricercatori e professionisti a interessarsi a questo concetto e ad applicarlo in un contesto manageriale e strategico d'impresa. Da un punto di vista storico, i primi studiosi ad avere concettualizzato il concetto di agilità per le imprese, l'hanno fatto nel campo manifatturiero negli anni 90 per preparare meglio le imprese Statunitensi a fronteggiare l'avvenimento di un'epoca caratterizzata da cambiamenti sempre più veloci e radicali.

Analizziamo poi più in dettaglio le caratteristiche di questo nuovo contesto all'origine del concetto di agilità. Le principali ragioni per le quali il concetto di agilità ha ricevuto sempre più attenzione, sono le seguenti:

- Evoluzione sempre più rapida delle tecnologie;
- Riduzione del ciclo di vita dei prodotti;
- Intensificazione e complicazione della competizione;
- Aumento del potere dei consumatori e dell'imprevedilità del loro modo di consumare;
- Maggiore volatilità delle condizioni economiche.

In seguito a queste considerazioni, scomponiamo i diversi sensi del concetto di agilità in quattro elementi:

- Reattività (reazione veloce al cambiamento)
- Anticipazione (prepararsi al cambiamento per ridurre i costi legati al cambiamento)
- Intuizione (capire l'evoluzione delle tendenze)
- Creatività (spingere il cambiamento piuttosto che subirlo)

Differenziamo anche il concetto di adattabilità (quando il cambiamento è prevedibile) da quello di agilità (quando il cambiamento è incerto o poco prevedibile).

Nella seconda parte del primo capitolo, vediamo come i differenti campi della letteratura in business management hanno affrontato il concetto di agilità. Per ogni campo estraiamo uno o più tratti caratteristici dell'impresa agile.

Nel manifatturiero, dove è nato il concetto, identifichiamo due tratti principali dell'impresa agile:

- **Un'impresa agile possiede un sistema manifatturiero che risponde velocemente e a bassi costi ai cambiamenti del suo ambiente.**
- **L'output di un impresa agile non è solo un prodotto o un servizio ma un'esperienza (combinazione di prodotti e servizi)**

Per quanto riguarda il sistema di organizzazione di un'impresa agile, traiamo questi tratti:

Struttura

- **Un'impresa agile è la piattaforma di un ecosistema di collaboratori.**
- **Un'impresa agile si compone di differenti forme organizzative ma favorisce quelle che sono più decentralizzate, collegate e multidisciplinari di altre.**

Cultura

- **L'impresa agile combatte l'inerzia burocratica con una cultura di creatività, lavori di gruppo e autonomia.**

Nel campo dello sviluppo del prodotto, vediamo che il concetto di agilità è stato usato soprattutto nelle imprese che sviluppano software per descrivere metodi in grado di controllare il costo dei numerosi cambiamenti tradizionalmente richiesti dal cliente. Affrontiamo qua il concetto di piattaforma tecnica che serve a sviluppare abbastanza velocemente numerose versioni personalizzate e differenziate di uno stesso prodotto.

Per quanto riguarda l'innovazione e il Knowledge Management vediamo come le piccole imprese tipo start-up hanno la reputazione di essere generalmente più agili delle altre che tendono con la crescita a rovinare il processo di creatività. Identifichiamo dalla letteratura alcune soluzioni per sostenere il processo di innovazione nelle grandi imprese. Presentiamo anche il concetto d'innovazione agile che consiste nel bilanciare opportunamente differenti metodi per acquisire diversi tipi di conoscenze.

Infine ci interessiamo al recente concetto di "Strategic Agility" che descrive il comportamento standard dell'impresa agile sottoposta a cambiamenti nel suo ambiente. A seconda dell'intensità del cambiamento subito, differenziamo, da un punto di vista strategico, tra due tratti caratteristici dell'impresa agile:

- **Soft: Un'impresa agile è in grado, durante un periodo difficile, di adattare o raffrescare velocemente e facilmente il suo modello di business**
- **Hard: Un'impresa agile è in grado, a fronte di un cambiamento di rottura, di cannibalizzare senza scosse un vecchio modello di business ormai obsoleto per muoversi con successo verso uno nuovo che è coerente con le aspettative del mercato**

Terminiamo il primo capitolo ponendo l'accento sul fatto che l'approccio osservativo intrapreso da molti studi per quanto riguarda il concetto di agilità si contrapponga con l'approccio 'dynamic capabilities' maggiormente diffuso nella letteratura e che vede l'impresa attraverso le sue capacità interne. Per chiarire le relazioni tra i differenti filoni della letteratura identificati introduciamo un quadro di classificazione nel secondo capitolo.

SECONDO CAPITOLO

La prima parte del secondo capitolo presenta il quadro utilizzato per classificare e chiarire le relazioni tra l'approccio osservativo del concetto di agilità e l'approccio intrapreso dalla letteratura sui 'dynamic capabilities'. Introduciamo una metafora presa in prestito dal regno animale per collegare questi due approcci. Paragoniamo il concetto di agilità a un fenotipo, cioè alla manifestazione osservabile del suo comportamento in un certo ambiente. Questo fenotipo è visto come l'espressione osservabile del materiale genetico (il genotipo) sottostante dell'impresa. Sosteniamo che il filone di letteratura guidato dall'approccio delle "dynamic capabilities" è una particolare descrizione di questo genotipo. Sosteniamo inoltre che gli studi sui micro fondamenti tipo procedure decisionali, routine e processi organizzativi che sono alla base delle ‘dynamic capabilities’ possano essere visti come il DNA dell’impresa.

Nella seconda parte del capitolo, illustriamo ogni livello del quadro costituito (fenotipo, genotipo, DNA) con la presentazione di concetti propri di ogni livello. Accanto al fenotipo agilità presentato nel primo capitolo, identifichiamo il concetto di “ambidestrismo” come altro tipo di fenotipo. Tuttavia, la revisione della letteratura per quanto riguarda il concetto nella letteratura e l’analisi delle sue relazioni con il concetto di agilità ci permettono di vedere il concetto di ambidestrismo non come fenotipo isolato ma come struttura organizzativa ideale per incrementare l’agilità strategica di un’impresa.

Inoltre, analizziamo come è stato interpretato nella letteratura il genotipo ideale per competere in ambienti dinamici. La letteratura sembra convergere sul fatto che questo genotipo ideale possa essere studiato attraverso tre capacità fondamentali:

- Indentificare il cambiamento (Sensing);
- Cogliere le opportunità e unificarsi sull’obiettivo di cambiamento (Seizing);
- Riconfigurare le risorse interne (Reconfiguring).

Presentiamo i due principali studi che appartengono a questa classificazione: Teece et al. (2007) e Doz e Kosonen (2008). Vediamo poi come questi autori hanno legato queste capacità al livello DNA. Alla fondazione dei tre tipi di ‘dynamic capabilities’ sono identificati le seguenti procedure, routine, sistemi e best practice:

- *DNA legato al sensing*

Meccanismi di ‘knowledge sourcing’ diversificati (R&S interne, università, rete di ‘open innovation’, clienti e fornitori) , procedure per interpretare e formalizzare conoscenze tacite o informazioni grezze, assunzione di outsider o ricorso a società di consulenza…

- *DNA legato al seizing*

Decisioni collettive a livello corporate, incentivi al lavoro di gruppo, incentivi alla propensione al rischio, alleanze per ottenere risorse complementari, sistemi di analisi dei livelli di appropriability e dello stato di maturazione dei mercati…

- *DNA legato al reconfiguring*

Sistemi di governance flessibili, sviluppo di attività co-specializzate, sistemi di decentralizzazione delle decisioni e dell'informazione, meccanismi di apprendimento e di gestione del sapere…

TERZO CAPITOLO

Nel terzo capitolo, testiamo l'ipotesi secondo la quale i tratti dell'impresa agile definiti nel primo capitolo e più particolarmente quelli che riguardano il concetto di strategic agility, possano essere utili nel spiegare il successo delle imprese che sono state sottoposte a importanti e complessi cambiamenti nel loro ambiante. Dopo aver descritto la metodologia impiegata per condurre l'analisi, presentiamo due casi: *Netflix* e *Nespresso*. Nei due casi un'attenzione particolare è data alla strategia agile messa in piedi dalle due imprese per fronteggiare le difficoltà e i cambiamenti del loro ambiente.

- *Netflix*

Netflix è riuscita a effettuare con successo una transizione da un modello di business basato sulla consegna postale di DVD verso un modello di business completamente digitale nella VOD (Video-on-demand).

- *Nespresso*

Nespresso, società controllata da Nestlé, stava per fallire nel mercato professionale della distribuzione di caffè. L'impresa è riuscita a riproporsi nel mercato domestico con una strategia agile, leggera.

QUARTO CAPITOLO

Infine, nel quarto capitolo, identifichiamo nella storia di Netflix e Nespresso la presenza di tratti specifici nel loro modello di business che non sono ancora stati concettualizzati dalla letteratura. Attraverso questo capitolo raccogliamo dunque questi elementi e li concettualizziamo secondo un approccio di tipo fenotipico. Riferiamo ai tratti identificati come barbari per poi definire il concetto d'impresa barbara. I tratti barbarici identificati nei due casi sono i seguenti:

- **Le imprese barbare si attaccano ai pilastri dei mercati tradizionali.**

Netflix ha cambiato significativamente il modo tradizionale di consumo dei film noleggiati negli USA mentre Nespresso è riuscita ad appropriarsi dei valori culturali tradizionali del caffè espresso italiano per farne un successo commerciale.

- **Le imprese barbare offrono output semplici, convenienti e standardizzati che coprono la complessità tecnica o culturale delle loro soluzioni.**

Netflix offre l'accesso a migliaia di film attraverso la sua piattaforma internet in modo molto semplice e conveniente. Un meccanismo di raccomandazione tecnologicamente avanzato automatico propone all'utente una serie di film che quest'ultimo può leggere in streaming direttamente sul suo navigatore di rete. Il sistema Nespresso, pur essendo tecnicamente complesso, è stato disegnato per essere il più semplice e conveniente possibile all'uso: con un solo clic, il consumatore ottiene in pochi secondi un espresso di qualità.

La seconda parte di questo capitolo prova a legare il concetto di barbarismo e di agilità. Ne risulta che il concetto di barbarismo appare come un'osservazione sull'istante dell'agilità strategica di un'impresa.

Terminiamo questa tesi invitando future ricerche a spingere gli approcci di tipo fenotipico nel campo dello strategic management attraverso lo studio di altri casi o la concettualizzazione di una metodologia di osservazione facilmente utilizzabile dai professionisti.

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Introduction

"*It is not the strongest of the species that survive, nor the most intelligent, but the one that is most responsive to change." Charles Darwin*

Over the past decades, the impact of "change" in business environments has received growing attention as companies evolving in high competitive and high velocity markets (D'Aveni, 1994; Bourgeois & Eisenhardt, 1988) experienced an unprecedented evolution of its speed, nature and intensity.

Change – driven by chaotic consumption patterns in globalized markets - is getting more and more systemic and unpredictable. At the same time, the emergence of the digital age characterized by the rapid evolution and convergence of technologies has drastically increased the pace of discontinuities. Sharfman and Dean (1991) argue that the factors contributing most to the instability turbulence continuum are market diversity, technical and scientific issues, and extent of competition. In the same line, for Tushman and O'Reilly (1996) these discontinuities can arise from technology, competitors, regulatory events, or significant changes in economic and political conditions.

Many successful firms in the past failed to adapt to this new context. Some argued that this was part of an evolutionary process and that, in front of significant change, inertial incumbent organizations are inevitably replaced by new forms that better fit the changed context (Barnett & Carroll, 1995). Recently, other scholars have even questioned the validity of the concept of sustained competitive advantage and contended that the notion of temporary advantage was more adapted to the reality of today's business environment (D'Aveni, 2010). Yet, in spite of empirical proof supporting these arguments, the survival and prosperity of firms for long time periods has questioned the conditions of short-term and long-term adaptation under fast, complex and unpredictable change.

As Teece noted, "The fundamental question of the field of strategic management is how firms achieve and *sustain* competitive advantage (Teece, et al., 1997,p.1)". If traditional strategic theories such as the five forces (Porter, 1980) or the strategic conflict theory (Shapiro, 1989) have proved efficient to explain how firms could achieve competitive advantage, they appeared however quite inadequate to explain how firms could sustain it under disruptive, fast or complex change. The growing dynamicity of the business environment has therefore led to significant revisions in business priorities, strategic visions, and in the viability of conventional and contemporary models (Shafari and Zhang 1999).

In the literature, the resource-based view theory popularized by Barney (1991) has ignited the reflection on how firms could adapt to punctual radical change in order to maintain their competitive advantage over time. This theory argues that competitive advantage stems from scarce difficult-to-imitate specific resources owned or controlled by firms (Wernerfelt, 1984). In case of discontinuities, firms can then leverage and reconfigure these VRIN (Valuable, Rare, Inimitable and Non-substitutable Resources) to fit the new-formed context. It is a significant departure from the market-based theory (five forces of Porter) as it no longer focuses on strategic market positioning to achieve competitive advantage but emphasizes instead the critical role played by specific resources and path dependency. Yet, scholars largely recognized that resource advantage was not sufficient and that firms need to possess distinctive capabilities to make better use of their resources (Penrose 1959). For instance, a firm may have technologies capable of creating firm's superiority, but lack the capability to undertake the efforts necessary to achieve this potential. (Ray et al., 2004).

The Dynamic Capabilities framework (Eisenhardt and Martin 2000; Teece et al. 1997) building on the resource-based theory (Barney, 1991) filled the gap and stresses that companies must possess the right "dynamic capabilities" to successfully reconfigure their resources when change occurs. In the past decade, this "capability" view has largely dominated the literature. However, in parallel, another stream of literature emerged to address the same issues. Whether than trying to determine the "right capabilities" needed to compete in dynamic environments, this stream of research aims instead to identify and conceptualize the main observable traits displayed by "winners" in hypercompetitive and fast changing markets. The most influential concept that emerged in this approach concerns the notion of agility.

This paper aims at demonstrating that this concept of agility can be very useful to spot from the outside which firms will be the most fitted to sustain growth and profitability in dynamic environments. The research questions addressed in the different chapters of the paper can be formulated as following:

- What are the characteristic observable features of agile companies?
- How does the concept of strategic agility connect with the most recent concepts in strategic management?
- Are there some empirical proofs of these agile manifestations in successful companies?
- Are there other observable features characteristics of winning companies in turbulent environments?

The first chapter attempts to answer the first question by reviewing the state and evolution of the concept of agility in different areas of the business literature: manufacturing, organization, knowledge management and strategy. A particular attention is given to the recently developed concept of strategic agility.

The second chapter integrates then the concept of agility in a larger framework of study. The framework developed intends to clarify the debates that emerged recently in the field of strategic management.

The third chapter aims at understanding to what extent the concept of strategic agility can be practically applied to explain the adaptation and success of firms confronted to harsh competition and fast evolving markets. The story analysis of two successful companies (Netflix and Nespresso) that managed to reinvent themselves in dynamic markets is conducted to illustrate the practical impact of the agile phenotype concept.

Finally, the fourth chapter extracts from the case studies of Netflix and Nespresso some common denominator elements, different from the observable features of agility, that serve to extend the canonic portrait of 'the successful company in turbulent environments' toward a new observable concept: barbarism.

Chapter 1

The concept of Agility

This chapter defines first the notion of agility and analyses its signification and origin in the business environment. The concept is then reviewed in different fields of the literature in order to extract the canonical observable traits of companies labeled as agile.

1.1 Lexical definition

The Oxford dictionary defines the word agile as: “the capacity to move quickly and easily”. This really concise definition highlights two important notions about agility: that of *fast* responsiveness and *smooth* (easy) adaption. Following this simple definition “being agile” applied to a business specific context can be thought as the ability to react rapidly to the incipient signals of change and adapt cost-efficiently to the new-formed context.

1.2 The concept of agility in the literature

1.2.1 Emergence of the concept

The notion of agility was first coined in 1991 by a group of scholars from the Iaccoca Institute of Lehigh University. They popularized the adoption of agile manufacturing strategies as a way to ensure the competitiveness of American firms in the emerging digital and global economy. The concept applies henceforth to a wide range of areas in the business literature. From the manufacturing literature, the concept has chronically spread through the organizational, innovation management and strategic management literature to become a very popular tool to address the issue of sustainable growth in fast changing and hypercompetitive markets.

1.2.2 Context of application

The emergence of the concept of agility in the business environment is a direct response to the growing difficulty for a lot of companies to follow the increasing pace and complexity of change. Even though companies have always been confronted to significant discontinuities along with the evolution of the technologies, political norms and customers' behaviors, the past decades have shown a drastic complication and acceleration of these changes.

1.2.2.1 Drivers of change

For a company the principal drivers of change can be listed as following:

- Technology
- Consumption patterns
- Competition
- Economic and politic conditions
- Public regulation

Among these drivers, the first three are the most affected (at diverse degrees) by the acceleration and complication phenomenon.

1.2.2.1.1 Technology

According to Ray Kurzweil, an American author, inventor and futurist,

> "An analysis of the history of technology shows that technological change is exponential... There's even exponential growth in the rate of exponential growth...The twenty-first century will see almost a thousand times greater technological change than its predecessor..."

If this view that predicts the supremacy of computer intelligence over human intelligence by 2050 can seem extreme in a first approach, the fast evolution of the technology in electronics and computer science demonstrates however that the pace of change is accelerating. The Moore's law extended by Ray Kurzweil to the first mechanical machines that processed information clearly illustrates that fact. A graphic of this extended Moore's law is presented below.

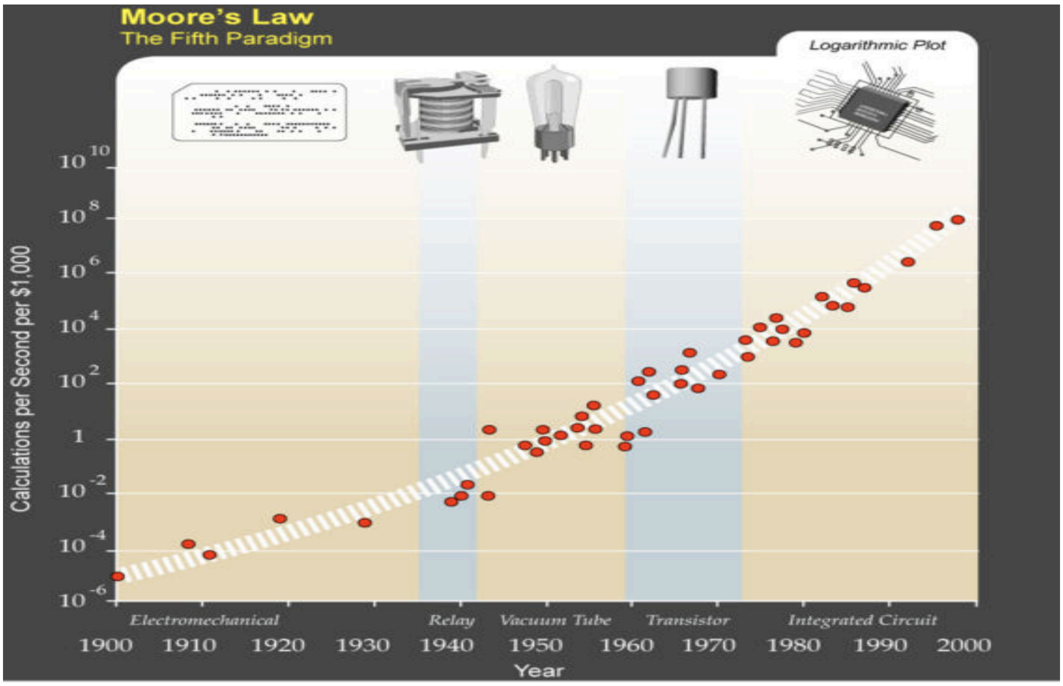

Figure 1 Extended Moore's law. Source: http://edagraffiti.com/?p=248

In the electronic field, this acceleration is striking. But more generally, the history of patents issued shows a global acceleration of invention production. For instance, in 2010, The United State Patent and Trademark Office (USPTO) issued an all-time record of 219,614 utility patents, up to 31 percent from 2009, which is also the best increase to date.

Obviously, this dynamicity is particularly salient in the information and communication technology (ICT) industry where the evolution of technology is the pacemaker of the market. But as almost every company now intensively relies on ICT to improve its systems and processes, the dynamicity driven by technology is spreading everywhere. And along with it comes complexity. In fact, in front of the growing diversity and technical complexity of technologies, the cost of integration becomes higher and companies must deal with always more systemic issues that require different approaches compared with the isolated and specific problems they were use to deal with.

1.2.2.1.2 Consumption patterns

In the early mass consumption era that followed the Second World War, the consumptions patterns of consumers could be predicted quite easily. In fact, people aspirations and desires were based on explicit needs that could be anticipated by polls or influenced by advertising. But as standards of living grew rapidly for a majority of people in developed countries, the consumers' expectations became more and more tacit and disparate. Companies had to respond to this enlargement and complication in the consumption patterns by focusing more on the variety and quality of their products. In the manufacturing literature, Pine II (1992) labeled this change context as 'the mass customization era' in opposition with the previous 'mass consumption' era. In the 90's, the globalization of the markets, enabled by communication technologies and low cost transports, amplified this phenomenon. Companies operating in different countries across the world had to deal with a multitude of cultures and adapt their offers accordingly. On the other hand, as consumer's expectations became more and more tacit and therefore more and more difficult to anticipate or influence, companies had to shift from offering simply products or services to deliver global solutions.

1.2.2.1.3 Competition

The maturation of markets generally concentrates the competitors and intensifies the levels of competition. But the nature of this competition also deeply evolved over the past years. First of all, the globalization and deregulation of numerous markets made a lot of boarders collapse between companies operating in the same sectors and that were previously separated or protected by their home countries. On the other hand, successful companies that diversified and extended their offers in markets far away from their original core business found themselves competing with more and more firms and at a multitude of levels (product, market, corporate). This complication in the nature of the competition was also exacerbated by the different alliances created to reinforce the companies' positions as well as the convergence of technologies that melted markets previously independent.

As a result, agile companies are most of the time encountered in markets where the pace of technology evolution is high, the consumers' behaviors are not predictable, the competition is stiff and economic constraints are tight. We will call this environment a turbulent or dynamic environment.

1.2.2.2 The global digital age

In “The agile enterprise”, Nirmal et al (2005) synthetize this globally changed context in which the notion of agility becomes meaningful. They see the agile enterprise as the fittest organization to compete in what they call the new ‘global and digital age’. In Table 1 is presented the main characteristics of this new era.

Pre Global, digital age	**Global Digital age**
Linearity	Multi-dimensional
Vertical integration	On demand integration
Production	Co-creation
Homogeneity	Diversity
Mass production	Mass personalization
Focus on costs	Focus on growth
Competition	Co-opetition
Bricks-and-Mortars	Clicks-and-Mortar
In-house	Outsource
Global by choice	Global by default

Table 1 The characteristic of the global digital age. Source: Nirmal et al. 2005

1.3 Deconstruction of the concept

Nirmal et al (2005) distinguished two different ways of being agile and consequently defined agility as a tactful balance between these two behaviors. The first one emphasizes the firm's ability to fit and adapt to its environment quickly and cost efficiently under external forces. This is the preemptive/reactive side of agility. A further distinction can be made whether the company anticipates the change or reacts to it. Under chaotic and unpredictable change, companies can implement flexible structures and processes to curtail damage when change occurs. On the other hand, they must have the capacity to react quickly and efficiently on the edge of change when the latter cannot be anticipated. In contrast, when change is clearly foresighted and identified, companies may have the time to smartly prepare and adapt their organization to the forthcoming change. That is what differentiates the notion of adaptability from the notion of agility. While agility deals with fast changing and less predictable change, adaptability is more suited to address clearly foresighted change.

The other approach relies on a more pro-active view: through radical innovations and creative actions a company can shape its environment, anticipate and lead change instead of merely undergoing it. In this second approach, agility is viewed as a response to internal forces including vision and values of the companies. This view emphasizes the cognitive skills of the top management to anticipate new trends and get clear insights about the future of their business but also includes the creativity necessary to make radical and breakthrough innovations emerge at all levels in the company.

While these two approaches seem quite different, they are actually complementary and need to be conducted together in order to achieve agility. As (Nirmal and al., 2005) noted,

> "An agile enterprise is shaped by the perpetual cycle of reactive and pro-active behaviors in the marketplace, not only absorbing industry forces, but also generating and emitting disruptive forces in the industry ecosystem" (Nirmal et al (2005))

The need for conducting either reactive adaptation to external forces as well as proactive anticipation and breakthrough innovations is also identified by Zhengwen Zhang and Hossein Sharifi (2003):

> “Agility is a manufacturing strategy that aims to provide manufacturing enterprises with competitive capabilities to prosper from dynamic and continuous changes in the business environment, reactively or proactively.”

Nirmal et al (2005) summarize their approach through the identification of four elements as major characteristic traits of an agile company:

> “An agile enterprise is about gaining *visions/values, breakthrough culture, adaptive/innovative teams, and adaptive infrastructure,* as well as constantly orchestrating these four core components to achieve cohesiveness and innovativeness.”

The expressions vision/values, breakthrough culture and innovative teams refer here to the proactive side of agility that represents the ability of anticipating change and shape it through radical innovation in terms of new products, new processes or new business models. On the other hand, the expressions adaptive teams and adaptive infrastructure are part of the reactive/adaptive approach that enables the company to face change quickly and cost-efficiently. The following graphic summarizes the deconstruction of the concept of agility conducted in this section.

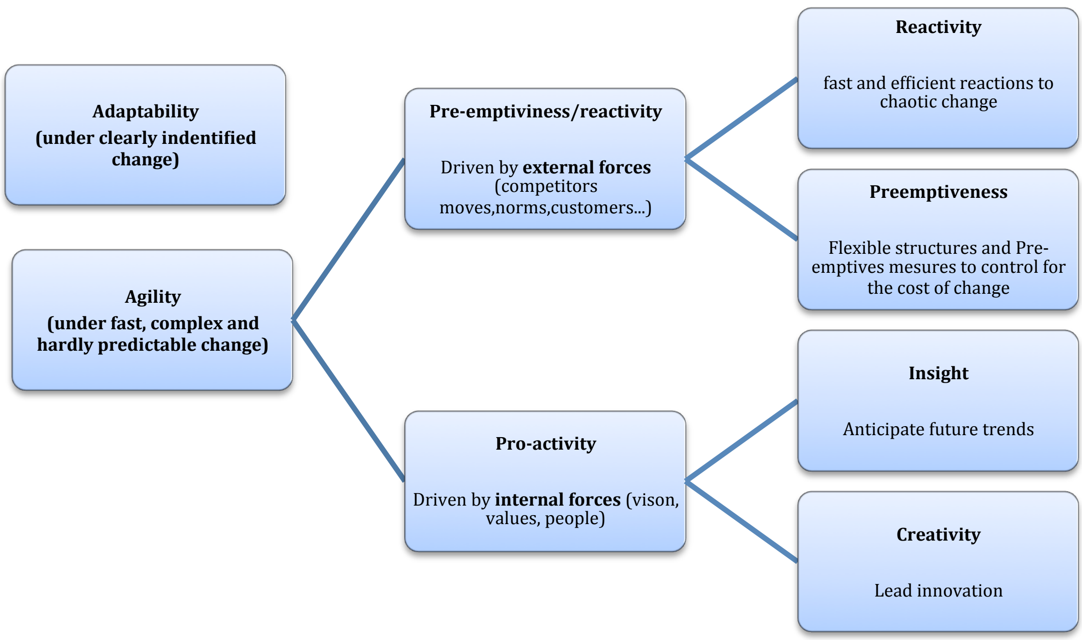

Figure 2 Different sides of Agility in business

1.4 Review of the concept in different fields of the business literature

As mentioned before, the concept of agility has been studied and used at different levels in the company. This section chronologically collects and reviews the different interpretations of the concept in the manufacturing, organizational management, innovation and knowledge management and strategic management literature.

1.4.1 Agile manufacturing

In the manufacturing literature, the concept aimed at offering an attractive answer to the dilemma of numerous firms: How to stay sharply focus on the customer when the fields of the game are widening faster and faster?

The scholars from the Iaccoca Institute offered the following definition of an agile manufacturing system:

> "…A manufacturing system with extraordinary capabilities (Internal capabilities: hard and soft technologies, human resources, educated management, information) to meet the rapidly changing needs of the marketplace (speed, flexibility, customers, competitors, suppliers, infrastructure, responsiveness). A system that shifts quickly (speed, and responsiveness) among product models or between product lines (flexibility), ideally in real-time response to customer demand (customer needs and wants)"

As it gained growing recognition among scholars this concept has been intensively redefined along diverse criteria. Y.Y. Yusuf et al. (1999) reviewed the literature on agile manufacturing and identified two main streams of definition in terms of scope and operationalization.

The scope-based definitions tend to align the concept of agile manufacturing with the existent manufacturing theories. Goldman and Nagel contended that agile manufacturing "assimilates the full range of flexible production technologies, along with the lessons learned from total quality management, just-in-time production and lean production." The idea of agility is seen here as perfectly compatible with traditional manufacturing methods (lean manufacturing, CIM, TQM, MRPII, BPR, Employee Empowerment, and OPT).

However, whereas these methods can be classified as tactical tools that help companies improve their efficiency to surpass their competitors in the short run, the agile manufacturing theory appears more like a strategic response as it aims to continuously adapt the firm to its environment (technology breakthroughs, consumptions shifts, norms…).

Operationalization-focused definitions embrace manufacturing agility as a way to meet quickly and efficiently changing customer requirements by compressing the time and reducing the cost of activities. Kumar and Motwani offer the following definition: "…ability to accelerate the activities on critical path and…time-based competitiveness" Agility is viewed here as a critical capacity to compete under time compression constraints. By decomposing a cycle time along three components (sense-decide-respond), Nirmal et al (2005) argued that agility can be measured in terms of improving this cycle in each areas of the business: supply chain flexibility, inventory turns, customer management and demand chain process.

From these definitions we can draw a first observable trait of agile companies:

An agile company has a manufacturing system that responds quickly and cost efficiently to the shifts in the market

Other scholars embrace agility mostly in terms of outputs. Agile enterprises are seen as the one able to identify value from their customer's position and respond by providing that value in the form that best meets the customer's needs and tacit expectations (Nirmal et al 2005). Goldman et al (1995) distinguished this approach from the traditional customer-oriented one:

> "Agile competition demands that the process that supports the creation production and distribution of goods and services be centered on the customer perceived value of products. This is really different from building a customer centered company".

The traditional customer-oriented tools (lead user, B testing, focus group, customer surveys) help the company to meet its customer's need but Nirmal Pal et al argue that they only affect incremental short-term innovation and lack to understand the core problems faced by customers. The output of an agile company is therefore not only simply products or services, but also integrated solutions capable of evolving proactively alongside with the customer's expectations. Goldman et al. (1995) argue that these solutions usually take the form of customized products coupled with complementary formalized services.

From these statements we can extract a second observable trait of agile companies:

The output of an agile company is not just a product or a service but an integrated experience (combination of product and services)

Yusuf et al (1999) integrate the streams of definitions as regard the agile manufacturing in a more comprehensive one:

> "Agility is the successful exploration of competitive bases (speed, flexibility, innovation proactivity, quality and profitability) through the integration of reconfigurable resources and best practices in a knowledge-rich environment to provide customer-driven products and services in a fast changing market environment."

Best practices and methods to create a knowledge rich environment can be interpreted as routines that help companies building dynamic capabilities (flexibility, innovation proactivity, speed) through which they are able to reconfigure their resources and deliver a customer driven output adapted to a fast changing environment.

The concept of agility is now widely accepted in the manufacturing literature as a way to address the emerging paradigm of mass personalization in a context of globalization and digitalization of the economy. Its use as a way to harness the new nature of change has then largely spread in other areas of the literature such as, organization management, product development innovation management and strategic management.

1.4.2 Agile organizations

In the literature, the notion of agile organization in terms of structure and culture was not addressed with real consistence and coherence. If some studies addressed the question indirectly as regards the structure, the large majority of the culture issue referred to the specificities of the software industry.

1.4.2.1 Organizational Structure

Two levels can be distinguished to address the structure of an agile organization: the inter-enterprise level and the intra-enterprise level. Goldman et al, 1995 took for instance an inter-company view to explain how groups of companies could build very agile ecosystems in the form of flexible networks of alliances. The notion of virtual organization is characteristic of this approach. On the other hand, other studies tried to conceptualize new ways of organizing the firm internally in order to enhance its capacity of reaction and adaptation. In this approach, the notion of cell or neuronal organization has been opposed to the traditional ‘pyramidal organization’. In the same line, to face the challenges of the new era in which companies evolve nowadays, Frank Ostroff (1998) in ‘The Horizontal Organization’ opposed the notion of horizontal organization to what he called the traditional ‘vertical organizations’. In ‘L’entreprise agile’, Jérôme Barrand (2010) integrates these new organizational approaches with the notion of agility.

1.4.2.1.1 Inter-enterprise level

The inter-enterprise view aims to determine the best ways for a firm to interact with other companies. In this regard, the creation of virtual structures has been identified as a powerful way to enhance the agility of companies. Building on this notion, the positioning of a company as a central platform for a rich ecosystem is recognized in this paper as a canonic trait of agile organizations.

1.4.2.1.1.1 Virtual organization

Business week (Feb 8, 1993) defined a virtual company as a new organizational model that uses technology to dynamically link people, assets and ideas. The concept of virtual organization is now recognized as a powerful strategic concept offering companies the dynamic organizational tools to compete in fast changing and uncertain environment. It has been thought to reflect the complexity of today's profitable products and the need for companies to create and assemble them quickly and frequently.

A virtual organization relies essentially on the combination of typical organizational forms of cooperation. Even though the idea of collaborative partnerships is not new, the virtual organization uses it at unprecedented level of intensity and diversity to meet with the nimbleness of really specific targets. The traditional organizational mechanisms involved are: Partnership, joint venture, strategic alliance, new corporation, supplier-subcontractor, cooperative agreement, royalty or license, outsourcing contract, web.

Business week identified several key characteristics of the virtual company:

- *Opportunism*

  A virtual organization is strongly opportunity-based and therefore quite ephemeral in essence. It is formed when an opportunity has been clearly identified and then is disbanded when the goal is achieved.

- *Excellence*

  A Virtual organization is built to integrate a world class and excellent collection of skills in its core competencies. For Goldman, Nagel and Preiss: "It would be like assembling an all-star sports team every day tailored to the challenge posed by that day's competitors."

- *Technology*

  The technology is obviously an important key enabler as information superhighways allow the different parts of the virtual organization to operate also in absence of physical proximity.

- *No borders*

  Goldman, Nagel and Preiss (1995) explain that "virtual organization allows for physically distributed and complementary competencies even though broadly dispersed around the world to be synthetized into a coherent output whose synthetized character is invisible or borderless with respect to the customer."

- *Trust*

  Trust is what makes the integration of diverse resources and people a success. It is therefore crucial that teams work in a trusting and trustworthy manner inside a virtual company.

1.4.2.1.1.2 Platform of an ecosystem

The idea of virtual organizations highlights the fact that temporary partnerships can be very useful for companies to react rapidly and cost efficiently to complex opportunities of business. Most of the time, virtual organizations are set up between a few companies for only the time necessary to achieve the goal targeted. But more solid networks of partnerships can be set for longer-term purposes. In that case, the inter-enterprise structure that favors the most agility is the one where the company positions itself at the core of a rich ecosystem. The term ecosystem implies here that relationships between companies are highly flexible and reconfigurable.

Traditionally, firms tend to structure themselves at the inter-enterprise level with vertical supplier-subcontractors partnerships or horizontal agreements such as conglomerates. These models often involve strong and long term commitments through complex contracting and aim essentially at reinforcing the firm position in a market or penetrating others. The platform-ecosystem structures however enable the firm to keep the focus and control on the critical elements of its business less likely to be affected by change and obtain from its network of partnerships a constant update on the solutions more likely to evolve rapidly. It is a way for a company to externalize the risk associated with external change and find new growth opportunities at low cost.

In this section we noted that agile companies tend to build a lot of virtual partnerships under the form of connected inter-enterprise level structures. The platform model has been identified as a network structure particularly adapted to help the firms deal with change in their environments. From these observations we can draw the following observable trait of agile companies:

An agile company is at the platform of an ecosystem of partnerships

1.4.2.1.2 Intra-enterprise level

Firms rely traditionally on pyramidal models to structure internally their organizations. When during the industrial revolution some companies began to evolve from small artisanal structures to larger conglomerates, this army-like model was the best fitted to manage the increasing complexity driven by growth. At that time, Max Weber's theory of bureaucracy conceptualized this approach and argued that a pyramidal model, structured by strong hierarchy, rules and procedures was the best organizational form to control for individuals mistakes and maximize the firm's performance. This approach worked very efficiently in periods of prosperity and stability. But with the emergence of the first signs of turbulences (price instability of raw materials, decrease of demand…), this rigid and very hierarchized model of organization began to be reconsidered by scholars and consulting companies. The first attempts to rethink this model were based on the reduction of the numbers of hierarchical levels. The Swedish company IKEA for instance was one of the first companies to experience a relief of its hierarchy structure. In 1960, emerged the notion of matrix organization as an alternative to the classic functional separation of the pyramidal model. In this approach, the different projects of the company are crossed with the different functions (engineering, marketing, accounting…) to create more dedicated and autonomous working cells. This was the first step toward a decentralization of the information and a rapprochement to the client expectations.

If these attempts to lighten the weight of bureaucracy proved right, they were still however founded on the same pyramidal background model. But more recently, significant departures from this model emerged with the concepts of biological organization (Gareth Morgan, 1999) and horizontal organization (Frank Ostroff, 1998).

1.3.2.1.2.1 *Biological organization versus Mechanistic organization*

The stream of thought ignited by Gareth Morgan (1999) made a significant turn. He embraced the analogy of a firm as an organic system to study new forms of organization less mechanistic and labeled them as biological, cell or neuronal. This approach embraces a systemic view where the organization is studied no more through the analysis of its components but through its internal and external relations with different subsystems that can be human, economic, technical or political. In the systemic theory, the organization is modeled by the interaction of its internal and external subsystems and the emphasis is put on the importance of synergy and interdependence between its different parts.

In the pyramidal model, the organization is cut the different functions of the company (sales, marketing, R&D, finance, production…). On the top of this layer, companies can also divide the organization in different divisions specific for a product or a market. This separation enables to fight the inertia of centralization but tend to replicate the structure and spirit of bureaucracy at a closer level from the customers. In the biological model however, divisions are made according to the competences, knowledge and skills required for a service or a product category. Functions become systems divided in coherent subunits that are deeply interconnected together. For instance, the R&D cell will be constituted of different subunits for each line of product or services according to common specificities (skills required, customers, technologies, shared knowledge). All of these base unit cells are very autonomous but not isolated as they stay closely connected with others systems (sales, marketing, production, quality…) where synergies are identified. Focuses are then put on determining the right boundaries for the systems as well as the nature and intensity of the inputs and outputs needed for each system.

Biological organizations are based on network structures. The platform model of organization represents a particular form characteristic of these structures. The two graphics below help understand how the platform model allows for greater flexibility and reactiveness.

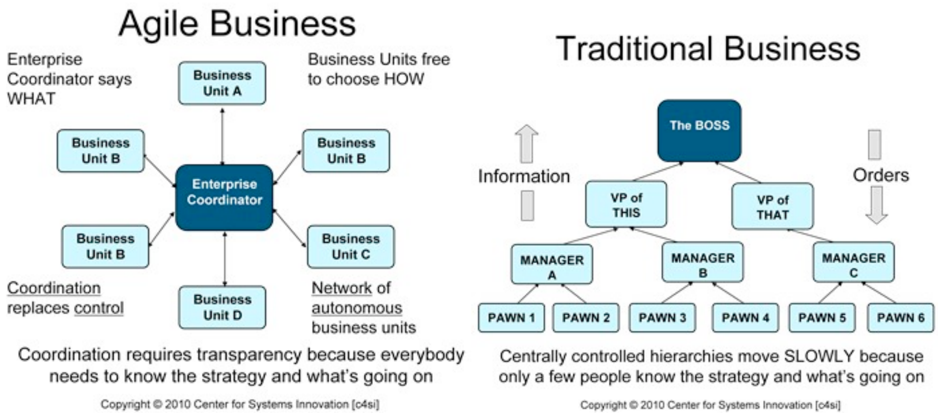

Figure 3 Comparison between an agile form of organization and a traditional form of organization. Source: http://blogs.cio.com/michael_hugos/five_traits_of_an_agile_enterprise_parts_4_5?page=0

In the traditional pyramidal model, decisions are taken from the top and flow in cascades toward the lower levels that are closer to the market's realities. Conversely, the information incoming from this market must flow back to the top in order to feed the decision-making. The advantage of this model is that information is tightly controlled and decision making very centralized which prevent big mistakes to happen. The big problem of this model is however its very slow speed of reaction. If some interesting signals are detected in the market at the lower levels, this information must travel a few levels of hierarchy before being processed and a few more for decision to flow back at the corresponding level. This process can take a lot of time in large organizations. The pyramidal model seems therefore not adapted to work in turbulent environment where responsiveness becomes crucial.

Among the network types of organization, the platform model has been specially thought to fit the dynamicity of turbulent environments. In this model, autonomous business units are directly connected to a platform which role is to coordinate and integrate the information incoming from these business units. When a market's signal is detected, the business unit concerned has the autonomy necessary to react rapidly. And if the importance of the matter or the degree of correlation with other business units is high, the platform coordination unit can effectuate the decision process.

1.4.2.1.2.1 Horizontal organization versus Vertical organization

Frank Ostroff (1999) offered another alternative to what he labeled as the traditional vertical organization in which functions and tasks are what constitute the core of the structure. He defined the horizontal organization as a process oriented organizational structure in which people work in multidisciplinary and autonomous teams within a same process. The following graphic illustrates the differences between the organizational structure supported by Ostroff and the traditional vertical/functional structure.

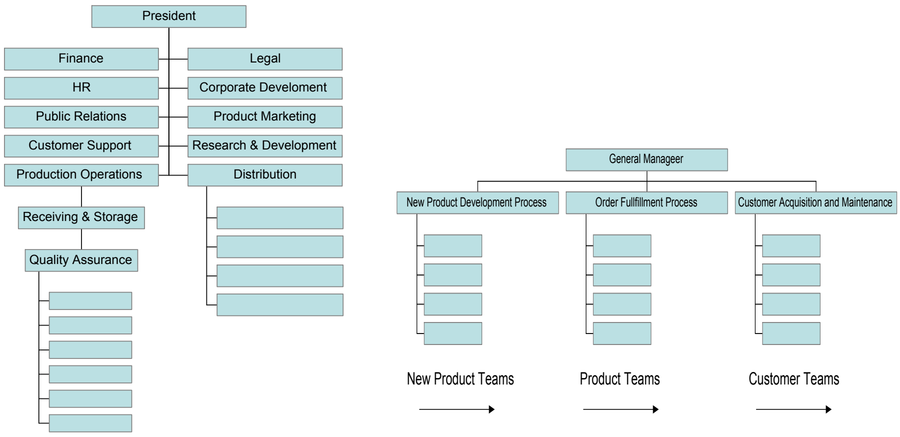

Figure 4 Comparison between a vertical form of organization and a horizontal for of organization. Source: dspace.mit.edu/bitstream/handle/1721.1/.../1021MizePres.pdf

In vertical structures, people are separated in different functions and tend to process always the same type of tasks. This model favors technical expertise but for the sake of workflow continuity. In fact, in case of any hurdles, the workflow of a product or service can become completely chaotic passing from a department to another without any coherence. Problems that could have been solved quickly if people had worked together can take a lot of time to be solved in vertical organizations due to lack of information or just because people have different ways of interpreting a problem. Conversely, in a horizontal or a flat structure, division is made according to the key processes of the company and multidisciplinary teams are assembled throughout these processes with a process supervisor in charge of the team coordination. This focus on the workflow process bares close resemblance to the lean theory; the waste targeted being here the one created by the weight of bureaucracy. Accordingly, this organizational structure is more reactive to any change during the workflow process.

1.4.2.1.3 Characteristic traits of agile structures

Even though there is no consistent definition or convergence of scholars to label a particular type of organizational structure as agile, the new forms of network/biological organization and horizontal/flat organization recently developed to fight the inertia of bureaucracy can help to understand the shape that could take an agile organization.

Both biological and horizontal organizational forms are in some way agile because they help companies enhancing their capacity of flexibility and responsiveness. In the biological/network model for instance, the high level of connections and information sharing between each system and its exterior environment helps the company to detect quicker opportunities or problems that can arise anywhere. The particular model of the platform helps to illustrate that fact, as the external business units working in autonomy are able to respond quicker to incipient signals from the market. On the other hand, horizontal organizations inspired by the lean thinking are specially designed to enhance the continuity of the workflow, which participate to increase the reactivity of the firm to respond to change and especially the one incoming from the clients.

Usually the different parts of a company are not exposed to the same nature and frequency of change. That is why large firms can build agile organizations by balancing different organizational structures depending on the characteristic of the business unit concerned. For instance, the biological model and more particularly the platform structure is very well adapted for R&D units where change is particularly dynamic and complex. In that case, highly independent units (internal or external to the firm) are in charge of a geographical region or a technological field and are connected to a central platform which role is to integrate the knowledge created, make sense of it and share it through the whole organization. This type of organizational structure has been widely developed for R&D units by large firms respected to more centralized and hierarchized forms of R&D departments. The open innovation platforms put in place by Procter and Grumble and other firms in the pharmaceutical industry are perfectly in line with this trend.

For more process-oriented business units like sales departments, financial departments or department very close to the customer, a horizontal structure can be more convenient. The Ford Customer Service Department (FCSD) implemented for instance this kind organizational structure with success from 1995.

The literature has recognized that the traditional one-fits-all-size pyramidal way of structuring the organization was no longer adapted to deal with high levels of turbulence. But for more stable parts of the company where control matters more than flexibility or reactivity, traditional military-like forms of organizations can still be the best options. As a result, agile organizations are often a tactful mix of different types of structures adapted to the intensity and nature of change they are concerned with. However, in todays always more dynamic environments agile organization tends to eliminate rigid structures. The structure of an agile organization can be therefore described as more decentralized than others, with less controlled but more autonomous and multidisciplinary business units. We can list the following elements as common traits of agile organizational structures:

- Widely shared knowledge across business units
- Autonomy: Decentralization of the decision making toward the closest levels from the client
- Team working at every level
- Multidisciplinary teams

These elements can be synthetized in the following observable trait:

An agile company balances different forms of organizational structures but tend to favor forms that are more decentralized, connected and multidisciplinary than others

1.4.2.2 Organizational culture

As regards the culture of agile organizations, a distinction can be made between the values that enable the agility and the skills of people that conduct it. The reflection on agile values was mainly developed by insiders of software companies, for which the notion of agility was rapidly adopted as a powerful concept to develop quickly and at low cost products that were particularly confronted with changing requirements. As regards the people, scholars consistently addressed the concept of agile learning where the cognitive skills of individuals are at the center of the agile organization.

1.4.2.2.1 Values of agility

The cultural values of agility are very popular in the software development industry composed essentially of young and light organizations. As a result, the values promoted by insiders of agile companies are often very close to the natural values of young startups: creativity, autonomy and team working.

1.4.2.2.1.1 Creativity

Being creative has become essential for companies that evolve in dynamic environments. For the sake of creativity, agile companies tend therefore to let more space and freedom to their employees in their day-to-day working. As a result, behavioral policies tend to be less strict in agile organization than in others. Everyone is encouraged to save some of its time to stand back from its day-to-day activities and think whether things could be done better if they were done differently.

1.4.2.2.1.2 Autonomy

Autonomy is an important value for an agile company as it helps the organization deal with the decentralization of the decision-making as well as the decentralization of its corporate culture. If scholars tend to agree than maintaining a strong corporate culture is essential to keep the organization on track, some argue however that nurturing internal subcultures can also help the organization better deal with the dynamicity of its environment. Boisnier et al., (2002) who defined a subculture as a “relatively small clusters of members that share a set of norms, values, and beliefs” explains for instance that:

> "Subcultures can permit an organization to generate varied responses to the environment without necessarily destroying its internal coherence. Subcultures may provide the flexibility and responsiveness that a unitary culture may limit"

But to avoid an erosion of the corporate culture due to the expressions of these subcultures, agile organizations need people that act as autonomous entrepreneurs aligned on the main corporate goals. Jean Tabaka (2009) explains in Business Week that:

> "Implementing a corporate vision require seeking and hiring self-motivated people who are prepared to create their own reality"

When people are very autonomous, agile organizations can afford to set more coordination-oriented management and avoids therefore permanent control that rigidifies the process of creation. This type of management is more tolerant and encourages people to learn from their mistakes. Jean Tabaka (2009) argues in Business Weeks that:

> "Agile organization leaders let go of their personal sense of perfection. Instead, they ask what their teams think is the best, most informed action. They seek innovative visions outside their personal perspective alone. They hold and continually reevaluate their overall vision"

But in order to promote tolerance and freedom while avoiding chaos in an organization, people must prove that they are capable of strong personal discipline. Jim Collin in his book 'How the mighty Fail" explains for instance how he sets himself a strict yet flexible daily rhythm based on the nature of the activities he has to do: 53% of creative activity, 28% of teaching activity and 19% of others.

1.4.2.2.1.3 Team working

Collaboration and team working are very important characteristics of agile organizations. When correctly implemented, team working favors the emergence of different points of view, which can drastically improve the process of creation and capacity of the firm to adapt to change. But to be effective, the different opinions of team members must be channeled through a clear goal-oriented dialogue in order to avoid any 'loudest-voice-driven' decisions. Agile organizations tend therefore to adopt facilitating processes that guide teams to insightful decisions while avoiding any feelings of compromise or capitulation.

To aliment the diversity of opinions, teams are usually very multidisciplinary. In fact, as Jorge Aranda (2011) explains in his blog, in agile organizations, teams are often constituted of polyvalent people:

> "Agile organizations favor generalists over specialists, enforcing knowledge sharing to an extent that seems wasteful to traditional firms."

1.4.2.2.2 Agile learners

Popularized by Senge, director of the center for Organizational Learning at MIT's Sloan School of management, the concept of agile learning puts the role of the individual at the center of the agile organization. People labeled as "adaptable" who possess a functional flexibility coupled with what Daniel Goleman (1996) called "emotional intelligence" are more likely to learn quickly and be more receptive to change than others. Agile learners identify and capitalize on new opportunities based on present analysis rather than on past habits and fear reflexes. These people who contribute to make their organization more agile are considered key elements to the success of virtual organizations where their skills are required to integrate a broad diversity of values, knowledge and behaviors.

As a synthesize of these observations regarding the 'agile culture' we can draw the following canonical trait of agile companies:

An agile company fights the inertia of bureaucracy with a culture of creativity, team working and autonomy

The following table offers a synthesis of the structural and cultural elements that differentiate an agile organization from a traditional one:

	Agile organization	**Traditional organization**
Organizational structure	Network, platform, horizontal, flat	Pyramidal, vertical
Competence of team units	Multidisciplinary	Expertise
Information flows and decision making	Decentralized	Centralized
Role of managers	Coordination	Control
Quality of individuals	Adaptable, responsible, autonomous, creative	Efficient, respectful, compliant,

Table 2 Synthesis of the differences between an agile organization and a traditional organization

1.4.3 Agile product development

The idea of Agility has been intensely applied to product development and more specifically to software development. Agile methods thrive in the software business as they help developers harness the increasing technical complexity as well as the frequently changing customer requirements.

The "Manifesto for Agile Software Development" published in 2001 by software developers identified crucial values to achieve agility. Two of them being: Customer collaboration over contract negotiation and responding to change over following a plan. They bear close resemblance to the values developed in agile manufacturing that advocate customer- driven solutions and fast adaptation to change over rigidified planning.

In product development the notion of agility focuses essentially on the flexibility of the processes rather than on the speed of actions. However, as the term ‘agile’ implicitly implies quickness, agile development also intends fast delivery to the client.

For Stefan Thomke and Donald Reinertsan (1998):

> “Development flexibility can be expressed as a function of the incremental economic cost of modifying a product as a response to changes that are external (e.g., a change in customer needs) or internal (e.g., discovering a better technical solution) to the development process. The higher the economic cost of modifying a product, the lower the development flexibility.”

This definition embraces the pre-emptive side of agility identified above as it helps the company to control for its cost of modification when change occurs.

The Notion of platform previously introduced as regards agile forms of organization is also particularly relevant to enhance the flexibility and adaptability of the product development process. Sony for instance developed its successful portable cassette player Walkman in the late 70’s with this platform approach. The company invested heavily in miniaturization research programs to design the core electronics of the products with a modular architecture. Thanks to this advanced and flexible architecture, Sony was able to graft new features very easily and at low cost on the core electronic platform and therefore lunch new products at the edge of the technological state of art quicker than competitors. Sony developed in fact more than 250 versions of the Walkman in the 80’s, which represented 50% more than its competitors.

As a result this other observable trait of agile companies can be added to the ones previously introduced

An agile company uses agile methods of product development and relies on technical platforms.

1.4.4 Agile Innovation

The proactive side of agility is mainly about innovation and especially the one capable of shaping and creating new markets: disruptive innovation. As small companies are univocally recognized to be the main source of disruptive innovations, they seem to be the best positioned to display a high level of proactive agility. As Robert Stringer (2001) acknowledged, “their small size puts them closer to the market and makes them more agile”. As we have seen, this kind of agility is now critical to sustain growth in today’s fast changing business environment. Usually companies are particularly agile in their early age but the growth they experience throughout success tends to progressively erode the nimbleness of youth. A critical issue in the literature is therefore to understand why large companies, notwithstanding the important resources they posses, often fail to produce significant innovations.

Clayton Christensen in his book “Innovator’s dilemma” (1997) points out how large companies are often ill-prepared to cope with disruptive innovations and prefer to choose and focus on sustaining innovations that improve the performance of their existing products or services. For Robert Stringer the reasons are diverse. Incumbents can simply be blind to long-term opportunities or having invested too much in the status quo to afford the risk of discontinuity. Their culture and bureaucratic structure are also part of the problem. Radical new ideas as they question the old order of things are seen as potential threats of destabilizing the organization and discredit the top management past choices. Pride in the brand and shareholders pressures encourage this short-term thinking that only results in incremental innovations and conservation of the status quo.

In “how to manage radical innovation”, Robert Stringer (2001) draws up a list of potential strategies aiming to boost radical innovations in large companies. These strategies can be viewed as observable characteristics of proactively agile large organizations. Robert Stringer ranked these strategies from the easiest to implement yet the least effective to the most complicated to conduct but that grant the best results:

- Make breakthrough innovation a strategic and cultural priority
- Hire more creative and innovative people
- Grow informal project laboratories within the traditional organization

- Create “idea markets” within the organization
- Become an “ambidextrous organization”
- Experiment with acquisitions, JVs, cooperative ventures, and alliances with outside innovative entities
- Engage in corporate venturing
- Establish a corporate venture capital fund
- Participate in an “emerging industry fund” (EIF)

In “Agile innovation” Keeley Wilson and Yves L.Doz (2011) stress that implementing agile strategies in innovation management becomes an imperative in a world where the knowledge is more and more dispersed in location and diversified in complexity. They argue that innovation must be managed based on the difference in the nature of the knowledge being sought. They identified three strategies: attracting, foraying and experiencing.

The attracting strategy is employed to seek explicit and codified knowledge by two different approaches: “focused attracting” and “broad attracting”. With the expression “focused attracting”, Wilson and Doz refer to the intensively discussed “open innovation” coined by Chesbrough in 2003 in his book “Open Innovation: The new imperative for creating and profiting from technology”. Chesbrough defines his concept as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (Chesbrough, 2006, p.1) and Doz and Wilson as “a way to extend a firm’s boundaries beyond its current pool of employees and partners to solve specific innovation or R&D problems.” The knowledge being sought is here well defined and firms such as Innocentive or Nine Sigma can operate as intermediaries between seeking companies and the network of potential solvers. On the contrary, in the case of “broad attracting” the knowledge being sought is not specifically defined. The innovation seeker usually posts general research themes to stimulate the flow of incoming knowledge and attract potential solvers at low cost.

Foraying is a lightweight and flexible approach employed to access knowledge embedded in a local context. It involves sending out “scouts” on learning expeditions to access really local dependent knowledge, decontextualize it and then transfer it back in codified form to their company. This method relies on a precise identification of the knowledge holders as well as on skilled scouting teams.

The Experiencing method relies on a complete immersion in the local context when "the knowledge to be sought is not definable nor easily observable but locally rooted and complex and is very different from the firm's core knowledge base"(Doz and Wilson, 2011). To be accessed, this existential knowledge requires bricks and mortar sites where "scouts" can take the time to learn by doing, gather the puzzled and diffused knowledge and uproot it from the norms, behavior and beliefs in which it is contained.

An agile innovation strategy results from the tactful balance of these three approaches.

From the studies of Robert Stringer (2001) and Keeley Wilson and Yves L.Doz (2011) we can draw the following trait:

An agile company innovates continuously and proactively and adapts its innovation strategy to the nature of the knowledge it seeks.

1.4.5 Strategic Agility

1.4.5.1 Definition and deconstruction of the concept

More recently Doz and Kosonen (2008) addressed the notion of agility at the corporate level and largely popularized the concept of "strategic agility".

They defined it as,

> "the ability to continuously adjust and adapt strategic direction in core business, as a function of strategic ambitions and changing circumstances, and create not just new products and services, but also new business models and innovative ways to create value for a company"

This definition embeds the notion of flexibility at the very core of the business model so that companies will be able to completely yet softly reinvent themselves to face radical change. The drivers of change are here both internal depending on the firm's aspirations and visions and external as a response to the dynamics of the markets. The definition is therefore also coherent with the reactive and proactive sides of agility highlighted before.

As they grow, companies experiencing success tend to crystalize the vision they have of their business into a set of core rigidities. For the sake of stability and efficiency in the day-to-day operations they progressively evolve toward complex and highly routinized organizations. This search for efficiency in the short-term can make them blind to significant opportunities. But even when promising opportunities are clearly identified, the rigid planning of their processes and the stickiness of their resources are too high hurdles to allow them fast moves. When their vision is tunneled into narrow objectives, a significant recession in one of their business unit is not always strong enough a signal for incumbents to understand that the recipe of past success no longer works. Furthermore, undertaking major transformations when new rules are already set is often too late and very painful. Doz and Kosonen present Strategic agility as a way to protect large conglomerates from these lock-in effects. It can be understood as an antidote to keep firms from doing what used to be the right thing for too long (Doz and Kosonen, 2008) to be able to renew itself along with change.

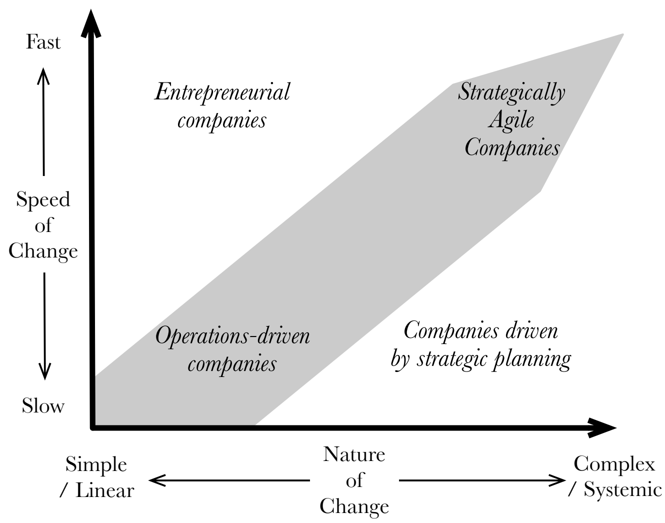

Figure 5 Strategic agility as response to faster and more complex change. Source: Doz and Kosonen, 2008

In Fig. 5, Doz and Kosonen (2008) mapped the path companies must undertake to evolve from “operations-driven” to “strategically agile” organizations and keep on growing under complex and fast change. Typically, entrepreneurial companies are fit to thrive in fast environment but as they usually focus on few oriented outputs they do not experience the degree of complexity in which large conglomerates operate. However, they will inevitably shift to operations-focus when successful outcomes will put them on the growth-path.

Accordingly, they will need to balance a high level of flexibility in their core business with the standardization of their procedures in order to harness the complexity driven by their growth. Only companies operating in mature sectors with long-range stability can rely on traditional strategic planning alone to achieve sustainable growth.

If strategic agility appears to be an elegant answer to adapt the company's strategy to the new complex reality of change, its effective implementation remains much more complicated. To be strategically agile companies must strike a tactful balance between flexibility and commitment. This is what Doz and Kosonen call the strategic agility conundrum. By keeping too many options open too flexible a structure in the core business can prevent companies from making the kind of resource commitment necessary to achieve significant advantage over competitors. On the other hand, rigid long-range planning can lead companies to develop active inertia and make them particularly vulnerable to discontinuities. As a result, strategic agility is different from punctual business transformation, as the moves toward agility need to be sustained over time in order to continuously prevent the company from falling in what Doz and Kosonen call the curse of success.

Another conundrum about agility concerns the quick responsiveness necessary to achieve efficient "sense and respond" behaviors in a fast changing environment. Making fast choices under uncertain and complex conditions can generate a lot of mistakes while to much time spent on clarifying and theorizing exterior signals can make the company miss opportunities. Gandossy argues in fact that

> "speed without clarity and focus simply promotes many dumb decisions fast, while being too agile could take you astray from your core business and action"(Gandossy, 2003)."

Being strategically agile is therefore about making the right compromise between quickness and cogitation on the one hand and flexibility and commitment on the other.

1.4.5.2 Soft and Hard strategic agility

Depending on the difficulties and nature of change encountered by firms in their environment we distinguish in this paper between two different expressions of an agile strategy. We will call SOFT agile strategy the following behavior:

The agile company is able in a difficult situation to adapt or refresh rapidly and easily its business model

This behavior applies when the intensity of change is moderate. Conversely of the change experienced by the company is more intense we refer to the HARD agile strategy identifiable with the following behavior:

The agile company is able in a disruptive period to cannibalize smoothly an old business model expected to become obsolete in order to transit successfully toward a new one in pace with the market's expectations.

1.5 How does the agile company look like?

As this review of the literature illustrates, the notion of agility has spread in a lot of fields of the management literature. Each field developed its own vision of what being agile could mean for a company and how agility could help these companies to better deal with the growing turbulence in their environments. The synthesis of all the different traits observed during the review of the literature will help us to answer the following question: How does an agile company look like?

1.5.1 Characteristic observable traits of agile companies

In this section we gather the main observable traits of agile companies collected during the review of the literature to offer a general portrait of companies labeled as agile. Seven traits are identified as characteristic of the general shape and behavior of an agile company. We classified these traits in three categories: operations, organization and strategy.

Agile operations

An agile company has a manufacturing system that responds quickly and cost efficiently to the shifts in the market

The output of an agile company is not just a product or a service but an experience (combination of product and services)

Agile organization

An agile company is at the platform of an ecosystem of partnerships

An agile company balances different forms of organizational structures but tend to favor forms that are more decentralized, connected and multidisciplinary than others

The agile company fights the inertia of bureaucracy with a culture of creativity, team working and autonomy

Strategy

- SOFT:

The agile company is able in a difficult situation to adapt or refresh rapidly and easily its business model

- HARD:

The agile company is able in a disruptive period to cannibalize smoothly an old business model expected to become obsolete in order to transit successfully toward a new one in pace with the market's expectations.

1.5.2 Conclusion of the literature review on agility

The literature developed around the notion of agility offers interesting answers to one of the fundamental question of the strategic management: "How to sustain a competitive advantage over time". Scholars seem in fact to recognize that agility may be a powerful concept to help companies sustain a competitive advantage in turbulent environments. But what is worth notifying is that the "observable" approach embraced by scholars to study this concept is in the large majority very different from the typical approach conducted in the last twenty years to solve the issue of adaptation and sustained performance in dynamic environments. Most of the studies conducted in this field followed in fact the resource-based and capability trend popularized by scholars like Barney (1991) and Teece et al. (1997) to overcome the limits of the traditional models developed by Porter (1980) and Shapiro (1989). This stream of thought that largely dominated the strategic management literature in the past ten years with the concept of dynamic capabilities focuses essentially on analyzing and determining the practical foundations that enable companies to build the capabilities necessary to align rapidly and efficiently their resources with a changed context. This approach, despite its large success in the literature, has been largely criticized for its very theoretical approach and its lack of practical implications and tools to recognize the best fitted companies in turbulent environments.

Conversely, examples of successful firms in dynamic environments have been studied to extract from them the canonic features responsible for their success. Books like 'The agile enterprise', 'The horizontal organization' or 'Ambidextrous organizations' are symptomatic of this approach. With the concept of strategic agility, Doz and Kosonen adopted a hybrid approach. They developed their concept based on the successful strategy of Nokia but tried also to found it on theoretical foundations closed to the dynamic capabilities approach.

What lacks in the literature is a clear understanding of the links between the 'capability approach' and the most recent 'observable approach', less diffused. Since the relations between these two streams of thought are not still very clear, this paper attempts to build an original framework inspired by a biological metaphor to explicit the different conceptual directions undertaken by scholars in the past twenty years. The framework is presented in the following chapter.

Chapter 2

A framework to classify the literature in strategic management

This chapter presents the framework developed to explore the links between the different streams in the recent strategic management literature. The major concepts classified in the framework are then reviewed.

2.1 A metaphor from the animal kingdom

As mentioned at the end of the last chapter, a branch of the management literature has focused particularly on extracting from practical examples of successful companies the canonic observable features that were responsible for their successes. Building on these studies, other papers and books have consequently integrated these observations in more consolidated concepts and theories. In this field, the most famous concept that emerged is the one of agility that we reviewed in the previous chapter. To study this concept, most of the scholars adopted an observable approach very similar to the one employed by naturalists to identify the canonic features of animal species. For an organism, these observable characteristics or traits are usually labeled as its phenotype. By comparison we refer therefore to the observable characteristics of companies as their phenotypes.

In the wild, some animal species display particular phenotypes that are the complex result of their genotype material and that allow them to survive and spread in particularly harsh environments. Accordingly, we follow the metaphor introduced by interpreting the concept of agility as a characteristic phenotype displayed by companies who succeed to achieve sustainable growth in hypercompetitive and fast shifting markets. In fact, the concept of agility shares a lot of similitude with the definition of a phenotype. Like the phenotype that emerges from the expression of multiple factors (environment, genes…), the notion of agility is mainly systemic and emerges from the complex articulation of different factors, which have to be considered simultaneously together to be relevant. As Nirmal et al (2005) noted:

> "Agility does not come from any one dot, any single component, or perspective. Agility comes from how the dots are connected."

Furthermore, like every phenotype, outsiders can observe the agile phenotype of a company if they have the key to recognize it. Any outsider for instance can identify a strategically agile company by observing the following behavior presented in the first chapter:

The agile company is able in a disruptive period to cannibalize smoothly an old business model expected to become obsolete in order to transit successfully toward a new one in pace with the market's expectations.

We refer here to the 'strategic agility phenotype' for which the previous behavior has been defined as a hard manifestation.

As a result, we refer to this "observable literature" as the "phenotype literature". In this literature, another notion seems to display the same phenotype-like features: ambidexterity. In facts, the notion of ambidexterity, like the concept of agility has been applied by scholars to firms that were more adapted to a certain kind of environment. The concept is reviewed in the next section as an illustration of the phenotype level of the framework study.

The metaphor introduced is very useful to understand visually the nature of the relations between the 'observable literature' labeled as 'phenotype literature' and the more widespread literature regarding the capabilities of the firm. In facts, thanks to this metaphor, the capability view that we opposed before to the 'observable approach' can be thought now as the stream of literature that studies the genotype of the firm. For a company, this genotype can be interpreted as the combination of particular routines, processes or best practices that can be labeled as DNA. The capability view, driven by the famous concept of dynamic capabilities, focus essentially on studying these internal micro foundations and their impact on the capacity of the firm to face change.

As a result, this metaphor connects the two streams of literature and shows that they are not in conflict with each other's but focus more on different aspects of the company. Moreover, far from being in opposition, they are actually very complementary. In facts, the observations from the phenotype literature are the direct manifestation of the internal capabilities and micro foundations that the genotype literature tries to determine.

2.2 Presentation of the framework

The phenotype level is presented to the light of the concepts of agility and ambidexterity. These phenotypes emerge from a lower genotype level for which different classifications and conceptualizations are identified in the literature. This genotype enable a firm to align its organization dynamically and efficiently in term of resources and core competences with the evolution of its external environment (including technology, consumption patterns, norms, competition…) in order to sustain value creation and competitive advantage. Furthermore, these genes (characteristic of the dynamic capabilities of a company) interact a sublevel of routines, learning activities and processes to deliver this alignment. We will refer to this sublevel as the DNA level. The following chart illustrates the classification framework adopted by this paper to study the recent developments in the strategic management literature.

The following graphic highlights the links explored in this review of the literature.

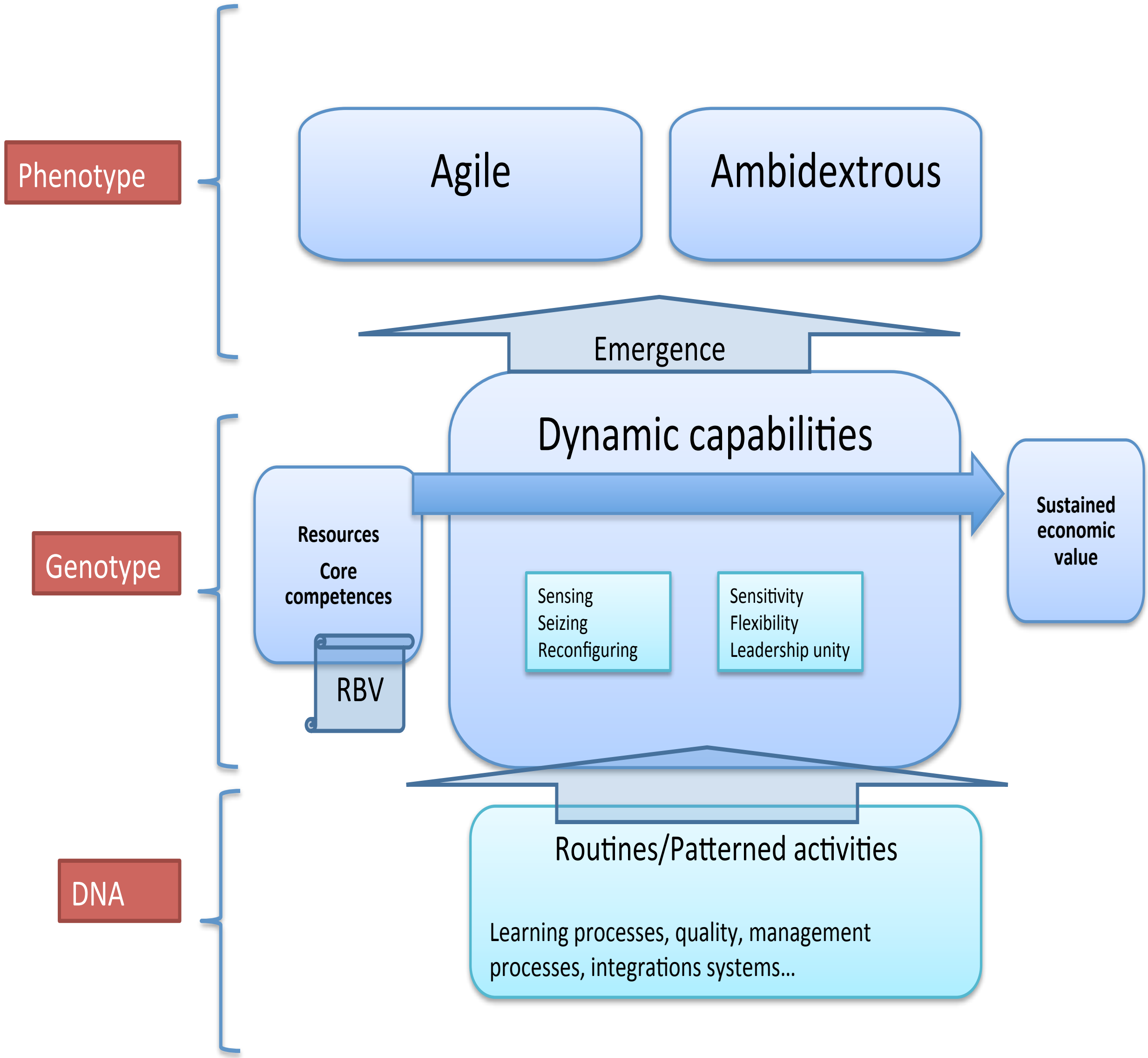

Figure 6 Framework of study

2.3 The different levels of the framework

2.3.1 The phenotype level

The recent phenotype literature studies the behaviors and observable traits of companies in the attempt to find the answers that the traditional frameworks of strategic management are not able to deliver. If this new stream of thinking is mainly articulated around the concept of agility previously reviewed in the first chapter, the notion of ambidexterity can also be considered as a significant part of this literature.

2.3.1.1 Ambidexterity

2.3.1.1.1 Definition

In the common use, ambidexterity means that a person is able to use both hands with equal skill. The management literature has intensively used this metaphor to describe those organizations capable of successfully managing two conflicting demands at the same time. Besides, scholars labeled as "ambidextrous organization" numerous examples of successful firms who survived disruptive change or sustained growth in hypercompetitive environments.

2.3.1.1.2 Emergence of the concept in the literature

Duncan (1976), building on earlier studies (e.g., Burns &Stalker, 1961; Thompson, 1967) first used the ambidexterity metaphor to illustrate the need for companies to manage innovation in "dual structures". However, the concept only gained recognizance and largely spread in the literature after Tushman and O'Reilly (1996) related it to the exploitation/exploration dilemma introduced by March in 1991 in his seminal paper. From there, the notion of ambidexterity has become a major topic of discussion. Scholars have focused more specifically on the relations between organization and innovation to study the concept. Jansen et al. (2005) defined it as "the ability to pursue exploratory and exploitative innovation simultaneously" and Tushman and O'Reilly (1996) as "the ability to simultaneously pursue both incremental and discontinuous innovation and change".

The issue of managing contradictory environmental demands has always been a matter of interest in the organization theory. Although the concept of ambidexterity was mainly developed in the organization management literature to resolve the dilemma of exploitation/exploration, other branches of the literature also addressed implicitly this issue by referring to other types of dilemmas. In table 3 is presented a non-exhaustive list of some of the traditional dilemmas faced by firms.

Dilemmas	**Authors**	**Year**
Global integration and local responsiveness	Doz, Bartlett, & Ghoshal	1989
Exploitation and Exploration	March	1991
Differentiation and low-cost strategic positioning	Porter	1996
Evolutionary and revolutionary change	Tushman et al.	1996
Responsiveness and efficiency	Hanssen-Bauer & Snow	1996
Change and preservation	Volberda	1996
Creating and sustaining advantages	Grant	1996
Manufacturing efficiency and flexibility	Adler et al.	1999
Incremental and radical innovation	Benner & Tushman	2003
Alignment and adaptation	Birkinshaw & Gibson	2004
Standardization and Creativity	Gilson et al.	2005

Table 3 Conflicting demands in the literature

2.3.1.1.3 Trade-off/paradoxical view

A recurrent question in the research has been to determine the degree and the nature of opposition displayed by these organizational tensions. Some argued that under limited resources they are incompatible and firms must clearly choose between them to achieve a competitive advantage. In this “trade-off view”, Porter (1996) for instance, stressed that the trade-off between differentiated and low cost strategies is by essence insurmountable and by conducting both strategies one takes the risk of being “stuck in the middle”. In the manufacturing literature the trade-off between flexibility and cost-efficiency is also seen by some scholars as intrinsically embedded in the nature of the processes (Carlsson, 1989; Klein, 1984) while others conversely no longer consider the contradiction (Mac-Duffie, 1995).

For Tushman & O'Reilly (1997) exploitation and exploration are two incompatible concepts representing the two ends of a continuum line. For Duncan (1976), this trade-off can be resolved by separating structurally the organization in dual structures that alternate the implementation of contradictory tasks over time. This stream of thought advocates for a *sequential* adjustment of the organizational structures according to the phases of innovation process. Mechanistic structures that are conducive to stable conditions are employed to exploit when the phase of innovation is incremental and organic structures are put in place to explore when radical change is needed (Burns and Stalker, 1961). However in an alternative conceptualization, Tushman & O'Reilly (1997) considering the complexity and rate of change faced by firms argued that the trade off between exploitation and exploration needed to be addressed *simultaneousl*y with “separate subunits, business models and distinct alignment for each”. March (1991) also suggested that maintaining an appropriate balance between exploration and exploitation was critical for firm survival and prosperity.

More recently, some scholars have recognized the importance of balancing and synchronizing the notions of exploration and exploitation and began considering them no longer as trade-offs but as seemingly contradictory tensions (Brown & Diguid, 2001). Rather than aiming at compromising between opposite extremes where the organization chooses the right mix of opposites, Eisenhardt (2000) noted that:

> “Vibrant organizations, groups, and individuals change by simultaneously holding the two states. This duality of coexisting tensions creates an edge of chaos, not a bland halfway point between one extreme

> and the other. The management of this duality hinges on exploring the tension in a creative way that captures both extremes, thereby capitalizing on the inherent pluralism within the duality”

In this stream of thought, scholars have shifted from the either/or thinking to a paradoxical thinking and stressed that since some resources may not be completely limited (like organizational knowledge, external acquisition of resources through strategic alliances or merger and acquisition), it is possible under certain conditions to respond simultaneously to paradoxical demands without implementing structural dichotomy. Gibson and Birkinshaw (2004) follow this trend when they introduced the concept of contextual ambidexterity. This simultaneous approach has been recognized as positively related to the firm’s performance. (Gibson et Birkinshaw, 2004; He et Wong, 2004). Gibson et al. (2005) also recognized the complementarity between creativity and standardization procedures to the firm’s performance. O’Reilly and Tushman (2007) integrating ambidexterity as a dynamic capability noted recently that efficiency and innovation need not to be strategic trade-offs. The paradoxical nature of exploration/exploitation seems therefore to have reached a consensus among scholars.

2.3.1.1.4 Antecedents of ambidexterity

Two different streams of research appeared in the literature to study the antecedents of ambidexterity namely *structural ambidexterity* and *contextual ambidexterity*.

2.3.1.1.4.1 Structural ambidexterity

According to Duncan (1976), ambidextrous organizations display ‘dual structures’ through which they separate exploration and exploitation in different organizational or business units. Gibson & Birkinshaw (2004) have referred to this stream of research as structural ambidexterity. In this latter approach, ambidexterity can be achieved in two different ways: *temporal sequencing* and *simultaneous pursuing*. The former way advocates a temporal balance of the explorative and exploitative activities. When the firm experiences a period of significant change, organic structures are put in place to generate innovations. Conversely, in periods of stability or maturity of the business, mechanistic structures must prevail to ensure efficiency and stability in the day-to-day operations. However, when the pace of change in markets and technologies increases, this sequential alignment may not be sufficient to develop new products and services in time (Tushman and O'Reilly, 1997). Therefore, Tushman and O'Reilly (1997) recommend that exploration and exploitation should be pursued "simultaneously in separate subunits with different competencies, systems, incentives, processes and cultures – each internally aligned"(O'Reilly and Tushman, 2007). Benner & Tushman (2003) explicated a more specific picture of the ambidextrous organization from a structural point of view:

> "Ambidextrous organization designs are composed of highly differentiated but weakly integrated subunits. While the exploratory units are small and decentralized, with loose cultures and processes, the exploitation units are larger and more centralized, with tight cultures and processes. Exploratory units succeed by experimenting- by frequently creating small wins and losses (Sitkin, 1992). Because process management tends to drive out experimentation, it must be prevented from migrating into exploratory units and processes. In contrast, exploitation units that succeed by reducing variability and maximizing efficiency and control are an ideal location for the tight coordination associated with process management efforts."

Tushman and O'Reilly (1997) also clarify the fact that:

> "The size of exploitation units in ambidextrous organizations is only used to leverage economies of scale and scope and not to become a checker and controller that slows the organization down. "

What most characterizes these ambidextrous firms is that they are able to integrate inconsistent competencies, structures and cultures into a single vision to excel both today and tomorrow (Tushman and O'Reilly, 1997). To perform this integration, ambidextrous firms intensively rely on highly shared corporate culture through which they can manage the massive decentralization of decision-making induced by the localized and autonomous units of exploration. Tushman and O'Reilly (1997) noted that:

> "A common overall culture is the glue that holds these companies together. The key in these firms is a reliance on a strong, widely shared corporate culture to promote integration across the company and to encourage identification and sharing of information and resources"

At the same time however, managers must nurture variation and highly specific subcultures relative to their business. To achieve this level of ambidexterity, managers must therefore embrace their specific subculture while sharing the common values promoted by the top management. This is a difficult juggling act that requires preaching and persuading skills but also modesty and humility in constantly striving to renew oneself (Tushman and O'Reilly, 1997).

2.3.1.1.4.2 *Contextual ambidexterity*

The second stream of research has been labeled by Gibson & Birkinshaw (2004) contextual ambidexterity. They defined it as "the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit". Accordingly, such ambidextrous organizations are composed of organizational units that pursue both exploration and exploitation activities. These ambidextrous units combine together contradictory organic and mechanistic features. Ambidexterity is not achieved here through the right structural organization but by the building of the right context that spins individuals to manage conflicting tensions. This stream of research emphasizes in fact the role of the individual and the processes to achieve ambidexterity:

> "Contextual ambidexterity is achieved by building a set of processes or systems that enable and encourage individuals to make their own judgments about how to divide their time between conflicting demands for alignment and adaptability."(Gibson & Birkinshaw, 2004)

For its authors, contextual ambidexterity presents the advantage of facilitating the adaptation of an entire business unit and not just the functions responsible for the new product development. It also reduces drastically the coordination problems of autonomous separate units. As regards the antecedents of contextual ambidexterity Gibson and Birkinshaw (2004) argue that they mainly stem from the creation of the right organization context. They define the latter as "the systems, processes, and beliefs that shape individual-level behavior in an organization". Practically, this ambidextrous climate relies on four pillars: Discipline, stretch, support and trust. These principles are to be considered non substitutable in order to create a "supportive environment that inspires an individual to do whatever it takes to deliver results".

2.3.1.2 Confrontation between the agile and ambidextrous phenotypes

In this section we highlight the similitude and differences between the concept of agility and ambidexterity previously discussed.

The first striking difference between the two concepts regards the extent of their application in the management literature. In fact, while the concept of agility has been applied to a lot of different fields, the concept of ambidexterity stayed instead completely focus on organizational aspects. The distinction between contextual ambidexterity and structural ambidexterity fits for instance the usual separation between the culture of a company and its structure. As a result, the notion of ambidexterity has been clustered to the field of organization management and has therefore less impacted the literature than the concept of agility.

However, these observable concepts are not completely opposed. Both concepts adopted in fact an observable approach to describe companies, which categorize them both as phenotype in nature. Furthermore, their context of application is also very similar. In fact, both agile and ambidextrous concepts have been defined in the literature as a response for companies to sustain competitive advantage under conditions of radical, fast or complex change. Besides, if we focus more particularly on the organizational traits of agile companies reviewed in the fist chapter, we can observe a lot similitude with the ambidextrous organization. For instance, we can note that both streams of literature recognize biological structures as more adapted to deal with fast changing and complex environments than traditional mechanistic structures. But as the different parts of a company are not usually exposed the same intensity and variety of change, we also noted that different types of structures could cohabitate in agile organizations. And managing these dual structures as well as integrating the disparate subcultures of agile organization is exactly the issue that the concept of ambidextrous organization intends to resolve. The concept of agile organization is therefore particularly useful to describe the polyvalence and mixing of different structure and culture in agile organizations.

Ambidexterity is then what we observe of a strategically agile company when we focus on its organization. As a result we propose in this paper that the concept of ambidexterity can be viewed as an organizational trait of the agile phenotype:

An agile organization is ambidextrous

2.3.2 The genotype level

This chapter reviews the "genotype" literature and connects it to the emerging phenotype literature previously reviewed.

Scholars have often employed the term capability or meta-capability to address the foundations of the observable traits displayed by firms. Following the metaphor introduced at the beginning, we identify these capabilities as the genotype of a company. Unlike the phenotypes reviewed before, these internal genes are not directly observable from the outside of a company but embedded in explicit processes and tacit elements such as know-how or leadership.

In the first part of this chapter, three taxonomies of "dynamic capabilities" are extracted from the literature after a general review of the concept that will highlight how dynamic capabilities deal with resources and core competences to deliver sustained competitive advantage. The two representations of genotype identified are: dynamic capabilities (Teece, 2007), meta-capabilities of strategic agility (Doz and Kosonen, 2008). The two taxonomies are closely related. Implicitly, the meta capabilities of strategic agility are in fact articulated around the three principal notions initially developed by (Teece, 2007): sense the environment, seize opportunities and reconfigure the resources.

In the second section, we will consider the bottom level of the suggested framework: the DNA level. We call DNA of the company all the patterned activities, routines or managerial processes that constitute the micro foundations at the basis of the dynamic capabilities. The links with the genotype will be consequently addressed.

2.3.2.1 General Dynamic capabilities framework

The dynamic capabilities approach was first introduced by Teece et al. (1997) as an extension of the resource- based view (RBV) of the firm (Barney, 1991). They defined dynamic capabilities as "the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments". From 1997 to 2007 an impressive and widely dispersed body of research has been generated. Ilídio Barreto (2010) found 40 articles mentioning "dynamic capabilities" in top management revues during this period and around 1,534 articles referring to it through diverse case studies in areas such as marketing (e.g., Menguc & Auh, 2006), human resources management (e.g., Thompson, 2007), operations management (e.g., Fixson, 2005), international management (e.g., Uhlenbruck, 2004), information management (e.g., Sambamurthy, Bharadwaj, & Grover, 2003), and entrepreneurship (e.g., Arthurs & Busenitz, 2006).

The concept of Dynamic capabilities has received several conceptualizations. The following table collects some of the principal definitions identified in the most influential papers on the subject.

Study	Definitions
Teece, Pisano, & Shuen (1997)	The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments
Eisenhardt & Martin (2000)	The firm's processes that use resources—specifically the processes to integrate, reconfigure, gain, and release resources—to match and even create market change; dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die
Zollo & Winter (2002)	A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness
Winter (2003)	Those (capabilities) that operate to extend, modify, or create ordinary capabilities
Teece (2007)	Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets

Table 4 Definitions of dynamic capabilities in the literature

Ilídio Barreto (2010) classified the different streams of research along multiple criteria: nature, specific role, relevant context, creation and evolution mechanisms, heterogeneity assumptions and outcomes.

2.3.2.1.1 Nature

As regards their nature, dynamic capabilities have been defined as abilities (Teece, 1997), capacities (Helfat et al.'s 2007), organizational and strategic processes (Eisenhardt & Martin, 2000). This latter conceptualization of dynamic capabilities proposed by Eisenhardt and Martin (2000) has been widely adopted by empirical works. Dynamic capabilities are in this view, explicit processes that integrate resources, such as new product development; processes that reconfigure resources within firms, such as technology brokering; processes that are related to the gain and release of resources, such as external technology acquisition and commercialization.

2.3.2.1.2 Role

Scholars tend to disagree on the specific role of dynamic capabilities being either a modifier of routines, zero level capabilities (dynamic capabilities being viewed as high level capabilities (Winter, 2003)) or resources.

2.3.2.1.3 Context of relevance

The relevant context of application for dynamic capabilities is essentially the highly dynamic environments such as the ICT sector or the biotech industry but some scholars such as Eisenhardt and Martin (2000) and Zollo and Winter (2002) extended its application to more stable industries where "change occurs frequently, but along predictable and linear paths."

2.3.2.1.4 Creation and development Mechanisms

All studies have stressed the importance of learning mechanisms to dynamic capabilities creation and development. The typical learning processes involved are: repeated practice (learning by doing), past mistakes, improvisation, trial and errors and imitation (the last two being more likely for new ventures). For Eisenhardt and Martin (2000), mechanism of variation and selection are the key elements of dynamic capabilities evolution. While variation mechanisms are more relevant in moderately dynamic markets, selection mechanisms are crucial in high velocity market to harness and focus on clear targets the continuous flow of change generated in the environment.

2.3.2.1.5 Heterogeneity Assumptions

In their influential seminal paper, Teece et al. (1997) stressed the importance of firms' idiosyncratic path-dependency to the creation and development of dynamic capabilities. Accordingly, they contended that dynamic capabilities are highly firm specific and therefore heterogeneous across organizations. In contrast, Eisenhardt and Martin (2000) contended that dynamic capabilities are a set of specific and identifiable strategic and organizational processes (best practices) that possess many common features across organizations.

2.3.2.1.6 Outcomes

The direct link between dynamic capabilities and superior performance has not reached a consensus yet . If Teece et al. (1997) first assumed a positive relationship, they asserted in a review of the previous literature on strategic management that dynamic capabilities as an extension of the RBV was a complementary framework to Porter (1980) and Shapiro (1989) approaches. Eisenhardt and Martin (2000) also noted, "Dynamic capabilities are necessary, but not sufficient, conditions for competitive advantage."

Dynamic capabilities implementation often competes with "punctual ad hoc problem solving". In this approach, Winter (2003) posited that in some cases striving to develop dynamic capabilities through long-term commitments to specialized resources may damage the firm's performance due to high opportunity costs.

However, Teece (2007) recently reasserted that "the ambition of the dynamic capabilities framework is nothing less than to explain the sources of enterprise-level competitive advantage over time" and that "dynamic capabilities lie at the core of enterprise success (and failure)."

For Teece et al. (1997), the source of competitive advantage is explained by three strategic factors:

> "…Competitive advantage of firms lies with its managerial and organizational processes, shaped by its (specific) asset position, and the path available to it."

- **Processes**

For Teece et Al. (1997), dynamic capabilities take the form of managerial processes. They distinguished between three types of processes based on their role in the organization: integration, learning, and reconfiguration.

  - Integration is viewed as the static ability to coordinate disparate activities into a profit value stream generation.
  - Learning embodies here two notions: repetition that allows tasks to be performed better and quicker and experimentation that enables firms to identify new opportunities.
  - Reconfiguring its assets is critical when existing processes no longer provide sufficient performance. Teece et al. (1997) advocate for decentralized power and local autonomy in order to facilitate reconfiguring.

- **Positions**

A position describes here the endowment of technological, financial, reputational, institutional, structural and complementary assets that grant firms competitive advantage at any point in time thanks to their highly specific and non-tradable nature.

- **Paths**

Strategic choices such as huge investments in non-fungible assets or adoption of particular technologies tend to be irreversible and create "lock in" effects". If the irreversibility influence is recognized in the short run, the rational actor theory assumes however that in the long run firms will dispose of an infinite range of technologies and markets to choose from. Teece (2007) goes against this optimist assumption and argues that in term of future investments, "history matters" as firms tend to naturally favor local learning over far searching.

In presence of increasing returns to adoption, these path dependencies effects are amplified. Thus, when network externalities are strong, complementary assets vital or phenomenon of learning by doing essential, firms may run the risk to be locked in on inferior technologies trajectories.

2.3.2.2 Definition adopted for dynamic capabilities

For the purpose of this study, we will adopt a hybrid definition of the dynamic capabilities concept previously reviewed. We will assume that dynamic capabilities are capacities (Teece et al. 1997) that arise from the current implementation and past history of "best practices to change" (i.e. micro foundations (Teece (2007) or routines) to create value for firms within dynamic markets by manipulating resources into value-creating strategies" (Eisenhardt and Martin, 2000). At the micro foundation level of dynamic capabilities we will distinguish between two types of routines (firm's DNA): operating routines (Zollo & Winter, 2002) and what we will call "best practices to change". Three taxonomies of "dynamic capabilities" are presented in the following section.

2.3.2.3 The genotype to compete in dynamic environments: different visions from the literature

2.3.2.3.1 Sense, seize, reconfigure

Teece (2007) classified capabilities into three distinct phases: first sensing opportunities, then seizing the right ones, and finally managing the firm's tangible and intangible assets competitiveness to sustain competitiveness.

2.3.2.3.1.1 Sensing (and shaping) opportunities and threats

The first step to address change in an organization is to detect new opportunities through scanning (both local and distant), learning, creative and interpretive activities. This is however no easy task in dynamic industries such as the ICT sector. In such environments, the complex convergence of technologies and the unpredictable and implicit expectations of customers make it hard for firms to identify which technological trajectory will eventually emerge and win the market. Furthermore, exogenous constraints such as regulations, standard settings, laws, or business ethics add another level of complexity and unpredictability to the difficult task of determining the best trajectories to follow.

Teece (2007) listed a series of activities enabling a firm to scan, search and explore efficiently its environment:

- Investing in R&D to acquire differential knowledge on existing information
- Probing customer needs and technological possibilities
- Strive to understand latent demand
- Study the structural evolution of industries and markets
- Understand supplier and competitors responses

2.3.2.3.1.2 Seize opportunities

Once opportunities are clearly sensed, time comes to transform them into business realities. If speed to market sometimes matters to gain the advantage of the first mover (e.g. in presence of network externalities to reach the critical mass), Teece (2007) notes however that since in the early age of a technology multiple investment paths are possible, a relevant strategy is to “stay flexible until the dominant design emerges and then investing heavily once a design looks like it can become a winner”. This assessment is moderated depending on the firm position when the technology emerges. The better positioned the firm is in term of complementary assets, the more she can afford to wait for the dominant design to emerge.

But technology is obviously not the only relevant parameter to seize opportunities. Business models design and in particular institutional and organizational issues are critical to business success as well. This latter aspect, often underestimated by firms is in fact essential to yield the best value from technological opportunities.

Seizing opportunities naturally involves overcoming the natural bureaucratic tendency of firms to opt for the status quo. The phenomenon sometimes called “firm’s inertia”, “anti-innovation bias”, “anti-cannibalism basis” or “risk aversion” tends to favor incremental competency-enhancing improvements over radical competency-destroying innovation. This explains why large companies sometimes fail to invest in promising opportunities they have yet well identified. To highlight the real long-term value of new opportunities and overcome these rigidities, decision making processes must therefore carefully value irreversibility features, opportunity costs as well as the payoffs from making interrelated investments in intangible assets (Teece et al 2007).

2.3.2.3.1.3 Managing threats and reconfiguration

As discussed earlier, growth inevitably constrains firms to developed strong hierarchy, rules and procedures to harness the complexity of managing multiple assets and ensure operation efficiency. This consolidation process, shaped by success tends to be highly path-dependent. To escape these path dependencies and align the organization with the environment's evolution, resources must be reconfigured and recombined. As Teece (2007) noted:

> "A key to sustained profitable growth is the ability to recombine and to reconfigure assets and organizational structures as the enterprise grows, and as markets and technologies change"

Whether redeployment involves transfer of assets through mergers, acquisitions or divestment Teece (2007) underlined the importance of a "periodic if not continuous asset orchestration to minimize internal conflict and maximize complementarities and productive exchange inside this enterprise". To fight the rigidities created by hierarchical layers in the management process, Teece (2007) argues in favor of decentralization within the firm to bring top managers closer to the reality of the markets.

2.3.2.3.2 Genotype of strategically agile firms

In a study case of Nokia, Doz and Kosonen (2008), identified three meta-capabilities at the foundation of the concept of strategic agility: strategic sensitivity, leadership unity (for which the term "collective commitment" is used interchangeably) and resource fluidity. This taxonomy composed of meta-capabilities closely matches the one developed by Teece (2007): sensing, seizing, reconfiguring.

2.3.2.3.2.1 Strategic sensitivity

Following the same 'sensing' approach introduced by Teece (2007), strategic sensitivity refers to the firm's capabilities to identify and make sense of the change occurring in its environment. When change cannot be modeled nor predicted, Doz and Kosonen (2008) argue that foresight must make room for more insight. Firms must therefore deploy cognitive mechanisms to probe their environment and experience the future. A common way to gain perspective on what could become an organization is to involve outsiders (consultants, academic scholars, new hires…) in the sensing process; people that are capable of thinking out of the box and distance themselves from the day-to-day routine management of a particular business. However, there is often a gap of thinking between consultants and inside managers. Consultants or academic researchers approach in fact the organization with conceptual frameworks while insiders usually refer to it through specific details relative to an implicit context that they built together in the day-to-day operations. Managers must therefore thrive to gain generality by abstracting the conceptual features of their activities and separate them from the context specific or historically inherited ones (Doz and Kosonen, 2008). Distancing and abstracting mechanisms then trigger the process of variation, which generates new business alternatives.

2.3.2.3.2.2 Leadership unity

For business renewal to be effective, top executives must be prepared to make hard choices under high uncertainty and sometimes even cannibalize their existing business. Leadership unity provides a way for top executives to share the responsibility driven by change collectively and support individuals in their creative actions.

In traditional corporate culture, top issues are often addressed through bilateral discussions with the CEO. More generally, decisions usually emerge from the result of short debates where individuals "fight" to impose their view. These individualistic behaviors tend to alter the quality and variety of decisions. Doz and Kosonen (2008) emphasize the key role of teamwork in solving these issues:

> "Rather than reach a decision that identifies winners and losers - and be based primarily on the strength of one input, perspective and framing - collective commitment is more likely to be built around the convergence of existing frames, or by them being transcended by the emergence of a new, well thought out collective frame."

2.3.2.3.2.3 Resource fluidity

The speed and cost of resource's redeployment are the traditional parameters used to select between strategic opportunities. Fluidizing resources can then allow a company to entertain more options. Obviously, all resources do not have the same level of fluidity. The more mobile and reusable a resource is the more fluid it is. Core competencies for instance are usually applicable in many areas of the firm but cash even though extremely mobile can only be used once.

To fight the inertia of the rigid structures in which resources are traditionally imprisoned, Doz and Kosonen listed a series of measures:

- Decoupling interdependent systems in technical core and adaptive peripheries
- Modularizing processes and systems to avoid one-size-fits-all mentality
- "Dissociating organizational structure (role and strategies) from their underlying business processes and strategy to allow greater structural flexibility" (Doz and Kosonen, 2008)
- Create parallel business models and be able to switch between them accordingly
- Grafting original business models onto existing operations to stimulate change

2.3.2.4 DNA : sublevel of the genotype (micro foundations)

In the previous section, we highlighted the fact that the dynamic capabilities framework can be articulated around three main types of capabilities:

- Capability to sense the environment
  - Identify opportunities (that engage the strategy of the company or not)
  - Identify risks and threats
- Capability to seize opportunities
  - Commit the organization to conduct change (collective commitment)
  - Fight internal rigidities
- Capability to reconfigure internal resources
  - Fluidize resources
  - Recombine resources

Teece (2007) attributed to each of these classes of capabilities a set of micro foundations that he defined as:

> "Distinct skills, processes, procedures, organizational structures, decision rules, and disciplines, which undergird enterprise-level sensing, seizing, and reconfiguring capacities"

Following the same line, we assume that this sub level can be interpreted as the DNA of the firm. The state and recombination of this DNA material is then what shapes the capabilities to sense, seize and reconfigure.

2.3.2.4.1 Sensing DNA

To sense its environment a company needs to possess a set of processes to identify and tap the inflow of information. Teece (2007) distinguished from four different processes to source knowledge from respectively internal R&D, academic science and open innovation networks, supplier and customers. Research activities are obviously an important source of knowledge but as mentioned before, as exploration activities tend to be mainly local, firms must strive to search also the periphery of their ecosystem as well as involving their collaborators such as suppliers in the research process. Companies must also develop their use of 'Open innovation platforms' to acquire technologies and their collaboration with universities to source the latest development in Science. Last but not least, the explicit and latent need of customer represent maybe the most valuable resource of knowledge for a company. Freeman (1974) acknowledged for instance that the commercial success of an innovation was highly correlated with the developers' understanding of user needs.

If sourcing external knowledge is important, the firm's capacity to integrate it into a set of valuable information for the company is yet more crucial. Row information must be filtered, synthesized and addressed to the units capable of processing it properly. This requires the existence of analytical systems that process the incoming information and redistribute it in the right format to the rights units. Depending on the nature of the information, these systems can be either represented by individuals that act as intermediates to transform raw information (data, facts, anecdotes, beliefs) into consolidated one (charts, reports, frameworks, rules) or by computerized systems when the information is frequent and codified.

The relation between theses integrative systems and the sourcing processes are summarized in the following graphic proposed by Teece (2007).

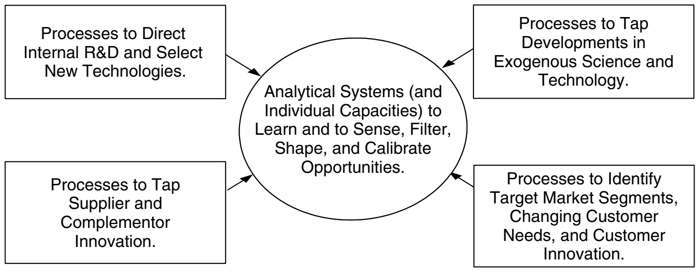

Figure 7 Microfoundations of the capability to sense (and shape) opportunities and threats. Source: Teece, 2007

2.3.2.4.2 Seizing DNA

To have a real economic impact, opportunities must be transformed into business models. This step implies determining the future organizational and financial architectures of the business in term of technological choices; market's segments targeted, financial modalities, sales strategies and possible partnerships. Intelligence systems are here critical to assess the validity of alternatives and support choices that are often made under great uncertainty. In this selection process, decision-making protocols must be designed to reduce 'anti-cannibalization' proclivities' (Teece, 2007) and avoid biases. Even small mistakes can in facts lead to disastrous consequences especially in presence of network externalities. 'To err is human' but Teece (2007) argued that strong disciplines involving outsider's reviews and honesty promoting could help resolve this issue. As regards the fight against the 'anti innovation' phenomenon Teece (2007) underlined the need to design strong incentives that reward creative actions and adapted organizational structure (organic structures) that catalyzed them. Although they acknowledged the utility of feeding business models with supportive data and clear recommendations, Doz and Kosonen (2008) stressed that business models must also be designed flexible enough so that they can be continuously adjusted, honed and aligned in function of external change.

A second great deal after selecting the features of a business model is to set the enterprise boundaries so that the firm yields the maximum from the potential value created by the new opportunity. The key parameters to take into account here are (Teece 2007):

- The appropriability regime
- The nature of complementary assets
- The relative position of innovator and potential imitators with respect to complementary assets
- The phase of industry development (pre or post emergence of a dominant design)

Alliance arrangements to access complementary assets such as external technologies or distribution channels may be necessary depending on the firm position. In every cases however, a relevant strategy is to take possession of what constitutes the 'bottleneck assets' of the value chain for a particular business. When the 'choke points' take the form of platforms interconnected to complementary products, important decisions must be made regarding the providing of tools and incentives to complementors as well as the accessibility of the platform (open or proprietary). Besides, assets nowadays mainly commoditized such as manufacturing capacity for instance can be accessed through outsourcing to capture indirectly the benefit of scale economics.

Teece, Doz and Kosonen (2008) all underlined the critical role of top executive in the seizing process. Teece (2007) noted that:

> "Top management through its action and its communication has a critical role to play in garnering loyalty and commitment and achieving adherence to innovation and efficiency as important goals."

In the same stream of thought, Doz and Kosonen (2008) emphasize the importance of teamwork and collective commitment at the top to make decisions quickly and diffuse strong innovation enhancing values through the organization.

The articulation of the processes, culture and best practices at the foundation of the seizing capability are summarized in the following graphic (Teece, 2007).

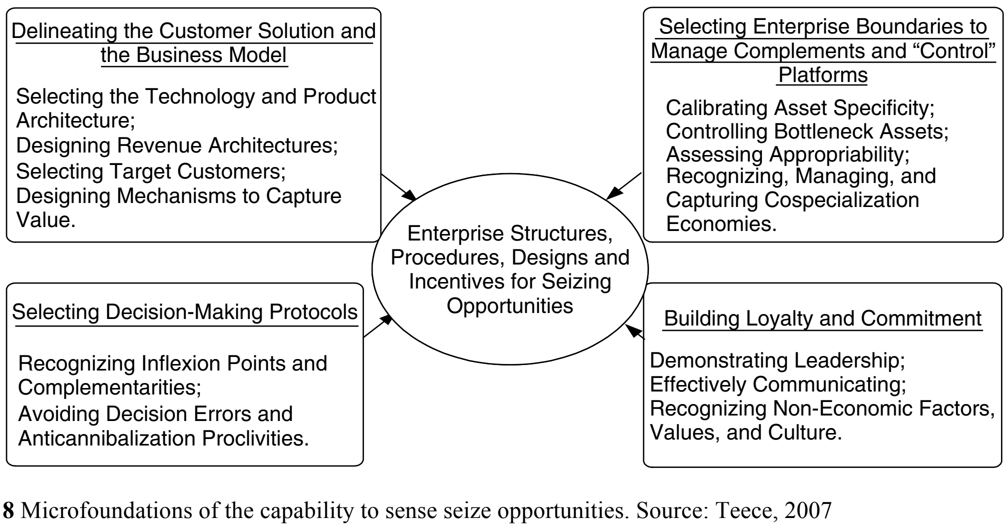

Figure 8 Microfoundations of the capability to sense seize opportunities. Source: Teece, 2007

2.3.2.4.3 Reconfiguring DNA

According to the resource-based view, matching resources with opportunities is essential to achieve competitive advantage. This strategic fit can be met through organizational structures that enhance resources fluidity, governance that incentives alignment and controls for malfeasance as well as processes that astutely manage knowledge and integrate cospecialization assets (Teece, 2007).

Some organizational structures allow for better resource fluidity than others. The use of adaptive peripheral systems grafted to technical core platforms is unequivocally recognized as a relevant way to increase the flexibility and adaptability of resources. While Teece (2007) underlined this fact at the intra-firms level (external complementary assets grafted to the an internal bottle-neck platform), Doz and Kosonen (2008) extended it to all independent systems at a business process level. In this approach, integrative systems are decoupled in 'adaptable parts', independent and highly responsive to change and 'fixed parts' that integrate common features (usually technical) less likely to evolve. In some way, the distributed model of innovation developed by Chesbrough (2003) is articulated around the same principles. And more generally so is the idea of decentralization. In a open innovation model, knowledge sought in dispersed units beyond the firm's boundaries is integrated inside a central R&D platform. As regards decentralization, independent profit centers are structurally separated to enhance their autonomy and accountability. Dispersed autonomous units will in fact be more flexible and responsive to local change. Traditionally, incumbents put in place multidivisional forms in which each division is in charge of a product, a market line or a region.

Teece (2007) defined cospecialized assets as "a particular class of complementary assets where the value of an asset is a function of its use in conjunction with other particular assets." Astutely combined, these cospecialized assets can develop great synergies and be the source of additional value when resources are reconfigured. They can be acquired or develop through internal investments or alliance contracts but their identification relies essentially on the entrepreneurial skills of the managers.

Learning processes and knowledge management are one of the most characteristic DNA materials of reconfigurable and adaptable organizations in dynamic environments. Procedures to diffuse, transfer and share knowledge across the organization are essential to promote systemic learning. Experimental knowledge developed in R&D as well as tacit individual and codified organizational knowledge must interact through integrative and reframing systems to constitute a base for future development and adaptation. Besides, even though some kind of knowledge is by essence difficult to imitate (e.g. tacit know-how), firms must carefully monitor these knowledge processes to protect intellectual property. In joint development activities for instance, the control of the transfers of technology and know-how becomes critical. A balance must be struck between facilitating the process of mutual learning and monitor them strictly to hold intellectual property.

Finally, Governance issues may have a great impact in resolving the conflicting tensions driven by change. Incentive and rules must be designed to fight the discretion of managers and insure the alignment of employees to the process of reconfiguration.

The critical elements to reconfigure efficiently a firm's assets are integrated in the following graphic.

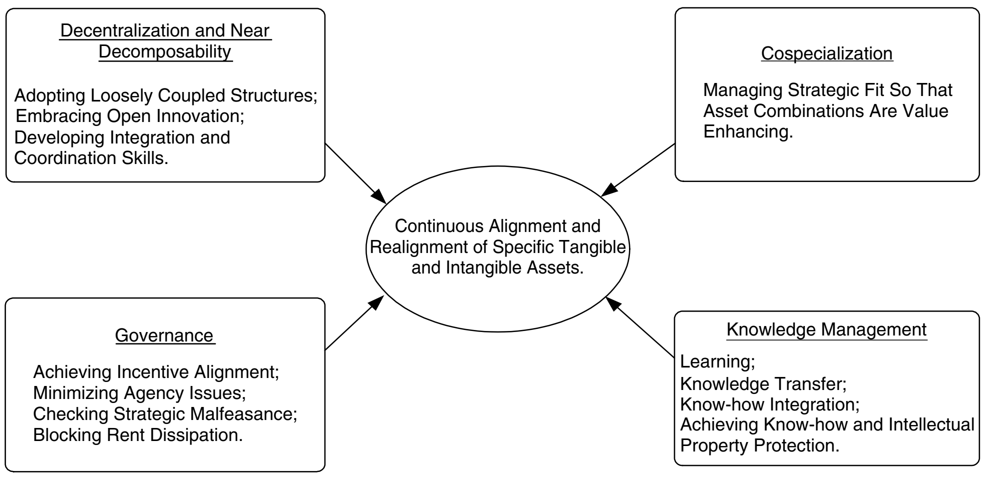

Figure 9 Microfoundations of the capability to reconfigure assets. Source : Teece, 2007

2.4 Conclusion

In this chapter we proposed that the literature on strategic management could be classified in to macro categories: one focusing on the external aspects of the firm (phenotype literature) and the other studying the internal antecedents and microfoundations of these observable traits (genotype literature). This framework served to classify the most recent concepts that emerged recently to address the issue of prosperity in dynamic environments: agility, ambidexterity and dynamic capabilities.

We found that agility and ambidexterity were two phenotype-like concepts as they were founded mainly on the observation of the characteristic traits of successful companies in changing environments. Moreover, we identified the concept of ambidexterity as the organizational expression of the general agile phenotype. On the other hand, we classified the framework of dynamic capabilities and foundations of strategic agility at the genotype level due to their focus on the internal capacity and actions needed to align dynamically the firm's resources with its changing environment.

The genotype literature has dominated the literature in the past twenty years and profoundly helped scholars to decrypt the internal organizational routines at the basis of the dynamic capabilities. But this stream of research did not find much echo among practitioners. In fact, they found it difficult to put in practice the different recommendations of the dynamic capabilities framework. On the other hand, market observers had trouble to identify from the outside which company was more likely to possess these dynamic capabilities. We argue in this paper that the concept of agility within the phenotype literature could partially fill this gap. In fact, the concept of agility offers an interesting set of canonical observable traits, interpreted as external manifestation of the firm's genotype, which could be very useful for scholars and practitioners to detect those companies more likely to survive change and competition and those others that despite managerial intervention would surely fail.

To illustrate the practical value from the use of this phenotype approach, we therefore apply in the following chapter the different canonical traits of agile companies collected in the previous review of the literature to two successful companies in dynamic environments. The aim of this empirical work, based on a story analysis method, is to prove that both Netflix and Nespresso display agile features and that these traits have played an important role to their successes.

Chapter 3

Case studies: agile companies

3.1 Methodology

3.1.1 Presentation of the methodology

This paper uses the story analysis methodology to test empirically the scope and validity of the agility concept. Past published articles, documents or data are gathered, analyzed and synthesized in relation with the subject (Gottschalk, 1969). For both Netflix and Nespresso, information has been collected through different kind of sources: newspaper articles, previous case studies, raw data from the annual/quarterly reports of the company as well as others Internet sources.

Golder (2000) discomposed the story analysis methodology in five steps:

1. Choose an argument and classify the proofs:

After choosing the argument of the study, one must prepare a few questions to focus on and seek the answers one wants to find in different sources (Shafer, 1974) whether than building its research on predefined hypothesis of an existing theory (Goodman and Kruger, 1988).

2. Assess the validity of the sources (external criticism)

This step aims to assess the authenticity of the different proofs yielded (Gottschalk, 1969). The reputation of the author as well as the place, moment and circumstances in which the document has been written must be carefully taken into account (Shafer, 1974)

3. Assess the validity of the documents (internal criticism)

A this step, the content of the document is assessed according with four criteria (Gottschalk, 1969):

- Competence: Does the author have all the tools or facts in hands to deliver correct information?
- Objectivity: Is there a particular conflict of interest that could bias the information?
- Reliability: Are there any contradictions in the speech of the author?
- Corroboration: Do other similar sources deliver the same information?

4. Analyze and interpret the documents

The interpretation step is a critical one especially when one not only wants to report the facts but also wants to understand their significations (Huges, 1964).

5. Draw and present the conclusions

Finally, after the interpretation step, documents must be chosen and classified according to the elements that one wants to highlight. When documents are in the large majority of a qualitative nature, the narrative form is the most adapted to communicate the facts and understanding relative to a particular event. (Golder, 2000)

The story analysis methodology has several benefits for this study. First of all, the spirit of this methodology completely fits the observable approach on which the concept of agility is founded. In facts, through the crossing of different sources, it is possible to observe quite objectively what was the agile behavior of a firm. This methodology is also particularly efficient to highlight the chronology of past events (Golder and Tellis, 1993). Thanks to this aspect, one can then reconstitute and correlate the agile behavior observed with the economic and financial signs of success experienced later on.

In comparison, traditional surveys or interviews tend to be based on personal visions and interpretations of events and are therefore more subjective in essence than the story analysis methodology that crosses different points of view. Interviews and surveys are also very retrospective in nature as people usually discussed facts that happened a lot time before their interview. This latter aspect can be problematic, as people interviewed usually tend to add their own layer of interpretation and rationalization on the top the facts they experienced in the past. This is why for the scope of the analysis, this paper doesn't use interviews and surveys directly but indirectly. Different testimonies from top executives are for instance extracted from newspaper articles or previous case studies to underline the arguments presented. All of these testimonies are crossed with other sources of information so that bias from personal interpretations is limited.

Market studies and financial data are used to prove and assess the successes of Netfilx and Nespresso. As regards the market studies they are most of the time extracted from previous studies but some are directly built from the raw data of the quarterly reports. For the financial data however, all graphics and charts are built from the annual or quarterly report of the firms concerned.

Despite the several benefits of the story analysis methodology to conduct the empirical work of this paper, this method also presents several limits. In facts, the methodology is more adapted to describe events than really make sense of them and multiple interpretations can be draw from the same description of an event. One must then be cautious from drawing any definitive conclusion from a particular interpretation of the events. The empirical work conducted in this paper does not intend therefore to demonstrate that the firms studied experienced their success only because they were agile. It only aims at showing that the portrait of the agile company at different levels (organization, strategy…) can be a useful tool to understand how some firms succeed to sustain a competitive advantage in turbulent environments.

3.1.2 Procedure used to conduct the case studies

First of all, for both Netflix and Nespresso, two case studies were extracted from the online platform 'ecch' to serve as a basis of information and obtain a part of the two firms history in order to conduct further researches on particular interesting events. The information presented in these two case studies was then crossed with other sources. Articles from top newspapers were extracted from the LexisNexix professional platform and used to verify and extends the information on the case studies. Articles (an average of 20 for each company), contemporary to the major events were selected to measure the gap between the information interpreted in the case studies and the information, as it was perceived when the events just occurred. More informal information yielded from different blogs and other

Internet sources was also used to assess if some pieces of information were subject to debate or conflict of interpretations.

The integration of these different sources of information enabled to reconstitute the story of each firm from its creation to its present state and identify the most interesting events. In this paper, the presentation of this synthesis is effectuated in a chronological way. Some historical elements reported in the case studies only serve as contextual information to help the reader understand all the in and outs of the firms' behaviors. But other elements are critical and carefully analyzed in light of the characteristic traits identified in the first chapter as well as the strategic agility framework proposed by Doz and Kosonen (2008).

The successes of Netflix and Nespresso have been discussed by many studies. However, in this paper, we discuss these successes from a different point of view and with a different conceptual approach. The scope of this chapter is in fact to prove that the concept of agility can be useful to understand the success of a company in a turbulent environment.

3.2 Case study of Netflix

3.2.1 Introduction

Netflix, founded in 1997 by Marc Randolph and Reed Hastings, was the pioneer of the online subscription-based DVD rental services.

Today, Netflix is proud to present itself through its website as “the company that revolutionized TV show and movie watching – Twice”. The initial business model developed by the company, based on mail delivery distribution, flat fees, large collection of films and astute recommendation processes, was undoubtedly a great revolution in the movie retail industry as it eventually destabilized and brought to dust Blockbuster, the principal incumbent of the industry. If this revolution is quite characteristic of the success that a lot of agile and innovative start-ups can experience against bigger but low-to-react opponents, the second revolution is more peculiar. When in January 2007 Reed Hastings anticipated the entrance of Netflix into the VOD market, the company was facing its stiffest competition and was not the light start-up it used to be. However, Netflix successfully managed to enter the VOD era and by 2011 had surpassed all of its competitors in this new segment, becoming besides the biggest source of North American web traffic (24% of aggregated traffic). At the same time, Blockbuster, uncontested leader of the movie retail industry in 2002 when Netflix went public, completely failed to adapt its traditional business model to the evolution of the market. The incumbent went through a painful descent into hell that eventually led the company to file for chapter 11 on September 23, 2010.

Netflix, identified by business week (2002) as the most successful dot-com ventures to date, did not seem to have been affected by the traditional inertia that large firms tend to develop along with success, which caused the bankruptcy of Blockbuster. Still, Netflix even kept on growing and expanding its margin in the complex environment of the movie industry characterized by the fast evolution of its supporting and complementary technologies (VHS, Internet, DVD, Blue Ray, VOD) as well as the drastic increase of its inside competition over the years. This achievement for instance is very much representative of the strategically agile phenotype presented in the first chapter of this paper.

The first part of this case study presents the different agile traits displayed by Netflix during the first phase of its growth (1998-2007) in the movie rental industry. In this part Netflix success is illustrated with the progressive fall down of Blockbuster, the incumbent of the movie rental industry.

The second part focuses on the second revolution operated by Netflix from 2007 in a new segment: the Video-On-demand. Different agile traits corresponding to the ones identified in the first chapter are here again presented to the light of Netflix success and continuous growth.

The last part reconstitutes the agile portrait of Netflix and concludes as regards the relevance of the agile framework to explain the sustain growth of the firm throughout a turbulent environment.

3.2.2 Agile traits of Netflix that revolutionized the movie rental industry

3.2.2.1 A soft agile strategy to build an innovative business model

This section describes how Netflix as a young start up has been able to adapt quickly and successfully adapt its business model to the change perceived by its top executives in the movie rental market.

The first version of the Netflix website was launched in April 1998. The company offered a pricing model aligned on the "pay-per-rental model" (US $4 per rental plus US $2 in postage; late fees applied) dispensed by the traditional players of the rental market (Blockbuster and Wall Mart). At this time, three years after the development of the DVD, most available movies in video stores were still in the VHS cassette format. Yet, Netflix decided to target the market's niche of the early adopters of DVD players. Hastings and his team inspired by the business models of the dot-com boom identified three key reasons for their future customers to adopt their online business model: value, selection and convenience. According to Hastings, costumers who sought value were typically the 'eBay customers' i.e. those who were seeing Internet shopping as a great opportunity to make interesting deals. In contrast, he labeled people who sought selection and convenience as 'amazon customers'. At the time, almost a third of Netflix costumers lived in rural areas and usually did not had access to cable TV or video stores. Netflix offered them a convenient alternative way to brick-and-mortar retail outlets that offered limited choice.

The online website of Netflix served as a platform for customers to order the DVDs they would received a few days later by mail. Using a search engine included in the website, subscribers built a list (called a queue) of the movies they were interested in renting. They received the next movie based on their listing only once that had returned the currently outstanding film. However, as feedbacks revealed, this first iteration of the business model did not convinced a lot of customers. For a price aligned on its competitors, Netflix provided in fact a much slower delivery. Customers found it more convenient to go directly to the closest Blockbuster store rather than waiting for movies to arrive by mail post. Therefore, by the end of 1999, Hasting, inspired by the monthly-fee pricing model of gym clubs and aware of the frustration created by late fees, decided to change completely the pricing policy. He switched to a flat rental fee and decided to cancel definitely the late fees. With this new pricing approach, subscribers could have in their possession up to four movies at a time, which they could exchange four times a month. Neil Hunt, the company's chief product officer explained the advantage of this solution:

> "We turned the disadvantage of delivery time into having a movie at home all the time. The value to Netflix of having our movies in the customers home all the time was our key insight"

Soon afterwards, Netflix's top management decided to slightly modify the pricing system again to allow subscribers to keep up to three movies at a time and exchange them as frequently as they liked. This was the beginning of the unlimited rental era. Hunt detailed this quick adjustment in the pricing strategy in these terms:

> "We made the observation that this change would dramatically simplify the program and make it easier to explain the service. It also allowed us to market a more compelling value proposition. The term "unlimited" is great marketing… We had some vigorous debates about this, but in the end it was a leap of faith. The dot-com boom was still in full growth mode, and everyone around us was growing fast. It wasn't the time to do months of testing and analysis. We had to make some bets and not worry about getting it wrong."

These quick strategic moves in the pricing system illustrate the capacity of the firm to adapt quickly its business model when difficulties are met. This behavior fits one of the observable traits of the agile companies identified in the first chapter:

The company is able in a difficult situation to adapt or refresh rapidly and easily its business model

This soft agile strategy can be explained with the framework of Doz and Kosonen (2008). As Hunt explained, the introduction of the flat-fee subscription and unlimited rental has been mostly guided by insight whether than foresight. In fast changing and highly uncertain environments such as the dot-com industry, the importance of reacting quickly did not afford the time for Netflix to conduct thorough analysis and careful forecast to determine the evolution of the market. Yet, Netflix strategy was not built on random bets. Netflix had a strong vision of what they pictured to be the evolution of movies' consumption. Besides, all top executives of Netflix were tightly united behind Hastings that considered that watching movies was an ordinary form of entertainment and not only a special and occasional event often labeled as 'movie night'. This insight proved right as Netflix 'all-you-can-eat' model convinced a lot of movie aficionados dissatisfied by the traditional 'pay-per-rental' model offered by Blockbuster. As regards the flexibility of Netflix resources, at that time Netflix was a young and light start-up and had therefore little trouble to reconfigure its assets.

3.2.2.2 An output characteristic of agile companies: from the delivery of DVDs to the delivery of an experience

This section shows how the combinative output of the business model developed by Netflix fits one of the observable traits identified of agile companies in the first chapter:

The output of the company is not just a product or a service but an experience (combination of product and services)

After Netflix managed to set an innovative pricing model, the rapid adoption of the DVD technology made the number of subscribers skyrocket. But this fast growth came with high costs. The most problematic issue for Netflix was that due to the fact that subscribers' demand was mainly concentrated on the new releases, which were also the most expensive ones to purchase. As hunt noted:

> "We couldn't just blindly promote movies that already had external demand generation. We needed to stimulate demand on the older and less known movies and things already in our catalog. By marketing from the rest of the "tail" we could drive the average price down of building our catalog."

To balance their customers' demands, Netflix developed a software named 'CineMatch' which purpose was to recommend films to their subscribers based on previous rental patterns, other subscribers' ratings as well as on a short survey people had to file right after subscribing. The customers were invited to rate the movies and share their feedbacks so that the software could improved continuously its understanding of the customer's preferences and enhance the accuracy of its recommendation process. The key feature of this system was the presence of a filter inside the software ensuring that out-of-stock films were not suggested to customers. Thanks to this latter aspect, the rental of costly new releases (more likely to be in short supply) dropped significantly, allowing Netflix to better control its purchasing costs. More generally, this mechanism participated to promote less known movies as Netflix customers often rated with high scores independent films that were not supported by large-scale advertising. As a result, in 2006, the share of new releases on the total rental was only 30% for Netflix whereas Blockbuster share's accounted for almost 70%. In 2006, Netflix decided to improve the Cinematch algorithm of recommendation and launched the 'Netflix price'. By June 2007 over 20,000 teams had registered for the competition from over 150 countries. This mechanism enabled Netflix to offer to its customer a very efficient recommendation process.

In general, subscriber's feedbacks were largely positive about this new system as it made them discover and enjoy less popular films they would not have seen otherwise. The filter controlling for short supplies also improved the satisfaction of customers as it helped reduce direct frustration. Besides, the community-based rating system generated strong networks effects that boosted the growth of Netflix.

The integration of the DVD delivery service with the recommendation software also deeply transforms the output of the company. From a traditional DVD provider, Netflix became an global entertainment provider. In fact, more than just delivering what the subscribers asked for, Netflix offered its customers the experience of watching a film *they* *would surely like*. This combination of a product (DVD) and a complementary service (recommendation process) is characteristic of the output of an agile company. In fact, in the first chapter of this paper, we identified the following statement as one of the canonical traits of agile companies:

The output of the company is not just a product or a service but an experience (combination of product and services)

3.2.2.3 Building a fluid manufacturing system

The business model of Netflix strongly relied on the U.S postal service capacity to deliver DVDs efficiently to its subscribers. In the San Francisco bay area where the company first launched its operations, subscribers could enjoy next day delivery but it was not the case for the rest of the country where long cross-country mails could take weeks to arrive. Until 2001, Netflix operated from a single distribution center in Sunnyvale, California. By February 2005, Netflix operated from 35 distribution centers allocated to the main metropolitan area and was able to guarantee one-day delivery from 100 mile of each of these centers. In 2007, Netflix claimed that it could reach more than 90% of the country with in one delivery day.

To attain the one-day-delivery-for-all target, Netflix first began to experiment new distribution centers in Boston and New York at the end of 2001. Comforted by a large success, the company then continued its expansion across the country step-by-step. The strategy of expansion was almost inexpensive as the company was able to convert an existing warehouse to its needs for less than $60 000. This light strategy of investment allowed Netflix to displace the locations of the distributions centers quite easily in function of the local response of customers. In this period, the company focused essentially on improving its logistics to reduce the delivery time, which was considered by executives to be the key measure of customer satisfaction. The company designed and patented its own standard of envelopes (The famous red envelopes) to minimize weight and maximize DVD protection but especially to help the United State Postal Service (USPS) process their envelopes quicker. Along with their growth, Netflix therefore developed a strong relationship with USPS. The two companies created together special routes for returning movies in order to shorten turnaround time as well as standardized procedures to recognize and process separately Netflix envelopes from the basic mail. The co-development of the famous "red envelop" enable for instance Netflix to enhance the fluidity and speed of the delivery system.

With an ever-growing collection of films, Netflix also had to put in place a system to balance the variety of demands expressed by its subscribers. The company used an astute system of national inventory to address this issue. Sarandos explained the advantages of this inventory system:

> "Half the equation of packaged media is allocation—getting the right amount of product in the right locations. This was more of a challenge for products that did not enjoy broad promotion. The trade radius of a single video store was so small that even a single copy of a lesser-known film had lousy economics. By using a national inventory, we avoid that issue. We never have overstocks on one side of town with under stocks on the other side. Using the subscribers' queues provides a great deal of data. By looking into the demand in the near future, we can replicate near-perfect inventory. Overall, we can satisfy demand in an area with about one-third to one-fifth of the inventory needed by a retail chain."

This flexible process of distribution allowed Netflix to serve as many customers as traditional retail stores without bearing the cost of distributed brick-and-mortars, as was the case for Blockbuster.

With a faster and a more flexible delivery system, Netflix could better respond to the quick and chaotic shifts in the customers demand across the country. As a result, Netflix expanded quickly across the U.S and reached profitability for the first time in June 2003, almost one year after its initial public offering.

The fast and flexible delivery system set by Netflix fits the description of the agile manufacturing system as we identified it in the first chapter:

An agile company has a manufacturing system that responds quickly and cost efficiently to the shifts in the market

3.2.2.4 Agile model of partnerships to purchase movies

Building the film library has always been the main financial black hole for Netflix. At the beginning, even though the company had some partnerships with a small number of movie distributors, it had no relationships with the major studios and had therefore to pay up-front price aligned on the residential market to purchase new films. Netflix first addressed this issue by hiring as chief content officer, Ted Sarandos, an ex executive of a major U.S video rental chain. Sarandos explained how he filled the gap with the major studios:

> "It is very much a relationship business working with the studios, and I had worked with those people all of my career, so I managed to bring my relationships with me from my prior company. Within a year, Netflix had negotiated direct revenue-sharing agreements with nearly all the major studios."

Thanks to these agreements, Netflix was able to distribute more new releases faster, which considerably improved the reputation of the company. By the end of 2000, Netflix had succeeded to nimbly balance its purchasing model: most popular titles were rented with the revenue sharing agreements while less-known movies were directly bought to integrate their proprietary library. Depending on the characteristic of its products (old films/new films), Netflix distinguished between two opposed purchasing strategies: strong commitment on resources that differentiate the company from its competitors (less-known and carefully chosen movies) and light and flexible approaches (revenue-sharing agreements) when resources are commoditized (top hit movies). In this agile approach in fact, important commitments of resource only take place when the company identifies that these resources will be a source of competitive advantage in the long term. The constitution of a large and diversified library of high potential but less-known movies (more than 100000 titles in DVD in 2009) coupled with millions of ratings and feedbacks on the different films, quickly participated to build Netflix the strong reputation of being the highest quality source of independent films.

As a result, Netflix became a very attractive distribution platform for a large number of independent studios. The unique channel created by Netflix was a great opportunity for these small studios to distribute films that could not be promoted by the traditional marketing methods. More and more independent studios from all around the world began therefore to sign partnerships with Netflix to include their movies in Netflix collection.

From these numerous agreements emerged a coherent ecosystem for independent movies: The small studios provided a rich diversity of films that Netflix could integrate in a unique library and redistribute efficiently with its smart recommendation system. This inter-enterprise level is coherent with the following observable trait formalized in the chapter 1 of this paper:

An agile company is at the platform of an ecosystem of partnerships

3.2.2.5 The success of Netflix over Blockbuster: the traditional inertia of incumbents

This section highlights the success of Netflix by showing how the leader of the industry despite its large resources completely failed to slowdown the impressive growth of its agile opponent.

Very soon after Netflix IPO, an executive of Blockbuster commented the new business model of Netflix to rent movies:

> "Obviously, we pay attention to any way people are getting home entertainment. We always look at all those things. We have not seen a business model that's financially viable long-term in this arena. Online rental services are 'serving a niche market".

Comforting their initial refusal to enter the online business and compete with Netflix, a spokesman from Blockbuster added a few months later:

> "We don't believe there is enough of a demand for mail order; it's not a sustainable business model".

Blockbuster suffered from the traditional blindness arrogance of large incumbents over their start-up competitors. The firm, although perfectly aware of Netflix early growth, was probably so confident about the business model they had been applying with success for over 20 years that they could not imagine for a second that the rules of the game could change in the industry they dominated.

Not until 2003 did Blockbuster begin to see Netflix as a threat. However, when in 2004, the giant of the video rental market finally decided to strike back at Netflix and launch its own online offering; it entered the market with a ferocious strategy. Blockbuster intensively used its existing resources to recover the lost market shares. The firm exploited its existing network of brick-and-mortar stores to offer cross-promotion programs and leveraged its partnership with AOL and Microsoft MSN to promote its new activity to a large audience. Blockbuster also ignited a war price against Netflix by undercutting prices and dropping the use of late fees. Analysts estimated that this last measure cost Blockbuster more $600,000.

Despite all these aggressive measures and the strong comparative advantage that Blockbuster had over Netflix to obtain the newest releases more quickly, the incumbent did not manage to reach profitability in the online segment. Analysts even estimated that the company lost more than $120 million trying to put Netflix down. The main reason they put forward was that at the time customers considered the collection of titles offered by the firm largely inferior to the broad collection of less-known movies built by of Netflix. In addition, Blockbuster's late entrance in the market had granted Netflix enough time to build a strong relationship with its customers and develop efficient operations. As Hastings expressed in 2005: “We’re just thankful Blockbuster didn’t enter four years ago”.

The failure of Blockbuster perfectly illustrates the innovator’s dilemma described by Christensen (1997). Overconfidence and pride relative to old successes have led the giant of the movie rental industry to underestimate the potential threat of a newcomer. They let Netflix grow and consolidate its business model convinced with the idea that the firm of Hastings was serving a niche market without any future and could not therefore be considered as a competitor. But when Blockbuster finally realized that the niche market of Netflix was growing exponentially, it was already too late. As the graphic below shows, from the moment Netflix went public, Blockbuster's market share has plummeted to finally reach a bankruptcy level in 2011. Despite its large financial resources, the giant of the industry failed to counter the first revolution initiated by Netflix and adapt its traditional model to the new exigencies of the dynamic market of the home video industry. At the same time the graphic below clearly shows a sustain growth of Netflix ‘price per share and therefore illustrate the success of the firm.

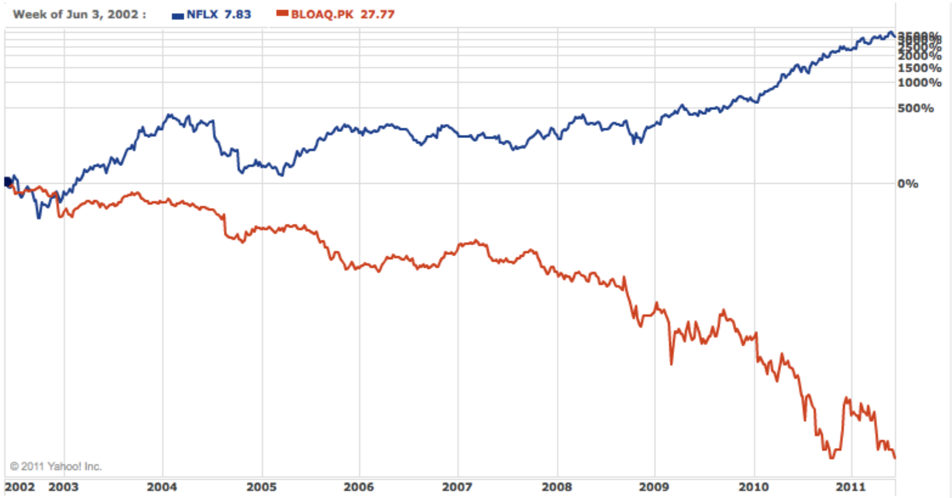

Figure 10 Evolution of Netflix and blockbuster price per share. Source: Yahoo finance

3.2.3 Agile traits of Netflix that revolutionized the VOD industry

3.2.3.1 A hard expression of the strategic agility phenotype

From the review of literature effectuated in the chapter on of this paper, we identified the following behavior as a characteristic observable trait of strategically agile companies:

The company is able in a disruptive period to cannibalize smoothly an old business model expected to become obsolete in order to transit successfully toward a new one in pace with the market's expectations.

We also noted that this trait could be viewed as the HARD expression of the 'strategic agility' phenotype

Through the story analysis of Netflix from 2007, this section attempts to prove that the strategy conducted by the firm to enter the Video-On-Demand fits this behavioral trait and that some correlation can be observed between this behavior and the success of the company. In other words, this section answers the following question: How did Netflix successfully deal with the disruption introduced by the Video-On-Demand in the movie rental industry? The genotype foundation of this phenotype is then explained with the framework developed by Doz and Kosonen (2008).

3.2.3.1.1 Emergence of the VOD market

Video-on-demand systems (VOD) -which allow users to stream or download video contents on demand directly on electronic devices- were first developed in England in 1995 shortly before the foundation of Netflix. The idea behind these systems was to integrate in a same stream all types of video contents (pay-per-view programming, TV shows, movies, internet videos…) and make them available on all type of devices (computer, TV). However, significant hurdles have considerably slowed down the diffusion of the technology. First, from a technical point of view, the bandwidth of Internet access was too narrow at the time to support efficiently and with enough flexibility the intensity and variability of the flux generated by the streaming of large amounts of data. Only cable and satellite TV providers that were the ones to possess broadband infrastructures could experiment the system. Yet, their early entrance did not prove successful. The first reason is that they failed to find proper user-friendly interfaces. Users had to switch from a channel to another with latency times to pick the films they wanted to watch and movie choices were irrevocable. Furthermore, the collection of films offered only included a few top hits freshly released in DVD, with in addition renting fees higher than traditional DVD retailers. This scarce availability of content was mostly due to the extensive negotiations between content creators and cable providers needed to provide films to this new commercialization channel. In fact, at the time, content providers were not ready to cannibalize the business they had recently entered with the DVD technology and were really leery about piracy matters.

Despite all these difficulties, observers of the movie retail industry all agreed that VOD systems had a great potential to eventually replace the DVD technology. This potential market obviously attracted a lot of players and many thought that this new competition would have been a great threat to Netflix's online rental business. With the possibility to reconcile impulse rentals and large selection, the core business model of Netflix was jeopardized.

By early 2007, the VOD market already involved multiple competitors. Three categories could be distinguished in this early market. The first one involved cable and satellite TV providers that offered premium access to high-definition pay-per-view contents to their monthly subscribers with no additional equipment to purchase. Other players like Starz (cable channel), CinemaNow (venture between Lionsgate, Microsoft and Cisco), Apple (with itunes) or MovieLink (venture between MGM, Paramount, Sony, Warner Brothers, and Universal) operated directly on the Internet to provide different solutions to download movies on users' computers. Depending on the price, movies were directly purchased, burned on DVDs, rented for a limited period of time or on a limited number of devices. Finally, the third category included companies such as MovieBeam that offered a solution to bypass the computer with a set box able to stock downloaded films and stream them directly to the TV.

3.2.3.1.2 Netflix in the video-on-demand market

When the VOD market finally emerged with the entrance of the cable TV providers and the joint ventures of the main movie studios, Netflix had the choice between three different strategies: licensing its recommendation system to cable TV providers, spinning off a stand-alone online business with separate profit centers based on the business model of the studio's joint ventures (like Vongo or MovieLink) or integrating a streaming online feature to its monthly subscription offering.

The first strategy was based on the assumption that the TV was the only relevant device for displaying VOD programs. It basically consisted to shift the outsourcing of film deliveries from the traditional postal service to a digital proprietary channel. Since cable and satellite TV providers were the only ones to control the access of the 'bottleneck' infrastructure allowing on-demand viewing on TV, contracting was inevitable. However, given the pace of technology improvements, Hastings knew that the exclusivity of the cable channel would no longer last as satisfactory connectivity between TVs and computers or direct access through the Internet would eventually spread.

The second strategy implied to protect Netflix from cannibalizing internally its online rental business while testing the reactivity of the incipient VOD business. This option, less risky did not however leverage the best assets of the firm. As a result, the last option that advocated for an integration of the VOD service along with the traditional mail delivery business was considered to be the best.

Undertaking this last strategy, in 2007 Netflix launched its first VOD service: 'WatchNow' that soon after was renamed "Watch Instantly". The new feature allowed subscribers to get for no additional cost one hour of streaming for each dollar of their monthly fee (18 hours of online video is free with the $17.99 plan). The key feature was that conversely to other VOD providers in which movies were downloaded to a set-up box or on a computer for a limited period (usually 24 hours), Netflix's users could watch the films directly through their Internet browsers (Netflix had only developed a simple add-on with Microsoft). They could also easily switch to another film after a few minutes if they did not like the one they had chosen. Finally, they had access to the same functions available on DVDs, the only restrictive parameter being the time of streaming. Watch Instantly originally served as a complement for the traditional mail delivery service. Subscribers could accelerate the processing of their queue by watching instantaneously the next movie available. In 2008, Netflix released the time restriction and allowed for unlimited online watching to all its subscribers. Soon afterwards, Netflix responded to the increase competition in the VOD segment by launching it first 'only streaming offer' for $7,99 a month.

As this section illustrates, the decision of Netflix to offer the streaming service a no additional cost was a real *cannibalization* of its traditional mail delivery business. However, this transition was operated very *smoothly*. In fact, Netflix introduced its new service gradually: first with restricted time and only as a complement for the mail delivery offer, then by releasing the restricted time and finally by offering the service independently. Furthermore, this transition was effectuated *in pace with the market's expectations*. In fact, Netflix took the time to appeal its subscribers with the new streaming features for free and then extends the offer when it felt that customers were ready to follow it to the next step. The graphic below shows how the company progressively made its subscribers shift to the new streaming service in less than two years.

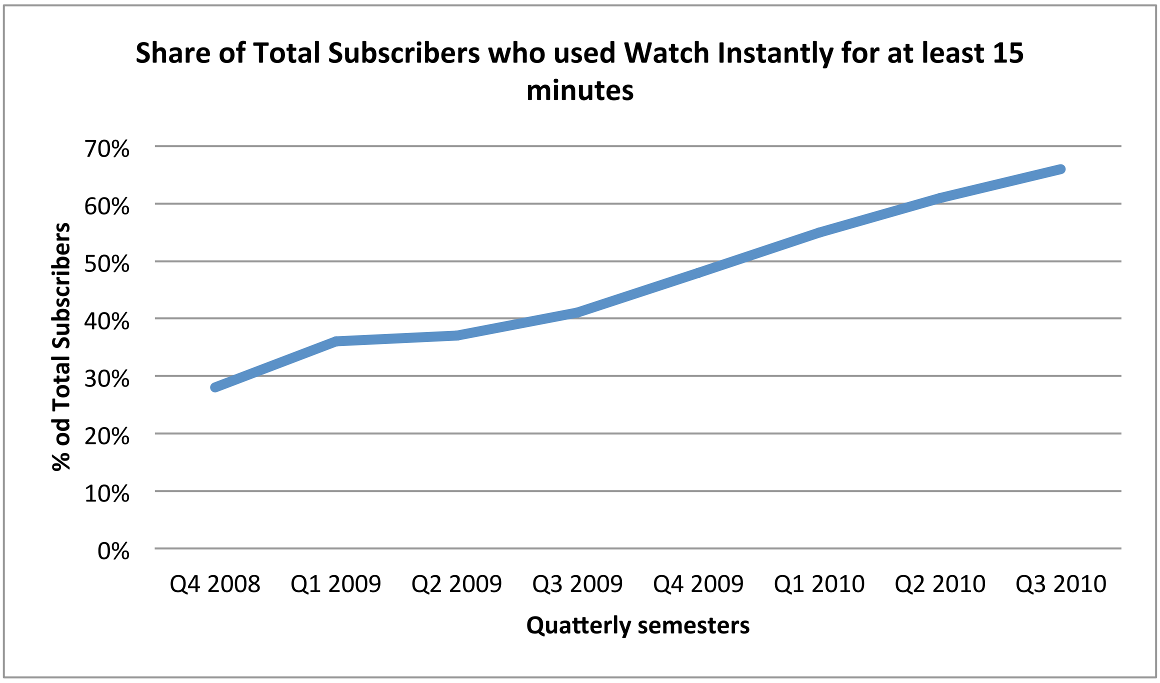

Figure 11 Evolution of the streaming users at Netflix. Data Source: http://ir.netflix.com/releases.cfm

But this cannibalization was a risky bet for Netflix that engaged more than $4,000,000 to offer the Watch Instantly project for free to its subscribers. Even if Netflix did not have to support the same logistic cost as in the mail delivery business, content acquisitions and negotiations for the right to stream movies online still represented a huge investment for the firm. Netflix hoped that the rapid growth of its customer's base in response to this appealing offer would quickly generate fresh revenue in order to cover the high movie licensing costs of the new streaming feature. And these wishes were more than satisfied. As the graphic below illustrates, from 2008, only one year after the launch of WatchNow, the growth rate of Netflix customers' base had gone up again after a period of decrease that can be attributed to an increased competition driven by the traditional competitors (Blockbuster, Redbox, Amazon, Wall Mart) and the newcomers on the VOD market (Apple, MovieLink, Vongo…). Despite the stiff competition, this boost in the customer base allowed Netflix to slow down the erosion of its growth in revenue, maintain a satisfactory level in 2008 (13,2%) and even restart an upper sloping process fueled by the continuous and large increasing of the base of customers.

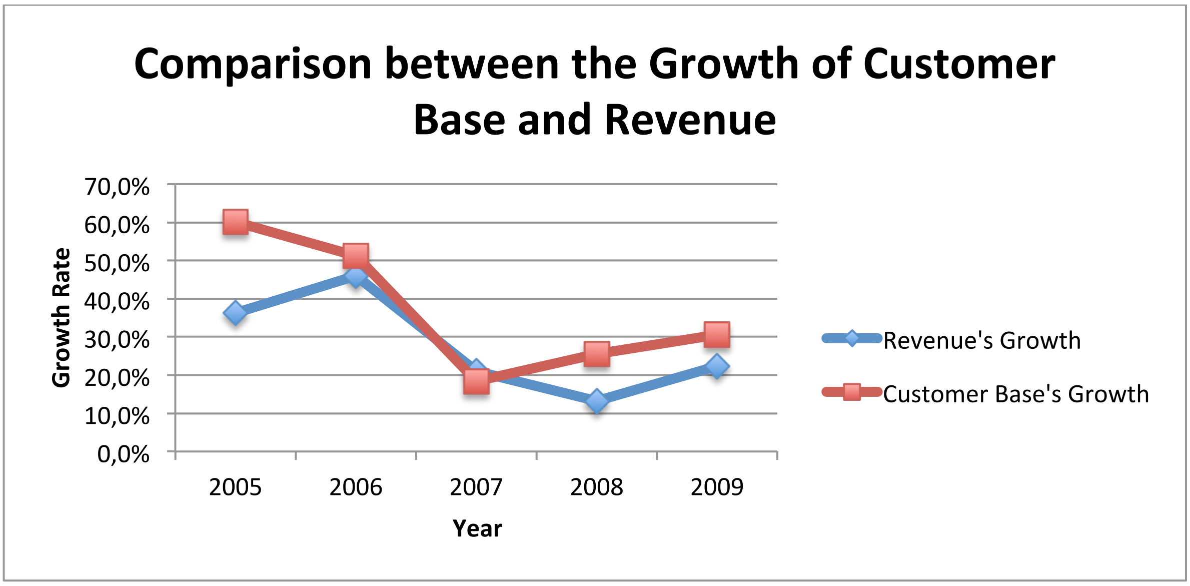

Figure 12 Evolution of Customer base growth and revenue growth of Netflix. Data source: http://ir.netflix.com/releases.cfm

This chart clearly shows that the strategy of Netflix to make its customers progressively migrate from the old mail delivery business to the new streaming business was met with success. Thanks to the pre-emptive investments realized in the years preceding the introduction of the streaming service Netflix afforded the time to expend its costumer base significantly enough in order to secure a smooth financial transition.

The recent moves of the firm also clearly indicate that the firm is slowly dropping its activity in its original mail delivery service to focus on expanding its online streaming activity abroad. As Hasting expressed in an announcement in November 2010:

> "We are now primarily a streaming-video company delivering a wide selection of TV shows and films over the Internet."

This official declaration underlines the determination of Netflix to pursue the transition by influencing the opinion to adopt their streaming offer that becomes more and more profitable for the firm. In fact, analysts estimate that Netflix could save more than $700 million on mail delivery costs by making its subscribers progressively shift to the online streaming model. The money saved could then be used to pay for content rights.

However, with this new online streaming model, Netflix will yield less revenue per subscriber as its pricing model shows. The scope for Netflix is now then to continue the expansion of its customer base in order to compensate the future drop in the revenue of the mail delivery segment. Since the US market is showing some signs of saturation, Netflix plans to fuel this growth abroad. The company is already well installed in Canada and will soon expand its online streaming services to the European market beginning with Spain in 2012. As regards the US market, Netflix recently produced its own TV show (House of Cards) and thus entered a new competition arena along with HBO and ABS. This move aims at reducing Netflix dependence on the major movie studios and others video content producers.

Thanks to this hard agile strategy, in February 2011, Netflix had surpassed all its competitors in the new digital video industry as the graphic below illustrates. According to the NPD group who calculated the share of companies for movies downloaded or streamed, between January and February 2011, Netflix's share represented more than 61%. A recent survey also shows that Netflix has now become the biggest source of North American web traffic, accounting for 24.71 percent of aggregated traffic. With this trend Netflix could for the first time make the legal video traffic surpass the illegal one.

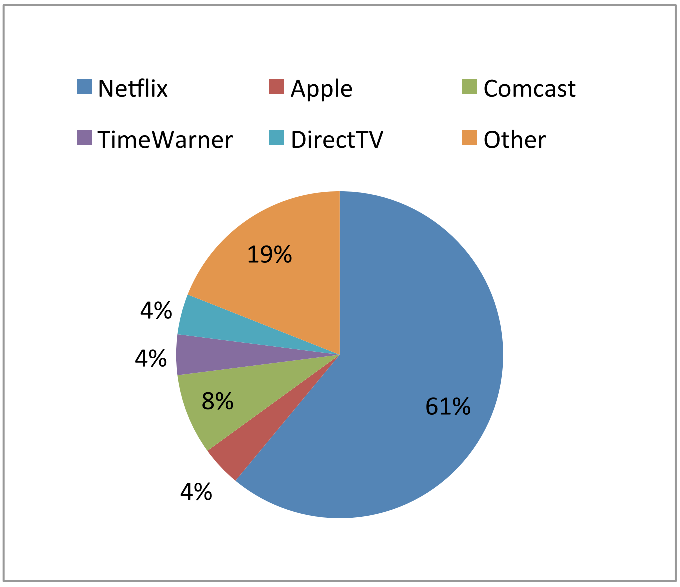

Figure 13 The digital movie distribution in the US. Source: NPD group

These last statements prove that despite the stiff competition and the rapid growth experienced with its first mail delivery model, Netflix successfully managed to dominate in less than four years the new Video-on-demand market in the US.

As illustrated in this section, the hard expression of the 'strategic agility' phenotype displayed by Netflix seems to have played an important role in the late success of the firm. The next section attempts therefore to explain the genotype foundations of this phenotype with the framework developed by Doz and Kosonen (2008) and reviewed in the second chapter of this paper.

3.2.3.2 Foundation of Netflix hard strategic agility

According to the framework developed by Doz and Kosonen (2008), three elements were crucial to successfully implement this agile transition between two very different business models in a period of intense competition: the clear insights of the top executives (sensitivity), their ability to diffuse a unique culture of freedom and creativity shared by everyone (collective commitments) as well as the flexibility of Netflix core resources (resource flexibility).

3.2.3.2.1 Sensing the future of the home video industry: the clear vision of Hastings

Since its inception, Netflix had been following with careful attention the developments and evolution of the VOD technology. In fact, as early as 2001, Netflix already expressed its interest publicly to experiment this new way of delivering movies to its subscribers.

The VOD technology that offered a unique and simple channel to deliver easily and on-demand video contents, completely fitted the vision Hastings had about the future of home video. When in 2003 he was asked in an interview, "What motivates you these days?" he answered,

> "The dream 20 years from now would be to have a global entertainment distribution company that provided a unique channel for film producers and studios.... As Starbucks is for coffee, Netflix is for movies."

If Hastings recognized that the astute recommendation system and the unique movie collection of Netflix were the two core assets of his company, he was not particularly attached to any business model to yield revenue from these assets. In fact, as this declaration highlights he was essentially focused on what Netflix could represent to the eyes on its subscribers (a unique channel to access video contents) and did not express any stubbornness to nurture at all cost the original features of the mail delivery business model that made the first success his company. Accordingly, for him, mail delivery was only one kind of channel among others by which Netflix could efficiently distribute movies to customers. In this view, streaming films directly to a subscriber's computer or TV was simply seen as an alternative channel to achieve Netflix goal of delivering efficiently movies to customers.

This open-minded and long-term vision was important to prepare the company for the advent of change but Hastings was well aware that at the time, his company could not solve the technical issues and content availability, which represented the main impediments to widespread adoption of the VOD. In fact, even though the advent of the VOD era seemed perfectly clear, the modalities of its diffusion and adoption by consumers remained quite fuzzy. There were high uncertainties about the reactions of content providers about piracy matters and even more doubt about the way consumers would use it shortly after the massive adoption of the DVD technology. That is why Netflix waited for the technology to reach a certain maturity before launching its own VOD program. This waiting strategy allowed Netflix to better sense what the best business model to implement a VOD service could be without irreversibly committing itself to an early ill-defined model. In the meantime, while observing attentively the first steps of its competitors in the VOD market, Netflix had gradually been preparing its entrance. In fact, a few years before stepping into the market, every year the company had been dedicating a part of its free cash flow to aliment a provision for future developments and alliances relative to the VOD segment. In 2006, these investments amounted $10 million and reached $40 million in 2007.

During this period of preparation, Netflix screened all the options available at the time to bring digital video content to consumers. These options are collected in the following table.

Infrastructure / Content Access	Internet	Cable
Downloading	Videos available for a limited period of time Depending on the price, possibility to burn a few encrypted copies on DVDs	Videos downloaded to a set-up box connected to the TV with pay-per-view modality
Streaming	System adopted by Netflix where videos are directly streamed on the Internet browser	Premium services allowed subscribers of Cable TV or Satellite providers to stream a restricted collection of films on dedicated channels.

Table 5 *Technology options for implementing a VOD system*

Netflix's choice to implement its own streaming service reflected its sharp sensing about the evolution of the home video ecosystem. Top executives of the company sensed that given the pace of evolution in the sector of electronic devices, it would not have taken long before manufacturers began to offer TV connected to the Internet. They also knew that rapid improvements in the bandwidth would have soon allowed high quality streaming. Therefore, the Internet was seen by Netflix as the best vector to bring movies to the subscriber's home. But their key insight was that consumers would only shift their behaviors toward online VOD only if the service was ultra simple and intuitive to use. The service offered by Netflix did not involve purchasing additional equipment nor subscribing to a premium service. It was designed to be the simplest possible. Subscribers only had to take one minute of their time to download a light add-on (Silverlight). Once this was done, they would find next to the traditional "add to queue" button a new one called "play instantly" which would instantaneously triggered the streaming. Netflix also automatically adapted the quality of the video to the speed of the subscriber's connection so that every one could enjoy a correct fluidity of watching. Even if at the beginning the collection available on direct streaming was restricted to 1000 titles, the simplicity and instantaneity of use at no additional cost of the VOD system offered by Netflix got fantastic feedbacks from customers. The streaming system, less likely to be pirated was also better welcomed by content providers that were really leery about the security relative to downloading films.

3.2.3.2.2 A culture diffused at the top and shared by everyone

The second revolution Netflix operated in the home video industry could not have been possible without the strong cohesiveness of its top management who succeeded to build inside the company an inspiring culture mixing freedom and high performance.

To enhance the cohesiveness of its people, Netflix thrives to diffuse loyalty and honesty values at the top so that executives act as a “sport team”. Teamwork is in fact of great importance to ensure cohesiveness around the long-term goals of the firm. The company defines its model of corporate teamwork as “highly-aligned and loosely-coupled” so that the company can be “big and fast and flexible”. The idea of this model is to make top executives strongly aligned on the main strategy of Netflix but let each functional group decide independently from the others what tactic is the best to conduct this strategy in their department. By minimizing cross-functional interactions on tactic matters, each group is allowed to move faster in reaction to the dynamics of its own activity. Besides, top alignment on the main objectives ensures that each group tactic will be coherent with the driving strategy.

At Netflix, the flexible teamwork model at the top is the cement of the firm collective commitment, which enabled the company to switch progressively its business model to the VOD segment without falling apart.

3.2.3.2.3 Flexibility of Netflix’s assets

Netflix’s agile strategy was also enabled by the flexibility of its core resources. Unlike Blockbuster, whose local networks of brick-and-mortar stores were very hard to reallocate, Netflix powerful brand, large base of subscribers and efficient system of recommendation could easily be reconfigured to create new business models. Cash, the most fluid of all resources was used by the firm in a preemptive mode to ensure a smooth financial transition and support the cost of strategic alliances rather than serve to finance aggressive advertising or irrational cutting price policies. In 2007, when Netflix seized the opportunity to enter the VOD market, the power of its reputation as the biggest source of independent movies was immediately transferable to the new business. The most valuable technology of the firm (its recommendation system) was completely virtualized and therefore easily adaptable to every type of devices on which Netflix movies could be streamed.

3.2.3.3 An organizational culture characteristic of agile companies

In 2009, Hastings and his team shared with the public the nature of the context they thrived to diffuse in Netflix's organization. They published these insights through an intensively commentated presentation on the Internet: 'The Netflix culture Deck'. This sections shows that Netflix culture as it was expressed publicly in 'The Netflix culture Deck' is coherent with the cultural phenotype of agile companies identified in the first chapter:

The company fights the inertia of bureaucracy with a culture of creativity, team working and autonomy

In the 'Netflix Culture Deck' presentation, Hastings synthetizes Netflix's culture in the following terms:

> "We have a culture of creativity and self-discipline, freedom and responsibility."

The company emphasizes the importance of freedom to unleash the talent of people and rejects the idea of permanent control and monitoring which rigidifies the process of creation. This philosophy is based on the idea that responsible people thrive in freedom environment. The human resource department concretely applies this freedom precept by offering employees unlimited holidays as long as they cover their work with success. A funny fact about this 'no rules' philosophy concerns the clothing policy. Hastings commented: "There's no clothing policy at Netflix, but no one has come to work naked lately." These libertarian policies aim principally at keeping the 'entrepreneurial spirit' of Netflix despite the growing number of its effective (2 180 full time employees as in December 2010). By encouraging entrepreneurship behaviors, the firm seeks innovation but also passion to make everyone share and be strongly involved in the company's destiny. However, Netflix 'free culture' does not intend to promote 'kid recreational' behaviors for the sake of passion and creativity. Netflix relies therefore strongly on the hiring process to detect creative but responsible people. If the company lets a lot of free space to its employees, it expects excellence from them in return. And the salary policy Netflix applies is aligned with this expectation. The company believes that top of the market compensation is the key to attract and make the best elements stay long in the company. All employees are given high salary no matter what happens (no bonus policy) and they have the possibility to transform it in stock options as it pleases them.

Managers at Netflix are charged to set a context in which people can develop their talents to implement autonomously and with success the strategy defined at the top. This is a departure from the traditional figure of the manager whose main task is usually to control through tight procedures the work process of its people. Context setting includes clear definitions of the roles and metrics to assess the work as well as transparent and inspiring strategy explanations to motivate and guide employees toward successful paths. A Netflix, control must only take place when employees are in a learning process or when emergency matters are at stake.

Netflix culture of freedom, creativity, responsibility and high performance played a great deal to keep awaken the entrepreneurial passion of its employees as the company grew and prevent the traditional inertia of bureaucracy usually driven by growth. As a result, the culture displayed by the firm is coherent with the canonic culture of agile companies identified in the first chapter.

3.2.3.4 An agile model of partnerships to distribute movies

As for the others VOD internet-based companies, Netflix first VOD solution could only function on PCs connected to the Internet trough a large enough bandwidth allowing for a correct image quality. Besides, connectivity issues often complicated a direct watching on the TV. To solve this problem, in 2008, Netflix initiated an important policy of alliances with the major TV and consoles manufacturers (Microsoft, Sony, LG, Panasonic, Samsung) in order to bypass the computer bottleneck and stream the films directly to the user’s TV. The large base of subscribers and reputation of its brand were determinant to win these contracts.

By 2010, Netflix had built a strong network of partnerships with most of the electronic products manufacturers and included Netflix's application into their devices as the graphic below illustrates. With these successful alliances, Netflix managed to become the main platform for home video at the center of a rich ecosystem with major studios providing contents upstream and electronic devices manufacturers displaying them downstream.

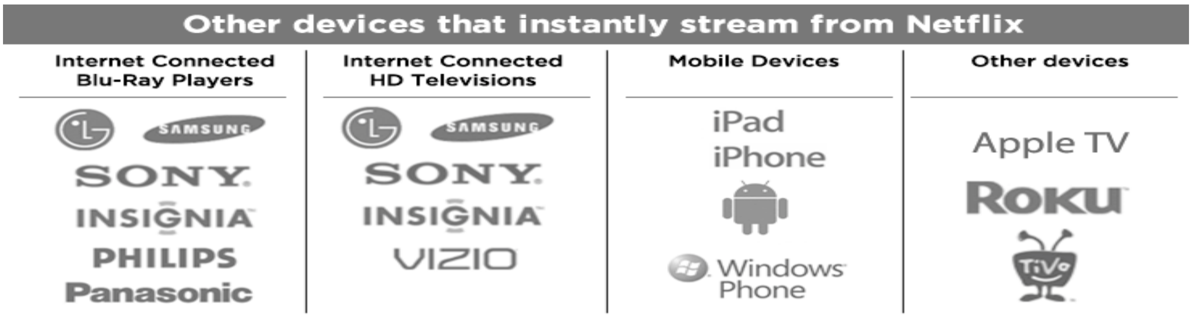

Figure 14 Netflix's partners to stream contents on TV. Source: https://signup.netflix.com/global

This model of partnerships consolidates the idea that Netflix displays an inter-enterprise level characteristic of agile companies and coherent with the following observable trait:

An agile company is at the platform of an ecosystem of partnerships

3.2.4 Conclusion Netflix

As a start-up, Netflix revolutionized the rental video industry. Its fresh vision of the movie rental business coupled with agile models of distribution and purchasing strongly destabilized the giant but inert leader of the industry. After this first revolution, Netflix experienced a period of growth. But as the company grew, the market's competition got harder. Every big player in the movie and digital industry wanted the lion's share of the home video market. Some were counting on their large resources (Wall Mart), others on their online expertise (Amazon) and some others on their complementary assets (Apple with its devices, cable providers with the premium access to the TV). As most of these new competitors entered the market with the promising technology of the VOD, analysts were not confident that the business of Netflix could last long. But the agile strategy deployed by the firm once again revolutionized the industry. By bringing simplicity and convenience where others were looking for sophistication, Netflix managed to renew its business without compromising its growth and profitability.

3.3 Case study of Nespresso

3.3.1 Introduction

Launched in 1986, the Nespresso brand belongs to the Nestlé Coffee Specialties (NCS), an operating unit within the Nestlé group, the largest Food and Nutrition Company in the world. Founded in 1867 in Switzerland, by 2011, the Nestlé company owns more than 6000 brands, has sales more than CHF 110 billion and employees more than 280000 people in over 80 countries. The recent acquisitions of Nestlé in the pharmacy industry underline the company's goal to be become an integrated wellness provider from Nutrition to Healthcare.

Nespresso pioneered the concept of premium-portioned coffee with an innovative technology that offered consumers the refined quality of an Italian espresso with the convenience of simply pushing a button. Despite the organizational rigidity of its parent company, the 'Nespresso satellite' far away from Nestlé's traditional expertise, managed to create a dynamic segment growth in the mature and highly competitive global market for coffee. Nestlé nurtured and supported in its portfolio this barbarian company that a lot of others conglomerate groups would have thought too risky to keep. And Nestlé's determination proved right. Almost 21 years after the invention of its innovative capsule system, Nespresso revolutionized the coffee culture and became Nestlé's fastest-growing division with a sustained annual growth around 30% since 2001 and accounting in 2010 for almost a fifth of Nestlé's sales growth.

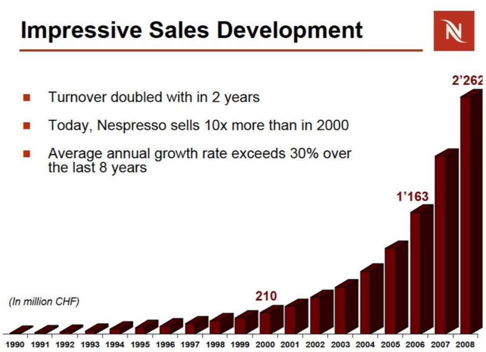

Figure 15 Evolution of Nespresso' sales. Source: www.nestle.com/.../Presentations/.../Nestlé-Nespresso-Jun2010-Girardot.pdf

This slide from the presentation made by Richard Girardot, the current CEO of Nespresso, in 2009 to Nestlé investors clearly synthetizes the big success that the firm has experienced since the renewal of its business model in 1990 by Jean-Paul Gaillard.

In the first part, this case analyzes the success story of Nespresso and especially the agile strategy triggered by Nestlé corporate management and led by Jean Paul Gaillard that enabled the firm to reinvent itself in a period crisis. The second part extracts in Nespresso' business model the barbarian features of the firm that revolutionized the coffee-drinking habits of many people in the world.

3.3.2 The beginnings of Nespresso

In 1938, Nestlé developed a pure soluble coffee and began commercializing the product a few years later under the brand labeled Nescafé. This branch of the company expanded in the following years to cover a wider area of different types of ready-to-drink coffee beverages. In 1974, the Swiss company acquired the rights on the technology at the origin of the Nespresso System, which had been developed by the Geneva's Battelle research institute in the previous years. In 1975, Éric Favre and Petr Masek that worked at the R&D department of Nestlé for packaging, were charged to improve this new technology of individual portioned coffee. The revolutionary idea that brought the intense flavor of a real espresso into individual capsules came from Éric Favre. On a trip to Italy to study the culture of coffee, he ended up in the Sant'eustachio bar in Rome, reputed to serve the best espresso of Italy. He started its investigation. After a few weeks of observation, he finally discovered the secret of this particularly flavored coffee. Eugenio, the owner of the bar, had an old industrial espresso machine which mechanical parts were a little bit rusty. He was therefore forced to pull the lever arm a few times before the coffee could pour out. By doing so he was actually injecting some pressurized air in the water before its contact with coffee. The micro bubbles created in this process captured all the intense flavors due to the oxidation (air constituted of 20% of oxygen) of the aromas. When in contact with the tongue of the drinker the bubbles burst and liberated an intense flavor. Favre worked for a year to adapt this idea to the capsule technology he was in charged to develop and finally patent its invention in 1976.

In this period, Nestlé was the incontestable leader of the instant coffee market but was completely absent in the other 'Roast and Ground' segment that accounted for 70% of the worldwide consumption of coffee. In addition, the whole coffee market was stagnant and even declining in some countries. Despite these unfavorable conditions, Nestlé top executives sensed that there was a good opportunity of growth in the "gourmet" segment especially in the US. The term "gourmet" referred to the premium coffees like the Italian espresso where the roasting process, the brewing phase and the variety of the product were receiving particular attention and care.

Nestlé intended to combine the technology of the Nespresso system recently acquired and developed with its deep knowledge of the coffee business to bring a top class quality product to the market. Nestlé food division saw especially in this project a good opportunity to reinforce its position in the high quality food segment by penetrating the restaurants market. But the early tests conducted with a sample of Swiss restaurants were not satisfying enough to pursue this strategy. In fact, in a business where the price per cup was the most relevant parameter, the relatively high cost of the Nespresso system did not convince restaurateurs. Nestlé decided then to target the B2B segment and more particularly the office sector that was considered to be less sensitive to the relative high price of the 'Nespresso machines'. To penetrate this new market, the company signed a partnership with Sobal (a Swiss company specialized in the distribution of office appliances), which agreed to include the Nespresso system into their catalog. To design the first machines, Nestlé was helped by a Swiss design company. The capsules were produced internally but the production of the machines was outsourced to the Swiss manufacturer Turmix.

3.3.3 Creating an ambidextrous organization

In order insure greater autonomy and flexibility to the development of the Nespresso system, in June 1986 Nestlé created the 'Nestlé Coffee Specialties' as a separate operating unit. The Nespresso brand was officially launched. Benefiting from its own commercial, distribution and personal policies, the newly-created Nespresso unit could react faster to the new opportunities of a business far away from Nestlé's traditional expertise of selling large scale production to supermarkets. This separation is a good example of how large companies can achieve structural ambidexterity by engaging exploration without compromising their exploitation capacity. Barbrek, the CEO of Nestlé at the time, commented:

> "The business was physically moved out of Nestlé so that it could establish credibility and so that it didn't have to fight against all the company's rules [...] Nespresso was so different from what the company did in its day-to-day business"

The structural ambidexterity favored by Nestlé has been a crucial step toward the building of an agile organization. In fact as we highlighted is the chapter 2:

An agile organization is ambidextrous

3.3.4 A soft agile strategy to save Nespresso

The first markets targeted by NCS were Nestlé's home market, Italy (the largest market for espresso coffee) and Japan that was at the time the world's fastest growing coffee market. However, one year after the launching of the operations, the results were not encouraging. Only half of the machines produced were actually sold and the large defect rate was absorbing an important budget. Nestlé covered for all these losses but strongly doubted the capacity of Nespresso to make the sales take off. Nespresso was on the edge of dying.

In the following section we explain how what we labeled as a 'soft agile strategy' prevented Nespresso from this slowly death. We will show that the strategy put in place by Nestlé is coherent with the following observable trait characteristic of strategic agility.

The agile company is able in a difficult situation to adapt or refresh rapidly and easily its business model

This soft strategic agility is then analyzed through the framework of Doz and Kosonen (2008).

After the failure in the office market, the giant of the food industry needed to gain strategic sensitivity in order to detect a good opportunity of growth that could fit the particular nature of Nespresso. The faith that Nespresso's team had in their project was essential to get the support from Nestlé top management and transform a high potential innovation into a successful commercial reality. Besides, the flexibility of Nestlé's assets put in place to bring Nespresso's innovation to the top of the household market has proved critical to maintain the company at the edge of a stiffer and stiffer competition.

3.3.4.1 Gaining strategic sensitivity by bringing an outsider

In 1988, Nespresso had its back to the wall. Nestlé would not support any longer a business in which it did not see any opportunity of growth. But Nestlé executives were well aware that the nature of the Nespresso business (innovative technology for a niche market) was far different from the one they were used to managing (mature technologies for mass market) and therefore decided to give Nespresso a last chance. They hired Jean-Paul Gaillard, a former Philip Morris executive to take the helm of the company. Swiss born and US educated, Gaillard was young (33 years old) but had already a strong reputation due to a solid commercial and marketing track record.

Nestlé executives hoped that a reputedly creative outsider such as Gaillard could bring a fresh vision to the business and better seize the peculiarity of Nespresso nature to find new growth opportunities. Camille Pagano, at the time senior executive vice president at Nestlé commented:

> "The Nespresso business was at the point where we needed an entrepreneur to take it further. We needed to find somebody who wouldn't react like a Nestlé manager. People in our organization are good, but at the time, everyone was asking, how could we sell this thing in supermarkets? Nestlé doesn't bring people in from the outside as a common practice, but we needed someone who understood what it meant to sell a premium system-- something between Louis Vuitton fashion accessories and Maggi bouillon. This needs a special mentality. What really convinced me was Gaillard's background, coming from Philip Morris where going into the clothing business was also a stab in the dark; it was not the usual thing to do."

The hiring of Gaillard was a great move that increased the strategic sensitivity of Nespresso, which had been navigating in the fog since its inception. Gaillard sensed that the office sector was not adapted to yield the huge potential of Nespresso. He believed however that there was a good potential, albeit unproven, in the household market. For him, well-educated city dwellers of 30-45 years old who enjoyed fine food and drinking could represent an optimal target for the Nespresso system. He had built this insight from different signals in the market. First of all, the 'gourmet' segment especially in the US was in full bloom. A lot of cafés in big cities were targeting this very profitable segment in which the Italian lifestyle, cuisine and fashion was becoming very popular. Wealthy and young city dwellers with discerning tastes particularly enjoyed the refined quality of a good Italian espresso, which was perceived as a trendy and socially elite coffee. Moreover, the big success of coffee chains like Starbucks or The coffee Beanery indicated that the coffee culture in general was gaining popularity among consumers.

Gaillard presented this revised strategy to Nestlé top management in 1989 and received their approval despite a lot of internal doubts that the project could succeed. Nestlé let Gaillard one year to triple the sales volume, otherwise the Nespresso venture would be dropped.

3.3.4.2 The strong leadership unity of Nespresso's team

Despite the strong belief Gaillard had in the household market to make sales take off, the first experimentations and market research in the new business were far from being satisfying. Gaillard targeted a consumer price of 40 centimes per capsule, which was far above the 25 centimes that market studies had identified as the perceived value of consumers. And first demonstrations in tests shops were not encouraging as well. Nestlé corporate team began to really doubt the possibility to commercialize one day the Nespresso system. Gaillard's team at Nespresso had to fight literally with Nestlé general management to prove that consumer research only reflected past trends. They argued that as it had been the case for fax machines and mobile phones, early market tests were inefficient to seize the potential of great innovation; as Ford would concur: "if I had asked my customers what they wanted, they would have said: a faster horse". Some say that Gaillard and his team even tried to minimize and sometimes masked the catastrophic early commercial results to protect the innovative Nespresso system in which they all blindly believed. The whole management at Nespresso was in fact tightly united behind the intuition that their product represented a major breakthrough in the industry. This strong collective commitment coupled with the indefectible determination of Gaillard to keep believing despite the results of the market studies and all the rigidities of Nestlé's structure has been essential to overcome Nestlé skepticism and buy the company some time to prove its true potential. As Ruper Gasser, Nestlé's executive in charge of technical, production and R&D commented:

> "There were not many people in the company who believed in Nespresso, but Gaillard did. He was totally convinced of the opportunity. Nespresso was purposely run at arm's length and not built into Nestlé's main coffee structure. Our CEO challenged Gaillard a lot. He found the challenge motivating; he liked it.

> There was a lot of internal criticism at the time, but the project got support from Nestlé's CEO, who dared to do something different. When something is new, it will always meet with resistance. There will always be a lot of *ifs* and *buts*. Most people didn't think Nespresso would be a revolutionary idea. There was a concern that it would distract us from our core business in instant coffee. It was seen as competition to instant coffee."

As this comments also clearly illustrate, the support from Nestlé's CEO although moderated according to Gaillard's recent comments was a key ingredient that proved useful to temper the internal anti cannibalization bias of Nestlé large structure and save Nespresso from an early death. This entrepreneurial spirit at the top was later proudly advertised as a key feature of Nestlé's culture, as the following comment from the 2010 annual report illustrates:

> "Our people, culture, values, and attitude enable us to be decentralized and entrepreneurial. It combines devolved responsibilities with a cohesive strategic direction. We are patient and not averse to taking reasonable risks. Our speed and focus enable us to remain competitive in spite of any challenges in the marketplace."

Gaillard was so passionate about the Nespresso project that he even offered once to buy the company according to a private executive who held a private discussion with him before retiring. But thanks to a minimal support from the very top of Nestlé, Gaillard was authorized to pursue his strategy at the top of the household market.

3.3.4.3 Flexibility of resources

Thanks to the structural separation operated by Nestlé, Nespresso could enjoy of a great flexibility in the allocation of its resources while profiting at the same time from an important financial sponsoring. Nespresso could for instance use resources from Nestlé R&D department at liberty in order to complement its technology or co-developing coffee machines with its industrial partner. The company had also a very easy and low cost access to the marketing and communication expertise of Nestlé to promote the Nespresso System to its clients. Nespresso, as an autonomous satellite of a large company, could access important resources without bearing their cost and could therefore make them flow in a flexible way.

3.3.5 An agile model of partnerships: the 'Nespresso Ecosystem'

Nespresso inter-enterprise level relies on a smart organizational unbundling of the two complementary products that define its system. On the one hand, the company uses the machines as its technical core platform on which are grafted peripheral and adaptive partners. These partners generate the dynamic variety and quality for the platform in order to make it stay always more attractive and remain ahead of the competition. On the other hand, the capsule industry, which represents the key element of the value chain for Nespresso, is tightly controlled internally from the coffee supply chain to the distribution channels of the capsules.

The machines represent the entry point of customers in the Nespresso system. Gaillard put in place a broad ecosystem of partnerships to bring the machine labeled Nespresso at the top of the design and technical state of art. Matsushita, Krups Philips, Alessi, Jura and Magimix all took part in the product development. To insure a smart and vast diffusion the machines, the Nespresso management also carefully selected the household appliance retailers, department stores, electrical outlets and kitchenware stores. The production of the machines was still outsourced to the same leading Swiss manufacturer of espresso machines (Turmix) reputed for its operating excellence. The idea of this flexible environment was to keep the technical core of the machine (the technology behind the Nespresso system) as a platform and outsource the parts more likely to evolve with the evolution of the consumers' expectations in term of design and favorite places of purchasing.

Since retailers and machine makers earned typically more than 35% margin each on the products, Nestlé did not yield any profit from the selling of the machines. As it was the case for other complementary products (printers and ink cells, razors and blades, phones and subscription), the idea was to bring to the market the most appealing and affordable platform possible from which periodic revenues could be yielded from customers (the selling of the capsules). NCS made sure that there was a straight compatibility between the machines and its proprietary capsules so that once they acquired a Nespresso machine, customers were forced to buy the corresponding capsules. That is why the capsules design and production remained under tight control of Nespresso, as they were the main source of margin for the company. Analysts estimated that NCS yielded more than 50% margin on each capsule.

The distribution strategy for the capsules was therefore a critical matter. The idea of channeling them through supermarkets was quickly rejected, as it would have driven away Nespresso's main source of profit. To emphasize the exclusivity of its product and better learn from the consumption patterns of its consumers, Gaillard decided to distribute the capsules throughout a club modality. Purchasers of the Nespresso machine automatically became member of the Nespresso club. They could make around-the-clock orders by phone, mail or directly on the Nespresso website and receive their product within two business days. They also had access to a personalized advice service delivered by trained coffee specialists who could suggest them to taste different flavors as well as provide them with technical assistance on the machines. In addition, club members could find on the website recipe suggestions shared by other members and purchase special Nespresso accessories.

As regards the supply chain, Nespresso particularly focused on sourcing itself independent producers in Kenya, Guatemala, Colombia, Ethiopia, an in some Asian countries to obtain the finest harvests of coffee. The company also closely monitors some of the critical phases of the coffee transformation process as for instance the grinding phase, which is critical to ensure good coffee quality.

This ecosystem built on partnership networks allowed Nespresso to make resources flow easily from one part to another and stay perfectly aware of the market evolution without heavily investing in rigid monitoring structures. For instance, retailers could provide useful information regarding the consumption patterns of customers while machine designers with their own networks could better sense the market trends. Nespresso could respond with more ease and quickness to the market reactions just by reinforcing a particular link of partnership in its ecosystem.

The following chart summarizes the whole Nespresso ecosystem created by Jean-Paul Gaillard.

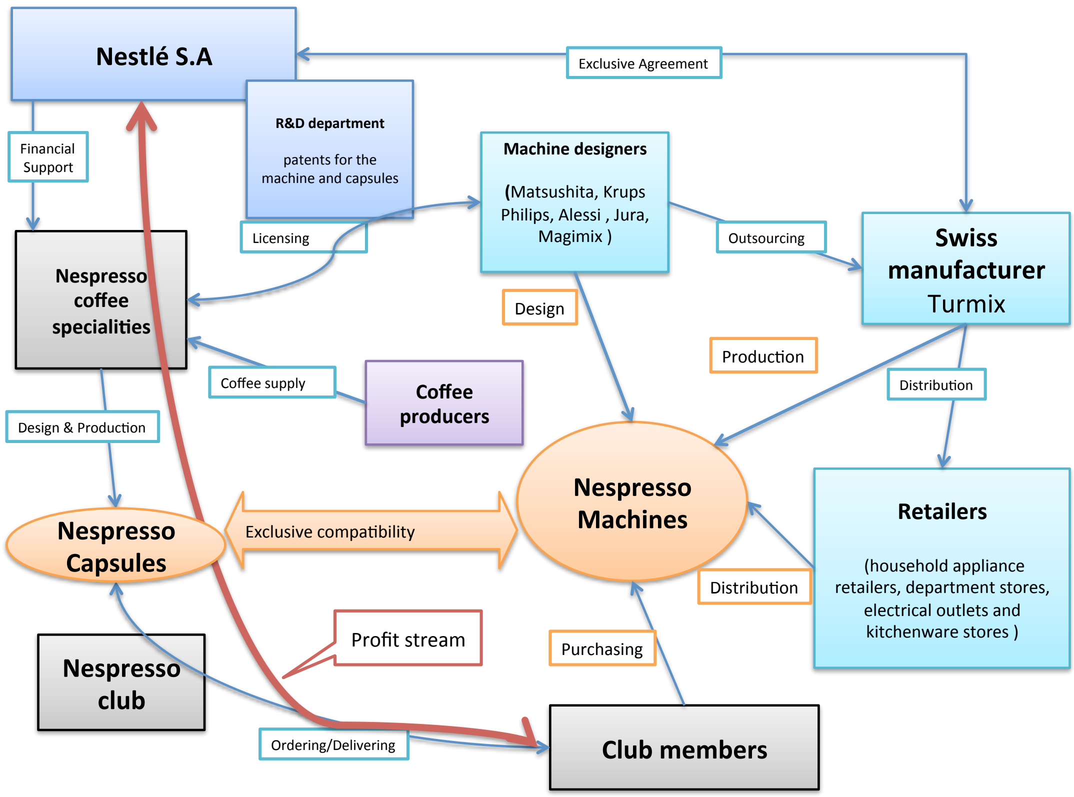

Figure 16 *The Nespresso Ecosystem*

As this section illustrated, the inter-enterprise level of Nespresso is coherent with the following characteristic trait of agile companies:

An agile company is at the platform of an ecosystem of partnerships

3.3.6 The success of Nespresso soft agile strategy

The numbers popped up quickly. In 1990, NCS largely surpassed the sales targets set by Nestlé corporate management as an ultimatum in the previous year. From there on, the base of club members extended quickly as highlighted in the chart below. First established in Switzerland, Italy, France, Japan and USA, the Nespresso club operations were then extended to Germany and Benelux in 1992 and Spain, Austria and the UK in 1996.

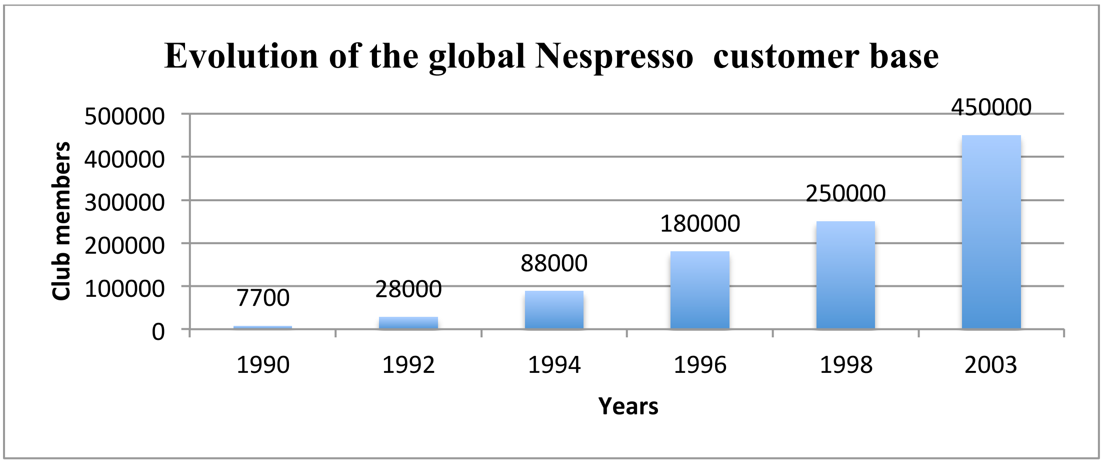

Figure 17 Evolution of Nespresso customer base. Data source: www.Nespresso.com

3.3.7 Developing an output characteristic of agile companies: toward the Nespresso experience

From just selling an innovative system to drink coffee, Nespresso progressively evolved to offer customers a complete experience of coffee drinking. This section details the steps of this evolution and will show how the final output of the firm is completely coherent with those of agile companies as identified in the first chapter:

The output of an agile company is not just a product or a service but an experience (combination of product and services)

3.3.7.1 Building an intimate relationship with the customers

To advertise its premium product and recruit more people to its club, NCS engaged a global policy of partnerships with top restaurants across the world. The company also signed partnerships with British airways, Cathay Pacific and Swissair to distribute its product on board of long-haul first class flights. In addition, large investments were made to train sales clerks in retail stores to teach customers the premium Nespresso experience. This first marketing strategy strongly relied on word-of-mouth to enlarge the customer base. This was an easy and affordable way to diffuse the premium nature of the product. Ruper Gasser commented:

> “We don’t need mass media or television. We’re targeting the *crème de la crème*. We need simpler means, unconventional ways of reaching new consumers.”

In 1995, NCS became profitable for the first time on a global scale. When Gaillard left the group in 1997, he had transformed the innovative technology of the Nespresso system in a fast growing commercial reality.

Given the rapid growth of Nespresso, the corporate management of Nestlé decided that it was time for the company to consolidate its structure and appointed Henk Kwakman, reputed to be a very structured manager, at the head of NCS. In the word of a former executive:

> “Nespresso needed structure, better operational efficiency, control of costs, quality, and inventory, in addition to modern personnel policies. As the company grew, these issues became increasingly important.

Nestlé set an ambitious target to Kwakman. He was to bring the business from CHF 150 million to CHF 1 billion within the next 10 years. Kwakman was a “pure insider” of Nestlé having worked in the company for more than 20 years and climbed the ranks of the company. He had brought the attention of Nestlé headquarter by boosting the Netherland branch of Nescafé, which was stagnating, with an innovative concept of packaging. Although he had not the same “out of the box” reputation as Gaillard had before, he was still considered to be a great innovator and risk-taker, at ease to challenge to rigidness of Nestlé organization. In his own words:

> “People ask me if it’s frustrating to work in a multinational like Nestlé. My answer is: No, I’m probably more frustrating to other managers than they are to me. In a big company like Nestlé, you have access to resources and all the sources of innovation. You can either accept the system or challenge it. There are no hard-and-fast rules. I'd rather ask for forgiveness than permission.”

During the four years he stayed at the head of NCS, Kwakman particularly focused on the relationship between Nespresso and its club members. He used the Nespresso database to extract and study the consumption habits of its customers and particularly the new ones, whose future consumption patterns were highly dependent on their first experience with the product. With all this information, he launched a series of targeted communications aiming at improving the customer intimacy with the product and reinforcing the long-term loyalty.

3.3.7.2 The next stage of top class marketing

In 2001, Gerhard Berssenbrugge replaced Henk Kwakman as CEO and engaged a strategy aiming to put Nespresso luxury image at a next stage. In 2000, a market study showed that more than 60% of the new customers came through word of mouth. However, this kind of advertising was a very slow process and began to show some signs of breathlessness. In fact, the global awareness rate of Nespresso's concept was still pretty low (around 5% in the international market). Berssenbrugge looked therefore for new marketing alternatives. Mass marketing was not seen as an adapted solution for the exclusive business model of Nespresso as Kwakman had already expressed publicly:

> "People to whom the Nespresso System is targeted must have a desire to drink espresso coffee. If we promote the machines too much, we'll succeed in getting people to buy the machines, but not the complete concept."

The first idea of Berssenbrugge was to find strong opinion leaders or famous lead customers who could communicate their passion for the Nespresso concept in order to boost the low awareness rate. This easy and flexible way to promote the product had been tested a few years before by Kwakman with mostly politicians and influential journalists but had not delivered the expected results. At the end of 2005, Berssenbrugge began to approach the Hollywood world of actors and singers to detect potential opinion leaders. He did not only look for someone that fitted the Nespresso luxury image but also for someone that truly enjoyed drinking espresso coffees. In fact according to him a marketing campaign could only be credible if the affinity for the product was real. He found in the person of George Clooney a perfect ambassador. Worldwide famous for his classy, stylish and refined image, the good-looking American actor was also a true fan of the Italian lifestyle (he owned a villa on the Como lake, Italy) as well as a great connoisseur of espresso.

In 2006, the French communication agency McAnn Erickson Paris was charged to shoot a short ad with George Clooney starring, for diffusion in Europe and Japan (the star refused to use his image in the US). The Academy Award winner Michel Gondry directed this short TV spot in which George Clooney believes two attractive women are talking about his 'dark intense body' when in fact they are talking about the coffee. The ad ended with what quickly became a world famous slogan: Nespresso…What else?

This first episode that broke in the UK on November 27 of 2007 was a huge success and George Clooney was offered to sign a contract with the firm to continue starring in Nespresso ads until 2011. In 2008, John Malkovich joined Clooney in the spots to play the role of a teasing god. Neal Colyer, creative director of Quiet Storm explained:

> "Malkovich reinforced the inherent intelligence in the brand. And of course God would drink Nespresso! He's in no hurry, he'd love taking his time in the shop deciding whether to buy the blue, gold or red capsules to enjoy with his morning broadsheets; And who better to play God than Malkovich, a man with an eccentric, often unfathomable, sense of humor; surely a great fit for the role!"

The communication agency engaged by Nespresso succeeded to create a real 'buzz effect' with these TV spots which new broadcast releases were expected by TV watchers like real TV shows. The company recently took advantage of this huge popularity and offered the possibility for fans to themselves decide the plot of the next spot throughout an interactive website on the Internet.

In July 2007, Richard Giradot arrived from the Nestlé France Waters department to take the helm of NCS. Following the trend initiated by Berssenbrugge, he pursued a top-level marketing strategy and launched a large campaign of exclusive flagship stores openings around the world. This strategy coupled with the Clooney campaign initiated by Berssenbrugge enabled NCS to reinforce the luxury and glamorous image of the Nespresso brand. By 2009, the company had 224 stores around the world. These flagships stores were installed in strategic locations usually in the main luxury area of the most touristic cities (e.g. Champs Elysée, Paris). The following charts that illustrate the distribution of these exclusive stores across the world and Europe are very representative of the importance the firm grants to each market.

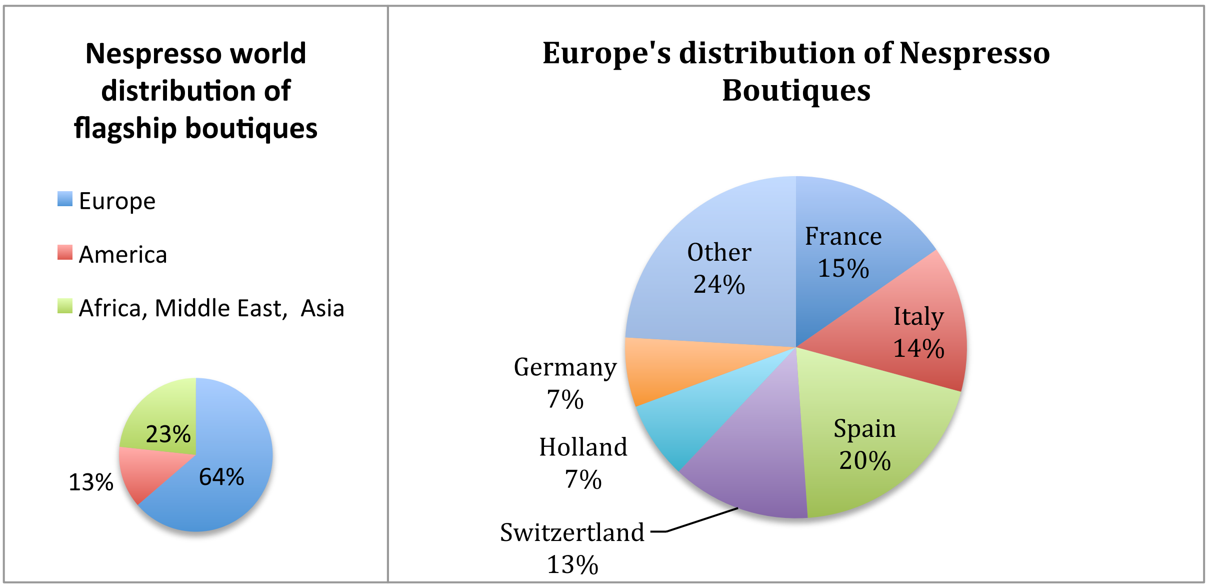

Figure 18 Distribution of Nespresso flagships stores Data source: *www.nestle.com/.../Presentations/.../Nestlé-Nespresso-Jun2010-Girardot.pdf*

These boutiques also created another channel for Nespresso to distribute its products (machine and capsules). As the following chart clearly shows, the boutique strategy was a real success. Despite the few numbers of boutiques in each country, by 2009, the corresponding channel accounted for almost a third of the global sales and even overtook the traditional Customer Relationship Center channel operating by phone.

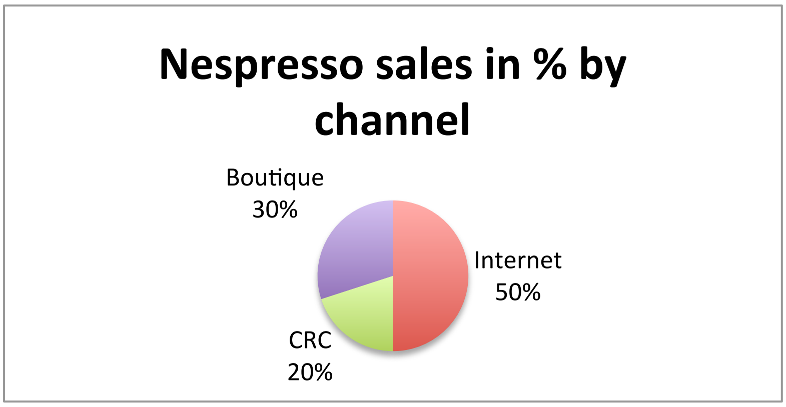

Figure 19 Nespresso distribution channels Data source: *www.nestle.com/.../Presentations/.../Nestlé-Nespresso-Jun2010-Girardot.pdf*

3.3.7.3 The Nespresso Experience

As we have seen, after the departure of Jean Paul Gaillard, Nespresso focused essentially on two strategies: building a strong and intimate relationship with customers and positioning its product on a luxury segment. The result of these strategies is that Nespresso evolved from selling just a product (coffee) to selling a complete experience (be a special Nespresso club member). In fact, Nespresso astutely grafted different kind of services (personalized service of recommendation, privileged access to Nespresso boutiques…) to its core offering so that its final output could be customized to the preferences of each club members. This integration also enabled the firm to detect rapidly and efficiently the shifts in the customer's expectations and therefore change its offering in consequences.

As a result the combinative output that emerged from these two strategies is very much representative of the output displayed by agile companies:

The output of an agile company is not just a product or a service but an experience (combination of product and services)

3.3.8 Future threats and challenges for Nespresso

3.3.8.1 The advent of a stiff competition

Driven by the success of Nespresso, the portioned coffee market has become a very attractive segment. As a result, the past ten years have seen a large increase of the competition in this new segment as the graphic below illustrates:

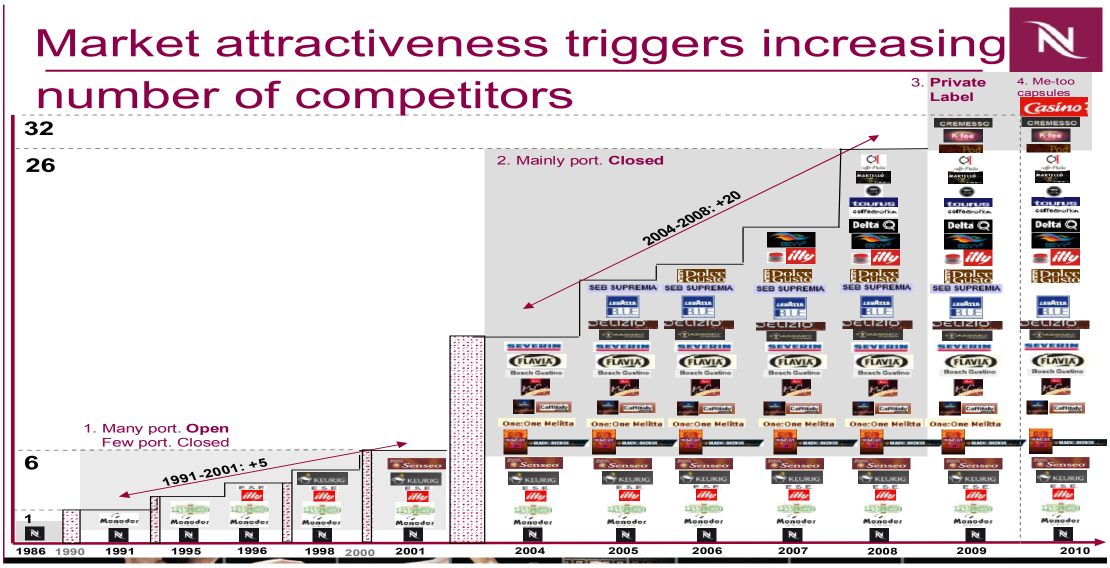

Figure 20 Competition intensification in the portioned coffee market. Data source: *www.nestle.com/.../Presentations/.../Nestlé-Nespresso-Jun2010-Girardot.pdf*

In 2011, the three potential threats to Nespresso business model in the coffee-portioned market are Monodor, Sara Lee and Ethical Coffee Company.

3.3.8.1.1 Monodor

In 1990 Eric Fabre, the inventor of the Nespresso capsule, left Nestlé and created its own company: Monodor. In addition to the development of more eco-friendly capsules, Fabre focused on adapting the capsule's technology he had develop to other kind of beverages (tea, hot chocolate, milk, bouillon). In 2000, he established a partnership with Lavazza in Italy to commercialize these products under the brand Lavazza Blue.

3.3.8.1.2 Sara Lee

In 2002, Sara Lee, a global American food conglomerate partnered with the coffee house Douwe Egberts and the home appliance manufacturer Philip electronics to lunch the

Senseo system in the Netherlands and target the mid-customers market. In 2004, the company extended its operation in the USA, UK and Denmark. Senseo machines were available from $50 and capsules were more than three times cheaper than Nespresso's. The Swiss company did not consider this low-cost alternative as direct threat. But, in 2010, the American food company jumped in Nespresso's segment by launching the exclusive brand 'L'Or' in the French market. Through this brand, they began distributing cheaper plastic capsules perfectly compatible with the Nespresso machines. With this move, Sara Lee intends to occupy a share of the upward segment of the capsules market where Nespresso has been in a monopoly situation for a long time.

3.3.8.1.3 Ethical Coffee Company (ECC)

Ethical Coffee Company (ECC) is a Swiss start-up led by Jean Paul Gaillard the former CEO of Nespresso that left the company in 1997. In march 2010, the company partnered with the French multinational corporation Groupe Casino to distribute in the French market 100% biodegradable and 20% cheaper capsules compatible with the Nespresso machines. The firm intends to occupy the environmental value segment to differentiate itself from Nespresso that uses polluting aluminum capsules. To promote his business model, Jean-Paul Gaillard claimed:

"Nespresso was a real innovation, but it's still just coffee…the consumer wants the right taste and a good price. We have a model without bling-bling advertising…No Clooney, no glossy magazine, only coffee."

3.3.8.2 The capsule's war

Nestlé recently initiated a tough legal war against ECC and Sara Lee that are accused by the company to infringe some of the 1700 patents protecting the Nespresso system. The two newcomers jeopardize in fact the closed model of Nespresso by offering compatible capsules with the Nespresso machines. But, if Nespresso has recently won some battles, Sara Lee that owns large financial resources is well determined to pursue its strategy aiming at opening the capsules market. On the other hand, Jean Paul Gaillard supported by powerful lawyers is very confident about the legality of his product and claimed to have found a flaw in Nespresso's patent wall. In his words:

> “We know that there is no problem, you can patent the way to get an effect, but not the effect itself. You cannot patent hot water”

The French market will determine in the next years whether or not Nespresso’s exclusive model can be destabilized by the collapse of its dominance in the capsule market. But the firm options are quite restricted. First the move of Jean Paul Gaillard seems well calculated and could destabilize the less ecological model of Nespresso. In fact, even if the Swiss brand made a lot of efforts to advertise its green and ethical strategy through the ‘Ecolaboration’ project (traded mark), a lot of complaints have raised recently on its excessive waste of aluminum as well as on its closed model ‘trapping’ the customer in a system with excessive prices. On the other hand, attacking Sara Lee downward would mean dropping the high margin on the capsules, which constitute the core of its economic model. Moreover, Nespresso's patents will begin to expire in 2012, eventually allowing more competitors to offer capsules and machines compatible with the Nespresso system.

3.3.9 Conclusion Nespresso

When one looks back at the history of Nespresso, it can be said that it has not always been easy for Nestlé to transform its original capsule invention into a world scale successful concept. Actually it took the Swiss giant 21 years…but despite the heavy weight of its corporate structure, Nestlé smartly managed to let Nespresso enough independence, time and resources so that the brand could conduct the agile strategy and develop the agile traits that made its present success. But as newcomers recently entered its market segment with innovative business models and threatened to erode its margin, the big challenge for Nespresso is now to show that despite the large success it experienced, it is still capable of engaging agile strategies to stay ahead of the competition and sustain its growth. Will the firm be able to conduct once again an agile strategy to overcome the new coming challenges?

3.4 Conclusion of the case studies

Finally, the behavior and organization of Nespresso, albeit very different in nature, displays some similar features from the one of Netflix. In different technological, competitive and geographical contexts, we observed in both companies some of the characteristic features of agile companies identified in the first chapter. For instance both companies deliver combinative outputs to their customers and have positioned themselves at the center of a rich ecosystem of partnerships. Besides, both companies adopted agile strategies to overcome the difficulties in their environments. The most striking manifestation of this strategic agility, labeled as hard due to the intensity of the changed context, was observed in Netflix, which managed to reinvent itself successfully in the VOD market. But Nespresso also demonstrated a particular reactivity to adapt its business to the complexity and variation of its competitors. As a result, we argue that Netflix and Nespresso can be labeled as agile companies. Moreover, as regards their agile strategies, we noted a possible correlation between the implementation of these strategies and the successes experienced by these companies in term of customer base expansion and financial results.

These case studies illustrate therefore the high potential of phenotype approach to decrypt the successes of companies in turbulent environments. Accordingly, the following chapter pursues this observable approach by introducing a new phenotype, which could inspire future researches to embrace this stream of thought.

Chapter 4

Barbaric companies

In the previous case studies of Nespresso and Netflix we highlighted the fact that these two companies both conducted agile strategies to harness complexity and change in their environment. But looking more closely at their behaviors, one can extracts some common features from these two companies that bare close resemblance to some of the characteristic traits of barbarian.

For instance, Netflix entrance and evolution in the movie rental industry seems similar to the barbaric revolutions that brought large and well-structured empires to dust. On the other hand, the desecration of the Italian coffee culture by Nespresso reminds of the erosion the Barbarian operated on the cultural pillars built by the Romans.

4.1 The Barbaric traits of Netflix

In the late 90's, the large Blockbuster Empire mostly ruled the whole home video industry. The giant had built its empire on the idea that renting a movie was essentially an impulsive and punctual decision. Targets were typically families, friends or couples deciding at the last minute to dedicate a particular evening to watch the latest trendy release. The ability to quickly deliver the newest movies was therefore critical. The company could rest on its impressive network of brick-and-mortar video stores and on its numerous alliances with the major studios to resolve this issue. Blockbuster was confident that these two major assets represented too high entry barriers for a newcomer to threaten its dominancy in the business. Therefore, when Netflix appeared at the border of its empire with a complete different vision of the market, Blockbuster trusted too much the fortification it had built to fear the arrival of what it considered to be a simple barbarian, the kind of which could not understand the profound sense and sophistication of the industry it dominated. But when Blockbuster finally decided to engage directly this new opponent by leveraging its massive financial resources, it was already too late; the barbarian invasion had already taken place…

Netflix, animated by an *uncivilized vision*, managed to *popularize 'the video watching activity' as a major form of entertainment by cutting through all types of complexities*.

4.1.1 An Uncivilized vision of the home video industry

Netflix vision of the home video business was completely disconnected from the 'civilized' way of consuming movies that Blockbuster and the major studios participated to promote.

4.1.1.1 The traditional and civilized way of consuming movies in the 90's

In the 70's, after JVC managed to impose its standard (VHC) to the market, the major studios glimpsed a great opportunity to complement the rents from their traditional cinema business. When the movie rental business began to emerge in the mid 80's, the companies involved tended to replicate some of the successful features of the traditional cinema business. The focus was essentially on advertising and selling the latest releases, which were the most profitable ones. As it was the case for the cinema, renting a movie was considered to be a punctual activity and required from the customer the effort of going out to purchase the film. The 'civilized' way to consume movies implied to go once or twice a week to the next Blockbuster store and rent the latest Spielberg movie that one had missed to see at the cinema. A few months after their release, movies were generally never rented. In fact, as the chart below illustrate, even for top class movies the revenue pattern from the renting was essentially concentrated on the first weeks following the release.

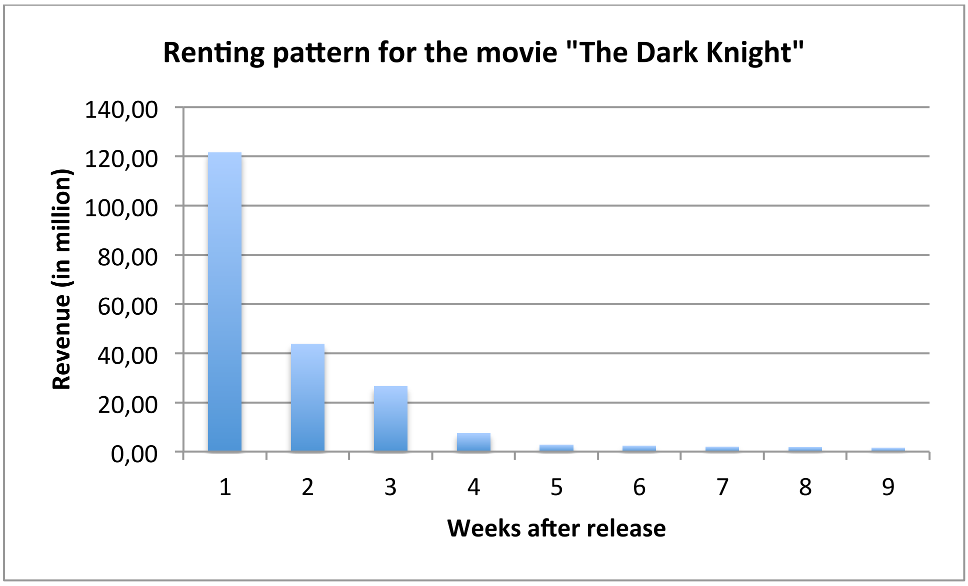

Figure 21 Evolution of the renting of a film after its release**.** Data source: http://www.the-numbers.com/

Since the advent of the home video industry, major studios and movie rental companies had been advertising in priority the new releases to favor short-term profitability. As a result, this policy largely influenced the consumers' renting pattern. And since all the thorough market analysis conducted afterward to study these patterns confirmed the tendency of consumers to rent in priority the freshly release movies, Blockbuster along with the major studios were comforted to invest even more in that direction. This vicious circle eventually locked the whole industry in the idea that home video was essentially about watching the latest top hits a few months after their diffusion in movie theaters.

4.1.1.2 The barbaric vision of Netflix

When Netflix was founded in 1999, all the people that joined Hastings shared the same passion for watching films. They were young and had all grown up with a video recorder in their living room. Watching movies was their favorite hobby; they owned a lot of videos for the films they enjoyed to watch many times but used rental services to discover new movies likely to satisfy their taste and big watching appetite. For these movie aficionados, the model offered by Blockbuster was not adapted. They found it really inconvenient to find new movies as the collection of video stores was usually reduced to a strict minimum. Besides, the pay-per-rental modality was considered very costly and the high late fees made people very frustrated.

Hastings was one of these movie aficionados who did not consider watching movies as a punctual activity but more as a common form of entertainment. He was aware of the frustration that many people had when they could not find a good old film in the reduced collection owned by the traditional video stores. That is why he focused essentially on providing the largest possible collection of movies (especially high potential and less known movies) to satisfy the latent hunger of movie aficionados rather than to obtain a lot of copies for the newest hits.

If at the beginning this community of high consumers of films could seem to be a market niche but the simplicity of the appealing all-you-can eat model brought by Netflix rapidly made people change their consumption habits. Step by step, people would prefer to wait for their movies to arrive at home rather than making the effort to go and queue at the nearest Blockbuster. They would favor choice over novelty; the unknown Spanish movie recommended by CineMatch rather than the latest freshly released Terminator. These consumption shifts participated to destroy the civilized way in which people used to watch movies at home. With a larger choice of films available, internal conflicts about what film to see began to rise in families where before the consensus was automatically guided by advertising or restricted choice. In fact, the barbaric change Netflix brought in the industry did not make everyone happy. The following testimony of a young woman on a forum who expressed her nostalgia shortly after the announcement of the bankruptcy of Blockbuster illustrate this 'barbaric' change that Netflix diffused in the traditional way of consuming movies:

> "I loved my movie nights. *My girlfriends and I would get together once a month to watch a chick flick*. We took turns picking out the movie at Blockbuster and we also took turns hosting the event. It was always so much fun to laugh at the comedy and of course to cry real tears at the sad parts. It was a cheap and fun way to have a night out. I realize that there are options such as Netflix, and cable, so it will still be possible to have movie nights after the Blockbuster bankruptcy, but somehow I fear it will not be the same. I can see us drifting apart and opting to stay at home *and watch whatever we can find on Netflix, individually*."

4.1.2 The art of simplification

Barbarians are usually described to be boorish and rude when they are compared to the fine sophistication of civilized people. In the common language, these simple and gross features are quite pejorative. However when applied to the case of Netflix, the barbarian metaphor no longer distinguishes the boorish from the civilized but emphasizes more the supremacy of simplicity over complexity. The art of simplification that made the firm successful is present at every level of the company: products, processes, and organization.

4.1.2.1 Product development: hide complexity with friendly-users interfaces

Simplicity has been guiding Netflix's product development strategy from its inception. The website that represented the central platform of Netflix's operations and interaction with the customers was designed from the beginning to be as intuitive as possible. If today this user-friendly interface may seem pretty normal this was not always the case at the time. During the Internet boom in fact, dot.com start-ups usually tried to attract the early Internet surfers by overpowering their websites with a lot of links and applications so as to imitate the 'portal' trend initiated by Yahoo. As a result, websites were often quite complicated to navigate through.

But if Netflix's website was really simple to use from the point of view of the subscriber, it was not that simple as regards the underlying technology and processes. In fact, the key aspect of Netflix's product development strategy has been essentially to astutely hide the high complexity of its operations and technology behind a very user-friendly and intuitive interface. The filter installed between the output of the CineMatch software and the available stock of movies is a good example of how Netflix took care to prevent its subscribers from experiencing any kind of complications.

When Netflix launched its video streaming offers in 2007, once again the firm favored simplicity of use over sophistication. At the beginning, Netflix streamed movies did certainly not have the same quality of image and sound (due to the narrow bandwidth of the Internet) than the one offered in download by other competitors. But the service was so intuitive and simple to use that it quickly convinced a lot of subscribers as testified this early tester in February 2007, one month after the release of the service:

> "As for actually using the service, after the initial hiccups everything has been working smoothly. You pick the movie you want to watch and simply click the "play" button. It pulls up a new viewing screen with your typical video playback toolbar (also includes a full-screen mode) and after a few seconds to buffer, the movie streams to your computer. The quality is what you'd expect from streaming video. It's not super great, but it's really not that bad either. I'm sure much of the quality is dependent on your Internet connection speed"

And it was only a matter of time until large bandwidth connections began to spread among the population to allow for a better quality of the service.

4.1.2.2 Standardization of the processes

Simplicity is also very present in the way Netflix conducted the operations in the mail delivery business. To master the high complexity of its logistics, the company standardized some of the critical elements of its delivery process. The famous 'red envelope' was one of these elements. It allowed the company to enhance the lead-time of delivery but also served as a strong marketing tool. In fact, the red envelope containing Netflix DVDs were highly recognizable by consumers and therefore largely participated to boost the fame of the company.

4.1.2.3 An organization that cuts through complexities

As regards its organization, Netflix, like every successful company that expended its operations, has been confronted with a growing bureaucratic complexity. To address this issue, firms traditionally rely on strong hierarchical structures where the chain of command tracks responsibility and monitors all processes to ensure efficiency. If this 'army-like' model of organization can work really well in stable environments, this is not the case in the dynamic and creative environment in which Netflix operates. According to Netflix executives in the presentation they made about the culture of the company, in creative and inventive environments, the emphasis must be put on the firm's ability to recover quickly from errors rather than on the capacity to prevent them. In these creative environments, they argue that severe control procedures are often more harmful than helpful to help the company deal with complexity. Netflix's answer to the growing complexity relies then essentially on the skills of its employees. The company top executives advocate that if the growth rate of high performing people is superior to the growth rate of complexity then chaos can be avoided. That is why the company looks for 'stunning colleagues' passionate about their work and capable of cutting through complexity to deliver simple but brilliant outputs. Simplicity is in fact a great value at Netflix. Synthetic skills are therefore preferred to analytic one. The company looks for employees capable to extract from complex issues the true substance that will keep Netflix at the edge of competition. As regards the focus on brilliant outputs, Netflix tend to value more the performance of the result than the efficiency of the process. In 'efficient organizations', mistakes are prevented through tight controls and monitoring of the processes. But employees working in these environments often fear to do things wrong. This situation usually leads them to conceal their mistakes and favor simple tasks over challenging problems. At Netflix, people are encouraged to embrace complex issues; no matter how many errors they make along the process as long as the final result is good. People, who challenged themselves with complex tasks, make a lot of mistakes but are honest enough to recognize them and agile enough to learn fast from them and are considered the most valuable assets by the firm.

The capacity of a firm to keep being agile while growing is highly dependent on its ability to master complexity without rigidifying the whole structure of its organization. In the 'Cultural dock' presentation, Netflix executives listed three bad options that a company can take when shifts in the market are detected:

1. "Stay creative by staying small but therefore have less impact"
2. "Avoid rules as you grow and therefore suffer chaos"
3. "Use process as you grow to drive efficient execution of current business model, but cripple flexibility, creativity and ability to thrive when you market eventually changes."

The fourth option adopted by Netflix to adapt the organization to change without compromising its growth was once again based on the power of its individuals over the use of rigid processes:

> "Minimize the complexity growth with the right people instead of a culture of process adherence"

4.2 The barbaric traits of Nespresso

In the traditional civilization of coffee, Nespresso is not a common company. To follow the metaphor introduced with Netflix, it appears that the Swiss firm also displays some characteristic features of those barbarian companies that successfully erode the pillars of traditional cultures by simplifying their means and values in a very attractive, intuitive and popular commercial reality.

4.2.1 Simplification of a process and standardization of a culture

4.2.1.1 Hiding technical complexity behind a simple and intuitive interface

In the IMD case, Joyce Miller and Kamran Kashani described the technology behind the coffee-making process of the Nespresso system:

> The coffee-making process involved three stages: pre-wetting (where water was sprayed on the coffee to expand it), aeration (where air was passed through the coffee to create small irrigation channels), and extraction (where water flowed through the coffee at optimal pressure and heat). The extensively researched Nespresso machine contained a chrome-plated capsule holder equipped with a built-in opening and filtering system, a microchip-monitored pump that delivered varying levels of pressure depending on the coffee blend, and a high precision thermoblock system to continuously heat water in the ideal range of 86° to 91° centigrade.

As this description illustrates, the technology behind the Nespresso system is quite complex compared to the technology of traditional coffee machines. For instance, more than 1 700 patents protect the whole Nespresso system. But the simplicity of the product's 'façade' hides the complexity of the underlying technical process. In the Nespresso system, the complexity of the coffee making process is in fact astutely hidden behind an elegant design vitrine coupled with a very user-friendly interface. Insert the capsule, press the button and you will almost instantaneously access the finest sophistication of a typical roman espresso…what else? In fact, why bother going to the nearest bar to have your espresso served by a skilled barista when you can make the same coffee at home? Or why even bother doing it yourself with a traditional Italian 'moka' machine that implies more expertise? Nespresso cut through all these issues and let the art of making good coffee be accessible by anybody.

4.2.1.2 The art of the barista at your fingertips

Figure 22 The simplicity of pushing a button. Source: Nespresso.com

But the simplification brought by Nespresso goes further. By standardizing the technical art of the barista, Nespresso desecrated what used to be a noble and skilled business reserved to an elite. This simplification of the traditional barista's gesture and process is characteristic of the way barbarians deal with complexity. The brand's slogan 'What else' illustrates clearly this barbarian approach. With this slogan, Nespresso sweeps away one century of Italian culture of drinking espresso and lets people who are not well acquainted with this culture believe that Nespresso is actually the genuine reference of the espresso coffee (The name itself participate to this confusion). This appropriation and standardization of the codes and values of a sophisticated culture aiming to bring what was reserved to a restricted community of connoisseurs to a greater mass of raw users is what characterized the most Nespresso as a barbarian company. Beyond the technical standardization of the capsules, Nespresso also standardized the variety of the coffee that the company classified in 16 categories: the 16 'grands crus'. As a result, Nespresso has conserved the sophisticated nature of the espresso coffee but managed to transform this tacit sophistication in a set of commercially computable concepts and values. By doing so, Nespresso offered people simple tools to access a culture that they could not have understood before and therefore triggered large enthusiasm from these people in return.

4.2.2 Triggering enthusiasm

As is the case for most barbarian companies, Nespresso also triggers large enthusiasm to its customers. In fact, beyond providing them with mere cups of espresso at home, the company offers them a privileged access to the codes and values of the trendy and stylish Italian lifestyle. This rich experience flatters the ego of the customers and creates strong emotional bonds with the Nespresso brand. Besides, the company exacerbates this enthusiasm with the club modality.

The ‘club’ is in fact a powerful marketing tool that creates a strong intimacy with the customers. What could be only viewed as a common access to advanced customer relation services becomes a deep sense of belonging to a special community and lifestyle when labeled ‘club’. When customers purchase a Nespresso machine and win therefore their exclusive ticket to enter the ‘club’, Nespresso tries to make them believe that they are now part of a unique and glamorous community of refined people that know how to appreciate the sophistication of a good coffee.

In some way, while simplifying it, Nespresso participated to democratize the culture of espresso. For example, the firm tried to target a broader population than the one that was reputed to enjoy espresso. The birth of the Nespresso logo well illustrates this fact. In 1985, Eric Favre was asked to prepare the creation of the Nespresso brand related to the capsules system he had patented a few years before. The name of the brand was already chosen but he had to choose a logo between those suggested by the communication company he had hired. But none of them could satisfy him. In fact, the communication company had designed the logos with the idea that the espresso was essentially a man’s drink whereas Fabre had noticed that among his friends those who were the most thrilled about the invention were actually women. He decided therefore to share his doubts with a marketing manager of Nestlé. And the latter came with a great idea. After asking his young assistant to put off her high heel shoes, he used them to form what became soon after the current shape for Nespresso’ logo as the next picture illustrates.

Figure 23 The design of Nespresso's logo. Source: Nespresso.com

This example shows how from the very beginning Nespresso intended to rethink the traditional relationship people had with coffee. And Nespresso successfully managed to mix the sophistications of the coffee culture with the latent expectations of customers and the new lifestyle trends to develop a unique experience strongly attached to its brand.

4.3 Comparison between Nespresso and Netflix

The following table collects the similarities between two barbarian companies that revolutionized both their industries.

	Netflix	**Nespresso**
Product (high variety and quality)	<u>Films</u> Variety: Large collection of film Quality: high potential less-known movies	<u>Capsules</u> Variety: Collection of "grand crus" Quality: finest quality of coffee
Platform (Simple and intuitive)	Online website	Coffee machine
Revenues	From subscription fees	From capsule selling
Customer base	Subscribers	Club members
Target	Movie aficionados	Coffee connoisseur
Innovator	Hastings	Gaillard
Technical core asset	Recommendation software	Capsule design
Marketing core asset	Unlimited rental and streaming offer	The Nespresso Club
Access to the innovation	Internal R&D and Open innovation	Purchasing of patents and traditional R&D

Agile strategy	Successful transition from mail delivery business to online streaming business	Successful renewal of the business from the office sector to the top household segment
Pillar attacked	Traditional way of consuming movies	Traditional way of drinking coffee
Upstream partners	Major studios	Coffee producers and machine designers
Downstream partners	USPS	Home appliances retailers

Table 6 Comparisons between Netflix and Nespresso

4.4 The barbaric phenotype

4.4.1 Characteristic observable traits of Barbarism

From the previous analysis of the barbaric features displayed by Netflix and Nespresso we can draw the following main observable traits:

- Barbaric firms attack the tabernacle of traditional markets

When they enter a market, barbaric firms don't replicate the behavior of their competitors nor they align their offers on the way consumers perceive the market. They pay no heed to the values and tacit norms that traditional players participated to build in the market. Therefore, they tend to offer solutions that impact the way people conceive the traditional consumption of a product. In fact, in both case studies we observed that the offering of the two companies deeply transformed the perception consumers had of their relative products. Netflix changed the way people were used to consume movies and Nespresso the way people were used to drink coffee. By doing this, Netflix and Nespresso attacked what was considered as immutable and almost holy by the other players of the market. We referred to this behavior as barbaric because it bares close resemblance of the behavior one can picture of a barbarian: the barbarian appropriates itself a set of traditional habits and then transform it which erodes the original sense of the traditions beneath. The nature of this transformation is explained with the second observable trait identified:

- Barbaric firms offer simple, convenient and usually standardized outputs that hide the technical or cultural complexity of their solutions

Simplicity and convenience are the main drivers of a barbaric firm's offering. Barbarians are ready to spare some technical sophistication for the sake of simplicity. Netflix's choice for streaming over downloading that traded film quality for convenience illustrates well that fact. However, this simplicity does not reflect the nature of the technologies employed by the firms. This is actually the contrary. Both Netflix and Nespresso technologies are in fact technically complex. Netflix recommendation system relies on one of the most advanced technology of algorithms while Nespresso's technical design for the capsule is the result of years of research and development. But both firms excel in the art of hiding this complex underlying technology behind an elegant and friendly-user interface.

4.4.2 Relations with the agile phenotype

Trough the story analysis of Netflix and Nespresso, we observed some of the characteristic features of what we defined as the agile phenotype. But the two companies also appeared to display singular and common features that were not conceptualized yet by the strategic management literature. In the previous chapter, we therefore attempted to underline these new characteristic traits. If two case studies are obviously not enough to link these barbaric traits with the agile phenotype, we however offer in this section a possible relation between the two concepts of Agility and Barbarism.

As we have seen, the output of barbaric companies is coherent with the output identified as characteristic of the agile company. In fact, barbaric firms achieve to offer simplicity and convenience thanks to their capacity to connect their products with different kind of services and deliver a rich experience. Moreover, the concept of barbarism seems highly coherent with the concept of strategic agility. Barbarian companies may be more fitted than others to be strategically agile because they don't build rigid dogmas around one particular business model and are therefore better prepared to cannibalize themselves in order to explore new promising paths. To avoid the traditional inertia of large firms, barbarians firms don't build large empires but install instead flexible bridges with other companies so to capture the best elements in their environment. Their capacity to transform, deconsecrate, decontextualize, remodel and integrate the disparate elements they have captured into a coherent, simple and convenient offering is then what insure their success. This positioning bares close resemblance to the platform model of organization reviewed in the first chapter and identified as characteristic of agile companies. As a result, the barbarism concept seems highly coherent with the notion of agility from a strategic point of view as well as from an organizational point of view.

In the previous chapter, we saw that the concept of strategic agility could be very useful to show how company could adapt or reinvent their business in complex and fast changing environment. This concept seems to describe very well the behavior of the agile company in face of complexity and change. But to assess if a company is strategically agile or not, one must look in the past of the company and over a long time period in order to identify the period of change and disruption that the firm managed to overcome. Conversely, the concept of barbarism is immediately observable. From an analysis of the firm's offering respecting to the offerings of its competitors in the market, one can for instance easily determine if the company acts as a barbarian or not. If we assume that strategically agile companies always display some barbaric features then the analysis of these barbaric traits could prove very helpful to identify those companies more likely to experience success in dynamic environments.

As a result, barbarism can be seen as the short-term behavior or *modus operandi* of strategically agile companies to enter a new business.

Conclusion

Under more and more complex, fast changing and competitive conditions scholars have converged on the fact that traditional strategic and organizational models are not adapted anymore to explain the failures and successes of companies. As a result, to address the new paradigm of change, they developed concepts such as agility, ambidexterity, network organization, horizontal organization, and dynamic capabilities…however, despite the wide popularity of the last one, scholars did not reach any consensus and different streams of literature expanded in parallel. In the second chapter of this paper we proposed a framework inspired by a biological metaphor to classify and clarify the nature of these different streams. In the future, this framework could prove useful to understand the future directions of researches and assess their positioning in the strategic management literature.

Besides, within this framework, we particularly focused on the concept of agility, which is recognized as characteristic of what we labeled as the phenotype literature. The first chapter highlighted the broad diffusion of this concept in the management literature. Throughout this review, operated in different fields of the management literature, we noted that a large majority of scholars have adopted an observable approach to describe their vision of the agile company. As a result, we extracted from this review a set of canonic traits aiming to better understand the global appearance of an agile company. And, in the third chapter, we found evidence that some of these canonic traits could be observed in two companies that managed to outperform their competitors in turbulent environments. Moreover, we noted a possible correlation between these observable traits and the success of these two companies. This evidence illustrates the great potential of this 'phenotype approach', which enables industry observers to increase their ability to assess if a company displays the right behavior or organizational form to thrive in its environment. This information may prove essential to evaluate if a company will be likely to survive in a very competitive or fast changing market. This paper offers therefore some interesting observing keys for practitioners to assess the fitness of their companies to the dynamicity of their environment.

Accordingly, this paper invites future researches to embrace this phenotype approach, which has not spread so much in the literature yet. For instance future researches could aim at finding new phenotypes characteristic of successful firms. As an illustrative example of this approach, in the last chapter of this study we attempted to build the foundations of a new phenotype concept: Barbarism. Throughout the cases studies of Netflix and Nespresso (based on a story analysis method) we collected some observable similarities between the two companies that we assimilate with some of the common traits usually displayed by barbarians. Future researches could aim for instance at better understanding this barbaric phenotype as well as filling the gap between this phenotype and its underlying genotype material. More generally, future researches are invited to enrich this phenotype approach by clarifying the nature of the existing ones, introducing new ones or conceptualizing the methodology of observation.

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