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*The Organization of Sports Events in the Endurance World:
the Case of ENDU*

A thesis submitted for the Master of Science degree in Management Engineering

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Abstract

This thesis wants to study the organization of sports events at endurance level. To better understand what it means to organize an event, it was necessary to create a structure that included the analysis of the sports market in Italy and also the technological innovation seen as support for the process. In this sense, literature has been built on three pillars: sport, event organization and technology. The first aspect was dealt with by making considerations on the Italian market of athletes enrolled in the various federations and on the habits of Italians in the field of sport. Following these considerations, it was possible to define a first profile of disciplines suitable to be practiced at the endurance level. The second step was an increasingly in-depth analysis of the event: starting from the generic event, the thesis moved on to the sporting one that was classified and analyzed to understand the actors involved and the activities necessary to offer a successful event. Finally, considerations about technologies used to support the organization process to realize a successful event. At this point it was used as case study ENDU. This start-up is a successful case and operates in the endurance world by offering on the B2B side activities that are key to the organization of the endurance event, while on the B2C side allows fans to be not only spectators but also athletes. This flexibility allows ENDU to be active also in the tourism sector: indeed, sports events can be a great way to let people know and promote a place, especially endurance events that are practiced outdoors and do not need infrastructures that represent a bad example of sustainability.

Abstract (Italian)

Questa tesi vuole studiare l'organizzazione di eventi sportivi a livello endurance. Per capire meglio cosa significa organizzare un evento, è stato necessario creare una struttura che includesse l'analisi del mercato sportivo in Italia e anche l'innovazione tecnologica vista come supporto per i processi. In questo senso, la letteratura è stata costruita su tre pilastri: sport, organizzazione di eventi e tecnologia. Il primo aspetto è stato affrontato facendo considerazioni sul mercato italiano degli atleti iscritti nelle varie federazioni e sulle abitudini degli italiani nel campo dello sport. Il secondo passo è stato un'analisi sempre più approfondita dell'evento: partendo dall'evento generico, la tesi è passata a quello sportivo che è stato classificato e analizzato per comprendere gli attori coinvolti e le attività necessarie per offrire un evento di successo. Infine, sono state considerate le tecnologie utilizzate per supportare il processo organizzativo alla realizzazione di eventi di successo. A questo punto è stato utilizzato come case studio ENDU. Questa start-up è un caso di successo e opera nel mondo dell'endurance offrendo dal lato B2B attività che sono fondamentali per l'organizzazione dell'evento endurance, mentre sul lato B2C consente ai fan di essere non solo spettatori ma anche atleti. Questa flessibilità consente a ENDU di essere attiva anche nel settore del turismo: infatti, gli eventi sportivi possono essere un ottimo modo per far conoscere e promuovere una località, soprattutto gli eventi di endurance che si svolgono all'aperto e non hanno bisogno di infrastrutture che rappresentano un cattivo esempio di sostenibilità.

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Executive summary

The idea to work on such topic was born from the collaboration with the Osservatorio Innovazione Digitale nell'Industria dello Sport. Indeed, this last one identified the following model made of four pillars of analysis. Within the blue pillar of event management, there is the so called “Event organization”, which represents the topic of analysis of this thesis and the starting point of all other consideration.

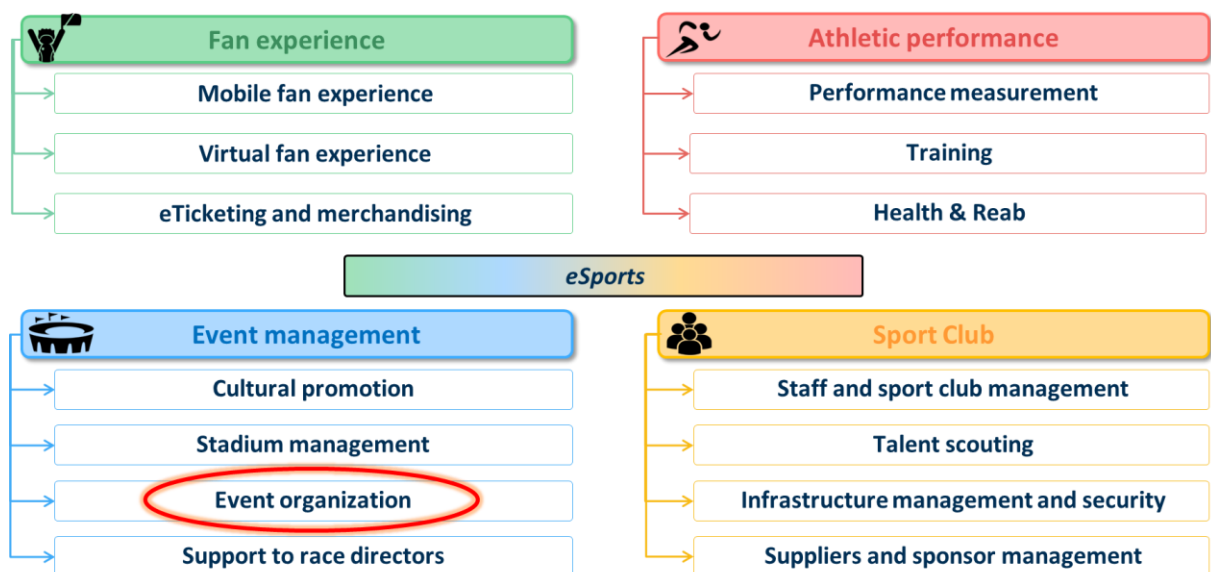


Figure 1 – Model by Osservatorio Innovazione Digitale nell'Industria dello Sport and focus of the thesis

Keeping in mind the fact that this work starts from a proposal of the Osservatori Digital Innovation, it is fundamental a description of the technologies that are used in this industry. Going on with the explanation of the reasons that bring to work on this argument, it must be said why the focus has been on endurance sports when there was the opportunity to work on many other classifications of sports. The necessity to develop this project comes from the fact that the single case study considered is on a start-up called ENDU which is sponsor of the Osservatorio Innovazione Digitale nell'Industria dello Sport.

Literature review

Using as starting point the considerations few rows above, it has been developed a structure of the literature: the aim of this chapter was to offer to the reader the opportunity to understand the market in its entirety. Doing so it has been created a path of three steps which consider the industry of sport, the analysis that must be done to understand the organization of events, key point of this thesis, and finally a look at technologies used as support to create successful events.

To do this in the best possible way, first of all it has been necessary a lecture of many papers, articles, web pages and extracts of books. A part of these things has been provided directly by the Osservatorio, another part by the management of ENDU and finally a part comes from the web and the university library.

Sport

The first part of analysis has been on the industry of sports. Within thin paragraph, it has been done an analysis that followed a funnel: it starts considering the Italian market in its totality, analyzing first the dimension of this industry thanks to annual reports of CONI and ISTAT. In 2016 there are 45 National Sport Federation (FSN) and other 19 Sport Disciplines Associated (DSA) that together count 5.642.109 people between athletes, managers, trainers and other figures operative in this sector.

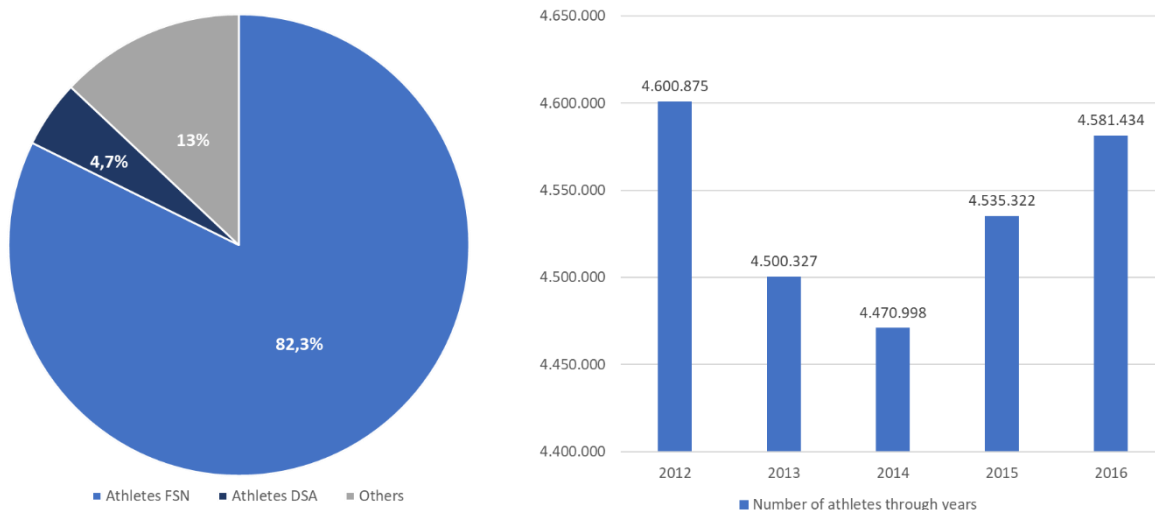


Figure 2 – Athletes within FSN and DSA and relative evolution through years

In the two figures there is the context of Italian athletes: the pie on the left highlights how the percentage of athletes enrolled within a FSN or a DSA in 2016 is definitely superior compared to all the other figures (87% vs 13%). In the histogram on the right, instead, there is the evolution of number of athletes from 2012 to 2016 that makes evident how there is a growth after a decrease that reached the point of minimum in 2014.

These considerations can be followed by the analysis on the level of activity of people in order to define a profile of Italian people. This analysis can be based on the simplest study of behavior rather than on the calories consumed, even if this last classification is not as effective as the

first one. ISTAT distinguishes people in three categories: sports, active and sedentary people. As well as it has been done for the distinction between athletes and non-athletes, it is possible to do the same things for people behavior, considering the percentages on last year available and then the evolution of these through years. Here below the graphic representation:

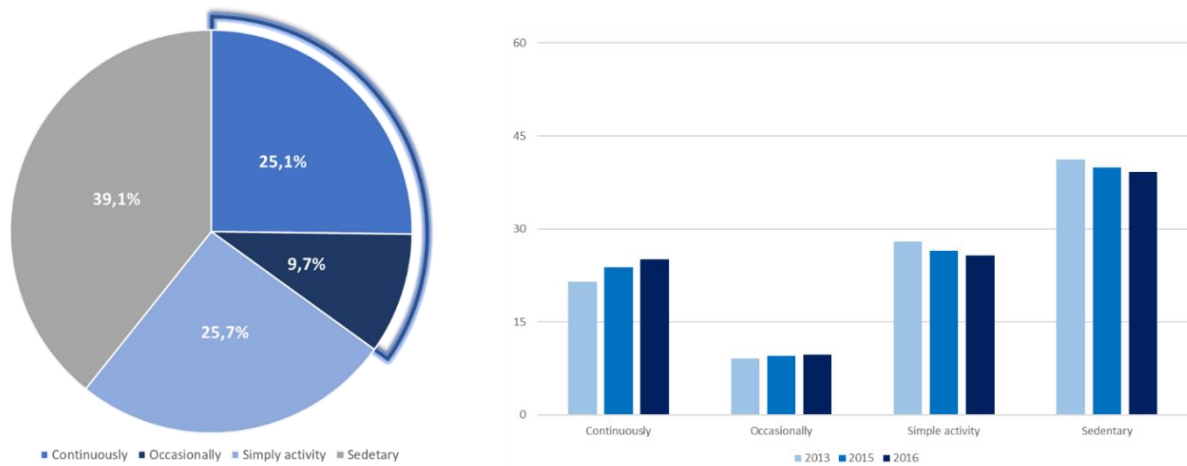


Figure 3 – Division of people according to habits and relative evolution through years

In the left pie, the sport people identified by the arch has been further divided into those that practice continuously (blue) or occasionally (dark blue), while in the right histogram there is the positive evolution in people that practice continuously (+3,6% in 2016 respect to 2013) and in the number of sedentary (-2% in 2016 respect to 2013).

Remembering the purpose of the thesis, it must be dedicated a space to endurance disciplines. First of all, it is necessary a definition: “*Endurance can be defined as the ability to withstand stress over prolonged periods of time. An endurance sport is therefore any sport in which there is a prolonged physical stress.*” (Training 4 endurance).

Then can be identified sports that could be practiced at endurance level utilizing the list of Federations: running, cycling, triathlon, swimming and winter sports. It is fundamental to notice that these sports can be practiced in different ways and not all races can be considered as endurance. In 2016, 12,8% of FSN athletes were enrolled in one federation that could be associated to endurance sport. As well as for “traditional” sports, it can be done an analysis of behavior of people that practice these disciplines, and there are both those that want to reach a higher level of fitness and those that participate to have fun.

Event organization

Going on, the second pillar is on events organization. To work on this part starts with the definition of event that according to Devoto and Oli is a “*Fact or event of great importance, worthy of being remembered; a new and exemplary operation; an event or initiative of considerable interest or resonance*”. Thanks to the book “L’organizzazione degli eventi” by L. Varriale, events can be classified in many ways according to dimension and nature and one of this classification allows to define sports events which can be classified in four categories:

- Big events: they are internationally recognized and occur with a well-defined periodicity. They are characterized by huge crowds and important media coverage.
- Championships: relevant at international level. High periodicity and fans.
- Meetings: regional relevance and low periodicity. High number of athletes and low media coverage.
- Sport venue: similar to meetings, but lower number of athletes and null media coverage.

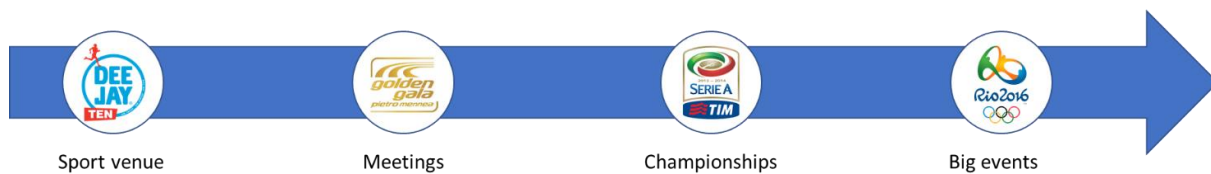


Figure 4 – Classification of sports events

At this point it is necessary to understand which activities must be done to realize a successful event. Notes by Gravina and Esposito are useful in this sense because they identify these activities and do considerations on factors that are fundamental. But the structure is not rigid, and it is not possible to talk about a thing that should be done before another one, but rather it is just a list of activities.

Between the many things that an organizer must take into account, there is the analysis of the several types of impacts that an event could have. These impacts can be defined in several ways and it is possible to talk about quality of the event rather than legacy or sustainability of the event. The literature talks about “hard” legacy and “soft” legacy: this distinction is based on the tangibility of what is left to the host city. Going deep in the analysis of this topic, it has been interviewed Pierluigi Zacheo, expert of this sector, that defined the concept of sustainability as a paradigm declined at three levels: social, economic and environmental sustainability.

According to Zacheo, every event has its own legacy which can be seen as the positive impact on a territory or a community.

As done previously for the sports, also for the organization of sports event it is necessary to do considerations about endurance. Literature does not make any distinction between the organization of sports events and those that are practiced at endurance level. The points of difference can be seen considering the fact that endurance events must be done “en-plain air”. In this sense, it is necessary to consider all possible weather conditions and understand, for example, how to accommodate all athletes and in general other people. Another evidence comes from the analysis of the legacy: indeed, these events do not need any infrastructure, and this means that the environment is left as it was before the event. Instead, it is possible to talk of “soft” legacy that could be linked to the culture established in a community.

Technology

The last point considered in the literature is about technologies used as support to the organization of events. Treating this topic has been necessary to search many papers on the web using Google Scholar, and find a way to classify the several technologies identified by the different authors. The main difference is between the Macro and the Micro area identified by the Chinese Li and Wang: in the first one there are all platforms and tools used by the organization, while in the second one there are devices and IT utilized for example by athletes to improve their performances.

Case study: ENDU

This chapter is dedicated to describing ENDU that according to the words of its COO Matteo Gelati can be defined as “*a facilitator or a consultant to enter the endurance world from the B2B point of view. From the customers side, it is a network of information and services for those who are passionate*”. As done in the literature, in this chapter too has been used the structure that analyses sports, events organization and technologies, adding to these some adjustments proper of the start-up. It is operative on more than 10 sports categories and over thirty disciplines with a focus on running, cycling and triathlon.

About the event organization, Matteo did many considerations to distinguish the 1430 events in which ENDU has been involved in 2017 on the Italian territory. They can be:

- Agonistic sport events: there are registration, final rankings and awards. Participants must be enrolled to one federation and with one sport team. They need a medical certification too.
- Non-agonistic sport events: there is not an official ranking. The medical certification is sufficient to participate.
- Other sports events: they can be defined as non-events since the official organization is absent.
- Fun sports events: people attend these events to have fun with friends

A further division is based on the number of people that attend events:

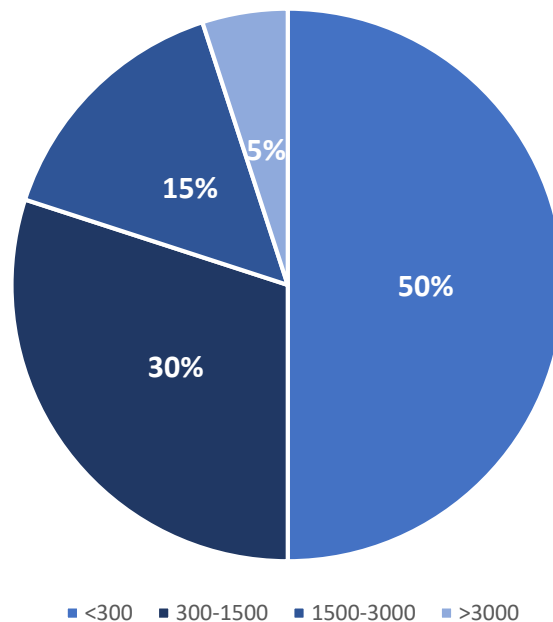


Figure 5 – Division of events according to number of athletes

Looking at data of sports dimension Looking at data of sports events dimension, it is possible to understand that the Italian market is quite fragmented, characterized by many small events and few that can be considered big and relevant at least at national level as for example marathons. Following this reasoning and considering the literature, it is possible to position ENDU as in the following figure: indeed, it works on small and medium events characterized by a minimum mediatic relevance and few hundreds of people.

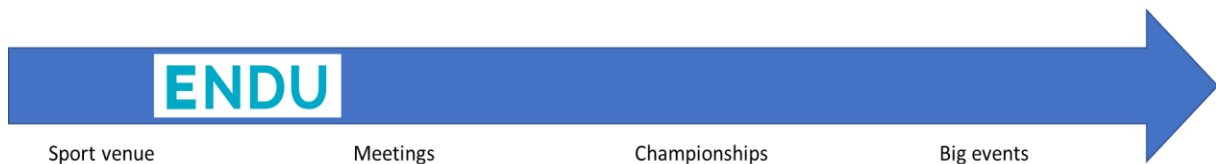


Figure 6 – ENDU within the classification of sports events

ENDU works both on B2C side and B2B side: focusing on this last one, which represent the topic of this thesis, the start-up can create end-to-end events, even if this is not its core business, or it performs a series of activities. Here there is the list of all things that ENDU can do within the organization of a sport event:

- Information: the platform endu.net offers info about next events and an online magazine.
- Registration and ticketing: registration to the event and check of the medical certificate.
- Photo & Video: pics done by ENDU are available on its platform after the event.
- Timing and tracking: it is the activity that control what happens during the race.
- Secretary: it is a support to athletes and all people involved.
- Custom project: creating projects to satisfy customers requests.
- Sponsor research: find the right company for the role of partner of sponsor.

Besides all these activities, it is important to underline other aspects of ENDU such as companies with which it works: remarkable are partnerships with Nielsen Sports, CONI and MYLAPS. Moreover, ENDU developed a series of competences and it is now operative in the sector of tourism, offering to athletes enrolled on ENDU website the opportunity to practice these disciplines in suggestive locations where they can do other non-sportif activities.

All these things are possible thanks to a series of technologies and platforms owned by ENDU that support the start-up in all its operations in order to offer a high-quality event. Between these technologies, worthy of note is the application Never Alone which offers a security service to the user and, at the same time, the opportunity to monitor the area on which it is used. Another platform of ENDU is ENDU4TEAM: it is thought for sports clubs that want to manage athletes and all relative stuff easily.

Conclusion

Analysis of the literature together with considerations about ENDU allows to say that organization of events is quite complex, and it does not exist a rigid path that must be followed in order to be sure to create a successful event. Instead, things that should be done are just listed and it is up to the organizer to understand what to do and in which order to offer a successful event. In this sense, it is precisely this freedom of decision that makes complex organizing an event.

The fact that it has been taken into account just one case study does not allow to develop a model, but the only thing that could be done is a scheme that represents a standardization of the business model of ENDU. The matrix drafted has endurance sports on the x-axis and activities performed on the y-axis: the start-up does not have a focus on a sport or on an activity, but rather it can offer many services for various disciplines. The decision to operate in such a way is in line with the fragmentation of the Italian market that suggests being flexible and do not specialize on one activity due to absence of many big events that would justify such effort.

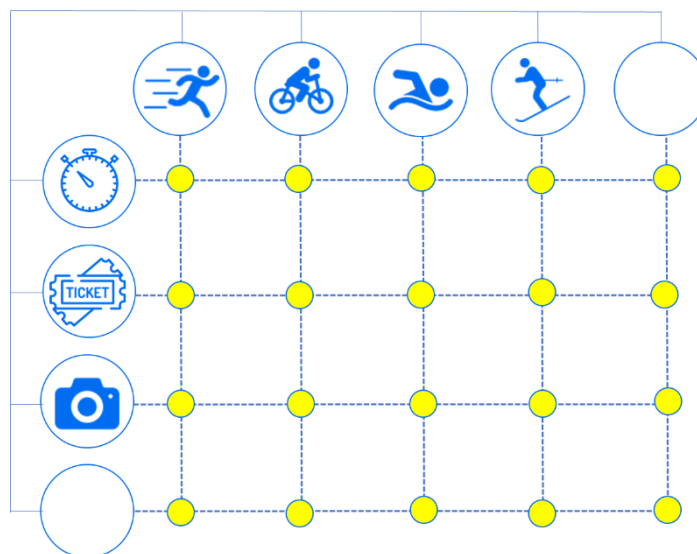


Figure 7 – N activities – N sports matrix adopted by ENDU

The structure above could be replied, and it can be a starting point to develop a model valid for other companies. In particular, a firm can decide to focus on a single activity and a single sport (first matrix from the left), or it can specialize on just one discipline and perform many activities (second matrix from the left). Vice versa, it could have a deep knowledge of a single activity and do this for different sports (third matrix from the left).

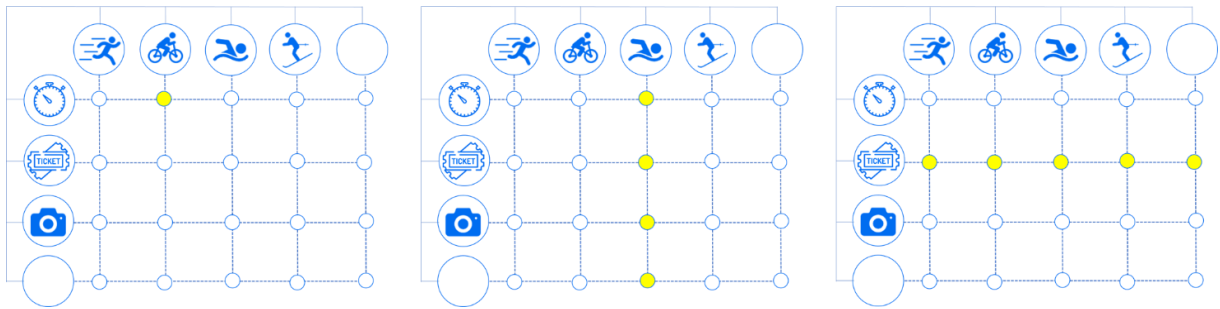


Figure 8 – Other 3 matrixes find in the analysis

The last option is considering the whole event, from the beginning till the end. This is for sure the most complex case since the company must have different skills in order to perform all activities. Considering ENDU, this model is used for few events, even if it does not represent the core business of the company.



Figure 9 - End-to-end event

At this point, after we understand how ENDU works, we need to understand the markets to which the considerations made for the startup can be applied. ENDU is not limited to organizing endurance events and facilitating athletes or enthusiasts who want to participate in these sporting events, but rather presents a very flexible business operating in other niches of sport. It is also active in the tourism sector which can be seen as a sector that has the dual role of promoting sport and in turn being promoted thanks to sporting events. This sector is characterized by important numbers and by many facets, as for example it is possible to notice also from the ENDU study: this startup possesses technologies like the Never Alone application that allows the mapping of the paths of the tourist resorts.

1 Introduction

This short chapter needs to the reader to better understand the direction of the thesis. Indeed, here it is identified the path between the many possible areas of analysis. The objective of this project is to explain what the market of sport endurance is, and which things have to be considered to organize the event in terms of actors, activities and technologies of support.

Sports

Searching on the web for the word "sport", you are directed to a series of links that lead to sports sites and the results of the various matches or competitions of the last hours. For example, in Italy, among the first results there is always football, by far the most practiced and most followed sport. Going deep in the analysis and looking among the various sports sites, such as "La Gazzetta dello Sport" or "Il Corriere dello Sport", it is clear that the focus is always on the major football teams (e.g. Juventus, Milan, Inter, etc.) and in minor way on other sports (e.g. basketball, motors, tennis, etc.), depending on the period of year (for example, in july there is a focus on cycling due to The Tour de France) and the event (during the Olympic Games, the attention is distributed homogeneously on all sports). Sometimes it happens to find articles or videos dedicated to topics linked indirectly to sport: nutrition is no longer an aspect that is only followed by professional athletes, but also by enthusiasts who want to follow a healthy and even sustainable lifestyle. In the same direction, it is also the analysis of supporting equipment (e.g. running shoes, bicycles and clothing in general). Instead, it is not easy to find articles that talk about endurance: this topic is not covered and at least it is possible to read about some ironman races (triathlon discipline) of great importance in terms of number of participants and location. But that's all, it does not exist a clear endurance concept such that it is possible to associate certain events or sports competitions to this classification. The endurance topic is dealt with more prominently abroad where there are companies that operate in the sector for some time and offer reports that outline what are the disciplines practicable at the endurance level precisely, and what are the profiles of the people who practice these sports. In order to better understand the concept of endurance, it is therefore necessary to study business cases even if these are difficult to operate on more than one sport. About these sports, it is interesting the analysis of possible links: indeed, the majority of them are practiced "en-plain air". Locations that host these events can be thought as touristic locations too, and sports is a way to promote these places.

Event organization

Like any industry, sport can also be considered from different perspectives: analysis of sports results, economic dimension, social dimension, nutrition, medical issues and many other dimensions. Another type of analysis can be done on the basis of the geographic dimension that can be generally made worldwide, or with a focus on a single geographic area that can correspond with a country. Starting from the assumption that it is impossible to consider all these aspects, it would be stupid even try to analyze all these perspectives: the result would lead to an incomplete analysis from all points of view and to no contribution to research. Instead on the next pages we consider the organization of events. Also, this topic has many facets that make it complex: to realize a successful event it is necessary to consider many factors and to carry out many activities that make each event unique and different from the others. Organizing a concert is very different from organizing a fair or even a sporting event: each of these has its own characteristics in terms of activities, people involved and technical support. Between the many aspects that make the organization of an event, there is for sure its uniqueness. Indeed, every event is different from another one for different reason: different locations, different sports and different activities required, and even if an event that happens every year may always seem the same in organizational terms, this is not true: weather conditions could be different, a new sponsor involved means new attention to be dedicated to this one. In this sense, it is interesting to understand the characteristics proper of endurance events: which are the considerations that must be done? To understand these, it is necessary first an in-depth analysis of events in general and then a focus on sporting events.

2 Literature review

This chapter is the core of the thesis. The aim of this part is to introduce the reader to some concepts fundamental to understand the context in Italy and later the case study ENDU. Here below, there are three paragraphs dedicated respectively to sports, events organization and technology.

But, before the analysis starts, it is necessary to define the context of this thesis in the panorama of Osservatorio Innovazione Digitale nell'Industria dello Sport. The model built by the Osservatorio has four pillars, which are the macro area of research. Here below, there is the structure of the model:

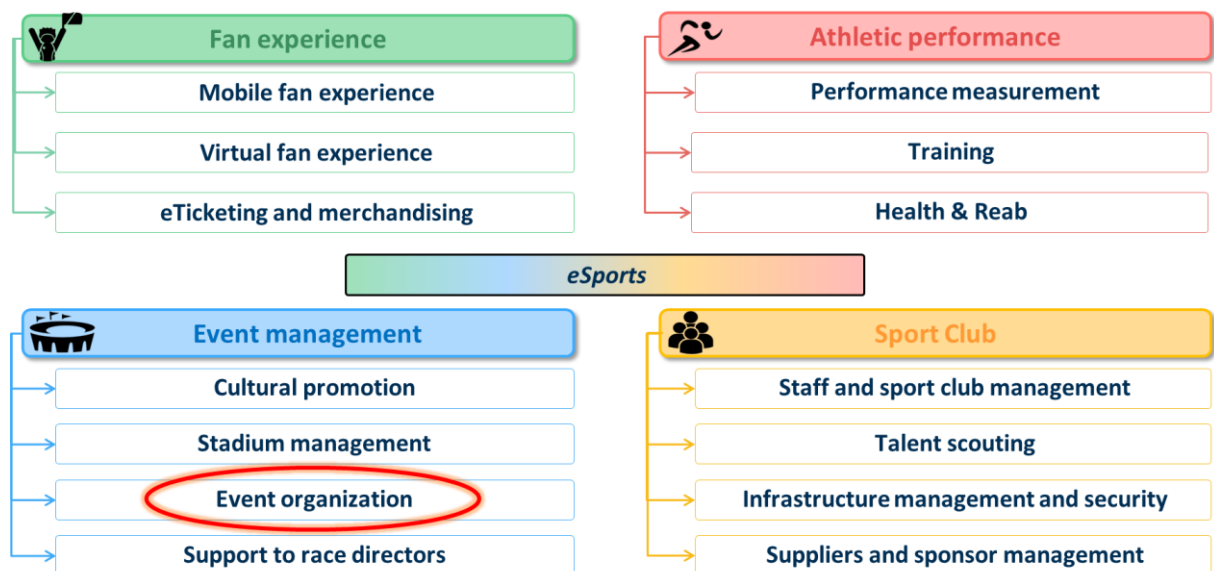


Figure 10 – Model by Osservatorio Innovazione Digitale nell'Industria dello Sport

Moving clockwise from the top-left corner we have:

- Fan experience: the new digital technologies are transforming the world of fan experience. In particular, by opening new business models regarding ticketing, media consumption and sponsorship.
- Athletic performance: the world of athletic performance has always been in a very strong relationship with technology, so it was heavily influenced by the digital innovation. The need for improvement in performance increase more and more.

- Sports clubs: in this area, it is analysed the role of digital innovation in the organization of the club, in particular focusing on the asset management of the athletes, the team staff and the employees.
- Event management: sports institutions, managers of sports facilities and sports organizers have had to interface with digital innovation, so as to manage the threats and capitalize on new opportunities in their respective fields.

At the intersection of these four pillars, there are eSports that, according to Hamari and Sjöblom (2017), are *“a form of sport in which the primary aspects of sport are facilitated by electronic systems; the input of players and teams and the output of the eSports system are mediated by human-computer interfaces”*. These are called with different names: competitive (video) gaming, professional gaming or pro gaming and are characterized by the fact that are competitive videogames not necessarily linked to sports (e.g. FIFA, League of Legends, etc.). Moreover, as well as for traditional sports, eSports also includes tournaments and championships organized, with players supported by professional teams, and sponsors that make these events possible.

As highlighted by the red circle in the previous figure, this thesis will focus on the event organization with a focus on sports practiced at endurance level. With this objective, in the following rows of this chapter will be analysed the markets of endurance sports, the process of organization of a sport event and the technologies of support to make a successful event.

2.1 Sport

The goal of this chapter is to define the different dimensions of sports in terms of athletes and in general of people involved in the sport industry throughout the years. The second and significant step of this analysis is the focus on the endurance sports, to understand which their relevance within the whole industry is and which are the characteristics that make these activities different.

The dimension of the sport in the Italian peninsula could be understand looking at the data through years coming from the Italian National Olympic Committee (CONI). *“I numeri dello sport 2016”* (2017) offers a brief introduction in pills. The panorama of the sport activity which is promoted by 45 National Sport Federation (FSN) and 19 Sport Disciplines Associated (DSA) recognized by the CONI. There are over 4 million and 580 thousand athletes and almost 70 thousand associations on the national territory. Over 1 million of operators cover roles of

manager rather than race officials or simple collaborator; these support the good practice within the federal organizations. It is possible to go deeper in the analysis and understand how these numbers are composed. Here below the table of FSN and DSA composition in 2016:

2016	FSN	DSA	FSN+DSA
Athletes	4.312.771	267.663	4.581.434
Sport clubs	58.203	4.525	62.728
Other clubs	6.615	572	7.187
Total clubs	64.818	5.097	69.915
Managers	522.257	23.602	545.859
Trainers	240.762	11.223	251.985
Competition Officials	115.693	4.488	120.181
Total operators	878.712	39.313	918.025
Federal managers	16.098	2.336	18.434
Other figures	123.813	403	124.216
Total others	139.911	2.739	142.650
TOTAL	5.331.394	309.715	5.642.109

Table 1 - People within FSN and DSA

The wording “TOTAL” is the sum of “athletes”, “total operators” and “total others”. Athletes are the major class and represent the 81% of the figures of the CONI institution, the group of managers, trainers and competition officials is the 16% and the rest 3% is made of federal managers and other figures (doctors, therapists, collaborators, shareholders, etc.).

During 2016 the Italian sport movement has grown in terms of athletes enrolled in the FSN or DSA. The same growth is for the trainers, competition officials and federal managers. On the other side, the number of sport clubs has diminished as well as the number of managers. In percentages, the growth of athletes is the 1%, which means 45 thousand more people that practice sport compared to the previous year. Noteworthy is the 2,7% increase of competition officials and the +1% of trainers. There is a minus of 11% before the “other clubs”: this category

includes associations, scholar institutions and other entities that mainly do promotional activities.

	2012	2013	2014	2015	2016
Athletes	4.600.875	4.500.327	4.470.998	4.535.322	4.581.434
Sport clubs	66.501	64.829	63.726	63.121	62.728
Other clubs	8.065	7.144	9.853	8.072	7.187
Total clubs	74.566	71.973	73.579	71.193	69.915
Managers	506.832	525.629	549.424	550.206	545.859
Trainers	243.357	235.608	238.687	249.472	251.985
Race Official	117.648	115.464	118.369	117.015	120.181
Total operators	867.837	876.701	906.480	916.693	918.025
Federal managers	17.737	16.800	16.774	17.826	18.434
Others	110.655	123.097	126.967	131.876	124.216
Total others	128.392	139.897	143.741	149.702	142.650
TOTAL	5.597.104	5.516.925	5.521.219	5.601.717	5.642.109

Table 2 - People within FSN and DSA through years

From the previous table it is possible to notice in detail that even there has been a growth from 2015 to 2016 in the number of athletes, there is not any significant growth if we use the data from 2012: this is due to the drop of 2014. The number of clubs has diminished following an inverse path with respect to the athletes, while the total operators are constantly increasing in number from 2012.

At this point it is interesting to analyze how people practice sport on the Italian territory. The National Institute of Statistic (ISTAT) recognizes 3 clusters of people different between them according to the behaviors:

- Sports people
- Active people
- Sedentary people

Another classification can be seen in the 2018 Participation Report by Physical Activity Council (PAC) which tracks the sports and fitness profiles of over 30 thousand American people ages six and older. Within this document there are five different profiles of person, defined according to the level of sport or fitness activity:

- Active to a healthy level and beyond (151+ times) high calorie burning activities
- Active (51÷150 times) high calorie burning activities
- Casual (1÷50 times) high calorie burning activities
- Low to med calorie burning activities
- None (inactive)

These five profiles can be reconducted to four main categories of activity. To each of them is associated a list of sports and activities:

- Inactive: archery, birdwatching, camping, fishing, etc.
- Low calorie burning activities: stretching, walking for fitness, table tennis, sailing, etc.
- Medium calorie burning activities: yoga, golf, baseball, football, gymnastics, volleyball, skiing, rafting, surfing, etc.
- High calorie burning activities: high impact/intensity training, cardio kickboxing, aquatic exercises, adventure racing, bicycling, running, swimming, etc.

Using the first classification it is possible to see that in 2016, the 34,8% of the national population over 3 years old did some sports. This percentage corresponds to 20,5 million people and it is composed by people that do sports continuously (25,1%) and the desultory (9,7%). The cluster of active people is instead made by the sport people and other 15,1 million people (25,7%) that just do some physical activity. The population of sedentary is the 39,2%, which means almost 23 million of people.

It is interesting to compare data of the previous years which show that the number of sport people has increased by 1,3% for those that practice continuously and by 0,2% for those that instead practice occasionally. At the same time the number of sedentary people that do not practice any sport neither any activity has decreased by 0,7%. Even more interesting are the differences between 2016 and 2013: in this case the percentage of sport people changed from 30,6% of the 2013 to the 34,8% of the 2016 (+4,2%). The same positive path has been

recognized for the cluster of sedentary whose number is diminished of over 1 million of people (-2%). The negative aspect of this whole trend is in the number of active people that has diminished of 0,8% with respect to the 2015 and of 2,2% with 2013.

	2013	2015	2016	Δ 2013-2016	Δ 2015-2016
Continuously	21,5%	23,8%	25,1%	3,6%	1,3%
Occasionally	9,1%	9,5%	9,7%	0,6%	0,2%
SPORT PEOPLE	30,6%	33,3%	34,8%	4,2%	1,5%
Simple activity	27,9%	26,5%	25,7%	-2,2%	-0,8%
Sedentary	41,2%	39,9%	39,2%	-2%	-0,7%

Table 3 - Habits of Italian people through years and variances

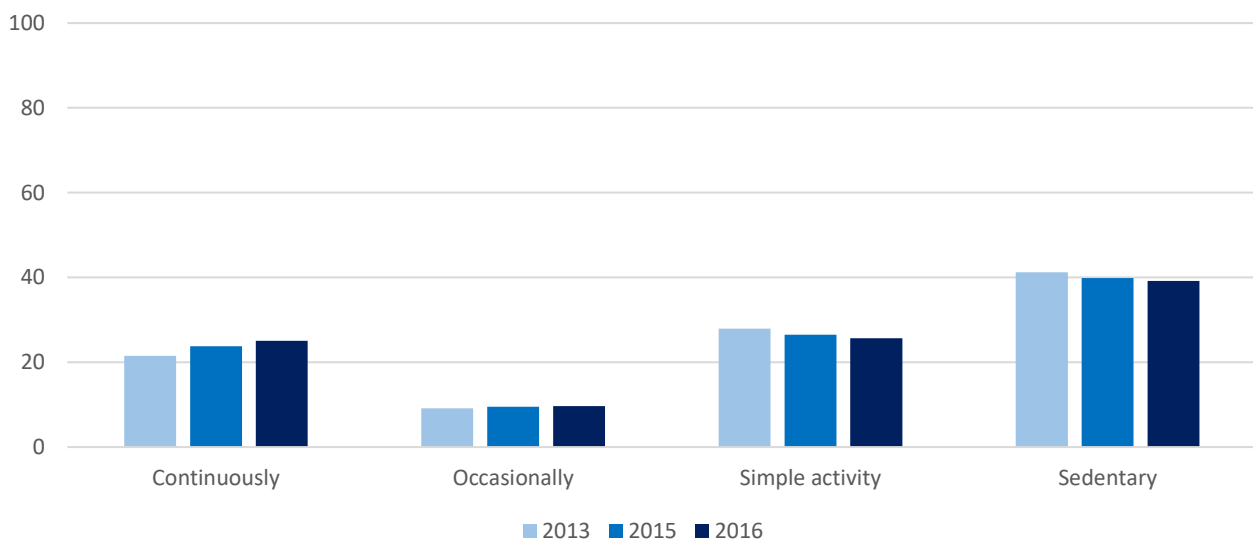


Figure 11 – Habits of Italian people through years

This first part of the analysis allows to understand the behavior of Italian population in terms of sport: how many they are, how do they practice and the evolution in numbers through years.

The point that now will be analyzed is the economic dimension of the sport industry. According to Collignon and colleagues (2011), the value of sports market in 2009 is worth between €350 billion and €450 billion. This analysis considered not only sports teams, leagues and federations, but also infrastructure construction, sporting goods, licensed products and live sports events. According to the objective of this thesis, it is useful to underline the fact that the worldwide sport events market, defined as all ticketing, media and marketing revenues for major sports, was worth €45 billion in 2009.

Focusing on the Italian peninsula, a research made by Servizio Studi Bnl did a precise analysis to highlight the economic value of the sports industry. In May 2013, Stefano Ambrosetti, economist at Centro Studi Bnl, said that the sport in Italy has a relevant economic dimension. Even it had a flection, in 2011 it represents the 1,6% of the Italian Gross Domestic Product (GDP) which means almost €25 billion. In 2008 the value of this market was equal to 2,8% of the national GDP.

2.1.1 Sport endurance

Now the analysis will move from the sport world in its generic connotation to the niche category of endurance sports. The objective is to understand what it means endurance, which are the sports or activities that could be done at endurance level and in general which are the common points and instead the points of difference.

First of all, it is necessary to get what endurance is in the world of sport. According to Active Network (2016), an American blog specialized on endurance sports, the endurance definition says: *“Events that test your limits or create a reason to celebrate with friends and family. Endurance events are unique in their requirement for participation. Their success is driven by the masses and their need to become greater than what they were the day before. These events are not just about going; they’re about joining in no matter your role, your motivation or your athletic ability. These events represent a greater picture of individuals coming together as a collective group to accomplish a goal.”*

Endurance sport is *“A sports activity by individual—i.e., non-team—athletes in which key muscles are exercised at submaximal intensity for prolonged periods of time”* (Segen’s Medical Dictionary, 2011).

“Endurance can be defined as the ability to withstand stress over prolonged periods of time. An endurance sport is therefore any sport in which there is a prolonged physical stress.” (Training 4 endurance).

Utilizing all these definitions it is possible to come up with the sports that are predisposed to endurance events: the activities must be sport that could be done on long distances in order to push athletes at their physical limit. In this sense it is possible to list these sports and define for each of them the different disciplines. Active Network identified in its *“Data & Insight Report: Endurance Industry”* of 2016 ten sports:

- Running events: this sport, practiced as a challenge or for fun, is held a road race covering various distances. According Eventbrite, the most popular endurance events in 2013 have been:
 - 5 kilometers
 - Mud run
 - Obstacle course
 - 10 kilometers
 - Half marathon
 - Fun run
 - Marathon
 - Triathlon
- Triathlon events: they usually are three-wave endurance events containing a running, cycling and swimming component. Data covers a large variation of tris from super-sprint to full distance Ironman races.
- Cycling events: they are typically road races with teams or solo cyclists competing in various distances.
- Adventure events: by majority they are expedition-length races that usually involve multiple sporting disciplines and elements of navigation. This is a key sub-category of MOB events.
- Walking events: they can occur independently or in conjunction with other events.
- Duathlon & Other Multi-Sport events: traditional duathlons consist of a running and cycling component. However, this category has been expanded to cover many dual component races.
- Clinics & Camps events: instructional endurance clinics and camps are typically held throughout the year for conditioning the training purposes.
- Mountain biking events: they are cross-country races on off-road terrain
- Open water swim events: they occur in natural or man-made bodies of water and are generally understood to be longer than 1 kilometer in distance at least.

- Virtual events: registrants to those events participate in real events at different locations. They register and agree to a particular distance in order to participate virtually.

Once endurance events have been identified, it is the moment to move to the analysis of the participants, the athletes that spend their time in preparation for these events. Eventbrite conducted a survey in July 2014 on over 2000 runners that attended its endurance events during the previous 12 months. The survey was intended to collect data on the audience from different point of view (demographics, event attendance and registration, etc.) and to understand who its participants are and how they might be different from conventional runners.

Many interesting points come out from their analysis and it is possible to resume them in pills:

- ***Participation is a marathon, not a sprint***: the meaning of this sentence these events do not represent a simple and singular experience, but once they try an endurance event, they are hooked. Indeed, almost 4 people out of 10 (37%) attended more than 5 events in the past year and even the 99% of those surveyed indicated they will participate in the future to one of those endurance events.
- ***Endurance participants like to mix it up***: this type of runners love to attend different kind of endurance events, from 5 kilometers runs (5Ks) to the marathons and from pavement to mud. On average, the respondents participate 3,3 different event types. The most participated events are the 5Ks (64%), mud runs (49%), obstacle events (40%), 10 Ks (32%) and half marathons (31%). Endurance event participants are always looking for their next challenge.
- ***They are just as active about attending other live experiences***: the endurance community is highly active event-goer that crave live experiences of all kinds. Endurance event participants do not attend just sporting events, but also other events linked to the world of music, food/beverage and festivals & fairs. This fact must be carefully taken into account because the event organizers could consider adding additional elements to the race that could increase the overall fan engagement and event revenue.
- ***Ordinary people are participating in extraordinary events***: the results of the survey conducted by Eventbrite says that the majority of people that attend endurance events are not serious athletes training year-round. Race directors that want to make bigger events should target a range of athlete profiles, from amateur runners looking to challenge themselves to social runners that want to enjoy a new experience.

- ***They are active on social media, especially before stepping on the starting line:*** 4 out of 5 of people that answered to the Eventbrite survey, say that they share event photos and updates social media. Providing a platform for dialogue and engaging with participants during the training and event preparation period is a huge opportunity for organizers to build their brand and drive registrations.
- ***Participants are not racing to register:*** nearly a third of participants register for endurance events less than one month before the race. Half of participants would sign up earlier according to what their friends do. It is fundamental to enable social sharing and make the registration as easier as possible. It is crucial for the organizers to optimize the registration flow for mobile devices, because people do not like to be challenged by the registration process.

Now it is useful to define profiles of the athletes that participate to these endurance events for two distinct points of view; the first one is a demographic distinction that consider the gender and the age of the attendants while the second is a description of the behaviors of the athletes according quotes that describe them.

The most prevalent endurance participants are women that represent the 55% against the men (45%). Moving to the age analysis, the biggest class by far is represented by those between 30-49 years old. Nearly 1 out of 4 (24%) is a person between 18-29 and the 15% are people between 50-64. The rest are people over 65 years old (2%) and under 18 (less than 1%).

The second aspect to consider is related to the behaviors of athletes. As already said these are identified through quotas from the “Endurance Sports Participant Study” by Eventbrite, that help to distinguish the different profiles:

- **The average athlete:** *“I would not call myself a serious athlete, but I strive to do my best or reach a higher level of fitness.”*
- **The obstacle challenger:** *“I participate in events like obstacle courses and mud runs to challenge myself or push my limits.”* They are more likely to value an interesting course.
- **The fitness participant:** *“I participate to help me achieve my weight loss goals or get in shape.”*
- **The social participants:** *“I participate in events to have fun, for charity, or because of my friends, family and colleagues.”* They appreciate the fact to be with friends.

- **The hardcore athlete:** *“I consider myself a serious athlete and train extensively for the events I participate in, aiming to set my personal best.”* This athlete is more willing to travel than the average.

The organizers must consider all these values when crafting the marketing strategy of an event, and they have to offer group incentives and enable social sharing on the event page for social athletes to get their friends on-board.

Finally, the reasons why people participate to these endurance events. The factors identified as relevant by those who answered the survey are:

- **Event proximity:** it is the first factor that is considered by the athlete: how easy it is to reach a specific location.
- **Cost of the event:** interesting as it may be an event, the cost of participation can be a strong disincentive.
- **Interesting course or location:** a sporting event can be a way to get to know new places.
- **Friends are running:** the participation of friends or relatives is an incentive to participate and share the effort.
- **Event reputation:** feedback received can incentivize or not to future participations.
- **Event benefits charity:** the good intentions of an event can stimulate even the least inclined to physical effort.

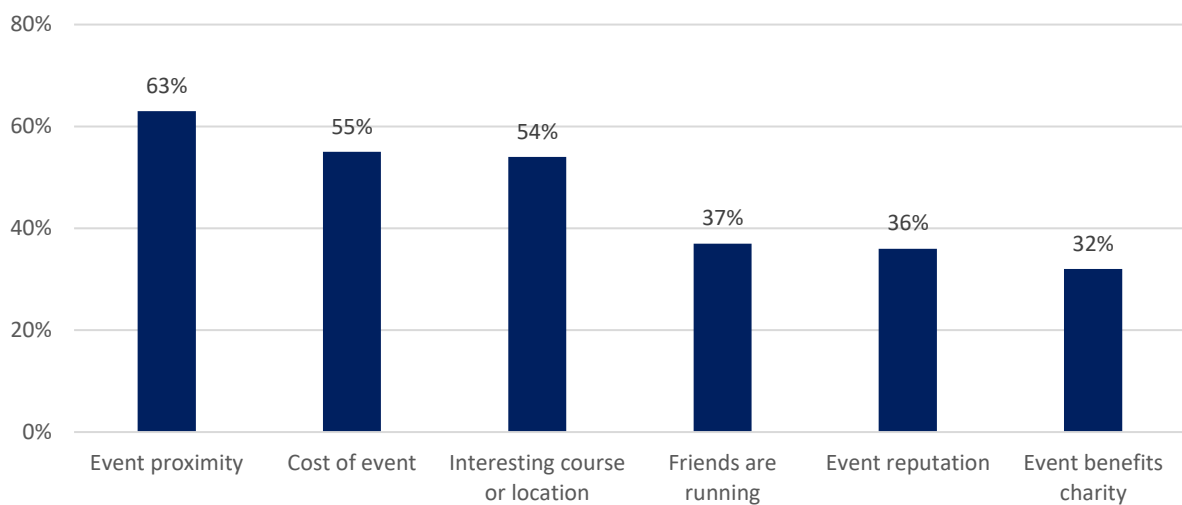


Figure 12 – Relevant factors of participation to events

Since the literature on the endurance sports topic is scarce, it could be interesting trying to analyze and understand the dimension of this expression of the sport on the Italian national territory. To participate in this type of competition three things are necessary:

- Having a valid medical certificate
- Being enrolled in a sports club
- Having the federation card involved in the specific event

Considering the activities identified by Active Network, which can be considered as one of the main player, as predisposed to endurance performances, it would be nice to understand how many athletes practice these sports. Due to the last item of the previous bulleted list, it makes sense to use data of 2016 from the CONI, the number of athletes signed up in the athletic federation (FIDAL) are 233.974, those in the cycling federation (FCI) are 74.386. Athletes in the Italian Swimming Federation (FIN) are over 150 thousand and almost 20 thousand are signed up in the Italian Triathlon Federation (FITri). All together represent more than the 10% of the total community of people enrolled in one of the 45 FSN.

Federation	Athletes 2014	Athletes 2015	Athletes 2016
FIDAL	180.077	203.621	233.974
FCI	72.772	74.726	74.386
FIN	152.318	149.411	153.341
FISI	76.824	76.287	73.478
FITri	15.366	17.320	19.409
TOTAL	497.357	521.365	554.588
Total FSN	4.220.702	4.291.201	4.312.771
%	11,7%	12,1%	12,8%

Table 4 – Athletes of endurance sports through years

From the previous table it is clear how the number of athletes enrolled in sports that could be practiced at the endurance level has increased from 2014 to 2016. Secondly, it is good to consider the previous table that analyze the sports addicted that practice activities continuously. This percentage has increased from the 21,5% of 2013 to the 25,1% of 2016 (+3,5 percentage points). The reason why it has been considered only the data about people that do sports

continuously is because this is the only group between those identified by the ISTAT that could be prepared to an endurance race. These two considerations could be used as a starting point of an analysis whose objective is to prove the increasing importance of sports practiced at endurance level.

2.2 Event organization

In this section of the literature, it will be analyzed the event, the actors involved in the organization of an event and the steps necessary to realize it. According to Varriale (2008), an event is a category characterized by many different aspects. The term “event” is referred to many kinds of occurrences that get in touch people. The common thing to events is the necessity to manage the event itself, using a set of managerial tools to realize it. Nowadays events represent a very important topic in the Italian panorama, for different reasons. They cover such a fundamental role in communication and marketing that more and more people have a role in the event organization. In the last decades, the industry of event has had a big growth in many firms and events are used as a marketing tool to facilitate the communication of business concepts that sometimes could be difficult to be explained.

In the literature, it is possible to find many definitions of event. Here some definitions:

- *“Fact or event of great importance, worthy of being remembered; a new and exemplary operation; an event or initiative of considerable interest or resonance”* (Devoto and Oli, 2002).
- *“The term event is referred to every possible type of event: exhibition, fashion shows, inaugurations, conferences (...) The event is undoubtedly one of the most important and effective communication tools and is a vehicle for a company that needs to transmit a message to a well-defined public”* (Pecchenino, 2002).
- *“An event is a strong social fact, a place where men and women meet each other for a sort of collective celebration and assist to a sport or cultural spectacular. This last one is subjectively perceived as the possibility to realize a prodigy”* (Piquet, 1985).

First, the event can be described by the fact that each event is unique, and it creates a sense of common interest of people that attend it. Second, it must be highlighted the machine made of people that organize the event. Since each event is unique and non-repeatable, it must be immediately successful. Other characteristics fundamental to better describe the event are the temporal dimension, the impact on the territory, the type of public, the scope. The potential of

an event is huge, even if it is a small one: it might be a way to communicate and compare with new people and find new opportunities.

As already said, the event is a wide category in which it is possible to find many kinds of events: it could be a press conference or a big conference as well as it could be a fashion show or a football match. But all these characteristics that make each event different from another are difficult to be classified.

For this reason, it is better to use simpler classifications. A first classification used by Boldwin and colleagues (2006) and Van der Wagen (2005) is on the dimensional variable and distinguish events in:

- Mega-events: they involve international markets with a specific structure that acts on the tourism of a specific area, region or country. To promote this kind of event are necessary huge investments in terms of sponsors, mass-media participation and marketing techniques. An example of mega-event is the Olympic Games.
- Hallmark events: the goal of these events is to promote the development of a specific touristic destination or region. It is the case of Carnival of Rio which is strictly connected with the spirit of the city of Rio de Janeiro, Brazil.
- Major events: they are events with a local importance. The number of people involved is big and they have positive effects on tourism in terms of revenues. A concert by a famous pop-star or a sport event like a marathon could be useful examples to define this type of events.
- Minor event: they usually occur every year. Examples of minor events are meetings, parties, celebrations, ceremonies and many other events.

Another classification proposed by Bowdin and colleagues (2006), Van der Wagen (2005), Shone and Parry (2004) and Ferrari (2002) is per nature:

- Sport events: they are organized worldwide trying to maximize the affluence of athletes and fans. At professional level, they could be events like the FIFA World Cup or the Olympic Games.
- Artistic event: cultural events of entertainment such as festivals are a perfect example. In these last years, concerts and gastronomic events have acquired more and more relevance across the public.

- Promotional event, commercial and marketing events: they are used very often to launch a new product.
- Meetings, Incentives, Conferences, Exhibitions (MICE): they could be simply called “business events”.
- Family events: weddings, birthday feasts, obsequies, etc.
- Fundraising events: ceremonies with the objective to raise fund for human organizations. They involve local communities.

To better explain what event management means, it is useful to use the metaphor of the puzzle: a lot of different pieces that putted together give a spectacular result (Bellato, 2016). Sports Event Management is the process of planning, organizing and producing a sport event. Archibald (2004) defines it as the systemic management of a complex and unique activity, which has a beginning and an end well defined, it is done utilizing organized resources, through a continuous process of implementation to reach predetermined goals, respectful of cost, time and quality constraints. The activities that must be done to reach the final objective of a successful event are about acquisition, evaluation, direction, decision, etc. Malik (2011) says that the management has five tasks: define the objective, organize, decide, check, manage people.

2.2.1 Actors involved in the organization of an event

At this point we have to understand who are the people that cover a central role. According to Bowdin and colleagues (2006), the actors involved in the organization of an event could be classified in six categories:

- **The host community:** it determines if the event will be successful or not. Within this category, there are many other subcategories of actors such as the police, the administration, the firemen, etc. Between all these, it is necessary to find leaders to consult and define details of the event. Sometimes it could happen that the audience had had a negative impression from previous events and this might determine the results of next events.
- **Sponsors:** in these last decades, the concept of sponsor has changed a lot and many companies perceive sponsorship as a great tool for Public Relations and marketing-mix. Big and successful events could increase the consciousness of the brand, increase sales

and be a way to make new partnerships. The managers involved in the organization of the event have to offer tangible benefits and real programs to attract sponsors.

- **Media:** technology and media evolution has created a request of mediatic product without previous. Events have many benefits from this evolution since the value for commercial sponsors is a direct function of the media coverage. Sport events, parades, concerts and other type of events are interesting for media that can be sponsor, partner or producer of the event. In this sense they have to be considered by the event manager as stakeholder.
- **Workers/operators:** in order to obtain a successful result, the team has to share a common philosophy. Everybody has to be involved, from the top managers to the staff, from the volunteers to the advertising team.
- **Athletes and Public:** they determine if the event will be successful or unsuccessful. The attention of these people is focused on the content, the location and the operation. The keys to engage people are the activities offered, the access to food and beverage and a series of social factors which could determine a high involvement.

Now we can consider the **event manager**. This professional is a critical figure within the organization of an event. It is responsible to do many things: researching, designing, planning, managing, evaluating, etc. (Goldblatt and Nelson, 2001). Literature tried to analyze this manager to understand which are the characteristics and behaviors that distinguish a good event manager from a bad one. A perfect event manager should own good communication skills, flexibility, adaptability and ability to understand the business world. According to Bowdin and colleagues (2001) it should also take responsibility, develop a strong team, manage unexpected situations respectful of ethical principles. Studying this type of manager, it is important to highlight that it has to use different approaches with different actors and conduct a mediation which would allow to get the goals previously defined. A good event manager must be also a good leader, able to manage its feelings and emotions, developing an empathy for those who cover a key role in the organization of the event (Goleman, 1995). Successful event managers are not simple professional, but dynamic leaders able to inspire, motivate and push people to obtain better results. Goldblatt (1997) said that “*managers solve problems, while leaders motivate people to search possible methods to reach the goals*”. After a quick analysis of the characteristics of a good event manager, it is possible to define its main tasks:

- Define the scope of the event organization

- Define the feasibility of the event
- Timing evaluation
- Find resources necessary to realize the event
- Define a team of work
- Take decisions
- Negotiate with actors involved
- Control the state of work

It is the most important figure within the whole organization and it is responsible of the success of the event: it must be able to manage and give instructions to its team mates, be diplomatic and know the location of the event as well as all the other aspect related to the organization of the event. This figure could also be called as Event Organizer which is defined by the APEX Industry Glossary as the *“person whose job it is to oversee and arrange every aspect of an event. Person can be an employee or hired ad hoc to plan, organize, implement, and control meetings, conventions, and other events.”*

2.2.2 Organization of sports events

Until now, the analysis has been quite general. At this point the goal is to go deeper in the analysis and focus on the sport event organization and try to understand which the common points are and which instead are the points that make the organization of a sport event different from another one.

Here we have to keep in mind that we are not considering the sports market in terms of differences between professionals and amateurs. In this sense it is possible to affirm that the problems that a manager of a small association has to analyze, are the same type of problem that a colleague has to solve for the organization of a big event. Differences are in terms of size, for example the number of people involved can change or the duration of the event can be more or less long, but the activities to be carried out to offer a successful event are the same.

In the last years there has been a new evolution of sport events. Often the event is organized in partnership with many different entities and it could happen that the name of the event comes from the main sponsor that in this way shows its products and the brand: it is a marketing campaign. New technologies and the different lifestyle change expectations of people. They

participate to a sport event thinking about fun, fitness, social life and to stay contact with nature. Athletes and their families expect to attend event properly organized and the public want to be involved thanks to collateral activities and added services.

At this point it would be interesting to analyze and categories the sports events according the dimensions:

- Big events: they are international events, they occur with a low and well-defined periodicity, like every year or every 4 years. They attract huge crowds and an important media coverage. Example of big events are the Olympic Games, the Grand Prix of Formula 1 and the New York marathon.
- Championships: as the big events, championships are relevant at international level. They have a high periodicity with a high number of fans, but lower compared to big events. The Italian Serie A TIM is an example of this category.
- Meetings: they have regional relevance and low periodicity. They are characterized by high number of athletes but very low media coverage. They are a lot for each sport: national trophy, youth games, etc.
- Sport venue: similar to meetings in terms of periodicity, the difference is in the local relevance, the low number of athletes and the null media coverage. They are non-competitive cycling or running race.

This that has been used, is just one of the many possible criteria to analyze an event. It is possible to make many distinctions according to the criterium used. Each type has its own characteristics and from a marketing point of view it is about the definition of the type of event to realize it in the best way (Cherubini and Isevoli, 2005). Here below, there are four examples of events: Olympic Games represents an example of big event, Serie A TIM for championship, the Golden Gala is an important meeting and finally the DEEJAY TEN can be considered as a sport venue.



Figure 13 – Classification of sports events

2.2.3 The elements to define a sport event

The distinctive elements necessary to manage an event are really similar to those of the service management. These elements can be grouped in three categories:

- 1) Identification: every event must be recognized and recognizable through a series of elements that make the event unique and different from the other. These elements are the brand, the logo, the graphic, symbols, etc. Each event could have distinctive elements that other events do not have.
- 2) Differentiation: in the organization of an event, one of the major risk is the similarity between events. The objective of the event management is to make each event unique otherwise it would lose a lot of relevant benefits given by the uniqueness of the event. To do this differentiation, it is necessary to consider the sport, the type of competition and all the characteristics necessary to define the event from the management point of view (timing, location, sponsors, etc.).
- 3) Organization: it is fundamental to identify and manage an event. There are two ways of organization:
 - a. Owning the rights of the event
 - b. Receiving the delegation from the owner

Until now it has been analyzed the management of the organization which is fundamental to follow a precise path and make not mistakes that could be difficult or even impossible to solve in the next steps of the procedure.

At this point the management has to prepare the dossier to the candidature. This document is usually prepared for the organization of big international events and represent the first step of the organization of the sport event after which there is a decision taken by a committee. Example of committees are the FIFA for the Football World Cup and the FIVB for the Volleyball World Cup. The international organizations will decide for international events while the national organizations will decide for national events.

Once the candidature has been sent and the committee took its decision, it is the time to proceed with the operational aspects of the sport event necessary to make it successful that has been previously analyzed.

Gravina and Esposito (2010) identified 16 steps that are helpful in the organization of the sport events which reach such a complexity in terms of sub-events, mid-time shows and hospitality

for partners and sponsors that an operative plan is fundamental. These steps could be seen not as a stringent path that has to be followed in a single way, but rather as a list of things to do to be sure of the success of the event.

1. Forecasting revenues, analyzing:

- Historical data
- Sponsorship and partnership
- Dimension of the location that host the event (arena, stadium, park, etc.)
- Other revenues (donations, etc.)

After this first analysis, it is possible to develop a cost budget defining the expenses to realize the event.

2. Timing of the activities:

- Pre-production: budgeting, mailing list, procurement, athletes engagement, etc.
- Production: hospitality, race/game/match management, emergency, etc.
- Post-production: press conference, payments, reports production, etc.

Each activity has its proper timing and it is important not to do actions hastily that than need to be reviewed: this would imply higher costs and time.

A typical example is the ticketing campaign: starting too early to sell tickets is too expensive since each reprint has a cost.

3. Time scheduling: it must be defined a sequence of activities and specify for each one the duration. This phase is particularly important when there is the necessity of licenses and permissions. The request of money to partners and sponsors is another critical phase in terms of time.

4. Planning backwards: during this step the management defines every activity and decides when it should start. At the end of this checking activity, it must be clear what to do for each activity and the time required for this activity. Every activity has a series of sub-activities that must be considered to avoid dispendious reviews.

5. Additional time to manage emergencies and delays.

6. Confirmation: everyone involved in the organization of the event must confirm and verify the plans. There are many ways to do this; the most common are weekly meetings with the staff and the use of a newsletter which has multiple roles and works as a tool of coordination and motivation.
7. Written procedures: within the whole organization, there are some critical activities with respect to the deadlines that could require written procedures to avoid any misunderstanding.
8. Protocol: in the plan it must be considered also the regulation program defined by every federations involved.
9. Tasks of each unit: the management has to define a responsible unit for each activity.
10. Address book: it is fundamental to have a database of all contacts involved in the organization. Having their names, phone number and email is useful in case of emergency.
11. Emergencies: the plan must contain actions to solve possible situation of emergency. Each activity has its own risk level and the management choose the timing for each phase according to this risk. A typical example in this sense is the organization of ski races during the Olympic Games: they are planned the first day in order to have the possibility to recover them in case of bad weather conditions.
12. Time sheet: the last point is about the definition of the scheduling of the whole event with the highest possible precision.

The evolution of the event goes on with other choices and actions than must be taken without following rigorously the order used in this part of the literature.

- **Date and place**

These two elements are fundamental. They must be defined according to some criteria and controls to verify if the location is available. During the process of selection of both date and location, the team that is working on the organization of the event has to consider if there are other event in the same period in the proximity of the location selected. This fact could reduce the number of attendant at the event. The decision of the location has to consider some factors: the kind of event, the athletes, the audience and the costs. The organizers must understand if they have to pay a tariff to the Municipality or if they could use that space for free. It is important to consider and check also other spaces in the proximity that could be useful such as parking,

additional services (e.g. restaurants, hotels, etc.) and transport service. Once date and place have been decided, the management contacts all the institutions involved (Federation, Municipality and responsible of the building).

- **Permissions and bureaucracy**

The Municipality, the Local Police and the Police Headquarter are the offices that the team management must contact to get the various permissions. Sometimes there is an assistance by local authorities. According to the type of event, the organizers must pay a fee but sometimes it is possible to get the license for free.

- **Definition of the punctual budget**

The administration must receive a clear and detailed plan of costs which consider non-planned costs for emergencies. All the costs within the budget can be distinguished in two categories: the cost that must be sustained and those that instead are potential, in the sense that could be avoided.

- **Secretary**

It is operative in the different phases of the event organization. It has many different tasks like the process of signing up, registration of participants, preparation of materials. During the phase of realization, it is the center of the communication and during the post-event it manages the database.

- **Rules**

The set of rules must be clear and in accordance with the objectives that have been predefined. The rules are useful in those cases when it is difficult to define what to do.

- **Structures**

The location must be coherent with the type of event. Talking about the location where the event takes place it can be done a first distinction between indoor and outdoor events. Due to the nature of the thesis here will be considered only the so called “open-air gyms”. They are open-air spaces, usually non-used for sports activity. In these cases, the first thing to do is to evaluate if they could become a scenario for a sport event. The management of the event has to ask the possibility to occupy the public terrain to the Municipality which defines all kinds of permissions. Finally, the organization team evaluates the terrain condition, a path compatible

with the place, the activities that could be done and the study about the position of the preparation staff.

- **Material procurement**

The first thing to do is the inventory of all the stuff that are needed based on the forecasted people that will attend the event. It must be decided which are the technical supports (technological solutions to register results), what the organization want to offer to athletes that attend the event and what to the public. The procurement of the material has to be done considering the material that the organization already got; otherwise it is possible to ask to partner and sponsors. The last options are the possibility to rent or buy all the materials.

- **Security**

It is strictly related to rules, structures and equipment. Everything must be controlled and must respect the necessary standard. These rigorous checks must also be done on the personnel involved that has to be prepared to every task for the success of the event. The security employees prepare everything according to the norms and they supervise the entire organization to solve every kind of problem. Their focus is on:

- Security of structures and equipment
- Security of athletes
- Security of public
- Security of employees and volunteers
- Medical assistance
- Right number of ambulances
- Partnership with firefighters
- Security of roads

To do all these thing, the best thing is to stipulate insurance policies and be sure that everything is prepared carefully.

- **Weather**

Being able to manage the many possible weather conditions is a crucial point in the organization of a sport event. This point can be analyzed from many perspectives: many managers prepare

a change of clothing that could be necessary in case of rain to appear always prepared. The program will be subjected with high probability to some changes as well as the number of employee involved in the organization. The bad weather conditions or just the possibility that the weather will not be good represents a threat because it can alter the number of people that attend the event and it can congest the traffic. In these cases, the agreements with the local authorities which are helpful in the management of these situations are fundamental. These things are even more true when the event is an open-air event that requires a detailed analysis of the historical data of rains on the area of the event.

- **Transport system**

Within this category it is considered the whole system of arrivals and departures for many figures: athletes, media, audience and in general all the people involved with the event. Transports have to be considered especially when the event is big, and the number of people is huge, so it could be better to use third parts to be sure to have the best possible service. For example, it could be necessary the transfer from and to the airport for the athletes and in case they use technical equipment it is necessary a service able to transport both the athletes and their equipment. It is the case of cyclists or skier. To arrange these transfers, it is necessary to know the dimension of the event in order to understand how many people could attend the event and consequently organize everything. For the public that will attend the event, it is fundamental the first impression at the arrival: in this sense it is important the logistic in entrance.

- **Food and beverage**

It could represent an important entrance in terms of revenues. The organization can decide to offer different kinds of services according to the type of event. About this topic, it is relevant the logistic behind, in the sense that there could be lunches, dinners or breakfasts rather than catering or canteen services. When deciding to include that type of service within an event, it is important to consider all related aspects such as the food that will be offered, the beverages, the location of the meals, etc.

- **Invitation, location, inspections and tests**

It is important to remember that not all the attendants at the event are equal between each other. Different people may have different requirements that must be properly satisfied.

- **Box office optimization**

The ticket bought by the spectator could offer just the vision of the show I have paid for or other extra services such as the possibility to access to the catering. The first decision to make is about the distribution system: the organizers can decide to manage the tickets and their distribution, otherwise it is possible to outsource all the process and an external supplier could manage all the related services. For the big event, the organization must pay attention to two types of fraud: piggybacking and falsifications. Due to these reasons, the personnel must be prepared to careful check everything.

- **Decisions about access and seats disposition**

Apparently free access events are the easiest to manage because it is not necessary any activity of ticketing. On the other side, the events for which you have to pay a ticket include many cases: it is possible to buy just the seat or the seat plus a series of other services like the parking and the hospitality pre-event that make the experience more exclusive.

- **Logistics**

All the logistic operations have a strong impact in terms of the organization and to optimize this aspect it would be an optimal solution if all the logistics aspects are managed by one single person.

- **Event conduction**

It must be studied in detail keeping in mind the type of event and the location. Big events require a sort of production plan that represents a tool to coordinate the operations; in this way it is possible to check all the phases of the event step-by-step. This is a job that must be done during the whole event in order to guarantee the technical efficiency of the manifestation, the access of the spectators, the request of partner and sponsors and the possible emergency situation.

From the analysis made by Gravina and Esposito, it is clear that this is not a path to be strictly followed, but instead it is a list of things that the authors suggest to do in order to successfully prepare a sport event. Each action can be done with more or less attention with respect to another action: the decision is up to the team that organize the event. A team could be more able to work on the logistic aspects while another is more able to manage the relationship with partners and sponsor.

- **Post event valuation**

It is the conclusion of the event, the phase during which the management analyses the event considering the objectives initially defined and those that have been reached, the point of strengths and weakness, the opportunities and threats that can be used for the organization of next events. Usually the post-event activities are:

- Diffusion of competition results: at the end of every project it is necessary to highlight the benefits and possible constraints that limited the event. They must be highlighted not only the agonistic results, but also the economic and social ones. The communication of results is even more true when we are dealing with a big event which have marketing goals and involve a huge number of actors. In this way, the process of evaluation of the event is useful to prove the value added bring by the event itself. First of all, it is necessary to draft an economic balance that will result as element to evaluate the whole event. One of the first indicators of performances is the alignment between the final economic balance and the resources budgeted during the initial phases of planning. This does not always occur and for this reason, it is good to precisely describe the reasons that bring to these gaps.
- Post-event feedback: a meeting with all the people involved in the preparation and management of the event is ideal to underline which have been the critical points during the event. Tracking the whole event is useful to be able at the end of the event to analyse everything and understand which points could be improved. This meeting may be defined as a quality check: the team find the positive and negative aspects that occur during the event. Another key activity to be done at the end of the event is the monitoring of the relation with sponsors; this analysis could make the relationship even stronger. The audience of the event is fundamental too: it is the group of people that attend the event that determines through their feedback if the event has been successful or not.
- Sending thanks: this activity could seem not important, but it is. Sending thanks at the end of an event is a sign of education first of all. Thanks could be to athletes that attended the event, to prove them that their attendance has been appreciated. They could be to people that collaborated with the organizer to highlight the fact that without their job, the success of this event would not be possible.

- Event Report draft: it is the document that synthesizes the event and the results obtained. This report is different according to the recipients, but in general there are common characteristics like the fact that it is very precise and rigorous. As already said, every actor wants to know different things: shareholders of the event desire to know the return on investments, sponsors are interested in the level of notoriety of their products. Public authorities look at the consensus of the event and the impact on the local economy considering the indirect expenses made by the public (e.g. restaurants, hotels, shopping, etc.), while the team of the organization wants to know what has been appreciated by the audience and which are the aspects that must be improved for the next editions.

2.2.4 The quality of the event

This paragraph wants to consider the results of the event. Every event produces effects that could be tangible or intangible: the first ones are easily measurable, while the second ones are a series of values that are difficult to be quantified and qualified. But, before talking about these results, it is necessary to better explain what “quality of the event” means. Doing this, it is necessary to introduce the concept of legacy, which according to Harper (2001) means “property left by will” even if this definition is not satisfactory for two reasons: first, a property belongs to someone, while an event ‘left-over’. Second, the legacy of sport events can also not be intended to be left ‘by will’. The first distinction that can be made talking about legacy, is between “soft” and “hard” event-related changes in a host city. The “hard” ones are infrastructures of different kind that can be used not only for sports purposes, but also for something else. For example, thinking to event such as the Olympic Games, legacy is about the construction of a stadium which is used in the next years by the local football team or by the municipality to host international meetings. On the other hand, there are the “soft” legacy, which is linked to intangible things such as emotions, networks and culture (Preuss, 2007).

According to Pierluigi Zacheo, among other things member at the creation and launch of Sport and Sustainability International (SandSI), legacy is a paradigm that can be used with different names according to the context. He put the term legacy in a close relationship with the term sustainability and he used this relationship to describe what it could be. Zacheo said that, for simplicity, it could be think as the heredity of the event, what is left to the community that host the event. It does not matter the dimension of the event, everyone has a legacy more or less tangible that is a value for the territory. In this sense, it is fundamental the sustainability paradigm which is declined into social, economic and environmental sustainability: these are the three areas on which it is possible to see the results of the event on a community. As already

said, Pierluigi used a lot of examples to be as clearer as possible: he explained about his recent experience with Berlin GP of Formula E, where he was responsible of the certification of sustainability. The organization of this event left to the German capital a series of towers to charge electric cars. This is a perfect example since we are talking about a “green” technology which represents an incentive to move from the traditional cars that use gasoline to a new and sustainable system of transport. This is just one of the infinite cases of legacy. Another one could be linked to tourism: indeed, many sports events could be a starter for touristic activities through which a territory can be known and vice versa the territory could be a promoter for a sportif discipline. This is called tourism legacy.

All these things written above can be on the social report. It is a report that firms use with the financial statement to integrate the informative system of the company with social and environmental information. The goal of this document is to show to all stakeholders the results of the social and ethical behaviors. Nowadays in the sport industry, the social report is not so common: this tool could be a great opportunity to enforce the relation between the sport and the territory. The draft of such document for a sport event requires a precise method, but in general for the whole world of event organization is becoming more and more important because it allows to prove an efficient use of resources in economic and social terms. Organizations that produce sports events must communicate their objectives and which resources have received from the community.

2.2.5 Endurance events

As it has been done previously for sports, also here it is necessary a consideration on endurance. But, differently from the analysis on sports, which clearly identified those disciplines that could be practiced at endurance level, the analysis on event organization does not distinguish a difference between sports in general and endurance sports. A consideration that can be done about endurance is the fact that, apart few disciplines of swimming that require a swimming-pool, the majority of them are practiced at “open-air”. This is a common point that allows to non-spend a lot of time in the preparation of a structure (e.g. stadium, arena, etc.). Another aspect that must be mentioned is the weather: since these are “open-air” events, they are subject to the weather conditions and during the preparation of every event it is necessary to consider how to accommodate the athletes, the staff and in general all people involved in case of rain. About legacy, the endurance sports events do not leave anything tangible, and it is possible to see this as an act of sustainability in the sense that the event does not leave any eco-monster. The environment after a well-organized event is the same as it was before the event. Instead, it

is possible to talk about “soft” legacy: this could be linked to the culture established in a community, rather than to the sportif tourism that could offer new activities and events to welcome new people that want to now a new territory.

2.3 Technologies

This is the third and last part of the literature review. The objective of this section is to analyze and understand which technologies are involved within the organization of sports event. This because, in recent years, technology has been covering almost every aspect of our society. The world has been changing tremendously, and people are gaining information faster than ever and can communicate easily: all these things have been impacted by the technology. In particular, with reference to this specific analysis, the impact of technology on the sports industry is vast in the sense that many processes are now easier, quicker, and newer for all the people involved (e.g. athletes, organizers, fans, etc.).

It would be interesting to understand before the technologies, which tech trends are changing the sports management game. Fenway Sports Management hosted on august 2016 the summit “Changing the Game” on the ways in which digital innovation is redefining the sports experience. *“Our intent for the summit was to convene executive leaders from innovative brands that are transforming the sports industry for an engaging conversation on the emerging trends that are fueling these advancements, and to share innovative strategies that will help brands navigate this rapidly evolving landscape”* said Mark Lev, FSM Managing Director. Here below there are seven important trends for sport marketers that emerged from the FSM-led conversation:

- Brands must develop robust “second screen” social media strategies to engage fans during game broadcast. Social media have a key role and represent a major revenue driver for actors involved.
- While content is king, video will rule the content universe in the near future. People spend one hundred hours viewing video on Facebook which represent an opportunity for brands to deliver entertainment and drive fan engagement.
- The long-heralded era of wearable technology has arrived. The demand for smart technologies into athletic products has increased and customers are asking for both style and advanced functionality. Worthy of note is the collaboration between New Balance and Intel Corp. to create products that connect athletes with technology. Another

example is Nike that creates the Nike NBA Connected jerseys which allow you to stay in contact with your favorite NBA player.

- Advanced video technology will transform the way sports are governed and experienced. Real-time athlete data and enhanced replay technology will provide a bevy of new information for leagues, teams, broadcasters and fans. An example is the 360-degree replay technology developed by Intel.
- Virtual reality is the future, and the future is now – VR will revolutionize player training and fan engagement. On one hand athletes get valuable repetitions from a first-person perspective in an immersive, 360-degree environment. On the other hand, fans get authentic experiences.
- Competitive e-gaming will continue to mature as a sport.
- Cutting out the media middleman. Athletes will continue to deliver their messages directly to fans through new media platforms that specialize in offering athlete-point-of-view content (e.g. The Players' Tribune, Tribune)

Rosandich (2008) tried to explain how Information Technology (IT) is changing the nature of management practices in sports. According Christensson (2006), IT refers to anything related to computer technology, such as networking, hardware, software, etc. Many companies have IT departments for managing all these things and IT jobs include programming, engineering and developing computers and networks. Since we live in the “information age”, information technology has become part of our everyday lives. Doing this, he considered 4 broad areas:

- How the tools of “technological revolution” of today can be applied to the administration of sport. IT is simply the tools and methods used for the identification, organization and manipulation of facts that we call data. Between the various technologies used, Rosandich identified the computer as the heart of the whole IT process and the information represents the new currency and source of power. The secret to managing knowledge and information is the development and maintenance of computer databases. In the sport industry, it is possible to talk about relational database. It is a collection of data items organized as a set of formally-described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables (Rouse, 2006). Similar event management software could support the sport manager with the facility scheduling, equipment set up and many other tasks necessary to properly prepare a sport event.

- How developments such as the internet and world wide web help in specific management functions such as training and marketing. Computer network need not be limited to a single site or facility. Wide Area Networks (WANs) can link together sports administrators located throughout a country. All of the operatives so linked can share administrative and programming information and communicate with each other cheaply and efficiently through the medium of e-mail. The computer network with which the public is most familiar is the Internet and the World Wide Web, known simply as “the Web”, is what most people think of when we say the “the Internet”. It has become an extremely important medium of communication, education and commerce and its importance in these areas will only continue to grow in the future. Most significant at this juncture is the marketing and commerce applications of the web. It is used by professional sports teams in ways that the developers of this technology never envisioned: radio broadcasts, interaction of players with both the team administration and their fans, etc. These examples lie at the heart of how the Internet will affect sports in the future: through the changing of the way that the sports fan will consume the sport product.
- How e-commerce can make participation in sports more available through lower priced equipment. It is also appropriate to briefly examine how the web will change the sale and distribution of sporting goods which is central to running sport programs. E-commerce through the Internet holds the potential for containing costs for sports equipment as illustrated by the following example. E-commerce is well on its way to becoming a force in the world economy as it serves to remove barriers both natural and artificial. The barriers that will vanish include those of time and space as well as national borders both physical and ideological.
- The digital divide and underlying condition that keeps some from participating fully in the benefits in the IT revolution. The “digital divide” expression is referred to the fact that technological tools can be expensive. While 60% of the American adults are connected to the internet, only about 5% of the global population can make that claim. IT applications in sports management is dramatically changing the way that we do business. Information technology tools are rapidly becoming a necessity for the sports administrator at whatever level in the sports hierarchy they are working.

A support to this perspective comes from Thomas (2012) who thinks that technology has come a long way and it affects Sports Management as much as it affects the sports themselves.

Technological innovation has not only changed the way we interact with sports over the past couple of decades, it has altered the sports themselves. Examples of this are fans that track the games on their smartphones rather than parents posting videos of their kids on YouTube. Technology affects just about every position of a sport management professional, from the general manager to the marketing director, from the coaches to trainers until sports agents and scouts, and is extremely helpful in them being successful in that position. Technology affects each and every sports organization and has made life easier with unlimited resources and information. As already said computers and the internet allow to do numerous tasks in sports management that were not available in past years (e.g. instant communication, digital picture and video, social networking).

Obviously, the sport industry is characterized not only by technologies that help managers in the organizations of the event, but also by technologies that support managers and referees to avoid unpleasant situation distinguished by the human mistake. It is the case for example of the definition of the winner of a cycling race, where the difference between the first and the second is a matter of centimeters and it is difficult for the human eye to see that gap. Another technology useful to avoid boring debates is the goal-line-technology in the football which determines if it is goal or not. For situations like this, the technology can represent an effective support that succeed where humans may not. Sports Management identifies five technologies being widely diffused in the sport industry today:

- Instant replay: officials are able to see exactly what happened, providing a second perspective on sports events. It could be used to check that athletes behave correctly during the race.
- Sensor tools: it is used in cases where the naked eye could fail. They exist in different types according to the sport in which they are used. Sensor technologies help to accurately determine the position of the ball at a given time.
- Timing systems: in many racing events, the starter pistol is linked to a clock and laser beams and photographs are used to determine the winner. In the swimming pool there are touch pads at the finish lanes. These technologies are used to avoid the error and determine who is the champion and who is the loser and identify the few cents of second that could represent a world record.

- RFID chips: they are often used to time individual contestants in an event. These chips are used in long distance races to help broadcaster and viewers track the exact locations of contestants during a race.
- Equipment development: in sports, safety is a key factor. Equipment manufacturers have developed devices to reduce injuries on athletes. Today, new technologies have been embraced to protect athletes and make it easier to officiate the games.

AJ Agrawal, CEO of Alumnify (2015) identified three macro areas that have been affected by the evolution of technologies in the sports world. Within each of these areas, it is possible to recognize other technologies.

- Digital and social media

Until few years ago, a fan that wanted to catch the game was obliged to few channels. Nowadays there are a plethora of options making the sports coverage more extensive than ever before. Coverage is available everywhere, all the time: for instance, if I miss one football match of my favorite team, I can see it later on one of the many channels that are available. In the past this was not possible and missing a game meant having to wait to read the result on the newspaper the day after. The media channels that broadcast sporting events are now able to use technology to share information. The majority of people own a smart device that allows to stay in contact with the world and receive information about the specific sport event I am interested in. Moreover, social media such as Twitter, Facebook or Instagram have created opportunities that never would have been considered possible. If you had suggested that you could “tweet” your favorite football player rather than comment a photo of a basketball star, it would have sounded like impossible. These social media are platforms both available to fans, athletes and managers, that raise the enthusiasm and increased the sport community in an exponential way.

- Buying tickets

Not too long ago, buying sports tickets was a big issue and the only way to manage extra tickets or to buy new ones was scalping. Fortunately, the things have been changing and now the process to have a ticket is cheaper and more efficient. The ticketing issue is valid for a series of industries: in the music it is true when buying tickets for concerts while in the sports market when there are for example matches in stadiums or arenas. Indeed, fans are now able to buy tickets online in a few minutes also thanks to platforms: in the US there is Eventbrite which made it easier and it is convenient to check in and coordinate the entire ticketing process.

Another company is Barry's Tickets that tries to completely change the "scalper" method. Finally, websites like Facebook and Craigslist offer the chance to buy and sell tickets easily.

The problem of tickets is valid not only for the fans who want to go to the stadium, but also for those who want to participate in first person. More and more people attend sport events not just for a reason of healthy lifestyle but also to be socially involved.

Obviously, this issue can be seen by another perspective: the one of the organizer that want to sell tickets through a safe channel as it could be an own platform.

- Equipment and experience

Technology has totally revolutionized the way in which apparel and equipment are designed. From shoes to helmets, equipment is now more high-tech and high-functioning. These new technologies give to athletes the possibility to elevate their skill. Teams now have the opportunity to use videos to see the performance of the athletes and understand where these performances can be improved through the plays and motions of the game. It is also useful to study the opposing team: its strategy, its best players, the points of strengths and weaknesses. In terms of accessories, one of the greatest innovation has been done on helmets: now they are safer thanks to new technology made of sensors and magnets.

The experience of going to a sporting event is very different, too. Fans have the possibility to do new things utilizing technologies and the social media as previously said cover a fundamental role, offering the opportunity to share contents.

Hill also followed this type of analysis, recognizing the high complexity of these technologies. The goal of his research was to understand which technologies have had a profound impact on the sports market.

- Video technology: as already said, several sports use this technology as support of performances of athletes and video refereeing. It means that decisions could be made quickly and accurately, and the games become fairer. An example of this is the introduction in the Italian football league Serie A and in many other national leagues of the VAR technology which will be use also for the World Cup of football next summer in Russia. Moreover, having many cameras around a pitch has also had a major effect on the way players are analyzed after competition. Another example could be the replay used to verify who wins a cycling race.

- **Portable sensors:** these tools are used with different objectives such as the effort done by the body for actual performances. In the cycling, the power meters allow to train in accordance with how much power the athletes are pushing through pedals. Another example used during sports events is the GPS sensors that allow to see every movement of every single player and measure the total kilometers run during the match. These sensors are constantly evolving and getting smaller: it has been predicted that soon they will be embeddable within everyday clothing.
- **Drug testing & WADA:** it does not refer to one simple technology but rather to a collection that has changed every sport. From 1999 WADA (World Anti-Doping Agency) has helped to push forward the use of drug testing technologies to help fight the use of performance enhancing drugs in sport. Doping is a huge problem especially in some sports like cycling in which has been found many athletes positive for drugs that ruined the name of this sport in the last years.
- **Aero and hydrodynamics:** for certain sports, athletes need to be able to perform with minimum resistances. In this sense the evolution of materials has allowed the performance of athletes to minimize air or water resistance and increase speed. This is true for many sports. A nice example comes once more from the cycling: in particular, from the 1989 Tour de France when Greg LeMond won over Fignon for just 8 seconds because he used the new technologies that made the difference during the final time trial.
- **Data analytics:** having the ability to analyze millions of data points has meant that sports teams and athletes can look at the tiniest successes or failures within any performance and either recreate or remove particular conditions. It has meant that everything that an athlete does can be interconnected and assessed to divide a performance into its individual elements rather than as a simply whole. This is possible only through the use of data analytics, seeing where small improvements can be made and how athletes can improve their chances of success.

Another perspective of analysis comes from the Chinese Li and Wang (2012) of the Shenyang Ligong University that interpret the sport management as a field of education and vocation concerning the business aspect of sport. Sport management uses the management theory and methods to study the coordination of sports organizations. It is possible to distinguish a macro aspect which regards aspects like the sports marketing, event management, etc. and a micro

area linked to data of athletes, sport equipment, etc. But the traditional manual management method is no longer suitable to explain the evolution of sport management. In this sense it is important the role covered by IT which is considered an important tool for different task such as acquisition, processing, storage, etc.

Information management system is used to provide information needed to manage related organizations efficiently and effectively. Three are the resources involved: technology, information, and people. Generally, an information management system is composed by a series of equipment that together can be a support to manage information and allow to bring an efficient solution. This is particularly useful for its ability to manage a huge amount of information and for this reason can be used also in other fields where the amount of information is huge and difficult to be managed. A classic example is the university system which has to manage data of students, courses, and so on.

The second aspect analyzed by the two Chinese is the decision support system for sport management which is a computer-based information system. Its role is to support business or organizational decision-making activities. The decision support system serves the all kinds of business management, operations, and planning levels of an organization and help to make decisions. In sport management, make the right decision is important as well as in other industries. This system must be seen as something that help in making a suitable decision and obtain a maximum benefit.

Different authors map different technologies in different ways, but in the majority of cases the technologies are the same. For this reason, it would be easier to distinguish how they are used. To do this, it has to be strong in mind the objective of this thesis: the analysis of the organization of endurance sports events. Here the analysis must identify the technologies that organizers use in preparation of endurance sports event. Since there is not a clear distinction between technologies used in traditional sports events and in endurance sports events, it is possible to follow a series of steps, starting from the consideration of the type of sport: individual sports vs. team sports. Within the individual sports, our analysis has been focused on those that are done outdoor (e.g. outside stadium or arenas) and that are comparable to endurance sports.

In the following graph, the technologies identified by the authors previously listed have been classified and mapped. In the graph, each color is associated to an author and consequently to the technologies identified by the author. For example, blue is referred to Hill that distinguished video technology, drug testing & WADA and so on. In particular, the main distinction has been done on the differences identified by Li and Wang between the Macro Area (e.g. sports

marketing, event management, etc.) and the Micro Area (e.g. data of athletes, sport equipment, etc.). According to this first classification, all other technologies identified during the analysis, have been mapped. For example, the majority of technologies identified by Sport Management could be reconducted to the class of video technology which instead was recognized by Hill. The same type of reasoning could be done for the equipment technology by Sport Management and Agrawal, while Hill distinguished portable sensors and aero & hydrodynamics technology. A mention must be done for the Digital and Social media class: this has been located at the intersection between the Macro area and the Micro area because these technologies could be used both by organizers of the event which may need to understand the level of appreciation of fans for example (Macro area) and by fans and athletes which instead post photos and comment (Micro area).

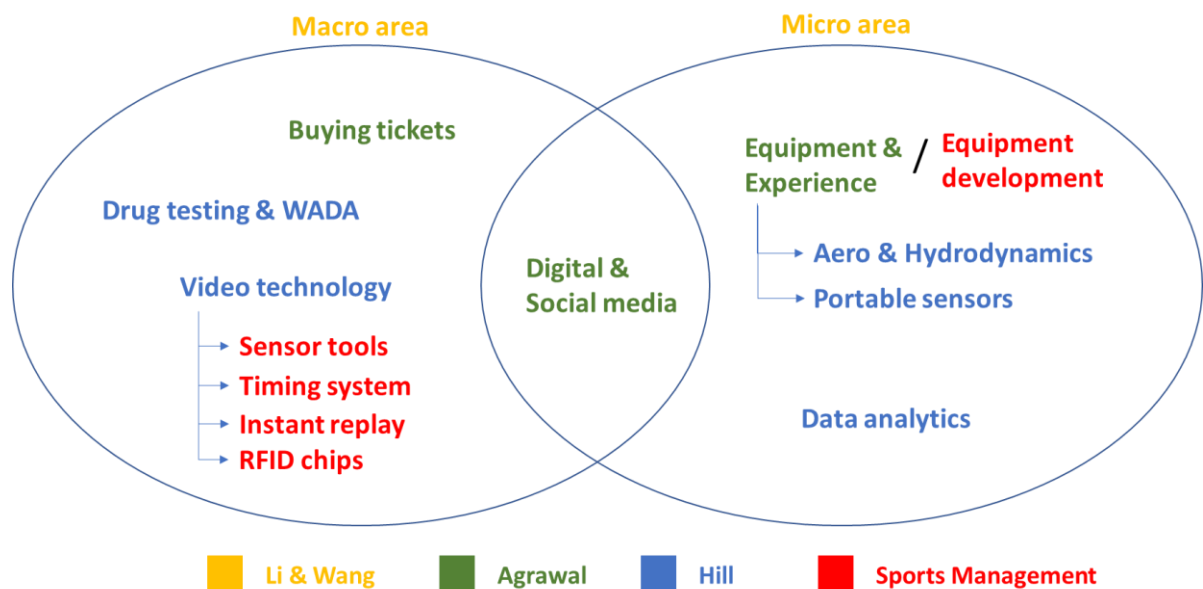


Figure 14 – Classification of technologies

2.4 Literature results

This analysis, even if has been done considering the three topics (sports, events organization and technologies) separately, must be taken into account as a whole. It shows that the endurance sports industry is still young and not well supported by the literature; it is a market that is developing especially in the foreign markets (e.g. the US), but not in Italy where people practice the activity without the consciousness of an emerging movement. There is not a clear identification of market, which can be dimensioned just through transverse reasonings based on Italian national federations.

To support this, there is the fact that sports events are organized without considering the distinction between traditional sports events or endurance sports event. It is instead considered the distinction considering elements like the dimension, the duration and other features that make each event unique. But this topic has many considerations that could be done and that represent an incentive to further develop the market of sports events.

Finally, the technologies used to facilitate the organization of sports event could be distinguished between traditional (e.g. computer, internet, videos and photos) and innovative (e.g. VR, social media), and between those used by the athlete and those used by the organizer as support. This last distinction is more relevant for this thesis

3 Research design

The objective of this chapter is to illustrate to the reader the goal of this thesis first of all, and second the structure used to conduct this analysis. It wants to be as clearer as possible and it has been immediately established in order to ensure a detailed and complete research.

Objective of the research

This thesis wants to investigate what the world of endurance is, understand which sports could be practiced at this level, how an event organization is structured, and which are the technologies that support it. The focus of the analysis is on sports that could be practiced at endurance level, and in this sense the aim of the thesis is understanding how these events are organized and if it is possible to find a method or at least a series of steps that can bring to organize a successful event. The analysis of the single case study ENDU wants to talk about a case of success, shows how this start-up operates and highlight possible markets of improvement, such as the touristic one.

The work on this thesis has begun with the concept of “endurance” and the idea of understanding the relation between this concept and the organization of events. Nowadays literature about these topics is poor and it would represent a starting point to make clearer to the reader what endurance sport is, what an event is and how it is structured, and finally which technologies are used as support. Finally, using as support the case of ENDU, the interesting point is where these analyses could be applied for further improvements.

Methodology

The schematic structure on the thesis is drafted here below.

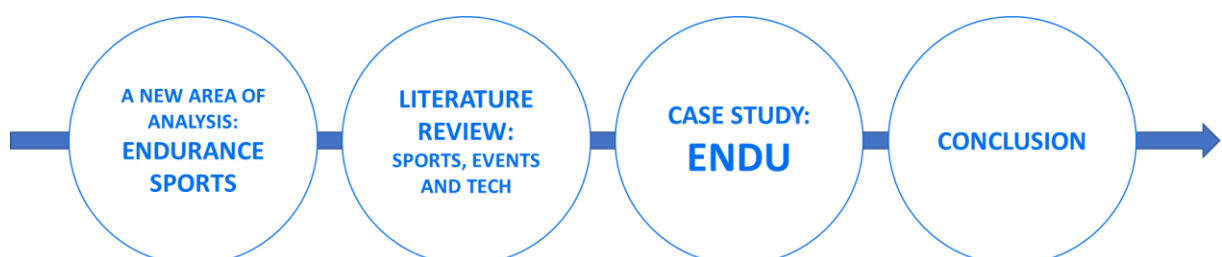


Figure 15 - Structure of the thesis

The first chapter is the Introduction which has the objective to briefly explain which the state-of-the-art is about the endurance sports and the organization of events with a focus on the Italian context.

The second chapter is dedicated to the literature review. Here the state-of-the-art explains the key concept and the key words that has been used for the thesis: sports, events organization and technologies are the three topics analyzed.

The third chapter wants to analyze the case of the start-up ENDU and understand how it could be compared with respect to the theory seen in the previous chapter of literature. It is a case of success that deserves a deep analysis in the unexplored world of endurance.

Finally, the last chapter is about the conclusion. Here, the results of the analysis will be presented and will be taken into account the aspects that could be object of evolution, merging what comes out from the literature and from the case.

3.1 Literature review methodology

This chapter wants to create three pillars in order to understand the context and more important to offer to readers the opportunity to understand the panorama. The analysis started with the review of some papers provided by the Osservatorio Innovazione Digitale nell'Industria dello Sport and the explication of the model developed by the Osservatorio which represents the starting point of the thesis. The lecture of these papers has been useful to understand and recognize which were useful or not to the discussion of the topic. From this first analysis, the articles from CONI and ISTAT has been used in the first part in order to dimension the Italian sports industry in terms of athletes, sports clubs and federations, and to see the evolution in numbers through the years. It is possible to assert that the majority of thing written about sports came from papers provided by the Osservatorio. Documents by AT Kearney allowed to understand the economic dimension of this industry. But this is not sufficient, since the aim of this thesis is not the illustration of the Italian sports market, but rather the focus is on a segment, represented by the endurance. Highlighted the necessity to discuss this slice of market, the objective is to illuminate readers about the meaning of Endurance and this has been possible only through a series of research on the most spread browser, Google. Here below a series of key words used to find materials to better explain what this level of sport really means:

- Endurance: *market of sport endurance, sport endurance, dimension of sport market in Italy, sport endurance definition*

Once has been found a series of definitions for the term “endurance”, the goal was to understand which sports were feasible to be practiced at this level and, following the same path used for the analysis of sports in general, which included also the considerations about people and their attitudes to sports. For this focus on endurance has been fundamental the support of Matteo Gelati (COO of ENDU) and of his team that provided a lot of material to work on. These papers have been utilized to identifies the several disciplines within different sports that could be practices, and the profiles of athletes that train their body to reach such performances.

The second pillar analyzed has been the event organization. As already said, the analysis starts at general level, and then goes deep and focus its attention on relevant details that make the difference and allow the reader to follow a path like a funnel. The first thing that has been done is the definition of event, which then has been classified by dimension and by nature. For these considerations, it has been fundamental the book “L’organizzazione degli eventi” by Luisa Varriale. Indeed, it precisely analyze many aspects that define what it is an event. But, once more, this thesis does not take care of concerts, expositions, and other events, but it wants to focus its attention on sports events. So, after a brief discussion about events and their classification, the thesis moves to sports events organization. Here, nobody and no entity provides any paper and the researches have been done using Google and its archive Google scholar. Below the key words:

- Events organization: *sports events organization, organization of events*

These researches permitted a further classification of sports events based on dimension of events and the identification of a series of activities necessities to successfully organize a sport event. Moreover, another element considered in the analysis is about people involved: event manager, sponsor, and so on. A fundamental help came from Pierluigi Zacheo, expert of sustainability, that offered his perspective about what legacy is, and suggested which considerations must be done to understand if an event is successful or not.

At this point the thesis moves to consider the technologies. This last pillar has been considered for two reasons: on one hand, due to the fact that technologies can be seen as a fundamental tool in whatever activity nowadays, including the organization of sports events. On the other hand, it must be analyzed because the thesis “comes from” the Osservatori Digital Innovation. In this sense, it is important to know that the objective of the Osservatorio Innovazione Digitale nell’Industria dello Sport is to understand which level of digital innovation within the sport industry and which projects are developed by firms and start-up that operate in this market to

offer better services to their customers. To consider this last point of the chapter dedicated to the analysis of the literature, it has been done a research on Google using the following key words:

- Technology: *technologies in sports events organization, technologies to organize events*

The articles resulted from this research were classified and at the end has been done a further classification of all technologies with the objective to compare different perspectives of different authors taken into account.

3.2 Case study: ENDU methodology

This chapter has been written trying to offer to the reader a view of what it is a company, or better a start-up that works in the market sector that has been analyzed during the previous chapter of literature. Writing this chapter, the idea was to follow the same path followed for the state-of-the-art with three clear and distinct steps: sport, event organization and technology. To describe ENDU, it has been necessary a face-to-face interview: this has been done at ENDU offices in Parma on Friday May, the 4th 2018. To this in person interview, it must be added a series of phone calls and mails exchanged during the months of writing this thesis. During this interview Matteo Gelati, COO of ENDU, explained what ENDU is, the role it has in the panorama of sports market with a focus on the segment of endurance. Gelati has been interviewed other few times with phone calls: the objective of these calls was to clarify some missing points that were not discussed during the first interview did in Parma. All the three points have been written considering also the theory studied in the previous chapter as for example has been done with the model drafted by Osservatorio Innovazione Digitale nell'Industria dello Sport. In this chapter it is possible to read also about other things that represent businesses for ENDU and that were not considered initially in the literature: indeed, the business of the start-up has been considered using tools seen during university courses such as the Business Model Canvas and the persona which define, in this case, an athlete typo. There is a paragraph dedicated to the activities done by ENDU about tourism too. This topic has not been considered in the literature, but its discussion is necessary because it represents a key business now and for the future: the relationship between sports events and tourism is closer than one could expect.

3.3 Conclusions methodology

This is the last chapter of the thesis and it wants to highlight the result of this analysis. First of all, there is a synthesis of results of the literature: for each of the three pillars (sports, event organization and technology), there are key points that allow the reader to understand what endurance means and which sports can be practiced at endurance level. Then, about the organization of sports events, it has been underlined how it does not exist a rigid sequence of activities realized by just one player, but instead there are many things to do that can be realized by many players, each with its own specialty. Finally, it has been remembered how technologies are used in this sense: they are a support to make easier activities that perform better.

At this point, the findings of the state-of-art and the ENDU analysis has been matched and the result has been a matrix that consider endurance disciplines and activities performed by ENDU within the organization of a sport event. This matrix highlights all the possible crossings that can be done, and it represents a starting point for further development and studies about this topic. In this chapter, there are also considerations on how this scheme can be utilized by other firms that operate in this business but with another model: however, these are simply considerations because it has been analyzed just one case study (ENDU) and there are not other cases that allow the validation of this scheme.

The next step, before the consideration about limitations, further improvements and contribution to the literature, has been the analysis of touristic market, which is in a close relationship with sports as it has been said by Matteo Gelati. Indeed, this market has a huge potential and many touchpoints with the industry of sports events organization. To prove how close is the relationship between these two markets has been considered the analysis done by the Osservatorio Italiano del Turismo Outdoor that offered numbers that underline how important is this market. These considerations have been implemented considering what ENDU does to enlarge its business in this sector too.

4 Case study: ENDU

After the analysis of the literature, it is time to check if the theory can be applied to the practice. Here it will be presented the case of ENDU, a start-up sponsor of the Osservatorio Innovazione Digitale nell'Industria dello Sport.

The objective of this chapter is to describe in detail what this company does in the industry of the sports events management. It has been chosen because it represents a successful case in the endurance industry and the goal is to understand how it works and then define what are the elements of this sector and what are the opportunities that can be exploited.

The methodology of this chapter is really simple. Indeed, what it is possible to read is based on what Matteo Gelati said in person during the interview that has been done on May, the 4th 2018 at ENDU headquarter in Parma. After the interview, it has been necessary to do other few phone calls to complete some missing points. This chapter begins with a brief introduction of Matteo, to understand who he is, while the rest of the analysis of this start-up will follow the same path used in the state-of-art part:

- Sports: which sports have been taken into account by ENDU. What kind of people practice these disciplines at this level. In this sense it is fundamental to understand once more the concept of “endurance”.
- Events organization: how ENDU intervenes in the organization of sports events. Which activities are done, and which people are involved. Starting from these considerations, how the company acts in this business with respect to its partner, sponsor and competitors.
- Technology: which tech-tools and devices are used to offer the services that make ENDU unique.

4.1 Introduction and background

Name: Matteo Gelati
Job title: Chief Operation Officer
Education:

<ul style="list-style-type: none"> • Master’s degree in Economics – Marketing at Università degli Studi di Parma • Digital Marketing course at University of San Diego • People management & Time management at Dale Carnegie
<p>Personal and professional characteristics:</p> <ul style="list-style-type: none"> • Competences: <ul style="list-style-type: none"> ○ Mobile marketing ○ Digital strategy ○ Digital products and communication • Mentor at Impact accelerator • Head of Marketing and Data Strategy at GEDI Gruppo Editoriale • Head of Premium Products and Distribution at GEDI Gruppo Editoriale • Consumer Marketing Manager at Buongiorno • Acquisition and Communication Marketing at Buongiorno

Table 5 – Profile of the person interviewed

Before starting to consider what ENDU does with regards to these three blocks, it is necessary to understand what ENDU is. The best thing is to use the words of Matteo Gelati, who says that “ENDU is a facilitator or a consultant to enter the endurance world from the B2B point of view. From the customers side, it is a network of information and services for those who are passionate”. ENDU – Company ENGAGIGO SRL – was born in October 2016 from two companies that have contributed part of their products/business. The two companies are SDAM and JUNIPER XS. To better understand the dimension of this start-up, it is useful to show its revenues through years and use these as a prove of the success of this company.

2018 ¹	2017	Oct – Dec 2016
€ 1.930.000	€ 749.000	€ 370.000

Table 6 – Revenues of ENDU through years

¹ Forecasts

4.2 Sport

Nowadays, ENDU focuses its attention on muscular sports and it does not consider sports that require the use of an engine. In particular, we can distinguish thanks to the ENDU website, over ten sports categories and more than thirty disciplines. Here below the whole list of sports and disciplines.

Sports	Disciplines
Running, Cycling, Triathlon, Swimming, Winter sports, Obstacles races, Wheels races, Orienteering, Road, Mountain bike, Cross country race, Duathlon	Road running, Road cycling, Mountain bike, Trail running, Triathlon, Duathlon, Skyrunning, Free-water swim, Cross country ski, Cross Country, Enduro, Mountain races, In-door swim, Ski mountaineering, Aquathlon, Alpine skiing, Walking, Touring by bike (cicloturismo), Snowshoe ride, Obstacles race, Track race, Vertical running, Snowboard, Gravel, Cyclocross, Swimrun, Winter triathlon, Nordic walking, Downhill, Track cycling, Cross triathlon, Bike trial, March, Ice skating, Inline skating, Orienteering race, Skiroll, MTB orienteering, Wheels skating, Ski cross, Paracycling, Biathlon, BMX, Precision orienteering, Paratriathlon, Ski orienteering, Alpine para-ski, Cross country para-ski, Paraswimming.

Table 7 – Sports and disciplines on endu.net

Each sport that has been identified from the ENDU server here above, can be reconducted to one of the 45 FSN. The most involved federations are: FIDAL, FCI, FITri, FISI and FIN. Indeed, during the interview with Matteo Gelati, the focus has been on three main sports: running, cycling and triathlon which represent for ENDU those categories that could be defined as “core”, since the majority of the people enrolled on the ENDU website attend sports events that could be reconducted to one of these macro-areas of sports.

4.2.1 Athletes

Once more, it is important to underline the fact that the sports and disciplines listed in the table above are practiced at the endurance level by the athletes enrolled on the ENDU network. In this sense the next step is to understand the distinct profiles of the attendants to these events. The first distinction done by Matteo Gelati has been between professionals and amateurs.

The professionals, just 1% of the total, are athletes that run for professional sports teams, supported by sponsors. This is true for example in cycling world where there are big teams with many sponsors which offer different services or for sports characterized by few athletes that could create their own teams thanks to specific brand that sustain the teams. But part of these athletes is enrolled in an army (e.g. Police, Guard of Finance, Carabinieri, etc.) because some of these sports, like the running and the triathlon, do not represent such huge markets in terms of revenues to allow the sports teams to pay athletes in order to do sports. For this reason, in Italy, athletes of minor sports are enrolled in a body of army and are paid as member of the army, but instead of practice the activity of policeman rather than that of carabinieri, they practice sport at professional level: at the end of the professional sport career, they move to the traditional career of policeman or carabinieri or whatever they do.

On the other hand, there are the amateurs. They represent the 99% of those that use the ENDU network. These amateurs could be better defined as passionate since they are people that have a job not necessarily linked to the world of sport, but they are so involved to train as professionals during their free time and to spend money on the same equipment used by professionals.

Both athletes of these two categories need three things to attend an event in which ENDU is involved.

- A medical certification, to guarantee that the athlete has good health condition and can sustain a relevant effort such as a marathon or a triathlon race.
- The enrolment to the federation that is involved in the specific event.
- The enrolment to a sport team.

Going deeper in the analysis, to understand how many people practice a sport rather than another, the first thing to do is to look at the data of CONI relative to the number of people enrolled in the federations we decided to consider. These data have been taken into account in the state-of-art and are useful since, as already said every athlete has to be enrolled to the

specific federation to attend the event. In this sense, the biggest federation in 2016 was the FIDAL with more than 230 thousand athletes, followed by the FIN (153.341 athletes), the FCI (74.386), the FISI (73.478) and the FITri (19.409). But it is not sufficient to consider just these number: about the FIN is necessary to underline that the majority of the swimming competition are not practiced at endurance level as well as for the FISI sports. Instead, about the triathlon federation is important to underline the fact that this federation has increased by 26,3% from 2014 to 2016. Following this kind of analysis, the data from the ENDU platform: the category of runners is the largest with 116.511 people, followed by the cyclists that are 59.307, while the tri-athletes are 11.574. Trying to draft a profile of these people, it is possible to say that the average age of the participant is 38 years old, in line with the mean found in the literature. Instead, the gender division is not balanced, and men are much more than women in a proportion that Matteo identified as 80% of men and just 20% of women.

Another point is about the fact that ENDU is involved in the organization or in the offer of some services for fun events that will be considered later in the analysis. The participants to this kind of events are, according to Matteo Gelati, people who love to practice sports and involved with the idea to conduct a healthy life-style. They practice sports continuously, at least one time per week, and they can be estimated as an army of approximately 4 million people. It is not possible to have a precise number of people that could be part of this army, but it is just a forecast based on the number of members between federations and touristic promoter authorities, and market estimates of non-members but practicing running and cycling. This estimate derives from the sale of running shoes and sport bikes. In this macro-category of fans, enthusiastic for sports, can enter all those people that once or twice per week go outside in a park or wherever they prefer and run for some kilometers or make a tour by bike. Moreover, the fact that these people do not attend official events does not mean that they practice as semi-professionals in terms of time dedicated to the sports and they invest in equipment that could cost hundreds or even thousands of euro according to the sport.

According to these data, it is possible to draft profiles of “**persona**” that are registered on the platform endu.net to better understand who an ENDU athlete is:

- Antonio is 49 years old and lives in Verona and is passionate and practiced with a special focus on half marathons and 10 km races. Most of the events in which he participates are organized in Lombardy and Veneto, near his hometown. The last race he did was the Sojasun Verdi Marathon: 21,097 km which he covered in 1:49:08. On the ENDU

platform he has over 30 followers and is the administrator of two small pages dedicated to training and how breathing affects performance.

- Luca is 42 years old and comes from Parma. He is a blogger and is involved in marketing and communication. The last race in which he participated was the Oakley TriO Sirmione last June, the 23rd: it took almost 2.5 hours to make over 50 km. He is a member of several pages dedicated to the various events in which he participates and is constantly updated with the use of social networks that he also actively uses to update his followers in turn.

For this kind of people and all sportsmen, ENDU is interested to take the most active part of these people for two reasons:

- Being a reference point for the activities that passionate people practice also outside of the agonistic circuit of events.
- Transforming part of this population in people that participate in an active way and do not want to be simple spectators.

4.3 Event organization

About this aspect, it would not be correct to define ENDU as a simple organizer of sports events. Its Chief Operation Officer prefers to define the start-up as a facilitator from the B2B point of view for all those that are involved with the organization of an event. In 2017 ENDU has been involved on 1430 sport events of endurance on the Italian national territory. ENDU rarely works on the organization of events end-to-end, where all the aspects that has been seen in the literature are managed by just one company; this kind of events represents just the 5% of ENDU business according to the Chief Operation Officer. But the start-up does not want to do just this kind of events otherwise it would be able to prepare just few dozen events. Instead, the goal of ENDU is to offer a series of services within the event organization and be an aggregation point both on the consumer side, which in this case is the athlete, and on the business side. ENDU can be seen as a layer or a facilitator for the whole endurance world; on one hand, the platform is useful for the athletes and it provides information to make the user willing to enter this world. On the other hand, from the B2B point of view, it acts as player of reference in the industry of events organization because it is able to work on a series of activity fundamental in an endurance sport event. Thus, being part of ENDU business means increase my business too,

because I can have access to more events and I can increase my network. It is a facilitator to increase the network of possible contacts.

It is possible to identify four categories of events in which ENDU offers its services:

- Agonistic sports events: in these events there are registration, a final ranking and relative awards. To attend these events, participants need to be enrolled within the federation of the event, the medical certification to prove the good health condition to face huge effort such a marathon rather than hundred kilometers of a cycling race. It is also mandatory to be enrolled with a sport team.
- Non-agonistic sports events: there is not an official ranking at the end of the race, but the route is closed and protect, to participate it is necessary to sign up even if it is sufficient the medical certification.
- Other sports events: within this category there are a lot of different type of event. Matteo during the interview, defined these events as “non-events” because there is not a real organization and often they are done to promote another event linked to another industry like a fair. An example of this kind of event is in the world of cycling with the gravel races: there is a meeting point and the participants decide to do 100 kilometers. During these 100 kilometers, athletes send their position through GPX tracks and everybody do what it wants.
- Fun sports events: as the name said, people attend these events to have fun and spend some time with friends in a protect place. Everybody could attend a fun race because it is not necessary to be prepared as for the other endurance events. The athlete that in this case can be defined as fan, just need to sign up and pay, and then enjoy the event. Since it is not possible to define these events as races, there is not any official ranking or awards. An example of this kind of race is the Polimi Run that one time per year involves the personnel of the Politecnico di Milano in 10 kilometres around streets of Milan from the campus of Bovisa to the other located in Leonardo Da Vinci square.

Going on with the analysis of events, the next thing to consider is the dimension of these events in terms of people that participate:

- Event with less than 300 people: these events could be considered as niche events such as the typical country competition.

- Events which have a number of people between 300 and 1500: an event like this begins to be relevant for the impact it could have on the territory.
- Events which have a number of people between 1500 and 3000
- Events with more than 3000 people: they represent a very small percentage due to the complexity in terms of organization and ability of the local public authority to sustain the organizers.

The division of these is the following:

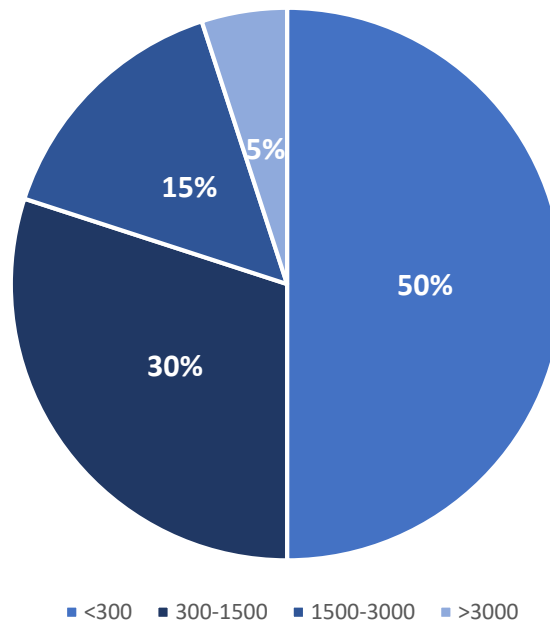


Figure 16 – Division of events according to number of athletes

As it is possible to see from the previous graph, ENDU works on events that could be classified as small and medium according to the classification done in the previous chapter of literature. But a further analysis can be done considering the sport practiced: indeed, those under 300 participants are basically small except in trail running and triathlon. Over 3.000 are considered major events in cycling and medium/large in running. To this aspect, it should be added some numbers relative to the biggest Italian events in which ENDU is involved for at least one activity: in the world of cycling the closing of four alpine passes in the area of Dolomiti. The authorities of Trentino Alto Adige close streets of this area and cyclists can spend the day on these streets. It is not a race and athletes can do what they want. ENDU was responsible of the photo shooting during this event which had more or less 65 thousand people. The other major events are cycling races or marathons which involve on average a number of amateur between 10 thousand and 15 thousand. Another big event in the world of cycling is the “Nove colli” in

Cesena which has 14 thousand people recognized, but all other events on two wheels have between 3 thousand and 5 thousand of athletes because it is difficult to find enough space for so many bicycles.

Using the analysis done in the previous chapter about dimension and nature of events, now it is possible to do some considerations: however, this classification is not so simple since must be taken into account the discipline too. For example, talking about 300 athletes for a trial running means talking of a big event, while the same number for a cycling race would mean that the event is quite small. For sure, these events are not part of the “championships” category. They can be classified as sport venue or meeting also due to their mediatic relevance: indeed, has been considered as big events those that have an important mediatic coverage and a huge complexity in the organization (e.g. Olympic Games, Tour de France). So, the number of people is not the only discriminating factor to determine the size of an event.

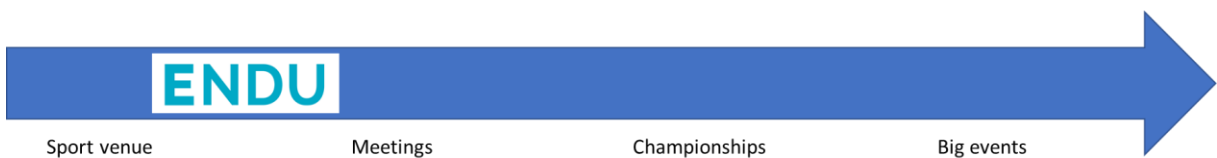


Figure 17 – ENDU within the classification of sports events

From this consideration about the dimension of events in terms of people, it is possible to do another consequent consideration: the fragmentation of events. This is not just a problem of ENDU, but of the whole Italian market of endurance sports events. In Italy happens that, for instance talking about marathon races, there could be two or more relevant events during the same weekend. Sunday 8 April 2018 was the day of Milano City Marathon and Marathon of Rome: the two biggest Italian cities organized the marathon the same day. Moreover, according to Matteo, considering the marathon of the eternal city, there were 16 middle marathons during the previous 3 weeks in the area of Capital. This fragmentation does not exist in other countries, for example in France, the day of the marathon of Paris, there is not any other race on the whole national territory and during the previous 3 weeks there is not any half-marathon. This organizations could be translated into numbers in the following graph:

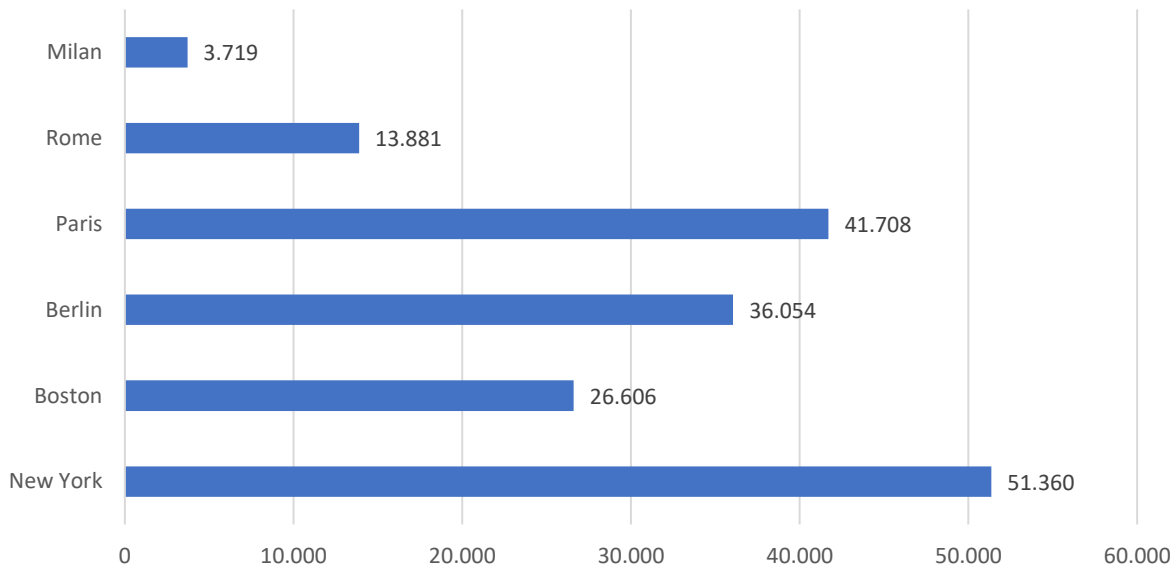


Figure 18 – Participants to major marathons worldwide

These numbers are referred to 2016 and it is clear how the number of participants to Italian marathons is lower due to a missing synchronization between organizers of events. This fragmentation is reflected on events with a lower number of participants and consequently lower income.

A further problem that explain why number of participants to this kind of events in Italy is lower compared to other European big cities and in general to worldwide cities is logistic. For foreigners coming to Italy and participate to a sport event could be not so easy. A lot of people come from all over the world to attend a marathon rather than a MTB race in one of the many beautiful location that the Italian country can offer. But if this event is not organized in one of the main cities, it becomes difficult from a transport point of view. If the race is in Milan, the athlete can take a plane and once arrived at the airport, easily reach the city center where the event takes place and find everything it needs for its accommodation. Otherwise, if the local authority of Liguria wants to do a race that touch “Le 5 Terre” (Monterosso al Mare, Vernazza, Corniglia, Manarola and Riomaggiore), it is very difficult and expensive to attend that race: the athlete has to find a flight, rent a car or uses public transports to reach a location where accommodations are usually really expensive.

To all these things must be added the fact that, as it has already been said previously, it is necessary a medical certification to attend endurance events. This represents a big limitation for a foreigner because the medical certification for Italy costs around €150.

It is possible to notice that the analysis of ENDU case has been following the same path did previously in the state-of-art. The first step was the definition of endurance sports and the

description of athletes than run these races. Then, the analysis has moved to define what the start-up from Parma does, consider the events in which it is involved and then understand the dimension of these events.

4.4 Activities performed

Now, within this paragraph, the objective is to understand what ENDU does in a typo event. Matteo Gelati said it is a layer on two sides: sports and activities. The sport side has been discussed previously and it is about the fact that it works with many sports and disciplines, all practiced at endurance level. The main sports on which ENDU works are:

- Running
- Cycling
- Triathlon

The second point is about the activities, that will be seen now. ENDU works on the following activities:

- Information: the platform endu.net wants to be a point of reference for all passionate, offering info about next events and results of previous events. Moreover, the magazine aims to be an instrument of communication to tell stories about these sports and about lifestyle in order to enlarge the community of endurance sports users.
- Registration and ticketing: the web site gives the opportunity to register yourself to events and check that you could participate to the event, so that the medical certificate of the athlete is valid as well as the other documents required to attend the race.
- Photo & Video: ENDU takes photos during the events and these are available on the platform just for those who attended the specific event in order to respect the privacy policy.
- Timing and tracking: it is everything related to the check of athletes during the race, to determine the time of arrival and their position on the route for a security issue.
- Secretary: it is about everything that could be seen as a support to athletes and in general people involved with the event.
- Custom project: the idea is to create an event according to the request of the customer. This project could be something that support another event of another industry.

- Sponsor research: in this sense ENDU works to search companies that cover the role of sponsor or partner of an event. Values of this company must be in line with the purpose of the event.

All these points can be seen as the pillar of ENDU that distinguish this start-up from the other competitors. Indeed, according to the analysis done by the management of the company there is not at world level a company that works in such way with a chessboard that merge sports and activities.

A further division in percentage can be done considering the number of activities for each event.

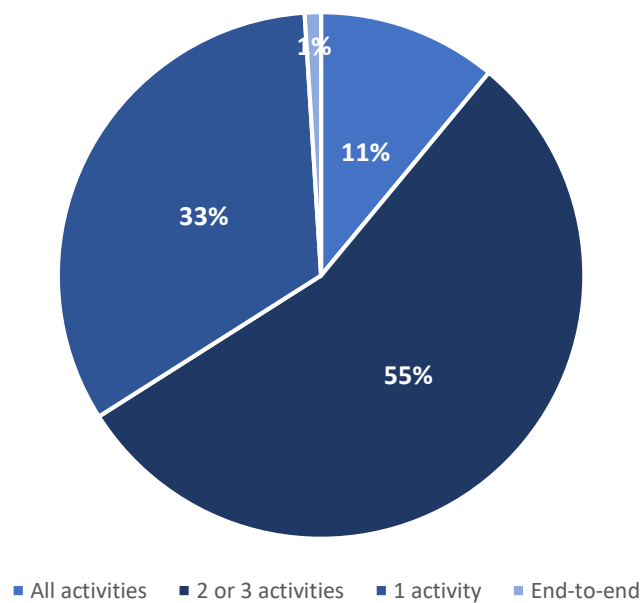


Figure 19 – Division of events according to activities done by ENDU

From the pie above, a mention has to be done for the smaller slice that represents the organization of events end-to-end, even if the management of these events is not the core business of ENDU. End-to-end means that ENDU considers for these events, all the activities that are necessary for the good result. These activities have been taken into account in the literature chapter: they are for example the material procurement, the promotion of the event, the organization of food and beverage and so on. Matteo Gelati said that ENDU wants to use its brand with other sponsors to prepare 15 events in 2019. These events will be niche events and will be used with marketing objective. An example will be the Digital Run that already exists, and it will become a circuit of 5 or 6 events through the Italian peninsula linked to the digital issue. Another example of events end-to-end in which ENDU will be involved is the run that Ente Fiere di Parma wants to organize for the annual fair “Cibus”: this authority desires

that ENDU prepare all the aspects with the budget defined. But, once more, it is not the core business of this start-up.

There are competitors on some niche markets in the sense that the single company has the focus on a single activity or on a single sport. For example, there is a platform called Active, which is an international player, leader in the world of registration and ticketing. In the Italian panorama, Active can be seen as competitor even if the volume of events and the number of participants is lower compared to ENDU. However, it has a big potential and if it would it could take a big slice of the market without any problems, but it does not have interest. It is an international platform and its focus is on big events that expect thousands of athletes. Being an international platform, Active has a series of limits and for instance, it does not customize the offering to its customers. This kind of standardization is perfect for big events as the Florence marathon, but it is not functional for smaller events of hundreds of people that represent more than half of the business of ENDU.

After this parenthesis on the competitors, it is possible to continue the considerations on the events organization taking into account the federations. The federations are those entities, part of the CONI, that have a role of collaborator within the organization of the event. Indeed, in the majority of cases, the entity or the authority or whatever it wants to organize an event has to do it with a federation. This must be done for two reasons:

- Federations have a series of insurance facilities that make easier the organization of the event. The local authority, to whom you ask for the various permissions, wants that you have a collaboration with a federation as a sort of warranty.
- If the federation provides a support to the event that has going to be organized, this event automatically enters in the calendar of events of the federation. This is a marketing action that promotes the event.

So, the athlete enrolled with a federation can participate to these events and it has a series of promo and advantages, and if this athlete does not have the card that assure it is enrolled with such federation, it could not attend the event. There are some events that accept only people enrolled to a specific federation and, for example, there are events organized with the support of the cycling federation, which do not permit the participation of people with the UISP card. Usually these events are national or regional championship. Before it has been talked about competitors, now the analysis has moved to the considerations of federations that in this sense could be seen as facilitator in the process of promotion.

The classification of events is not over. Now the analysis moves to the people: it does not mean to consider the athletes, that have been already considered in the previous paragraph, but the people that make the event possible and work in order to offer the best event possible. Talking with Matteo, appeared clear the fact that one single person does not own the competences and the ability to manage such a huge effort like organizing a sport event. Every activity requires a responsible that is in touch with the organizer of the event. For this reason, it is not possible to talk about an event manager, and even if this figure exists, it is covered by the organizer which face itself with many responsible. In particular, it is relevant the figure linked to the communication: it is a figure inside the event that creates a special activity with sponsor and in this sense can be called or defined as event manager, even if it does not coordinate all the activities. For the other activities of secretary, photo shooting and so on, there is a responsible with specific skills.

The other interesting activity is the timing. To talk about this is necessary to do a brief introduction and consider the fact that during some weekends, ENDU is involved with more than 30 events on the whole national territory. This implies to have people and infrastructures able to satisfy necessities for 30 events or more. From the point of view of people, Matteo said that ENDU does not have so many employees to allocate during the weekend. To solve this problem ENDU uses local stuff which change in number according to the dimension of the event: a small event could require 3 to 5 units, while a big event needs more than 30 people, for example the DeeJay Ten last year used 45 people. It means that 4 or 5 people are from ENDU and these coordinate the other 40 that are people that did the MySDAM school.

SDAM is the company from which ENDU was born and it organizes courses of few weeks that means that people attend classes for 6 weekends at full time plus an “internship” of 4 or 5 events during which the participants learn how to use many kinds of tools related to the timing procedure, but also the platform of secretary, control and management of the event. At the end of this course people are included in the process of organization and for instance, if ENDU has to manage the timing of a marathon in Sicily, it calls a person or more than one, that usually live in loco, and helps with the timing activity. The large majority of these people have their own life and from Monday to Friday do different things, but during the weekends work with ENDU.

4.5 Partner & sponsor

The analysis has also to consider the companies that play a key role within the industry of sport, but also with firms of other industries that want to enlarge their business to sport. ENDU is involved with many companies on many projects:

- Nielsen Sports is the leading provider of data and reports in the growing sports industry, offering the most complete view of consumer trends and habits around the world. Nielsen Sports is the world leader in commercial tailor-made solutions for clubs, leagues, federations, brands, broadcasters and agencies. ENDU represents for this company the only partner of analysis on endurance sports world.
- CONI is a partner which works with ENDU to create analyses on endurance sports world. Since the CONI includes 45 federations, the start-up does not work with all of them, but with those that represent sports that could be practiced at endurance level.
- MYLAPS is, as already said, the official partner for timing activity on the Italian market.
- Huawei decided to enter the business of running and used its brand as title sponsor of three marathons. ENDU represented the touch point between the Chinese company and the world of endurance.
- Unipol wants to be perceived as an insurance company for sports people. It wants to be overall Italian national territory and in 2017, ENDU created a pack of 24 events for this company and during these events it was responsible of the photo shooting. The photos were paid by Unipol which offered also promotions on its insurances. With this kind of entrance, it creates engagement, and this is not possible using simple banner.
- Asics is searching for testimonials called front-runners for the 2018/2019 marketing campaign. These testimonials are not professional athletes, but passionate people that become ambassadors of this brand. These runners have to attend about ten events and receive shoes and technical clothes from Asics. This is a European plan, and Asics uses ENDU as support to find the Italian front-runners.

From these three cases it is possible to see a net change in how companies decide to invest to enter the sports world. In the past there was the idea, for example, to buy kilometers of banner. Nowadays companies try to create marketing campaigns and find formulas of engagement within the event or the community. These new formulas could involve athletes that promote the

event through their experiences (Asics) or activities that create link between firms that people thought far.

A topic that is very important within the organization of sports events is the sustainability, which, as said in the literature, is declined at social, economic and ecological level. The business of ENDU, as already said, is represented by the organization of endurance sports events with a focus on running, cycling and triathlon. These disciplines are practiced “en-plain air” and from this fact there is the first consideration on ecological sustainability: for these events, there is not any physical structure leaved at the end of the event that could ruin the environment. The concept of ecological sustainability instead is based on the idea of leaving the competition terrain as it was before the event: in some cases, the purpose is to leave the place even better than it was. About social sustainability, this can be seen in many forms: according to the characteristics of the event, it is possible to talk about the culture instilled to participants and spectators. Finally, there is economic sustainability which is linked to possible revenues coming from the organization of the event. For ENDU this economic impact cannot derive from the use of these infrastructures for future events, but rather it derives from activities of promotion such as tourism as it is possible to read later in this chapter.

4.6 Technology

This third paragraph aims to understand which are the technologies that make what has been read above possible. This thesis does not want to provide a technical description of the various technologies, but rather wants that the reader can understand which they are, and which is their scope.

- Ticketing platform: it has a wide series of complexities to be managed. Within the ticketing platform, there is the registry part, which verify the validity of the card of the federation with which the sport club is enrolled. In this sense there is a plan of control with every single federation in order to check that the athlete is correctly registered and active. Secondly, the platform allows to upload the medical certification which is validated and accepted for the event. This platform is called EDM and it works thanks to a CRM system that allows to manage users.

Going on talking about this platform, Matteo introduced the concept of proliferation. He immediately underlined the fact that he would not talk about big data. However, he is proud of the amount of data that ENDU owns: around 600 thousand profiles are registered in the ENDU database and 430 thousand of these profiles are complete with all consensus for marketing

purposes. Of 570 thousand profiles there are data about all the activities done in the previous years: for each athlete these data include races that it attended, timing of races it concluded, intermediate timing, what it read from the newsletter, what it prefers and so on. This platform is owned by ENDU and is suitable for all types of endurance sports. Integrated with APIs to FIDAL and FITRI for the automatic update of user database, it complies with the new GDPR Regulation of May, the 25th 2018 and is integrated with a consumer CRM system. All these data assure to ENDU a position of relevance on the Italian market.

- **Timing technology:** it is the technology used to check the athletes during the event. Timing means using tools like sensors and chips integrated in the pectoral that measure the time spent on the race. There are many typologies of tools and can be thought as anklet or bracelet, or as adhesive that contains chip to be put on the bike. This technology is used under license by MYLAPS, world leader of timing for sports, automotive, motorcycling and other. This technology is called SDS and it is the platform that check athletes during the race. Talking about tracking, there is also the platform Smart Track called Race Control used for events of bigger dimension.
- **Access-related technology:** Gelati explained this technology as a sub-category of the timing. It is related to the use of badges that allow the access to the different areas of the event. To better explain this part, Matteo used the collaboration with Giro d'Italia 2018: for this event ENDU prepared different badges with different level of access for the different areas of the event. There could be a badge that allows to enter just one area like the paddock, and a badge that instead allows to attend all the areas and it is dedicated to insiders and VIPs. This platform too is owned by ENDU which works on the conception, management and pass printing.
- **Photos:** it is the set of technologies linked with one of the core competences of ENDU. Pictures are done with the automatic recognition technology. Athletes that participate to one event for which ENDU is responsible of the photos, have on the pectoral or on another clearly visible part of the body an adhesive with a QR code. When the participant crosses the check point where photographers are located, these shot some pics and recognize the QR code. At the end of the day, the athlete can go on the website or on the app and the QR code, which is unique for each person, allows to see personal photos. Pics appear on the platform with a watermark that does not allow to see the photo with high definition. It is necessary to pay. In this way ENDU has a source of

revenue and it is in line with the privacy issue. The system is called ENDU PIX and it is based on an owned internal platform.

The next step of this technology is the facial recognition: ENDU is working with an Italian company to develop a technology, with the idea to release this on September or October. First of all, the athlete sends an image of a photo to ENDU, and this photo is registered within ENDU database. The photos, done during the race, are immediately associated to the specific athlete, then the process of download is the same.

The third step is based on a technology that uses a chip. During the race the participant pass on a carpet that recognizes the athlete and associate the photo to the specific athlete. It is a complex system that recognizes the athletes and the photos of every single athlete which are then sorted in the respective athlete folder.

- Data management platform: commonly called DMP, it is the technology linked to the management of users' data that allows to do focused advertising. These data are collected and used for marketing campaigns by media company. It is possible to define this platform as a work in progress since it has not yet been integrated.
- App ENDU: it is available both on the App Store and on the Play Store. With this app, photos and results are immediately available on your phone. The athlete enters the code that received during the race, as written above, and it receives its personal photos on the app within a few hours of event conclusion. As already said, photos will be visible only by the owner of the code that then can share these photos, in full compliance with privacy needs.

- **App Never Alone:** ENDU bought this application last February. It is a platform for tracking activities that can be used by both the consumer and the organizer. The customer downloads this app that can be used to share my position while doing sports. The athlete shares the URL with friends, and these can see where it is with a frequency defined by the athlete itself. For instance, the application says where you are every 5 minutes. Nowadays it is used to track unofficial events like gravel races. If the app registers the same position, it means that the athlete is still, and it could be in a dangerous situation due to an incident. In this case the app sends an alert message to the smartphone of a security contact. This app is used by athletes that



Figure 20 – Screenshot of the Never Alone app on the App Store

practice their activities in not totally safe place (e.g. woods). The aim of this app is to be a security support, even if has the potential to be implemented for other purposes such as the management of the territory as it will be possible to see later in this analysis.

- **ENDU4TEAM:** it is a new platform for sports clubs available on the website endu.net. ENDU works with athletes, offering them the opportunity to sign up to events and do many other things that has already been seen during the analysis, and with organizers, offering many services that facilitate the preparation of the event. The missing point is the relationship with sports clubs which represent the missing point of conjunction with



Figure 21 – Screenshot of endu.net webpage dedicated to ENDU4TEAM

the previous two actors. ENDU4TEAM offers the possibility to manage every aspect within a sports club from registration to clothing, from payments to inscriptions and merchandising. Everything is integrated in just one platform. This represents a further way to have a touch point with users and understand how sports clubs are structured. Today, there are 160 sports clubs on the platform, while the estimation talks about 14 thousand sports clubs in Italy that work with sports practiced at endurance level. Gelati does not think that all the clubs will use this platform because small teams with few athletes could simply use an excel file. Instead, he thinks that this tool can be useful for all sports clubs with dozens of athletes.

Considering the map of technologies built in the state-of-art, it is possible to assert that ENDU works with technologies of the Macro area identified by Li and Wang. Even if part of the applications or technologies described above were not listed in the literature, they are thought as a support to the organization of the event and, just eventually, as tools for other entities (e.g. ENDU4TEAM allows sports clubs to better manage data on their athletes). The Micro area identified by the two Chinese researchers is thought to include all technologies used by athletes or other people unrelated to the organization: in this sense, the only thing offered by ENDU is its own website which allows athletes to check what the next events are and to register to these.

4.7 Tourism

As said in the previous paragraph dedicated to the analysis of the sports event organization, tourism is one of the business areas on which the start-up is working to enlarge its market. In this sense, the connection with tourism can be seen in the concept of sustainability. Tourism represents for ENDU a business to focus on because it is in a relationship that could become even stronger with sports practiced at endurance level. The objective of the start-up is to become a point of reference for activities linked to sports tourism. Indeed, ENDU operates with local authorities with a partnership that brings benefits for both parties: for the start-up is a source of revenues the organization of an event or at least the involvement in a sports event, while for the local authority represents a means of promoting the territory. This promotion can be transformed into a series of revenues deriving from the increase in number of tourists.

During the interview, the COO of ENDU started to talk about tourism while he was describing the functionalities of the mobile app Never Alone. As already said, this app is used with the idea of tracking people during their activities “en plain air” with a security issue. But it is possible to track something else: based on the fact that the trend of sport activities practiced in

touristic places is growing more and more, ENDU wants to suggest to local authorities to use its support and knowledge in the world of endurance to increase their revenues. The idea of ENDU is to map the footpaths of the municipalities involved within this project and then track them in order to understand which footpaths are the most used by tourists/athletes and consequently work on their maintenance. Moreover, footpaths can receive feedbacks by people that, using the Never Alone application, do not have to worry about their safety.

Another market that is connected with tourism and sport is the rent bike market. According to analysis done by ENDU, Matteo said that this trend must be carefully considered because more and more tourists rent a bike during their holidays and they become sport-addicted. In this sense, Never Alone could be think as a service that track the bike. If it has a problem, the app tells where it is through a sensor installed inside the bike. Gelati said that this is one of the first activities done to approach a new market, different from the one of events organization, in order to enlarge the basis of sports passionate. Moreover, this system works not only for endurance sports, but it could be applied to all those activities practiced “en plain air” for which it is useful the geolocation for security purpose.

The COO of ENDU talked about other dynamics linked to the world of tourism on which the start-up is working. The idea is to focus the attention on few areas in Italy and in Europe in the next 12 months and create coring of information for people that love practicing sports in suggestive locations. ENDU wants to suggest for each location it is working on a series of possibilities in terms of accommodation (e.g. hotels, B&B, etc.), activities and services, in collaboration with the touristic authority of the area. A further aspect is the fact that in this world, cycling represents a niche market characterized by people that often are foreigners and desire a complete pack which include accommodation, tour guide, activities and services. It is possible to assert that ENDU would cover a role of aggregator between distinct players.

A further reason to explain why it is important to consider tourism during the explication of sports, comes from the analysis of some events. For example, the closing of four Dolomites passes registered around 65 thousand people. Estimation said that 70% of these participants were coming from more than 100 kilometers: this means that they spent money for room and board.

ENDU is working on tourism also thinking about foreign countries using two different perspective: the first one is thinking to foreigners, especially those of cold countries (e.g. Scandinavian countries), that come to Italy to do the seasonal adjustment. This happens during the cold months of the year, when practicing outside sports is difficult if not impossible due to

adverse weather conditions. ENDU collaborates with touristic authorities to offer to these people the possibility of training despite the winter. On the other side, Gelati said that the activities offered by ENDU are easily scalable on other countries. In particular the start-up is working to enter the Austrian, Bulgarian and Hungarian markets characterized by few events of big dimension as the marathon of Sofia.

4.8 Business Model Canvas

This part aims to use the Business Model Canvas to make a perfect synthesis of the business of the start-up that has been described. This model has not been explicated in the literature because it is a well-known model to insiders.

- Value proposition: being a facilitator in the world of endurance both on B2B and B2C sides.
- Customer segments: from the B2C point of view, consumers of ENDU are all professional athletes and passionate people with sports practiced at endurance level. On B2B side, there are organizers that ask for ENDU activities.
- Customer relationships: the relationship with athletes enrolled on the website is based on the ability to offer services as a support to a passion. On the B2B side, there is a high satisfaction by customers based on the ability of ENDU to satisfy their requests.
- Channels: the website endu.net represents for sure the first touchpoint with customers. It offers many services, first of all the possibility to sign up an event, and to know ENDU and the endurance sports world through its magazine. A second channel is the application, where photos and results are available immediately after the event.
- Key activities: the main activities have been described few pages above. Here, there is a resume thanks bullet points:
 - Information
 - Registration & Ticketing
 - Photo shooting
 - Timing & Tracking
 - Secretary

- Key resources: competences derived from many areas:
 - Experience on the field: more than 1400 events in 2017 and 1920 organizers have collaborated with ENDU from 2016 till now. 15 years of experience on endurance events coming from companies that have merged part of their business into ENDU and the possibility to have partnerships and collaborations with identity such as Nielsen Sport rather than CONI or the European Community that have many skills on sports issues.
 - Human resources: every year the school MYSDAM/ENDU trains 35 people dedicated to the management of resources during events and other 200 people that works on timing. There are more than 120 photographer, 11 local stuffs responsible to develop services for the territory, 4 teams that work on end-to-end events. 23 people are full time on the project ENDU, and 8 of these have more than 10 years of experience in the endurance world.
 - Technologies: ENDU owns a series of platforms that allow to perform the activities listed before.
- Key partners: ENDU has recently signed a partnership with Nielsen Sports. This is the starting point to develop a series of market analyses.
- Cost structure: the main source of cost is represented by human resources by far. It is relevant also the cost relative to the technologies infrastructures: part of the platforms described in the paragraph dedicated to technology, has been developed by ENDU, that is the owner. Another relevant cost is relative to the development of privacy policy that are fundament when a company works with data of customers.
- Revenue streams: nowadays, revenues come from the ticketing activity which represents the main source of income. ENDU has a commission of 7% on average from tickets that it sells. Then there are all the other activities of photos shooting, timing and so on which represent secondary source of income. There are revenues from all affiliation on which ENDU is working with many companies and start-up on different topics. These revenues come from the fact that ENDU works as facilitator for these firms. Another source of income is represented by the consulting activities that, even if they are not part of the core business of ENDU, count about €60 thousand in 2017. These activities represent less than 10% of the business. Talking about revenues, it is important also to talk about projects with the European Union that is investing on sports.

If these projects start, it would mean an increase of revenues. About this last part of projects with the EU, it is important to understand that they still have to be defined, so nowadays do not represent a source of income, even if it could be in the next future.

Key partners <ul style="list-style-type: none"> Nielsen Sport CONI MYLAPS 	Key activities <ul style="list-style-type: none"> Timing & tracking Ticketing Photo shooting Secretary Information 	Value proposition <ul style="list-style-type: none"> Being a facilitator in the world of endurance both on B2B and B2C sides 	Customer relationship <ul style="list-style-type: none"> Service as a support to passion Customer satisfaction 	Customer segments <ul style="list-style-type: none"> B2C side Athletes and passionate people B2B side Companies that want to enter the business of endurance
	Key resources <ul style="list-style-type: none"> Human resources Event organization Technologies Experience on the field 		Channels <ul style="list-style-type: none"> Website (magazine) Mobile app 	
Cost structure <ul style="list-style-type: none"> Human Resources Technological infrastructures Development of privacy policy 			Revenue streams <ul style="list-style-type: none"> Ticketing activity Photo shooting, timing, etc. Consulting activities 	

Figure 22 – Business Model Canvas of ENDU

4.9 The model by Osservatorio applied to ENDU

In parallel with the use of the Business Model Canvas, it would be interesting to use the model developed by Osservatorio Innovazione Digitale nell’Industria dello Sport, described in the literature, to resume on which topics ENDU focuses its efforts and on which topics ENDU is working for the future.

In the graphic above, there are three colors. The blue cells are relative to activities that ENDU already do, the light-blue cells are referred to non-core activities of ENDU on which the company is working, and finally the grey cells are businesses that ENDU does not want to consider because too far from its core business.

In particular, since the blue activities have already been considered in the analysis and the greys are not interesting, the focus now is on the light-blue ones. Matteo Gelati said that the Virtual Experience represents something to work on, but ENDU has not yet found the right model. Talking about Mobile Fun Experience means talking about engagement and mobile is a key channel because people use it more and more. There are two types of performance measurement: ENDU works measuring tracking performance (e.g. route), while it does not consider physical performances of the athlete (e.g. heartbeat, video to improve the athletic performance). On this second type of performance analysis, ENDU is not interested to develop

its own business, rather it is working with some start-up. About training, Gelati said that ENDU is trying to offer basic packages to people that want to try a new sport for the first time. These packages are realized with a Londonize company called DeBoxx that makes video-pills of 30 minutes during which the trainer tells you what to do, and then you can attend virtual classes activating the frontal camera of your device (e.g. smartphone, laptop, tv). This is a platform with which ENDU is going to sign a partnership. Finally, on Health & Rehabilitation, ENDU is partner of some projects with the European Union, but still this is not part of the core business.

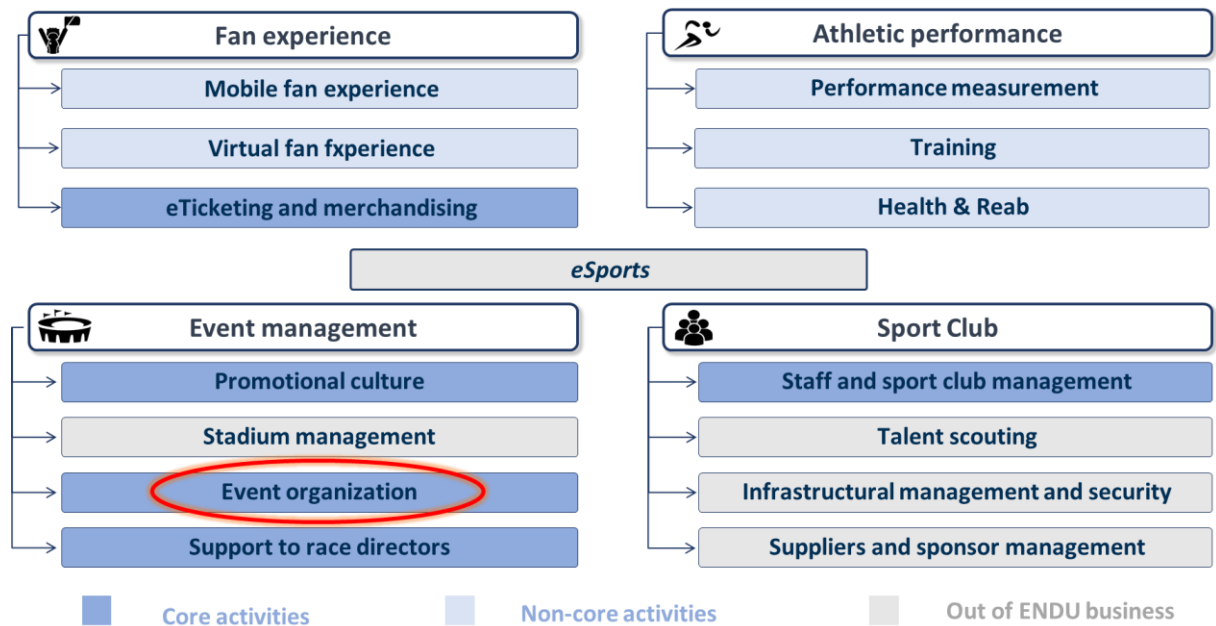


Figure 23 – Model by Osservatorio applied to ENDU

Once more, it is important to remember that even if there are so many blue and light-blue cells, the core business of ENDU is the “Event organization” as it is clear from the red circle in the figure above. It is the starting point of this thesis, while all the other colored boxes can be seen as consequences, activities necessary to be the leader of the market, able to satisfy customers requests. The light-blues, as already said, are boxes on which ENDU would like to invest in the future or represents projects done in collaboration with other authorities or companies.

5 Conclusions

This last chapter has the objective to illuminate the reader with the findings of the research. The aim of this thesis is to understand the organization of endurance sports events. With this purpose, the analysis of the literature at the beginning of this project wants to highlight some points and concepts.

5.1 Literature results

First of all, it wants to explain what endurance means and which sports can be practiced at endurance level: running, cycling and triathlon in primis, but also some disciplines of swimming and winter sports.

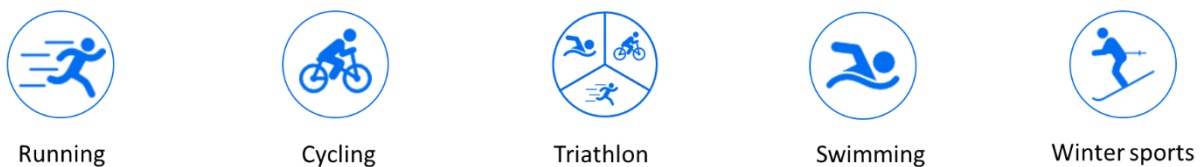


Figure 24 – Sports that can be practiced at endurance level

It does not exist a precise literature about this topic, so it could be derived from analysis on Italian national federations. Data of people enrolled within these federations encourages to think that the market of this sports is growing. In 2016, these people formed an army of over half a million athletes (about 13% of all athletes enrolled within any FSN). In parallel, data about people and their relations with sports show that they are more and more sportif that practice sport activities continuously and less sedentary. In 2016, sport people increase of 4,2% with respect to 2013, and in the same period the amount of sedentary diminished of 2 points percentage. To these results it is possible to add the considerations of ENDU that identifies a population of about four million people that practice sports continuously, at least one time per week.

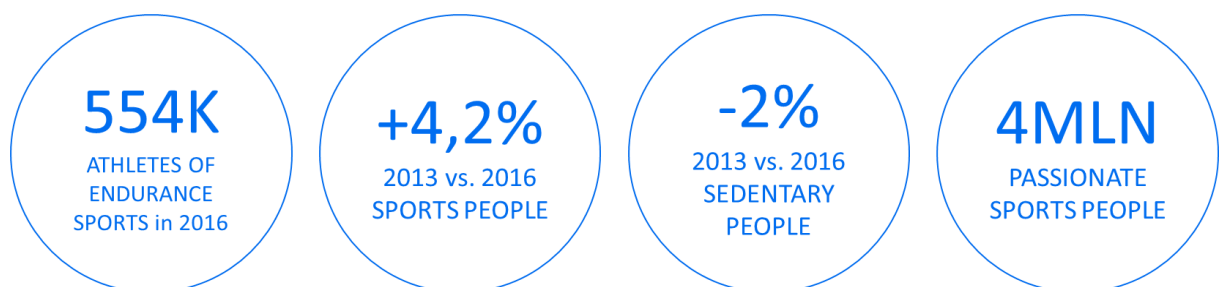


Figure 25 – Data about sports market

In this sense, it is possible to say that the endurance sector deserves a proper analysis, since it is characterized by important disciplines supported by important numbers such those that have been identified. These talk about a population, the Italian one, which is more inclined to the sport practice. Moreover, between the several sports available, Italians that practice disciplines declivable at endurance level represent a growing slice of the market. The analysis done wants to make clearer to the reader which are endurance sports, and which are profiles of athletes that do these sports: numbers and percentages are a support to prove why this research has been necessary.

The next step of the analysis has been on the organization of sports events. What results from the literature is a classification of events and the fact that organizing a sport event is really complex: there are so many activities and there are so many actors involved. For these reasons, in the state-of-art does not exist a model able to synthetize all the things necessary to create a successful event. But all these activities are not realized following a rigid path, a sequence or a step-by-step approach, but rather they are done in parallel under the supervision of many specialists, one for each activity. These specialists assume the role of supervisor and interact with a person that is responsible of everything and can be defined as event manager: this person is the organizer. Due to the fact that, as said, activities do not follow a rigid path, but rather there is a sort of independence between activities, it is possible to consider single activities. These are considered together by the organizer and its team which search for the coordination between them. In this sense, it has been possible to understand this thanks to the study of ENDU, which operates in the endurance sector and has a deep knowledge of what it is necessary in these cases.

This perspective is completed with the analysis of tools that are used to guarantee the success of the event. These technologies mapped in the literature must be thought as a support, and do not want to cover a key role, even if without them no event can be realized. They can be distinguished according to their use: the Macro area includes all tools in the hand of the organization that guarantee the good result of the event: for instance, an intuitive platform for registration makes participants happier which means their satisfaction for the event. On the other side, there is the Micro area which consider technologies used by the single athlete and not by the organizers. Some technologies could be used by both Macro and Micro area, but the purpose is different: social networks are used to promote the event and, for example, be a point of contact for athletes, while they are utilized by athletes or passionate as a channel where sharing their activities (e.g. photos, results, feelings, etc.).

5.2 Sports – activity matrix

These considerations can be seen as the starting point of the matrix developed with the objective of trying to offer a first standardization of the industry of endurance sports events organization. This desire is translated into a matrix that merge two things: on one side, there are sports that has been highlighted before and that, as already said, can be practiced at endurance level. On the other side, there are activities that must be taken into account in order to realize a successful event. About activities, it is fundamental to understand the concept that the company or the authority willing to organize an event has many options. It can organize the whole event on its own and be responsible of all activities, or it could use the support of other firms specialized on one or more activities.

The matrix presented offers five different perspectives of management that a company could decide to follow when involved in the organization of a sport event.

- On the x-axis, there are sports. Ideally the analysis is based on sports identified previously that could be practiced at endurance level (e.g. running, cycling, triathlon, etc.), but the matrix could be valid also for other sports. In this specific case, disciplines considered are those on which ENDU works apart from triathlon which has not been considered since it is a sport that includes other three endurance sports (running, cycling and swimming).

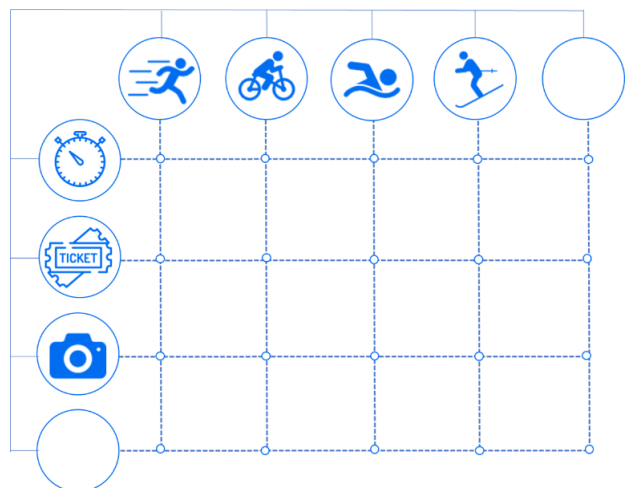


Figure 26 – Sports – Activity matrix

- On the y-axis it has been done the same thing, with activities necessary to prepare an event. These activities could be ticketing, timing, photo and video, secretary and so on. Here on the right, there is the skeleton of this matrix. As done for sports, also here the axis has been built considering the activities performed by ENDU: timing, ticketing and photos are three of the many performed by the start-up. In this matrix, for graphic reason, it has not been possible to list all the activities. In particular, about activities is possible an interesting consideration: indeed, in the case of ENDU, each activity has its

own technology, which can be a platform rather than a mobile app, that support the smooth running of activities.

For both axes, the last circle has been left white: the aim is making clear the scalability of this matrix that can be replied N times according to the number of sports of sports and activities. The construction of this matrix allows to cover two out of the three topics analyzed in the literature, sports and events organization, but the third one, technologies, is directly linked to the activities since these are a support to the realization of each single activity: for example, the activity of timing requires specific tools that measure times of athletes, while the activity of photos and video needs cameras for pictures and then technologies that recognize distinct athletes and made these pics available on a platform or a website, as done by ENDU.

About all these sports and all these activities, it is fundamental to understand that these represent the sports and activities on which the company could work. A given company could have the skills to work on specific disciplines, and maybe decide to develop new competences to enter

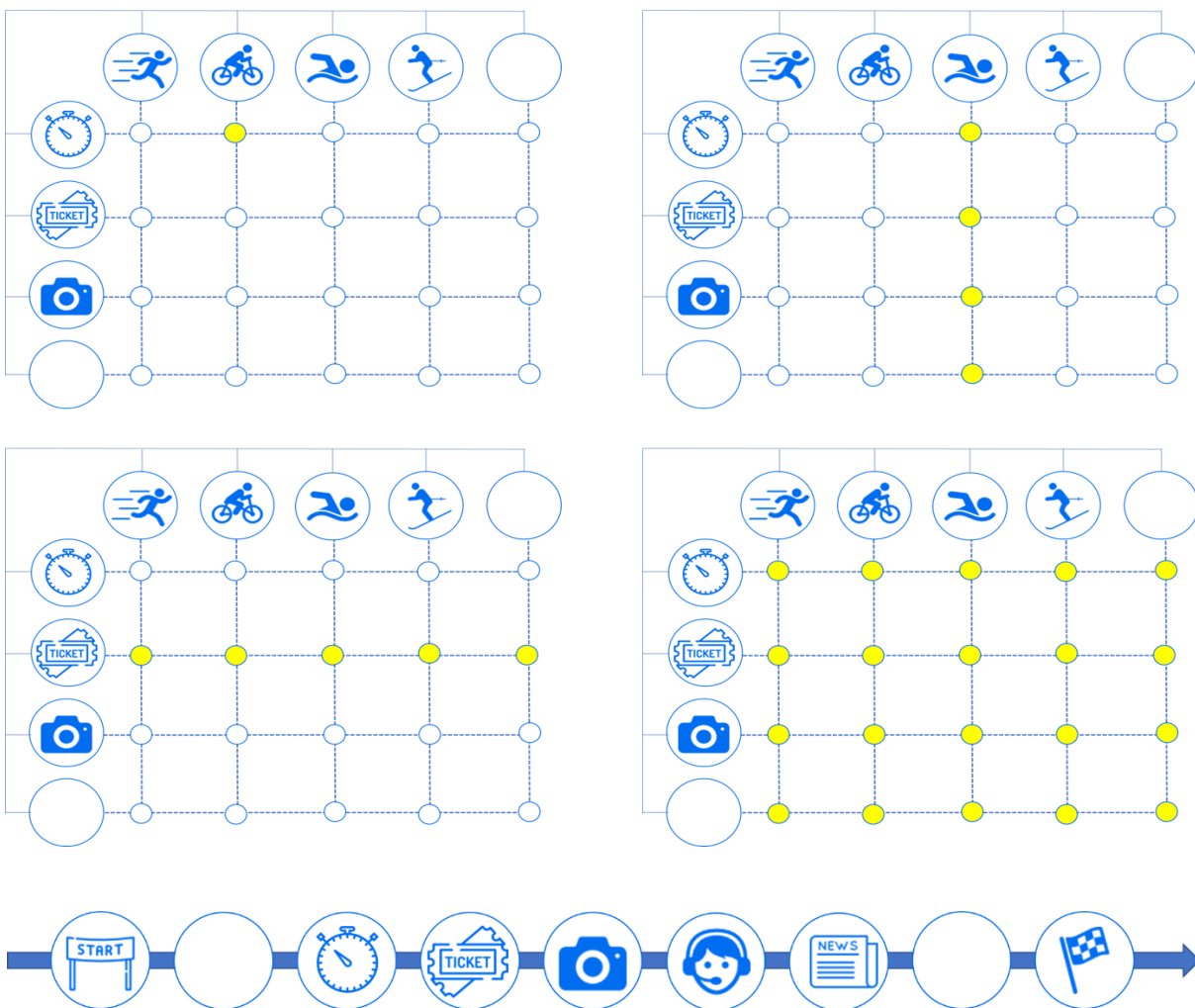


Figure 27 – 5 matrixes of sport – activity management

new sectors and avoid other, with the term “sector” that identifies a sport. The same thing could happen with activities.

Now that the matrix has been defined, it is possible to describe the five different perspectives of management, as it was said few rows before.

Matrix number 1: one activity – one sport

This perspective is the simplest. It is used by firms that decide to focus its business on just one sport and do for this sport one single activity. The company that follows this perspective can offer a high level of service because of the specialization that has acquired on that specific activity for that specific sport. Looking at the matrix on the right, there is as example a company which offers its service of timing for cycling. This means a deep

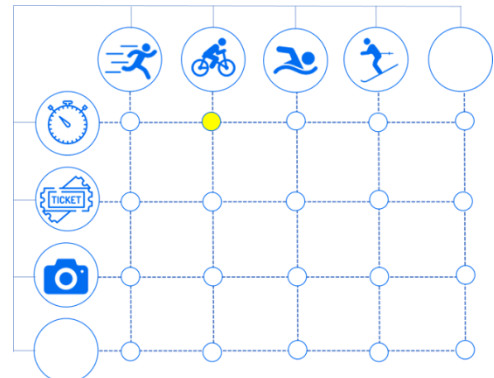


Figure 28 – 1 activity – 1 sport matrix

knowledge of the sub-activities in order to realize a high performance. Doing so, it is necessary a support in terms of technologies: these will be better compared to those of companies that offer more activities. But, in general, the technologies owned by a company that works in such a way could be more innovative than technologies used by other firms that do not follow this perspective. The reason is in the fact that an organizer that asks for the support of such a company, wants to prepare a high-quality event.

Matrix number 2: multi activities – one sport

This perspective is an evolution of matrix number 1. Indeed, companies that use this perspective have a deep knowledge of a single sport, as well as companies that use matrix number 1, but, differently from these, they perform more than one activity. The quality of the activity performed will be lower compared to the single activity performed by firms that identified their business with matrix number 1 due to the fact that the

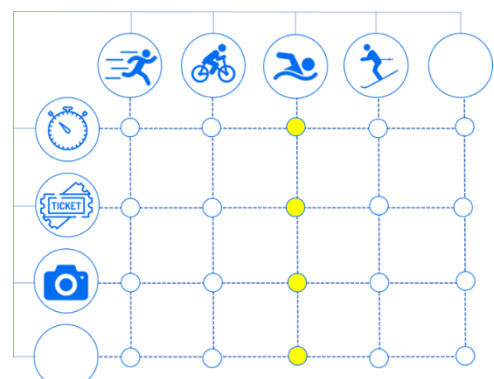


Figure 29 – N activities – 1 sport matrix

firm has to own other competences on other activities. With this perspective, the percentage of involvement of the firm in the event organization is higher and consequently the organizer could invest less time to contact other firms responsible of other activities. These companies own many more competences also on technologies. Indeed, they must know how to use all the

technologies according to the activities performed and consequently they do not have the same amount of time and of money to develop new skills on new technologies. Companies that work with matrix number 1, could decide to focus all its budget on technologies that can be used on one single activity, while companies that use the matrix that has been described now have to invest on many tech devices and innovation.

Matrix number 3: one activity – multi sports

It is possible to say that this perspective is built in a symmetric way respect to matrix number 2. Companies that adopt this perspective have a deep knowledge on one single activity: in terms of technologies that need to be adopted and of sub-activities that must be done to offer a high-level service. On the other side, there are sports, and companies that work with this business model decide to not focus their attention on a single sport, as for the matrix number 1, but instead they are operatives on many disciplines. This missing focus on a sport can be translated into a missing knowledge of that sport, but this does not care to the company that selected this matrix, otherwise it would have decided to adopt matrix number 1. An organizer that is preparing its own event and, according to the matrix above, wants to ask for an expert of ticketing, this perspective would appear the same of matrix number 1. But the construction of this matrix allows the firm to be operative on many more events.

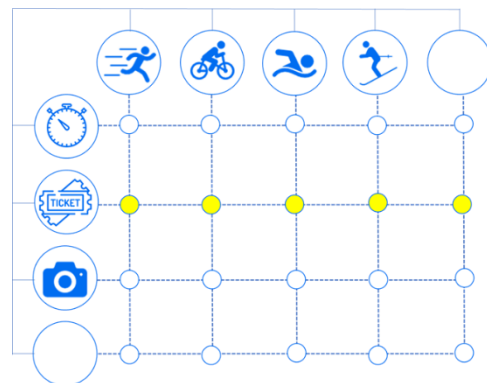


Figure 30 – 1 activity – N sports matrix

This missing focus on a sport can be translated into a missing knowledge of that sport, but this does not care to the company that selected this matrix, otherwise it would have decided to adopt matrix number 1. An organizer that is preparing its own event and, according to the matrix above, wants to ask for an expert of ticketing, this perspective would appear the same of matrix number 1. But the construction of this matrix allows the firm to be operative on many more events.

Matrix number 4: multi activities – multi sports

This perspective represents the most complicated type of business. Indeed, it must be merged the considerations done for matrixes number 1 and number 2. The firm that decides to adopt this perspective works on many activities and on many sports. What does it mean this thing? Competences will not be as high as those of firms that work on a single activity and on one single sport. The company does not have innovative technologies as firms of matrix number 3 and does not own knowledge on a sport as firms that adopt the business of matrix number 2. But it is possible to identify also positive aspects: with respect to matrix number 2, the firm can be operative on many more events, while considering

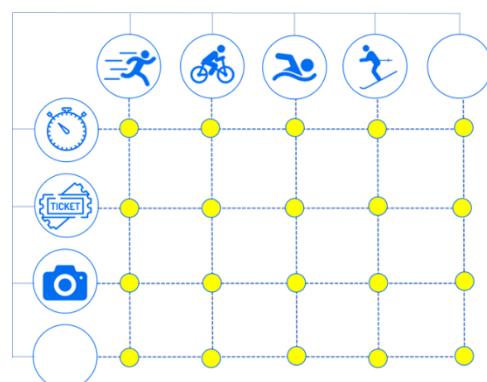


Figure 31 – N activities – N sports matrix

the comparison with matrix number 3, it offers to the organizer more activities. This last thing can be translated with the creation of a pack of activities that the event manager can decide to utilize in order to reduce its amount of jobs. In the matrix draft above, all the intersections have been highlighted, but it is not mandatory the fact that an organizer ask for all these activities. The yellow points represent where the company is active offering its services.

Matrix number 5: end-to-end event

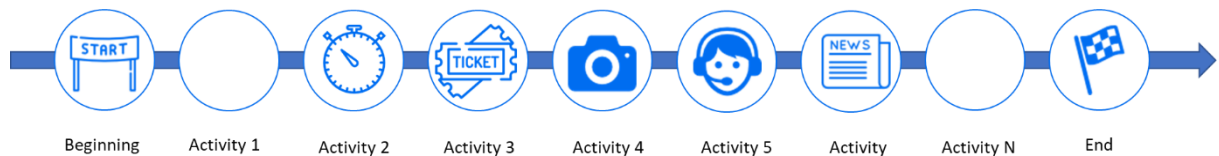


Figure 32 – End-to-end event

It has been decided to call this perspective “Matrix number 5” even if, as it is possible to see, it is not a matrix. It is dedicated to the event created from the beginning and managed until the end in all its activities. The representation above is not the best to explain the organization of an event. Indeed, as it has already been said during the literature, the activities that must be done during an event do not follow a rigid step-by-step approach. In the figure above, there are just some of the many activities necessary to create a successful event because first, it was not possible to consider all of them and second, each event is unique and may present an activity which is not necessary for another event. The firm that follows this scheme is responsible of everything from the beginning till the end: in general, this solution is adopted by firm which is asked to prepare everything and has a lot of competences even if no one of them there is high specialization. On the other side, these companies are characterized by a high level of flexibility which is fundamental because, as said few rows above and in the state-of-art, every event is different from another and so it is not possible to think about a standard structure to be always applied.

5.3 ENDU’s perspective

After this analysis of the five matrixes, the first thing to do is to understand which is the ENDU’s perspective, the start-up from Parma that represented the case study of this thesis. At the end of the consideration, it is possible to say that the business of ENDU is identified by the so called “Matrix number 4: multi activities – multi sports”. Indeed, it operates on running, cycling and triathlon in the majority of cases, but it considers also some disciplines of swimming and of winter sports. Looking at the other axis of the matrix, ENDU offers more than one activity: between the many activities it operates on, they can be identified ticketing, timing, secretary

and others. It is important to underline the fact that ENDU follows this perspective for the majority of events in which it is involved, but not for the totality. Indeed, there are few events completely organized by ENDU with the objective to satisfy requests of a client that wants to promote its business for example. In this case the matrix followed is the number 5: end-to-end event.

At this point there is one question that immediately comes to mind: is “Matrix number 4: multi activities – multi sports” functional to ENDU? The answer is “yes”. The start-up operates in the Italian market which is particularly fragmented and characterized by a low level of organization: this is reflected on many events of small and medium dimension in terms of people involved and mediatic relevance with some exceptions, represented by the marathons of big cities (Marathon of Milan, Marathon of Rome) and other events like the Maratona delle Dolomiti or fun events (POLIMI Run and DeeJay Ten). The perspective adopted by ENDU allows it to be flexible and able to work on different events of different sports and even if it does not have a specialization on one activity or one discipline, this is not a problem because of the nature of Italian sports events. Moreover, this possibility to be involved in the organization of so many events is fundamental to develop the so-called economy of learning: increasing the number of times an activity is done, the experience acquired increased as well, and this allows to perform better and reduce the cost necessary to do that activity. However, this is not the only method used by ENDU. Indeed, in some cases it uses “Matrix number 5: end-to-end event” preparing all activities of event, even if this does not represent a core business of ENDU as said by its COO. In this sense, even if the “Matrix number 5” cannot be considered as part of the core business of ENDU, the ability to operate in such a way is an indicator of high flexibility that allows the company to have working relationships with many organizers.

At the end of the previous chapter, it has been drafted the Business Model Canvas of the start-up that now can be reviewed considering the matrix that describe how ENDU is able to be operative on many sports with many activities. The perspective multi sports – multi activities is for sure between the competences owned by the start-up since it distinguishes ENDU from all other firms that operate in the sector of endurance and, indeed, make ENDU a case of success. As it has been seen in the literature, the organization of a sport event implies the carrying out of many activities: within these, ENDU has a focus on activities that are fundamental for endurance events and not on operations that instead are common also to non-endurance events. An example in this sense is the timing activity which is of fundamental importance: its complexity stays in the fact that the supporting technologies must be able to

recognize arrival of a big number of athletes who can get to the end of the race one very close to the other. It is necessary a precision able to distinguish even a few hundredths of a seconds that in a race can be decisive for determining a victory or a second place.

This flexibility that has been identified, is evident in the rest of the business of ENDU. Indeed, despite the young age, the start-up is already operative on other areas of the endurance market and not only: for example, ENDU proposes itself to athletes and passionate as a platform, residence of endurance passionate that can consult the magazine and evaluate many options to attend next events. The flexibility illustrated is evident when thinking to the model of Osservatorio Innovazione Digitale nell'Industria dello Sport which highlights once more the capacity of the start-up to operate on many businesses and to be prepared to enter other new businesses. It facilitates operations within this market, not only for companies that what a support in the organization of an event and, as seen, for athletes and passionate, but for sports clubs too. The platform ENDU4TEAMS represents a solution for all those teams that used to manage in a simplistic and inefficient way aspects such as data on athletes that may concern key documents such as medical certificates and federation cards, rather than clothing. It is also possible to manage registrations of athletes to events and having a database with all the data of the team staff. This flexibility does not change into a renunciation of quality. In fact, ENDU can count on high-profile collaborations such as with MYLAPS which guarantees a high-quality timing system that is perceived by the athlete-client: the latter can have access to the times and placements, and see what progress is made in the races he got underway.

5.4 Tourism

Following the results of the case study, it is interesting to understand what it is possible to do with these results and the field of application. Tourism is for sure the business where the business model of ENDU can be applied: there are several disciplines that could be practiced “en-plain air” in parks or on the roads of cities. As already said, sports represent a way to promote a location, a territory and its relative culture, and could offer to athletes the possibility to practice their favorite sport in an exclusive location with the opportunity to do many other non-sport activities.

According to the Osservatorio Italiano del Turismo Outdoor, realized by JFC, there are 245 disciplines that can be practiced outdoor in Italy in the period from march to october. The people that do these sport-activities are more than 20 million (20.858.000 people) with different frequencies: there are, as it has been said both in the literature and in the case study, people that

practice continuously and other occasionally. During 2017, of these 20 million, about 32% (6.672.000 people) spent a night out in order to practice their favorite outdoor sport. This thing means revenues for the municipality and for the commercial activities of the area: indeed, passionate that did kilometers to attend the event, spend their money also for an accommodation where to spend the night, restaurant where to eat and try local food and so on. Considering the Italians, about 5 million and a half remained in the national borders, while more than a million decided to have a sport experience abroad. Here below there is the synthesis of these numbers about habits of Italian people in practicing “en-plain air” sports in 2017.

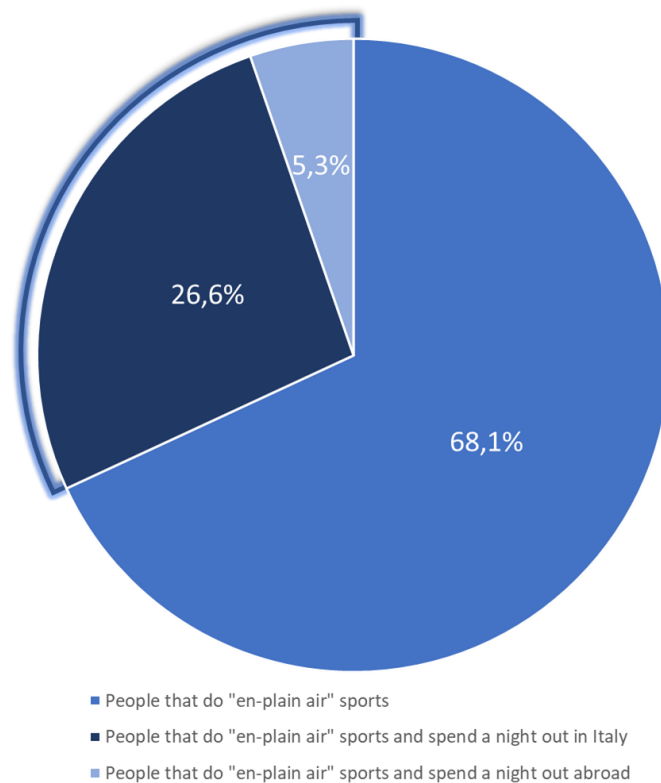


Figure 33 – Habits of Italian people in 2017

These numbers and percentages can be transformed in 4 billion of euro for the Italian market in the eight months, from march to october. Forecast for 2018 made by Osservatorio Italiano del Turismo Outdoor talks about an increase of revenues of 3,9%, which correspond to €4,189 billion. It is positive also the increase of Italian arrivals for sports played outdoor (+4,3%), as well as the increment of foreigner arrivals (+3,2%).

These considerations do not want to simply highlight numbers or revenues, but rather they are important to prove how these two markets, tourism and sports events, are in a close relationship with each other.

Back to the case study, it has been seen how ENDU is already working in this sense, offering different services linked to the promotion of the territory through the use of technology as the app Never Alone that could track mountain paths, rather than the creation of packages that allows the sport-passionate/tourist to discover what a certain location can offer.

Analyzing the case of ENDU, tourism represents a business to explore using the knowledge acquired in the sector of sports events. The idea of the start-up is to utilize endurance events as tools to promote a specific location and help in this sense the touristic authorities of a certain municipality that wants to promote businesses that reside within its area. In this sense, sport is for sure a great mean of aggregation that could move athletes and passionate: people could be incentivized by the opportunity to attend a new event organized in a location where it is possible to spend time with the rest of the family. An example could elucidate any doubt: Vito is a 46 years old computer engineer from Puglia and he practices different endurance disciplines, from running to duathlon, from trial running to triathlon. With the arrival of the summer season he returned to practice in a regular way, after the winter that forced him to slow down because of the cold temperatures. His passion led him to shoot half of Italy: in fact, he was in Bardolino, on Lake Garda, for a triathlon race last month and in april in Stresa for a half marathon. Other events led him to explore the area around Parma, characterized by territories perfect for practicing sports at the endurance level, but also rich in culture and activities for those who prefer to relax at a bike race, and good food at a marathon. Within a few kilometers there is Busseto, birthplace of the composer Giuseppe Verdi who gives its name to the theater and Salsomaggiore Terme, a town renowned for its spa services. And again, Fidenza with its shopping center. In short, Vito can take the family with him during the transfers he does for sport's sake. For the reason that has been explained of the richness of activities and things that can be offered by distinct touristic locations, ENDU decided to study this business and enter thanks to endurance sports events. But, why should a municipality decide to work with a company such ENDU to promote its territory? As said before, sport means aggregation and practicing sports means conducting a healthy lifestyle and following values of respect and cooperation on which the society is built. A touristic authority might decide in this sense to marry the project of ENDU: indeed, it is easier to prepare an endurance event even for a small municipality characterized by few economic and infrastructural resources. While to organize a football, basketball or volleyball tournament, it is required a sports hall or a sports field, for the preparation of an endurance event is necessary something else, such as natural resources that become the field of race.

The start-up is working on many projects: last february it bought the application Never Alone which makes athletes safer thanks to geolocation, which, in turn, can be used by touristic services to control the situation of footpaths in mountain or the maintenance of bikes rented by the local touristic office. In general, ENDU is working in order to be able to offer its services 365 days a year, without limitations due to adverse weather conditions. Travelling has become easier and cheaper, and athletes can move where there are better conditions to practice what was once a job for few but now is a passion for many. In this sense, ENDU wants to offer packages based on a participation to an endurance sport event which include a series of activities selected according to the preferences of the athlete-customer and to what the location can offer.

Of course, Italy is not the only country that can offer so many things, there is a world out of Italy. For this reason, ENDU is thinking to expand its business from the geographical point of view too entering European countries such as Switzerland and Austria due to the nearness of these countries to Italy and the opportunities that can offer: together with the north of Italy, they have beautiful mountains where it is possible practicing endurance activities such as mountain bike or trial running.

The tourism-sport union is positive for both markets: on the one hand, sport can be a means of promoting a tourist resort and the related body can use a sporting event to bring athletes closer to the knowledge of a locality. On the other hand, tourism can provide the opportunity to practice sports and the responsible authorities can make available the use of areas that make sports more suggestive. In this sense, ENDU can be seen as an example for companies operating in the sport sector which want to approach the tourism industry. Vice versa, tourist organizations can understand from ENDU how the potential of the territory can be exploited by hosting a tourist event. The packages on which ENDU is working can be an excellent starting point for working on additional services that facilitate the link between the promoter of the sporting event and the tourist institution. These agreements can result in the sensitization of the passionate tourist-sportsman: one is more and more inclined to practice sport and to lead a healthy lifestyle in exclusive environments such as the Italian ones. In economic terms, this combination of tourism and sport can have different positive impacts: as said, the healthy lifestyle can mean a lower incidence of national health spending, while on the tourism side, sport can represent an additional incentive for those who come from abroad and want to know the beauties that Italy can offer.

5.5 Limitations of the research and further improvements

The first and most important limitation comes from the literature. There are many gaps but the biggest is on endurance sports which can be declined on many points. About sports, there is not a clear definition and identification of sports that can be practiced at endurance level, but rather there are different perspectives that considered together could offer a list of these disciplines. Also, on the analysis of events organization there is a big gap: indeed, while it exists a good classification in terms of dimension and nature, it does not exist the same good classification on activities necessary to organize a sport event. Moreover, there is an evident lack about consideration on endurance sports. For these, the literature is absent and there is not any consideration about activities that must be done or things that must be used to successfully prepare an endurance sport event. The same thing happens with technologies: there is not any description about devices or software to be used for endurance race.

Using what it is written in the rows above, it is possible to derive another fundamental information: the matrix has been built on the analysis done in the literature and so on the sport considered feasible to the endurance level and on the activities that must be done for this type of events, and for this reason the matrix itself will need further refinement as the literature goes deeper into the study of endurance sports.

The second big problem comes from the fact that this research is based on the analysis of a single case study: ENDU, that, even if it represents a successful case, it misses of considerations that might be derived by the analysis of other cases or contexts.

This limitation can be seen as an opportunity of improvement. Indeed, the job done on this start-up represents a starting point to offer, together with the literature, a first insight of what it is and what it does a company that operates in the sector of organization of endurance sports events. This analysis can be applied to other firms with the objective to understand the differences that these companies have in comparison with ENDU, and which are the weaknesses of these, using as basis the fact that ENDU is, as already said, a case of success.

As said, this work does not pretend to fill up the gap met in the literature, but instead it wants to be a beginning to develop further researches and improvements on all three pillars of the analysis: sports, events organization and technologies. Considering this last point, there is ample room for improvements in the analysis: indeed, as it is possible to read from literature, technologies used today can be defined quite “traditional”, while the world of innovation is

evolving so fast with modern technologies such as the artificial intelligence, the blockchain and the application of virtual reality.

The model illustrated does not claim to answer all the facets that have appeared in the literature and these can be points that, if well explained, may complete the literature. The analysis could be expanded to foreign markets and find similarities and differences within the industry of sports events organization. A certain improvement could be done considering other companies as case studies: these firms could identify their business models with other matrixes and give a stronger validation to the model developed in this thesis.

5.6 Contribution to literature

This thesis leaves to the literature a picture of what the panorama of organization endurance is. It is the first work that offers a complete perspective of what organizing a sport event means under the perspective of endurance. Indeed, it has been highlighted which sports can be practiced at endurance level a first analysis of what could be the Italian market. Then a deep analysis of event which started from generic definitions of event and then followed an analysis that identified the characteristics of sports event, concluding with consideration on sports practiced at endurance level. Through all these steps, it has been done a precise classification. As support to these activities necessary to organize a sport event, has been done a map of technologies. Moreover, it has been identified and described the case regarding the unique Italian startup operating in the business of endurance sports events organization. The analysis of the literature and the analysis of the company allowed the development of a matrix, characterized of five cases. In particular, the perspective used to describe ENDU can be seen as a standard representation of ENDU's business, and a point that other companies could decide to adopt to successfully realize events.

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