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**"DEVELOPING PHASES OF ACADEMIC
SPIN-OFFS: UNIRED SRL"**

RELATORE:

CH.MO PROF. GIACOMO BOESSO

LAUREANDA: ROSA MEO

MATRICOLA N. 1102123

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Firma dello studente

Alla mia famiglia

*Grazie a Giusy
per il sostegno e la fiducia
e a Giacomo
per il suo indispensabile aiuto*

Introduction	1
1.The Spin-Off Firm	3
1.1. Defining Spin-offs	3
1.2 Academic Spin-Off Vs Corporate Spin-off	8
2.Academic Spin-Offs	11
2.1. General view	11
Mother organization: University	12
Entrepreneurial: Professors, graduate students, and academic researchers	12
Knowledge and technology transfer.....	13
2.2 Theoretical framework	14
2.2.1 Business model.....	14
2.2.2 Strategic Plan.....	19
2.2.3 Business Model and Strategic Plan	24
2.2.4 Resource framework	26
2.2.5 Stages-based model	30
2.3 Definition of research question and method applied	38
3.Unired Srl.....	49
3.1 Overview	49
3.1.1 History	49
3.1.2 Corporate Identity	52
3.2 Unired’s development.....	57
3.2.1 Research Phase.....	58
3.2.2 Opportunity framing phase	60
3.2.3 Re-Orientation stage	65
3.2.3.1 Market Analysis	66
3.2.3.2 Strategic Plan.....	71
Executive Summary	71
Marketing strategy	74
Royalty System	77
Management System.....	78
The Revenue Plan	79

The Human Resources Plan	80
Financial Data	81
Conclusion	87
References.....	91
Sitography	95

Figures

FIGURE 1 TYPOLOGY OF UNIVERSITY SPIN-OFF	6
FIGURE 2 THE BUSINESS MODEL CANVAS: THE NINE BUILDING BLOCKS	17
FIGURE 3 THE COMPONENTS OF THE STRATEGIC PLAN	22
FIGURE 4 ELEMENTS OF BUSINESS MODEL DESIGN	24
FIGURE 5 RESEARCH FRAMEWORK.....	29
FIGURE 6 THE GLOBAL PROCESS OF VALORIZATION BY SPIN-OFF	31
FIGURE 7 THE CRITICAL JUNCTURES IN THE DEVELOPMENT OF UNIVERSITY SPIN-OFF COMPANIES	35
FIGURE 8 UNIRED'S NET SALES	51
FIGURE 9 COMPOSITION OF UNIRED'S CORPORATE GOVERNANCE	56
FIGURE 10 UNIRED'S ORGANIZATIONAL CHART.....	57
FIGURE 11 BUILDING BLOCKS OF BUSINESS MODEL.....	62
FIGURE 12 UNIRED'S SWOT ANALYSIS.....	63
FIGURE 13 ITALIAN COSMETICS INDUSTRY EXPORTS – TOP 10	67
FIGURE 14 COSMETIC MARKET CHANNELS (2016)	68
FIGURE 15 GEOGRAPHICAL BREAKDOWN OF THE ASO IN ITALY (2017)	70
FIGURE 16 THE STRATEGIC MAP.....	72
FIGURE 17 TREND OF UNIRED'S REVENUE	80
FIGURE 18 THE TREND OF HUMAN RESOURCE	81
FIGURE 19 COMPARED NET INCOME: STRATEGIC VS STABLE PLAN	82
FIGURE 20 SOURCE OF FINANCING: FOCUS ON THE NET FINANCIAL POSITION.....	84
FIGURE 21 THE CASH FLOW STATEMENT	84
FIGURE 22 THE MAIN PROFITABILITY RATIO	85
TABLE 1 DEVELOPING PHASES OF ACADEMIC SPIN-OFF	47
TABLE 2 THE UNIRED ECONOMIC TREND	51
TABLE 3 EVOLUTION OF COSMETICS INDUSTRY 2015/2017.....	66
TABLE 4 TOTAL RETAIL CONSUMPTION OF PRODUCTS (WWW.COSMETICAITALIA.IT).....	69
TABLE 5 STABLE PLAN VS STRATEGIC PLAN	73
TABLE 6 REVENUES AND COSTS DISTRIBUTION BETWEEN UNIRED DIVISIONS	74
TABLE 7 ANNUAL INVESTMENT IN ADVERTISING.....	76
TABLE 8 UNIRED'S ROYALTY SYSTEM	78
TABLE 9 INVESTMENT IN MANAGEMENT SYSTEM.....	79
TABLE 10 PROFIT AND LOSS: MAIN LINE ITEMS	82
TABLE 11 BALANCE SHEET: TOTAL FUNDS INVESTED	83
TABLE 12 RANGE OF SCORE	87
TABLE 13 DEVELOPING PHASES OF UNIRED SRL.....	89

Introduction

Academic spin-offs is receiving more attention in the literature. Recently, the University is developing the “third mission”: the commercialization of academic knowledge. The ASO, acronym of Academic Spin-Off, is defined as a new company created to exploit some knowledge, technology and research results developed within the university. This thesis focuses on the study of the development phases of university spin-offs with the identification of the critical variables. Its goal is the determination of the spin-off’s characteristics and the identification of its business development in order to analyze the real case of ASO: Unired Srl.

FIRST CHAPTER: DEFINING SPIN-OFFS - The first chapter gives a global picture of the academic spin-off and highlight the differences between academic and corporate spin-offs. This section analyzes the different typologies for each kind of spin-off with the related peculiarities.

SECOND CHAPTER: ACADEMIC SPIN-OFFS - This chapter defines the ASOs with the theoretical framework. A better understanding of the new venture creation process, more theory and instruments are connected together: business model, strategic plan, resource-based view and stage-based model. In combining, these elements may provide a more understanding of the academic entrepreneurship process.

THIRD CHAPTER: UNIREL SRL - In the final chapter, the concepts defined in the previous part are applied to the spin-off of University of Padua namely Unired Srl. This section studies the information regarding the identification of the company with the related development process. The application of the theoretical model to the real case helps to determine the stage in which Unired is located with the study of the related variables. After the identification of existing development step, we conduct the forecast of the future growth with the strategic plan. This document covers the next three years (2018-2020) and it is based on the new strategy that we are established.

The Spin-Off Firm

1.1. Defining Spin-offs

The term “spin-off” is used to indicate a new business entity created to develop specific technologies and knowledge, and the main scope is to exploit these elements through the establishment of new venture using the competences developed in the parent organization. In general, the spin offs can be defined as a company founded by one or more individuals transferred from mother organization to exploit the technical knowledge gained. The transferring knowledge represents the key element of new venture and it can take the form of a licensing agreement, an intellectual property sale or a contribution as intangible assets in exchange for share (Goldfarb and Kenrekson, 2003; Grimaldi and Grandi, 2005; Markman et al., 2005). A spin-off is properly a new company, independent from parent organization. The actors of spin-offs not necessary have to leave the large organization, indeed, they can work in both entities. So, the new venture is founded on the business idea developed within the parent company. Teece (1988) sustains that the spin-off may combine the advantage of maintaining the small dimension and utilizing assets of a large corporation. The creation of the new venture permits to develop new ideas and technologies that otherwise the big corporation is not able to develop.

We can identify two typologies of spin-offs: one originates from business organization and the other generates by academic research institution. The typologies depend on the nature of mother organization: if the spin-off has a corporate origin, we talk about corporate spin-offs (CSOs), otherwise if it has academic origin, we talk about academic spin-offs (ASOs).

Corporate spin-off sets up when entrepreneur decides to establish new venture. The parent company is an existing corporate in the private sector and it promotes the transfer of technologies and knowledge. The founders of corporate spin-off can decide to develop new activities in accordance with “mother organization” or not. In fact, in some cases the mother company decides to establish a new small firm to exploit some technologies, but in the others case employees decide to leave the original company to create the new venture developing the competences owned. In the context of CSO, the founders of new company have an

entrepreneurial spirit because they are already part of business environment, indeed, the choice to establish the new venture is based on the idea to increase the profits and to maintain the sustainable competitive advantage through the exploitation of new technologies and specific knowledge. To gain the competitive advantage the firm has to introduce innovative ideas to translate into advanced services or products to commercialize in the market. To make this, the research activities are fundamental. In the CSO, these activities have short-medium term, whereas for ASO the research activities are conducted for long term.

About corporate spin-off, it is necessary to distinguish spin-off from spin-out. The spin out is an existing entity separated from a parent organization as a new legal entity with the scope to exploit some knowledge acquired in the origin company and transferred to the new venture. In this case, the big corporation decides to separate a part of business and to establish an independent legal entity. So, the spin-out refers to an existing entities within their parent organization that had obtained an independent status. Obviously, the distinction is not necessary for academic spin-offs because they are new economic entities.

Now we identify the subcategories of CSOs. Parhankangas and Arenius (2003) illustrate the classification of the corporate spin-off firms in terms of the type of transfer of ownership right from parent company. For each type of CSOs, we have different amount of resources and knowledge required. There are three groups of corporate spin-off: spin-offs developing new technologies, spin-offs serving new markets and restructuring spin-offs.

- **The new technology group.** Spin-off develops new technologies for parent company. It organizes independent project with the scope to satisfy the needs of parent company. For these reasons, in some cases, the disinvestment came from mother organization. The scope is to integrate the project of spin-off into mother organization after the success, in fact, the link between new venture and the parent organization remains very strong.
- **The new market group.** In this particular case, spin-off and parent company offer the same technology but refer to different markets. The venture wants to satisfy other target of customer to increase the production volumes, and so the two entities are not direct competitors. The spin-off establishes a new business unit to increase the diversification in the market and capture new clients. The parent organization supports the new venture into business activities, in order to obtain a part of spin-off's success, the mother organization acquires ownership share. This type can be used to reduce the market risk in fact other investors can be willing to acquire the spin-off's shares.

- **The restructuring group.** As suggest from the name of these last category, the main scope is the restructuring of the core business of the mother organization. The business activities of spin-off is very close to the business of parent company, but the new venture is an independent entity. The main challenge is to improve the process technologies and to renovate the product in order to increase the level of production. When restructuring spin-off had established its position in the market, it was separated from parent company.

The restructuring and new market group are able to produce products or services and build a new customer relationship, because of the capacity to develop complementary resources of parent company. Whereas, the new technology group refers to the market served by mother organization and so the products are restricted to their target customers. Each types of spin-off develops new technologies and so operates with new knowledge different from origin business.

We illustrated the CSOs' characteristics and their typologies. Now we focus on the Academic spin-off (ASO), then we will identify different types of them.

Academic spin-off is a new venture born by university and public entity. The founders are academic employees, graduate students or researchers. The new venture exploits the technologies and the specific knowledge developed in the academic environment. Generally in the ASOs, there is a lack of business competences and so, the capacity to maximize the commercialization of the new technologies is low. These happen because the founders and actors of the spin-off are specialized in their competent area such as pharmaceutical, biological competences. Obviously, the university is favorable to set up new venture because the company gives the opportunities to develop the technologies with economic return. Such as CSOs, the ASOs have the support of the mother organization that is the University: it provides resources as laboratories, capital, knowledge, reputation, etc.

We can identify different types of academic spin-offs, and these depend on the criteria utilized to make it. Carayannis, Rogers, Kurihara and Allbritton (1998) determine the first classification of ASOs. They recognize five types of university spin-off:

- the founders of spin-off are the employees of university and there is not the technology transfer;
- the core technology is developed in the other organization and it is not transferred to the spin-off;
- the founders are not employed by university and the spin-off creates a core technology;

- the spin-off does not create the core technology but uses the resources of university and the founders are not university’s employees;
- the core technology comes from university and the founders worked for mother organization.

The previous classification of ASOs is very generic and so we decide to show others more recent. Pirnay et al. (2003) analyze two aspect of ASOs: the nature of knowledge transferred and the entity of founders (see Figure 1). In relation to transferred knowledge, Pirnay et al. identify service-produced spin-offs and product-oriented spin-off. About the nature of the founders, they notice that both researchers and university students can decide to establish a spin-off to exploit the intellectual property. Mixing the two identified dimension together, Pirnay et al. determine four different types of academic spin-offs.

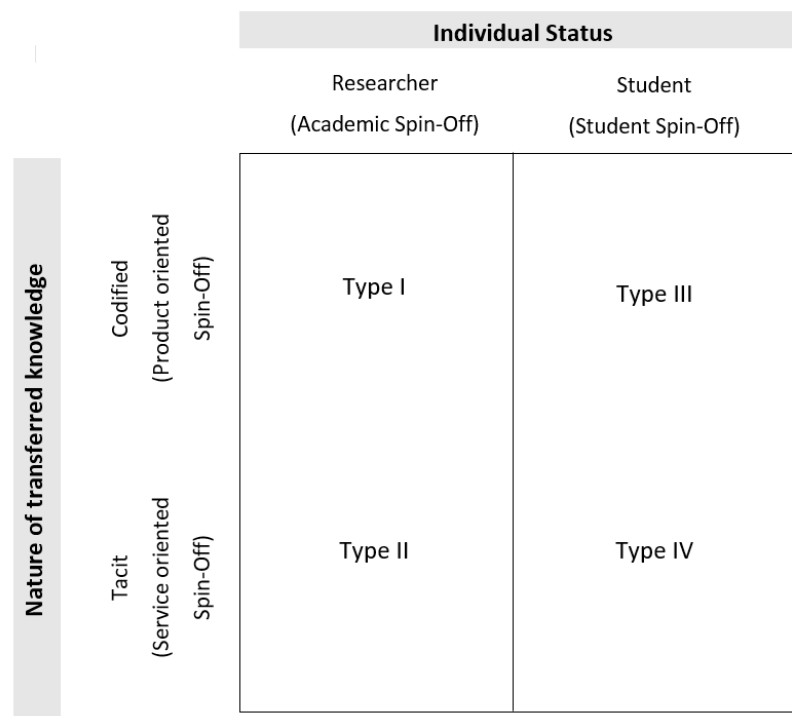


Figure 1 Typology of University spin-offs

Other criteria can be utilize to classify the ASOs. Hindle and Yencken (2004) introduce another classification of academic spin-off in term of relationship between spin-off and mother organization. The four categories identified are direct research spin-offs, technology transfer companies, indirect spin-off companies and student spin-off.

- **Direct research spin-offs** created to commercialize the intellectual property of mother organization. The transferred knowledge happens when Intellectual Property Right pass from university to spin-off via legal measures: patent, license, royalties.

- **Technology transfer companies** created to exploit the tacit knowledge of university, also called *Tacit Knowledge spin-off*. The university supports the new venture as direct research spin-off. The difference is focus on tacit knowledge: the founder of spin-off has tacit knowledge given by his experience and skill developed in the academic environment. The characteristic of this type of knowledge is that it does not require the formal transfer.
- **Indirect spin-off companies** created by former staff or student with experiences acquired during their academic carriers, without formal links with university. The new venture is an independent entity without the support of university based on the knowledge acquired during academic carrier and experience.
- **Student spin-off** created outside of existing company. Ndonzuau et al. (2002) sustain that this company is based on ideas and knowledge gained during university course. The students as founders do not receive support of mother organization. The university supports the student in the project only if it believes in their research to make profit.

To summarize, there are two types of spin-offs: academic and corporate. Each types can be classifies in different way given by the criteria selected. If we talk of spin-off in general, we know that both want to exploit the knowledge and technologies. Starting from this common element, we can obtain new venture that on one side wants to valorize the research result and on the other side wants to develop the new technologies. When the two entities are mixed together, a sort of agreement is required to manage the resources that the entities offer. Hertzfeld et al. (2006) sustain that is necessary an agreement related to intellectual property right because both invest in knowledge and expertise. In fact, both parties transfer tacit and codified knowledge. We can see this mix of academic spin-off with corporate spin-off as a hybrid spin-off.

1.2 Academic Spin-Off Vs Corporate Spin-off

There are a lot of explanation that justify the differences among the spin-offs; the distinctions derive from their origin, the nature of their founder, the reason that drive the creation of new venture and the nature of transferred knowledge.

Nature of the mother organization and founders

We notice immediately the nature of the mother organization: for the ASOs there is the university, whereas for the CSOs there is an existing corporation. Consequently, there are vary types of founders: the corporate spin-off is founded by employees or entrepreneur/manager moved from parent company; for academic spin-off, we distinct two principal founders: students or researchers. This aspect is important because the students do not have access to all university resources (Pirnay et al., 2003). Obviously different is for researchers who decide to set up the spin-off because they have access to the laboratories, equipment, raw material, human resources, financial capital, etc. The university plays a key role in the initial phase for funding, knowledge and networks, and it adds value because of specific knowledge links to new technology and academic's reputation. The nature of founders for academic spin-off make the difference as discussed before. In the initial R&D phase, we notice that for ASOs the founders are researchers (academic actors) who conduct the research and they follow the university intellectual property rules (IPR). Whereas for CSOs the analysis are conducted by IP units and in the R&D phase, the employees follow labor market laws. The IP strategies consist in to protect the business idea.

About the composition of the shareholders. In the ASOs, there is the university with share capital, but also the founders with their participation of capital. This not excludes the possibility that external investors decide to invest their capital. For the CSO is different because the big corporation's employees establish the new venture, so there is not the presence of university, and the founders try to attract the external investors to found capital, enlarge the network and to share the market risk.

The reasons

Corporate spin-off generally aspires to increase its volume of sale and to enlarge its clients because it wants to capture all possible commercial opportunities. To settle small company gives some advantages such as more flexibility, less bureaucratic burden and development of new technology. The CSO wants to develop advanced technologies in order to serve different

market and this is justified by the founders' willingness to become stronger entrepreneur. Whereas there are different reasons in the university environment because there is not the willingness to become entrepreneurs. The university actors are oriented to scientific result and not commercial opportunities. The reason that justify the settlement of ASO is personal: prevail the personal motivation to succeed in gaining commercial value from research results, even if researchers do not have economic competencies.

The nature of transferred knowledge

The founders confer to the spin-off codified and intangible knowledge. The transferred expertise is not fix for the new venture. The quantity and quality of these resources vary and they affect the economic performance and growth of spin-offs. Both types of spin-offs use legal protection as patent, license or copyright to protect their knowhow. The creation of a trademark protection wants to avoid the risk that competitors copy the technology.

Each type of spin-off has different way to exploit intellectual property and the way though the idea becomes a commercial opportunity. The difference is given by the technology exploitation process and by the choices in term of skill used. The exploitation process follow the stages of development phase introduce by Ndonzuau (2002). He sustains that there are four stages for the transformation of research result into economic value: 1) Generation of the business idea from research; 2) Finalization new venture project out of ideas; 3) Launch of spin-off firms from projects; 4) Strengthening the creation of economic value by spin-off firms. The stages identified by Ndonzuau are valid for all type of spin-offs. In general, the establishment of these new ventures start from a business idea, and after the idea is transformed in the project. If the project is valid, the founders decide to set up the spin-off to create the value. This general scheme represents the basic step that the new company has to follow and so it is not specific only for academic spin-off. This theory highlights the process that explain how new idea become a real business opportunity through a spin-off firm. Occur to direct our attention to the fact that there are more theories on the development phases, but the principal steps of development remain the same. The stages focus on the fact that an idea could become a business opportunity.

Vittorio Chiesa and Andrea Piccaluga (2000) conducted a study of a sample of 48 ventures, to identify the profile of spin-off companies in Italy. Most of them are set up by university, only few cases are settled by private sector. Majority of these firms produce services with the commercialization of intellectual property and the promotion of new business activities.

Initially the main common problem for these entities is to found capital to start the business.

The academic spin-off respect to corporate spin-off has the following added obstacles:

- The lack of capacity to analyze the market and capture the economic opportunities.
- The background of founders is technical to the specific yield of competences, this explain because they do not have commercial knowledge.
- The difficulty to acquire commercial competences, to understand the dynamic of the market, to capture the business opportunities and to select an appropriate distribution channel.
- The personnel are R&D oriented.

Whereas, the corporate spin-off's members know the business environment but they do not have the specific knowledge as researchers, and their research activities has short-medium orientation.

In this chapter, we introduced the spin-off in general: we illustrated the two typologies of the new venture with the related sub-classification and then we studied their differences and their common ground. From this point on, we will focus only on the academic spin-offs, and in the next section, we will analyze the theories that explain this phenomenon. We anticipate that does not exist a unique theory that study this entity.

Academic Spin-Offs

2.1. General view

Originally the University was an institution created for teaching and research. In the recent years, this institution is entering in the business area: it is involved not only in education, research but also in the economic and social development through technology transfer process. Scientific and managerial competences of a university should be harmonized to establish an entrepreneurial university and the systematic transfer of knowledge through technology transfer, continuing education and adjustment to labor market replaces the classical missions of research and education (Zaharia and Gilbert, 2005)

This evolution introduced the concept of “Academic Spin-Offs” or “University Spin-offs”.

In the literature, the term *Academic Spin-off* has different definition according to the evolution over time.

Carayannis, (1998) suggests that ASO is a new company formed by individuals who were former by employees of a parent organization (the university) around a core technology that originated at origin business and that was transferred to the new company.

Similar to the previous ones, Shane (2004) defines an academic spin-off company as “a new company founded to exploit a piece of intellectual property created in an academic institution”.

Djokovic and Soutaris (2008) talk about ASOs as “New Technology-based firms”: they commercialize the intellectual property and transfer of technology developed with academic institutions.

Vincett (2010) sustains ASO as a new firm founded to exploit the results of research conducted in academia and is considered very important for economic growth because of their positive impact on the processes of technological change and economic development.

In this elaborate we specify our definition of academic spin-off as:

“research-based spin-offs are defined as a new companies set up by a host institute (university, technical school, public/private R&D department) to transfer and commercialize inventions resulting from the R&D efforts of the departments” Rogers (2000).

All these definitions suggest three common elements that characterized ASOs: mother organization, entrepreneur and knowledge transferred.

Mother organization: University

When the university has the role of the mother organization, we talk about academic spin-offs. Institution covers this position because decides to enter in the business to commercialize research. The spin-off's success depends on the technological knowledge acquired in the academic environment, for this reasons the university has an important role. The university transfers the technological knowledge and also plays a role as incubator: it supports the ASOs with space office, laboratories, students, advanced knowledge, raw materials and capital. When the spin-offs enter in the market there is not information about its and in this circumstances there is uncertainty about ASO's credibility and innovative product's success. The immediately consequence is that the potential investors do not have the incentives to invest in the new firm, but this problem can be reduced by the presence of the University or better by its reputation. In this way, the academic actors connect their image to that of university. The mother organization helps the start-up to lend its credibility and its contacts, however its role is not only technical but also social. The presence of academic institution creates benefits and supports the ASO's growth (it offers financial resources, knowledge, human capital and equipment with raw materials) but not in all development phases, indeed it can create obstacles over time, however we will analyze this aspect beyond.

Therefore we sustain that the mother organization is an important resources for all the aspects treated above.

Entrepreneurial: Professors, graduate students, and academic researchers

ASOs' success depend on the capacity of the academic actors/employees to act as entrepreneur. The researchers, professors or graduate students who create a new company, generally they do not have a business competences and knowledge to manage it. This evidence exists because they have a specific knowledge only within their competent area such as agriculture, biomedical, pharmaceutical, etc. The purpose of ASOs is to create profit with the commercialization of the university research through technology transfer process but the academic institution is non-commercial environments, there is a lack of entrepreneurial experience. The entrepreneurial behavior is fundamental and all staff members must have it.

Academic actors shall be able to assess the economic potential of new technology to commercialize and to satisfy the market's needs. One solution to this problem is to create a collaboration with other industries and to reach out of university environment. The founders of academic spin-off no necessary are researchers or students. For Francklin, Wright & Lockett (2001) we talk about university spin-off even if an external entrepreneur establish new venture. This case occurs when the academic organization sells technology to new company set up by external entrepreneur to exploit the university's technology. So the presence of researchers and students as founders is not a necessary condition to talk about university spin-off.

Knowledge and technology transfer

From the late 1960s, when new information technology (IT) industries emerged, that scholars began to scrutinize the technology transfer mechanisms that led to the direct commercialization of university research through firm formation (Landstrom, 2005). The mechanism of expertise transfer from university to new venture occurs when the researchers decide to establish the ASO.

There are two types of knowledge transferred: tacit knowledge and codified knowledge.

- *Tacit Knowledge* refers to the personal knowledge accumulated by individuals during program of study and personal experience. This knowledge is associated to each individual and it is very difficult to transfer, and it concerns the capacity of individuals to identify idea to transform into business opportunity.
- *Codified Knowledge* represents the results of research activities such as scientific publication, innovative report. Competitors can copy this knowledge and to avoid this situation the ASOs have to protect the knowledge with legal means (patent, copyright, etc.).

The University helps the entrepreneur in acquiring technological knowledge to develop products or services that are commercialized by academic spin-offs. The academic organization provides the access to financial resources, intangible and tangible assets in the form of knowledge, raw material, the use of academic equipment and human capital.

To connect university knowledge with the new ventures many approach are considered. Following paragraph shows different theories explaining university spin-offs and the development stage process.

2.2 Theoretical framework

In the literature does not exist a unique theory that explain the academic spin-offs. There is not the conceptual framework about the identification of several stages of Entrepreneurial Universities, for this reasons we consider different theories: the Resource-based view, resource-dependence view and the stages-based model. In the following paragraphs, we will study the resource-based view with related path dependence theory. Next, we will analyze stage-based model to explain the development phase process. Before we introduce two process: business model and strategic plan that we will find in the development process. They are the key factors that conduct to success in start-ups, because they provide the starting point that allow the venture to maximize its profits. The combination of all these elements tries to clarify the structure and the development of new company.

2.2.1 Business model

The business model notes the static structure of firm's organization, production technology and the resources; also defines the key transaction with the external entities and finally determines the expectation, rules and mechanism that want to reach the company's value creation and capture opportunity. Markides (2008) sustains that the business model may represent a form of entrepreneurial opportunity creation that exploits the technology to create the value.

It describes the company's position within its industry's value chain and how it organizes its relations with suppliers, clients, and partners in order to generate profits.

Before starting to describe the business model, we want to highlight the difference between business model and business plan. The first one examines the new company, defines the main topics for the value creation and its development, whereas the second one is a document that translate the company's position in a series of strategic actions and also quantified their financial impact. The business plan is a document that describes how the business can achieve its objective. It summarizes the operational and financial scope of the company and it presents a portrait of past, present and forecasted performance. The business plan is essential to understand if the company's business model is valid. The components of this document are:

- Industry overview that describes the company's situation
- Market analysis that study the market and determine if there is sufficient demand of services or products
- Competitive analysis that determines the weaknesses and the strengths of rivals
- Marketing plan that can improve the image of the company

- Management plan that shows if the team member are appropriately skill people
- Operating plan that identify the resources required to make the business
- Financial plan that show the funds required and the type of funds to acquire.

The people interested to the business model are managers and entrepreneurs, who want assess the firm. Druilhe and Garnsey (2004) determine that spinoffs modify, refine and develop their business model as they improve their knowledge of resources and opportunities. The model wants to realize the entrepreneurial objectives and so it focuses on execution, goals and ideas. It realizes the innovative idea with the identification of commercial opportunity, and then it establishes the goal that impacts on the firm's actions; but it considers also the evolution of team's skill, resources owned and the organizational structure that create value by exploiting the economic opportunity.

Now we analyze six aspects that the business model has to cover:

- **Organizational design**

The organizational structure depends on managerial competences, choice, product, and innovation used. Hunt (1970) sustains that mangers determine the organizational framework accord to the output produced, the activities involved and the market. The role of business model is to plan the corporation to avoid inefficiency in the firm.

- **Resource-based view¹**

Eden and Ackermann (2000) define the business model as the dynamic capability that links the firm's distinctive competencies to organizational aspirations and outcomes. Garnsey (2008) suggest that the RBV links the business model to resources acquired and their allocation, so this model identify the financial, human and social resources required for the firm's activities and determine their consume to gain revenue.

- **Organizational Narrative and Sense-making**

This aspect wants to explain how the enterprise works and so to understand and interpret organizational behavior. This is an important view because defines the evolution of firm

¹ Wernerfelt (1984) introduced the resource-based view in which he focuses the attention on the company' resources. The resources are heterogeneous and they can create the competitive advantage. To make this, we have to consider the development resources process and the skills required to exploit them.

and to interpret the social world. In addition the narrative sense making describes and clarifies the novel, unexpected or confused events. The firm's stories create a sustainable structure for sharing knowledge and connecting the information.

- **Innovation Form (the nature of innovation)**

Chesbrough & Rosenbloom (2002) study the business model as innovation form and they describe it as

“a coherent framework that takes technological characteristics and potentials as inputs and converts them through customer and markets into economic outputs. The business model is conceived as a focusing device that mediates between technology development and economic value creation.”

The business model considers the link between technologies as input and the related process innovation changes over time to produce advanced products. In conclusion, Andries and Debackere (2007) sustain that the business models adjust in parallel to firm's life-cycle evolution, it evolves over time because it is affected by the dynamics that drive the development.

- **Opportunity Facilitator (the nature of opportunity)**

For this point of view, we focus on the fact that the aim of the business model is to identify the opportunity and to exploit them, but also to select the factors that affect the value creation. Heriman & Clarysse (2004) want to clarify that if the commercial opportunity is uncertain, the optimal business model cannot be determined.

- **Transactive structure**

The transactive structure is described as productive framework in the business model. It assesses the strategic growth investment, the firm behavior, economic opportunities and vary factors that influence the value creation. With the productive structure we want to understand how the firm can generate revenues and we determine the key transaction with external actors.

The business model is specific for each type of industries and it changes over time such as the resources, knowledge, skills and capital required for development. The business model matured

through development phases. It is a plan that organizes the resources and products to create the value, the model mixes the resources and organizes the activities for exploiting them.

In general, the business model describes how an organization intends to create, deliver and capture value. In order to facilitate the understanding and use of the concept of Business Model, the Business Model Canvas was created and it will allow companies to map out the business.

To draft the model, we have to consider the variables that affect the value creation in fact the business model covers the main area of business that are customer, offer, infrastructure and financial viability. The Business Model Canvas analyzes nine basic blocks that cover the previous business area and these are customer segment, value proposition, channel, customer relationship, revenue stream, key resources, key activities, key partnership and cost structure (see Figure 2).

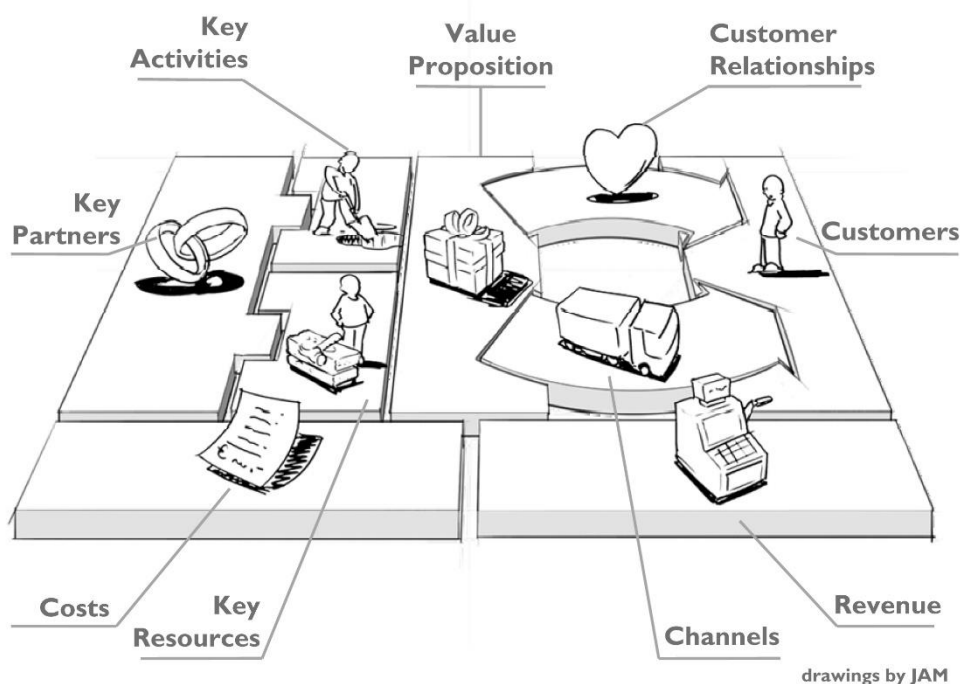


Figure 2 The business model Canvas: the nine building blocks

Initially, we have to identify the customer segments and consequently, their needs to satisfy. The identification of the group of people as customers allow the company to define the offers (value proportion), highlight the need to satisfy, select the channel that in a better way can reach the clients and identify their willingness to pay. Based on the requirements of a specific customer segments, the company selects products or services to produce. The realized product

or services have to reach the customers through the distribution channel. The primary function of the channel is to deliver the product to the customer, but also the channel permits to provide the post-purchase customer support, to increase the awareness of the products/services and to help the clients to evaluate the quality of the output produced respect to others sold by competitors. When the company contacts the customers, it chooses the channel to communicate and decides the type of relationship among them. The company has to clarify the type of client relationship because each customer segment has vary features that suggest the appropriate channel distribution and customer relationship. Some examples of relationship are personal assistance, self-service, communities, automated services and co-creation.

From each segments, the firm wants to obtain a cash and the level of revenues generated from each of them is called “revenue stream”. To sustain the production and consequently to produce the profits, the venture must have an appropriate quantity of assets necessary to work. These assets can be physical, human, financial and intellectual; all of these are necessary for the production and the company has to manage them to make business. When the company has the required resources, it organizes these key factors and establishes the main activities that consist in organization of the production, making and delivering products and developing the capacity to solve the problem (problem solving).

Before, we talked about the customer relationship, but we have to consider also the relevance of the connection between the firm and externals such as suppliers, partners and other business entity. All these contacts are relevant because the company’s network affects the development of company. Finally, the model has to estimate all costs sustained to make business.

The business model analyzes each aspect of the enterprise and describes how it can create, deliver, capture the value and formulates the competitive strategy to gain the advantage over rivals.

The business model’s functions are:

- definition of the value proposition;
- identification of a market segment;
- description of the structure of the value chain;
- forecast of the cost structure and potential profit;
- identification of the position of the firm;
- formulation of the competitive strategy.

Anna Bialek-Jaworska and Renata Gabrylczyk (2016) apply the business model structure to the commercialization of R&D results, and they identify six components of business model: value

proposition, key resources, key activities, customer segment and relationships, profit potential (structure of revenues) and additionally firm survival activities. We can notice that they added the element called “firm survival activities” that focuses on the protection of R&D activities until the moment of commercialization and sales. The business model developed for the spin-off firms has to attract external resources of finance, technical and marketing capability to deliver innovative products and services. The ability to acquire these resources is linked to the firm’s credibility that must be established and maintained, indeed the credibility permits to attract new funds, resources and advanced human capital. We can sustain that in the early stage it is important to maximize the use of resources, to gain finance and establish the collaboration with external partners who have already stable position in the market.

To sum up the business model identifies the key operations that the company realizes to generate profits, but it does not provide the steps that the firms has to follow to make money and it does not explain the cost required to create and provide services. These aspects are determined by the strategic plan that defines the actions and operation that the company has to make to achieve its goal. It explains the steps, process and changes that the firms will follow. In the following section we will explain this instrument.

2.2.2 Strategic Plan

Strategic planning helps the company to think, act and learn strategically. It defines the actual action considering the longer-term consequences and it is based on qualitative and quantitative elements that cannot be separated. It impacts on the decision and on the allocation of resources because the aim of strategic plans is to conduct the company in a condition of efficiency and effectiveness but also to improve understanding and better decision making. The strategic planning refers to methodologies, measures and procedures used to define and reach the business’ objective. Obviously, it wants to define and reach the better result for the venture and will have to illustrate the action that permits the achievement of the goals.

The strategic plan can document the environment in which the enterprise works and identifies the factors that affect its business. The process concerns the corporate activities, and it refers to human, physical and financial resources, substantially it guides the main operating choices. The main aim of a strategic plan is to permit management to define in what way the company intends to increase its value. The plan represents the occasion for the manager to define the strategies which have to maximize the company’s value and to create and maintain the competitive advantage.

The strategic plan has to consider the financial sustainability of the plan in relation to quality and quantity of the source of funding that the manager intend to use to reach the main objective of the company. The action planned has to have the possibility to be realized, it considers the resources of company and it is based on the realistic assumption and on the reasonable results. The plan provides the description of the operative strategies and any opportunity for a renewal of the actions deriving from threat and opportunities of the competitive environment. All strategic plan are evaluated on the basis of the assumptions and the financial prospects associated with the strategic choices. The plan must contain a serious of financial schedules, the action plan and the indication related to the contribution of the various business area, the distribution channel, the geographic areas, the customer types, and the products. A strategic plan must indicate the assumption concerning the growth of revenues and the significant operating variables, and also it gives the indication of direct and indirect costs with the evaluation of the capital employed and the assessment of financial structure. The first step in the plan is to analyze the historical data relating to the last three accounting years in order to justify the economic performance. The assumptions depend on the business model of the company and the economic model adopted. Strategic planning helps the process of formulation and the implementation of strategy. The plan describes in detail the strategic choices that should increase the value of the company, and it illustrate the action to achieve the company's objective. Clearly, each action or strategic choice have economic impact and so the plan has to forecast the cost, the investments and other funds required. The plan should contain the impact that the strategic aims have on the financial indicators.

The strategic plan has many scopes:

- To define the strategy to maximize the creation of the value;
- To introduce the improvement of the innovative strategies to create and maintain the competitive advantage;
- To draft the Action plan which permits to identify the corporate activities and in particular the actions as entry in new markets, launch new product, new distribution channel and the expansion of customer portfolio.
- The strategic plan becomes a learning instrument because the management examines the strategy and the actions applied. The review allows the managers to have the possibility to reduce the risk and to identify the possibility to improve.
- To give a picture of strategic choices of company to compare with financial market and to reduce the market risk.
- To define the corporate incentive system linked to the corporate performances.

There are some requisites that we have to respect in drawing strategic plan: the financial sustainability, the consistency and the reliability.

Financial sustainability refers to the sources of funding that management want to use for achieving the strategic objective. The financial sustainability occurs when financial resources of the company are able to sustain the achievement of the strategic objectives. It is necessary to forecast a correct estimate of funding required.

Consistency relates to the consistency of each aspect of strategic plan. We talk about consistency only if the elements of strategic plan are aligned together. The elements that we consider as part of plan are:

- strategies pursued;
- strategic aims;
- the action plan;
- assumption;
- financial situation with its forecast.

We will analyze these component later. The lack of consistency occurs when Action Plan does not respect the strategic aims, so the action does not permit to achieve the objectives fixed. Another situation occurs when the assumptions are not reliable with the company's nature and the forecast data are not coherent. If some elements are not logical, we have to review the strategic plan to obtain the congruence between each elements. The consistency also refers to the realization of the Action plan respect to current and required resources.

Reliability refers to the assumption of the strategic plan that must be realistic and justifiable. We classify the assumptions as realistic only if we can compare them with competitive context. If exists elements that are not comparable with competitive context, this situation does not mean no-reliable assumption, because the reliability of the plan can be supporting from the illustration and description of the elements that are coherent with historical data, forecast data or with sensitivity analysis². The credibility of the plan not only is linked with competitive context but also in relation to the historical data, the forecast data and, finally, with the sensitivity analysis.

² The sensitivity analysis is a technique used to simulate the input variables (sales, cost, etc.) to estimate their effect on the company's profitability. It identifies the critical factors that affect the firm's growth, and studies how sensitive the model is to the input variable. The analyst creates different scenario, he adjusts the input variables to see how the output are affected.

To summarize, the main objective of the strategic plan is to define in what way the company intends to increase the value created for the shareholders. To pursue its objective, when we draw the strategic plan we have to respect the three requisites that we illustrated previously. Now we analyze the structure of strategic plan because we have to consider some elements.

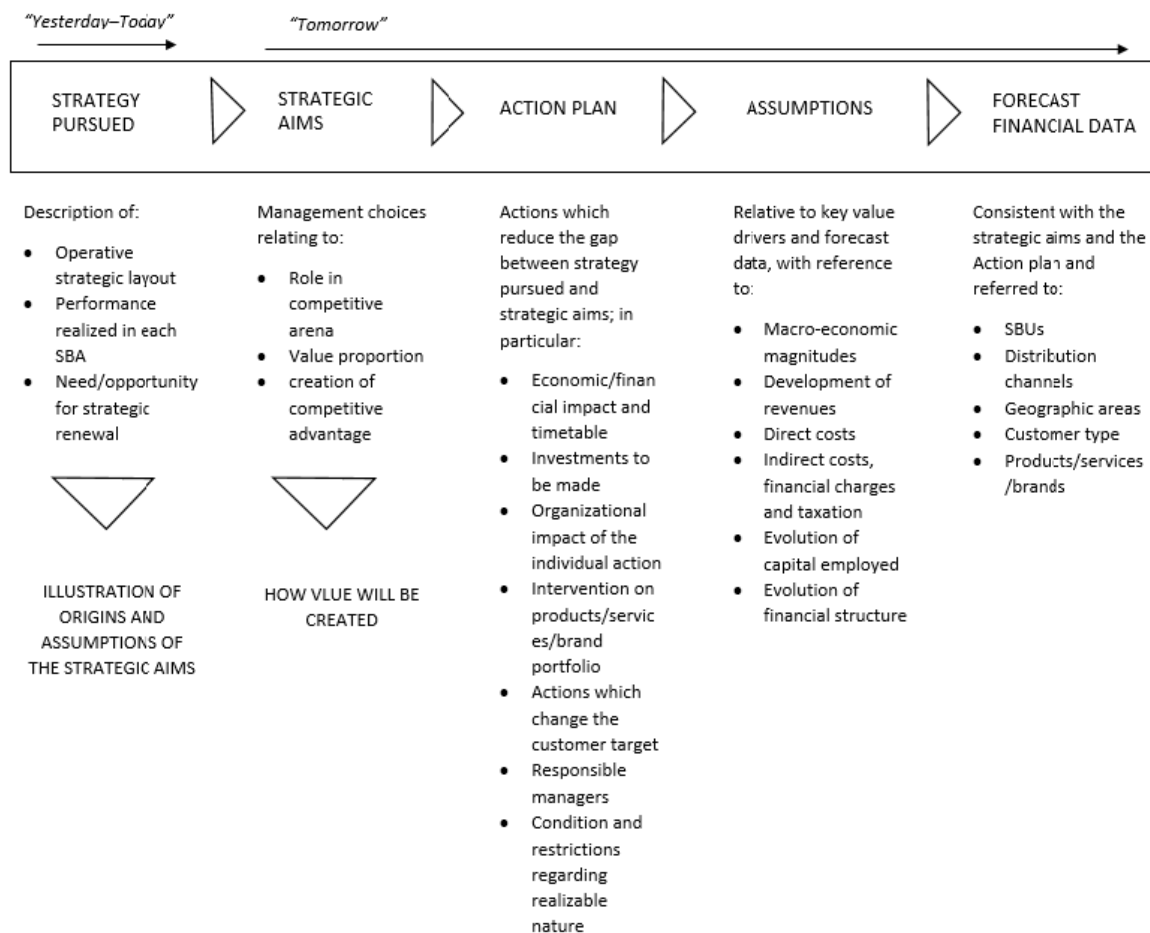


Figure 3 The components of the strategic plan

The main strategic plan’s components, with this order, are: strategy pursued, strategic aim, action plan, assumptions and forecast financial data (see Figure 3). The strategic plan process starts from “*Strategy pursued*” that provides a description of the strategy applied and of the company’s situation. This analysis tries to give a portrait focusing on the following elements:

- the weaknesses and strengths of company;
- the identification of the stage of life cycle of company;
- the description of competitors’ weaknesses that could become the strengths for the company.

The plan should provide clear summary of results achieved and the strategic choice made. This analysis is an indicator of effectiveness of strategy pursued because verify its quality. The plan reassumes the actual situation of the company with its strategic choices.

Then we have the “*Strategic aims*” in which the plan illustrates all the actions that management intend to realize to create the value for shareholders. We identify a series of action with which the firm wants to increase its value. The strategic aims intend to give an idea on the expected role of the company in the market and the opportunities to capture in order to increase existing competitive advantage. It focuses on the company’s aim and on the position that the firm wants to cover. The company’s goal refers to the entire entity, and the strategic aims have to fix for each business unit. After the definition of strategic aims, we want to realize the company’s objective with the “*Action Plan*”. It illustrates the action to realize the strategic aims, in detail we define:

- all actions required to achieve the strategic objectives;
- the resources required to reach the goals;
- the structure of organization with the linked system of responsibility;
- the quantity of output produced with the possibility to acquire new customer target.

Finally, we develop the last stage “*assumption and forecast financial data*” in which we formulate the assumptions that affect the financial forecast. These formulations starts from analysis of historical data relating to the last three accounting periods. The assumptions are characterized of uncertainty, for this reason, when we make the forecast, we have to consider different scenario through sensitivity analysis. This last instrument allows us to identify different scenario demonstrating the effects on the main financial measures, and so we will consider only the contexts that have more probability to occur.

Broadly speaking, we know that a coherent strategic plan is focused on the description of the strategic aims, the identification of prospective financial data, the implementation of Action Plan to define in detail the acts, the formulation of credible assumption, and finally, the economic model adopted by the company. This plan permits the identification of the main performance indicators and helps us to identify the financial profile of the company.

2.2.3 Business Model and Strategic Plan

In the previous sections, we studied two processes: the business model and the strategic plan. They represent two different concepts, for this reason we want to analyze the distinction among them. Starting from the definition of the business model, we know that it explains how the company will generate revenue without considering the internal and external environments that could affect the plan's implementation. The business model defines the company mission and explains why the business operates, therefore it is a conceptual model of the firm that wants to ensure competitive advantage (see figure 4). The structure of the business model gives an idea on how to create competitive advantage but the implementation and the design of the business model is realized through the strategic planning.

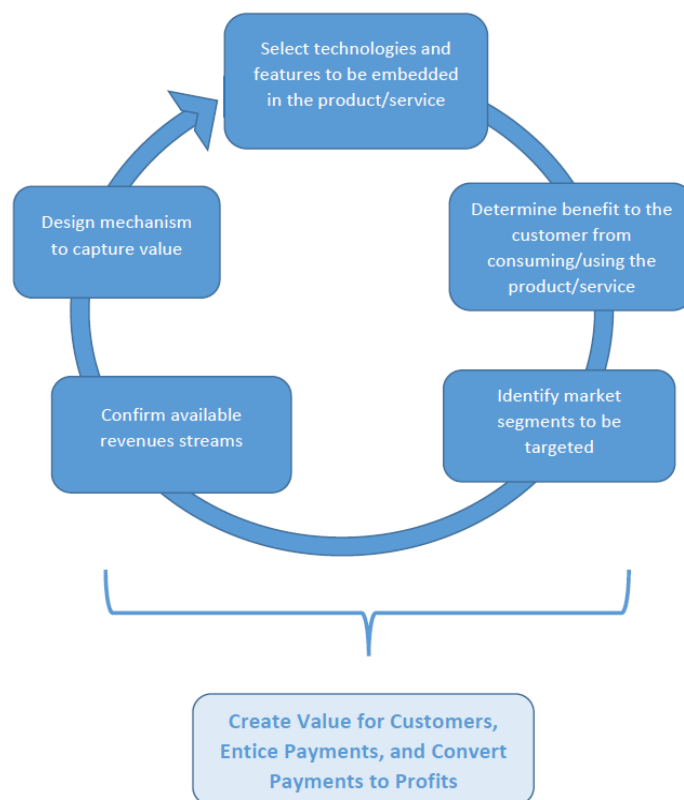


Figure 4 Elements of business model design

The business strategy, or strategic plan, identifies the steps that the firm uses to reach the success of the business model. This plan designs and implements what is defined within the business model, and if it changes, even the business strategy has to change. The strategic plan depends on the structure of the business model, and the strategy adopted can make the business model difficult to replicate from rivals. It describes

- how the company tries to defend from competitors;

- how identifies the segment customer;
- how the company reacts to the changes in the market conditions.

The strategy identifies how the business interacts in the market to capture the customers, and so it has to determine the sources of competitive advantage. The main tools used to define the market strategy are Porter's Five Forces Model³ and the SWOT Analysis⁴. These instruments help the manager to identify the strength and weakness of the company to gain the competitive advantage. We want to highlight that the strategic plan considers internal and external environment factors and it defines the ways used to generate revenues, to improve services, and finally, to connect with customers. It is important to understand the company itself but also to study its performance considering the condition of the market and the relationships with others. Now we can sustain that two companies with the same business model could have different financial results given by business strategy adopted. In the same way, we can argue that if the strategy is not working, we do not review the entire business model but we redefine the strategy. Both business model and business strategy are interconnected because they are the guide for the firm's success.

³ Michael Porter (1979) introduces the Five Forces to determine the competitive structure of a company and its industry profitability. This model explains the industry context in which the firm operate, and the Five Forces to analyze are the followed:

- Bargaining power of buyers
- Bargaining power of suppliers that want
- Threat of substitute products and services
- Threat of new entrants
- Rivalry among existing competitors

These forces analyzes the intensity of competition to the profitability and attractiveness of an industry.

⁴ The SWOT Analysis is a process that identifies the company's Strengths, Weaknesses, Opportunities and Threats. This instrument is useful to clarify the industry's strategy and it assess the internal variables (Strengths and Weaknesses) with the external environment (Opportunities and Treats).

2.2.4 Resource framework

Penrose (1959) published a book titled “The theory of the Growth of the firm” in which she introduces the resource-based theory (RBT). This theory explains how firms maintain competitive advantage by using critical resources. The RBT is reviewed by some authors; the principals are Barney (1986, 1991, 2001), Rumelt (1984) and Wernerfelt (1984). The presence of the critical resources is not all, Penrose sustains that “the services that resources will yield depend on the capacities of men using them”. The theory shows the importance of resources and firm-level performance to acquire and maintain the competitive advantage in the market. The competitive advantage is the ability of the firm to create more economic value than its rivals. Penrose sustains that the company is an administrative framework that connects and coordinates activities of the individuals to handle a bundle of productive resources. The growth is due to resources owned by company and the administrative framework used to coordinate them, this prospective is based on the assumption that resources and capabilities are heterogeneously distributed in the firm. So, the company is a mix of tools to create economic value.

Further Wernerfelt (1984) introduces resource-based view (RBV) based on the initial analyses conducted by Penrose. This theory focus on the concept that resources are the source of the competitive advantage in the market only if they are rare, inimitable, valuable and non-substitutable. He analyzes that the resources profile of the company affects the ability to acquire the advantage in term of product market strategies. The innovative combination of resources is the key to obtain the competitive advantage. The resources are financial, physical, human and organizational whereas the capabilities represents the ability to exploit the firm’s resources to create the competitive advantage. Over time, the RBV has a great diffusion to analyze the economic development of the company and the impact that the resources has on the firm’s performance. Again, Barney (1991) sustains that the resources and capabilities of the firm are the main components to obtain innovative products/services.

The research-based model involves the creation of spin-offs based on the formal and informal transferred technology or knowledge generated by public research organizations (Smilor, 1990). The presence of resources and the internal knowledge are the prerequisite to create the opportunities of growth. This theory is used as theoretical framework to examine academic spin-off company formation. In this respect, Vohora et al. (2004) state that

“in order to progress through different phases of development, ASOs need to develop both resources and internal capabilities over time”.

During start-up phase of spin-off the capital is negotiated and the professional-team is built. The composition of the team, who represent the human resource, is important because impacts on the economic performance of the company. The resources cannot create the value alone. Vohora (2004) emphasizes the importance of the team’s skill, he explains that the competences and resources required in each phases are different and the development occurs when the new venture acquire resources and competences that are critical for the success in the previous phase. The success of the transaction from one stage to the other, depend on the capacity of actors to organize and utilize the required resources.

Birley and Stocley (2001) sustain that the team should have the skill in organization behavior, strategic management and social psychology. We immediately understand the importance of organization behavior and strategic management: the personnel should be able to organize the resources to maximize the profits linked to strategic planning that neutralize inefficiency. In addition, the social psychology covers an important role because it refer to the problem-solving and decision-making approaches.

With the resource-based view we have heterogeneous resources, and they can be classified in very different way, for example Grant (1991) classified the resources as: tangible, intangible and personnel-based resources.

Again Barney (1997) grouped resources into the four main categories: financial, physical, human capital and organizational. Following Brush et al. (2001) identified six types of resources related to the spin-off process: human, social, financial, physical, technology and organizational.

In 2006, Mustar et al. applied the resource-based view to the academic spin-off industry and they identify four main resources: human, social, financial and technological resources. We use the last recent classification and the following we illustrate each type of them.

Human resources refer to graduate individuals and academic employees who are part of the company. The success of the human capital depends on the ability and specific knowledge owned by employees. In this category we include the figure of entrepreneur who has to have the ability to coordinate resources and knowledge, to understand the market opportunities, to exploit the complex technologies and to recognize and capture value.

Social resources represent the relationship among individuals to create value. They refer to social network both internal and external of the venture. Initially, the ASO will refer to the academic network.

Financial resources are all financial funds of company and they allow acquiring new resources for developing. Especially in the first step, it is difficult to find the economic resources to start the business.

Technological resources are innovative resources connected with the innovation. These products are the result of the R&D activities of academics. They have a key role in the development phases.

This theory applied to university highlights two aspects: the first is the composition of staff member and the second is the transferred knowledge from parent to spin-off firm.

To maintain the competitive advantage, the company has to interact with external network and stimulate the innovation technology. The RBV is based on the assumption of stable market with fix resources and capabilities, it suggests that resources can create the value without consider that the company is in a dynamic environment. In this context, to sustain the competitive advantage, the firm has to develop the innovation process by mixed internal and external resources and considering the capabilities of employees. Continuously, this mixed of resources has to change. Usually, after the start-up phase the company changes the strategy from one products to multi-products that suits customer's needs. Fiol (2001) concludes that competitive advantage can exist in the dynamic market only if the resources of firm change over time.

In the real word, the market rapidly change and this require dynamic capabilities and resources. If the firm able to change quickly, and alert to the change in the market, it can adapt to change in market condition faster than competitors to gain competitive advantage.

Given the fact that the resource-based view is a static theory because it does not explain how the firm develop the resources with the consideration of external knowledge and relationship with others and does not consider the dynamic condition of the market with the historical and social entity of the firm; we integrate it with path dependence theory.

Barney (1991) notes that:

“performance of the firm does not depend simply on the industry structure within which a firm itself at a particular point in time, but also on the path a firm followed through history to arrive where it is.”

The *path dependence theory* analyzes the evolution of the resources with the consideration of the history: time and place. The integration of these two theories (RBV and Path dependence theory) wants to highlight that the competitive advantage generated by resources and capabilities also depend on historical trajectory traced. If we consider two firms with the same resources, we notice two different level of competitive advantage due to histories and the end-state resources. The entrepreneur should achieve a balance between the present and future needs of the firm in acquiring resources and in defining the utilization process of them. The entrepreneur should define bundle resources and the related path dependence process to meet the firm's future for obtaining competitive advantage. At first, he should identify the required resources at the present but also predict the future needs, and then he identifies the process to manage the resources through the path dependence. These two steps conduct to main goal of firm: achieving the sustainable competitive advantage over long-term. The research framework is composed by the elements explain previously: resource-based view, dynamic capabilities and service innovation (see Figure 5). This process shows that the output as service innovation are different among the spin-offs because of the relationship between the resources and dynamic capabilities process. The service capabilities (integration, reconfiguration and extraction) transform the resources and capabilities into service innovation.

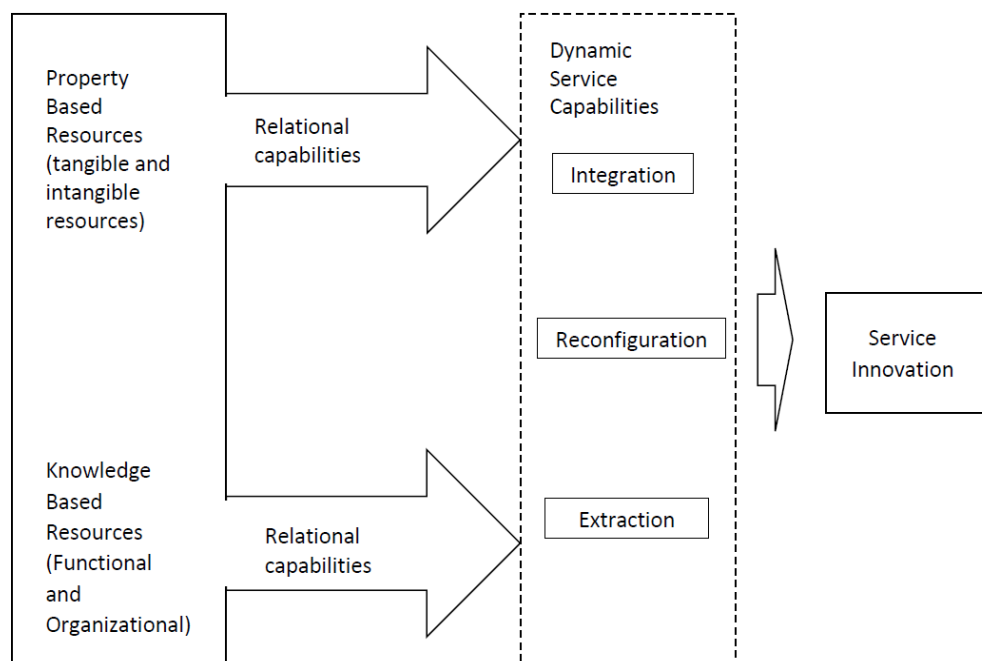


Figure 5 Research framework

The resource-based view and path dependence theory focus on the resources' role. The theories analyze the relationship among the resources, their "life cycle", the organization's ability to

acquire, maintain and integrate them. All of these because the resources affect the survival and performance of the company.

The theories do not explain how firms acquire and develop the initial resources, what are the criticism to face and not define the firm's development phases. They emphasize the resources that are the source of competitive advantage but not explain the phases to reach the firm's objective. To better understand this aspect, we have to consider another theory "stage-based model". Vohora et al (2004) explain how the venture grows through the development of resources and capacities. Even if the academic spin-off companies are increasing in the world, there is not the conceptual framework about the identification of several stages of Entrepreneurial Universities. For this reason we mix the resource-based view theory with the stage-based model in order to explain the development phase with the determinants to pass from one phase to another.

2.2.5 Stages-based model

The stage-based model identifies the organizational characteristics within each stage of development, and suggests the changes required in the behavior and practices of entrepreneurs if their business is to progress to the next step (Miller and Friesen, 1984, Smith et al. 1985; Van de Ven et al. 1984). The advance between the different phases occurs through "critical junctures" in term of resources and capabilities acquired to pass in the next stages.

Does not exist a theoretical framework that explain the development of academic spin-offs because there is not unanimity opinion on their development phases. Wherefore we introduce some authors who try to explain the development process. Some scripiter have found that the academic spinoff process includes three (*Degroof and Robert 2004; Clarysse and Moray 2004*) or four (*Ndonzuau et al. 2002; Rasmussen 2011*) or five stages (*Vohora et al. 2004*).

Degroof and Robert (2004) sustain that spinoff development process is composed by three different phases: 1) Origination; 2) Concept testing; and 3) Start-up support. Close to this opinion, Clarysse and Moray (2004) suggest that spin-off is a process composed by 3 different stages: 1) Research; 2) Validation of project and business plan; and 3) Validation of growth. About these three phases we can say that in the beginning the founders identify the technology with commercial potential, then they test if the intellectual property is appropriate to exploit the technology and they try to attract funds. After they analyze the spin-off's project developing the business plan and in the end they could receive the new venture's profits due to the growth.

F.N. Ndonzuau et al. (2002) determine four stages: 1) To generate the business idea from research; 2) To finalize new venture project out of idea; 3) To launch spin-off firms from projects; and 4) To strengthen the creation of economic value by spin off firms (see figure 6).

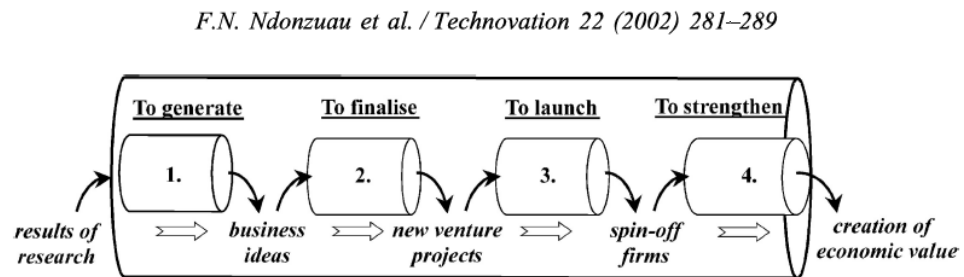


Figure 6 The global process of valorization by spin-off

Again, Rasmussen (2001) recognizes the following phases: 1) Research, 2) Opportunity framing, 3) Proof of viability, and 4) Post start-up. The four development stages can be summarize as following: in the first place the academic actors assess and generate idea to commercialize, then they translate the idea into business project. After, the founders make the project to realize through the ASO and ultimately they have to consolidate the economic value created by new firm.

Vohora (2004) identifies multiple distinct phases in the evolution of university spin-offs, recognizing five stages: 1) Research; 2) Opportunity framing; 3) Pre-organization; 4) Re-orientation; and 5) Sustainable returns. In addition, he analyzes the passage from each step to the next trough critical junctures that are defined as “a complex problem that occur at a point along a new high-tech venture’s expansion path preventing it from achieving the transaction from one development phase to the next”. Vohora also determines that spinoff development is a non-linear process; Druilhe and Garney (2004) are also in agreement with him.

We analyze in detail this last theory to explain the development process of academic spin-off. Vohora’s theory is one of the recent theory but he does not focus only on the development phase as others. He gives the attention also to the passage from one stage to the next and this represents a critical point: the list of the phases is not sufficient to understand the complex process of growth, it is necessary to comprehend in which way it is possible to grow acquiring new capacity and resources.

First of all we start to explain the development process and then we analyze the role played by critical junctures. The key question in the development phase are: how create commercial value? How generate the return? How generate the sustainability return?

1) Research phase

The starting point is to identify the technology or the research results to exploit for creating economic value.

The scope of academic spin-off is to commercialize the intellectual property and to achieve this objective the academic actors should provide the technology and knowledge to establish the new venture. In this step the potential founders should be able to identify the idea and then, to assess its economic value. The idea refers to the innovative technologies own or to the specific knowledge that the founders can exploit. This type of analysis require commercial knowledge that academic people do not have. To make business, the founders can have two different knowledge: scientific and economic. These double competences represent the first obstacle because the scientific and economic knowledge are two different concepts. The scientific skills contribute to the collective knowledge through publication and provide innovative scientific education to students. The presence of entrepreneurial competences is fundamental to create the value from intellectual property because the founders have to translate innovative idea into business through spin-off. The establishment of a valorization police requires the capacity both to identify ideas and to assess their potential (Roberts and Malone, 1996).

2) Opportunity framing phase

After identifying the range of possible idea, we pass to the next step: the researchers want to transform the idea into structures project. The technology transfer is a vehicle to support the creation of spin-off companies (Hague and Oakley 2000). Its role has been described as facilitating technological diffusion from university research to industry (Siegel et al. 2003); managing and enhancing the value of university's intellectual property (Meseri and Maital 2001); and assisting researchers in disseminating research results for the public good (Carlsson and Fridh 2002). Before the creation of ASO, the university actors have to study the market, the needs of customers and the better way to commercialize the technology. Valuating the creation of commercial value represent one obstacle due to the lack of

business competences. The people without economic knowledge and experience are not able to exploit the market opportunity and to maximize the return from commercialization of intellectual property. Commercial development employs a good business plan that helps to define the key elements (investments, operating costs, revenues) and the way in which the result are intended to be exploited. With this phase, we define the business proposals: the researchers recognize innovative idea with commercial opportunity and so delineate the project to valorize the research result considering the capacity of the firm to sustain its development.

When the business project is proposed then the academic actors have to decide the strategic choices. Obviously, if the researchers do not receive the training in economic area or do not obtain the support from an external expert consultant, the business plan proposed could be not realistic.

3) Pre-organization phase

In this phase, the founders have to implement the business plan with the strategic plan. These models want to identify the resources and skill available but also the future technologies, resources and capacity required for development. The aim is to understand if the current resources and knowledge are sufficient to support the future growth. When the business projects are proposed, the academic actors have to consider the sustainability of the projects for the new venture. Each model requires resources, capabilities, knowledge, the time to develop the research and the possibility to exploit the technologies. It is required a good project in order to identify the key elements such as the investments, operating cost, the revenues and the way in which the result are intended to be exploited. In this step, the founders have to identify the better business plan that satisfy the previous criteria. Then, the founders decide to start or not the business activity based on their business plan and strategic plan made.

4) Re-orientation stage

The academic actors decide to create the spin-off based on the business plan and strategy defined in the previous phase. To start the business activities, the academic team have to acquire the resources identified in the re-organization step, but initially the purchase of them could be represented an obstacles due to funds. In the company we have tangible (financial resources and materials) and intangible (human capital) resources, about the last one the

development of new venture cannot succeed without management expertise (know-how) and good social networks (know-who) (Mustar, 1997).

Starting the business means to acquire material and financial resources, to have skill team but also to gain the sufficient credibility in the market. The university helps in this phase as “incubator”, it provides laboratory, equipment, raw material that are very expensive to acquire. In the beginning, the role of university has a positive impact, but over time this is not always true. Primary objective of the academic spin-off is to create the value for the customers. The company has to acquire resources, information and skilled personnel and puts all these elements together to generate the productive activities. The key element is to acquire the appropriate resources and to integrate them into new venture. The firm has to identify the target customers to satisfy their needs, enters in the market and creates the access to the future resources. At the same time, the entrepreneurial team acquire, integrate and re-configure the resources continuously.

The success of the spin-off is due to appropriate resources, social capital, skills acquired because if these resources are not appropriate, the company cannot develop over time.

5) Sustainable returns

This represents the last step and it is about gaining sufficient return to sustain the productive activities. The focus is the creation of sustainable growth and the acquisition of sufficient credibility outside university environment as an independent entity. The academic spin-off has to create a distinct entity and becomes self-sufficiency but there are two obstacles: the relocation risk and non-exploitation of the full industrial potential of technological projects.

These five phases outline a life-cycle model, which describe a process as progressing through a necessary sequence of stages or phases (Poole and Van de Ven, 2004). The development of ASOs is a challenge for academics who face important obstacles that can reduce an ASO's chance of survival and success, particularly because growth implies that the ventures must compete in a commercial environment that is very different from the university context in which they are created (Vanaelst et al. 2006; Vohora et al. 2004). Franklin et al. (2001) sustain that the ASO's founders do not have competences in business management, experience competing in market, and skill in recognizing and exploiting market opportunities. Again, the lack of credibility in the market and the lack of initial funds are other limits for the ASOs. When the company try to overcome the critical obstacles, it has more possibility to growth and exploit the technologies. As anticipated before, to pass from one stage to the next, the instrument that permit to exceed the obstacles is known as critical junctures. (see Figure 7)

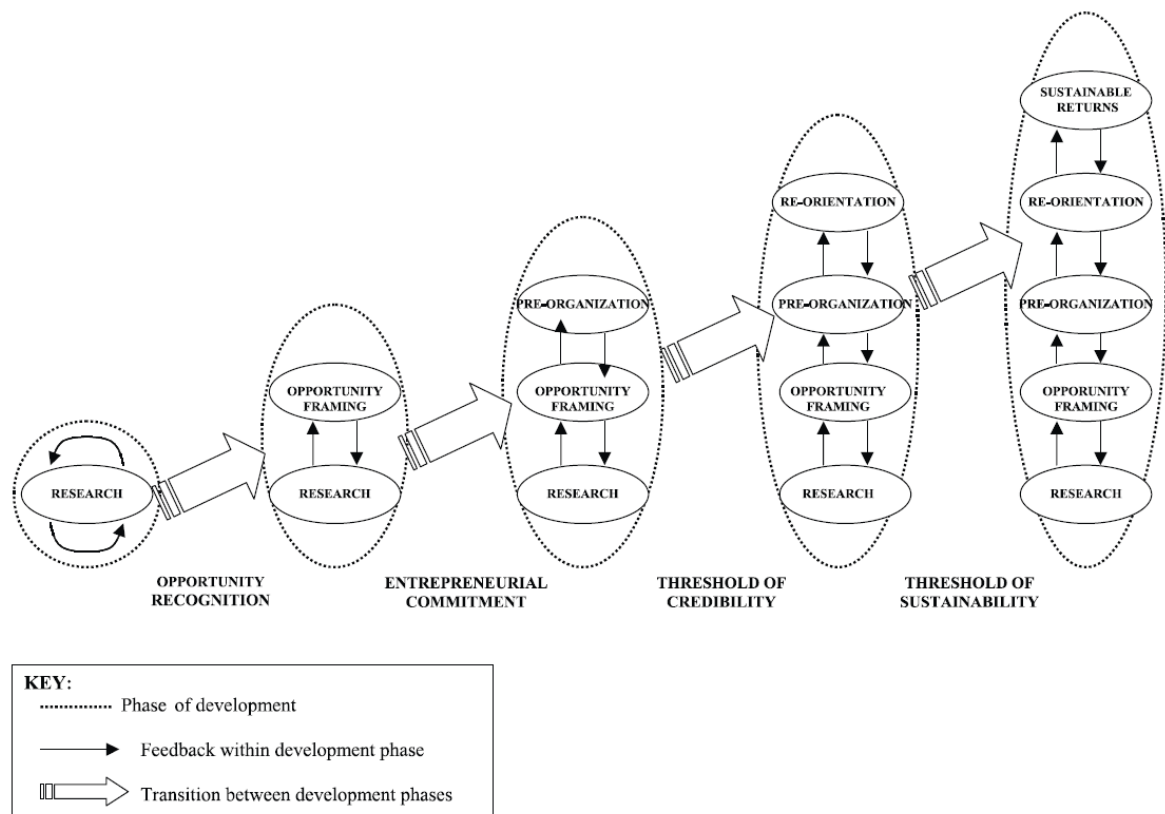


Figure 7 The critical junctures in the development of university spin-off companies

Critical junctures explain the transaction from one stage of development to the next. This instrument is applied to the no-linear stage-based model. Wright et al. (2007) sustain that critical junctures are produced from a conflict between the level of existing resources, capabilities, and social capital in ASOs and the resources required to perform in the next development stages. The critical junctures are: 1) Opportunity recognition; 2) Entrepreneurial commitment; 3) Venture credibility and 4) Venture sustainability.

Opportunity recognition concerns research phase, when academic actors identify one idea to transform in a new business, but the capacity to translate the specific knowledge into business project is not one characteristics of researchers. The point is the lack of market's knowledge and unrealistic expectation of the return due to inexperience in market connect with the willingness to commercialize the specific knowledge. The “opportunity recognition” represents the first difficulty in the creation of spin-off, because the team

members have to understand each role inside company and to identify the strategic orientation of the firm. This element can be incorporated with the followed one because both refer to economic skill that the academic team do not have.

Entrepreneurial commitment acts for transforming the academic knowledge in business transactions. The conflict is due to the need of developing the academic spin-offs linked to the lack of entrepreneurial skill among team. The lack of economic skills has four sources:

- 1) The network is restricted to the academic actors without consider the business and finance competences that characterized other people.
- 2) The lack of business experience of commercial environments, the academic team does not have the experience in the commercialization of intellectual property.
- 3) Difficulties to create an entrepreneurial structure and so to delegate responsibility.
- 4) To acquire a figure of entrepreneur with competent skill.

In the early-stage, the spin-off does not have experienced manager within team, but this limit has two possible solution: 1) to make university training in the economic environment; and 2) to hire an external consultant.

The university as incubator tries to attract experienced CEO, who should be able to understand the technologies and the way to develop the business because the main activities is to develop the new technologies. The composition of shareholders and management authority influences the choice of possible investors, considering that an experienced team are more attractive, but this imply an external experienced coach. It is necessary to valuate that to hire an external professional do not mean immediately success, because he has to understand the research environment and to apply his business experience to new market.

In some cases, if an experienced CEO comes from outside the researcher team, arising the problem of acceptance. Indeed, it could be not easy for spin-off's actors to accept external personnel because there is an extraneous person who manages the researchers' company. For this reason, exist the second solution: following a university training to understand and learn how the founders have to run the company.

The economic knowledge and the market credibility obstacles the development process and they represents barriers.

Credibility represents entrepreneur's ability to gain access and acquire the resources to start the business activity, and to make this we have different issue to overcome. The first is to seed the capital to acquire the sufficient resources and so to pass from "pre-organization"

to productive activities. After acquiring capital, the other problem is to identify required resources and consequently to understand when the sufficient financial resources occurs. The credibility is a critical juncture because it obstacles the access to financial and human capital and so the possibility to attract new investors has reduced. In addition, the credibility helps the academic spin-off to attract more clients, to appear reputable and to create the perception of professional and quality for the customers. It is important to acquire external capital, key customer and collaborative agreements with existing firms. These elements represents the “building blocks” required to create sufficiently credible in the market (customer, financial intermediaries and other resources providers). The credibility is linked also to the presence of university: in the starting phase, the university helps to find the resources, to build the network and to lend initial credibility.

If the company wants to growth and become an independent entity, it should create a distance with the university environment in order to become distinct entity with its investors, target customer, markets, and necessary resources to create value over time.

Sustainability refers to revenues generated because of products and services sold. This situation occurs only if the ASO creates value for the customer through adequate capital, human and physical resources and capacities. At this point, the difficulty is to maintain the return over time and continuously re-configure existing resources, capabilities, social capital and professional skills. Sustainability is possible only if ASO resolves inadequate social capital, internal capabilities and resources weaknesses.

Summarizing, Vohora et al. identify a distinct stages of development and the connection between them are known as “critical junctures” that permit to pass from one stage of development to the next. In the beginning, the academics identify in the research result an economic opportunity in order to create university spin-off. The project is based on the initial idea, so the team look for business plan, then they fix a frame of how create a business project. They try to make a strategic plan defining the action to establish the company but this requires economic competences. To satisfy this need, the academics can decide to obtain economic competences, or to hire an experienced economic manager. With the specialization in economic area, they overcome the critical juncture “entrepreneurial commitment”. If the academic team decide to accept the strategic project and the business plan, they set up the new company in the formal way. The researchers start the business acquiring the appropriate resources, the issuing of capital for innovative development, the provision of equity financing to settle the new venture and the application of legal protection of developing technology. The purchase of resources is not immediate, because in the early phase the firm does not have sufficient

credibility to obtain external support (investors). To pass this obstacle, the firm has to obtain the credibility in the market, even if we know that initially the university supports the ASO with laboratories, funds, human and capital resources, network, etc. The last phase focuses on the business development with the relate strategy to achieve sustainable return.

The final objective is to obtain the sustainable competitive advantage that we reach in the last step. To make it, we acquire and collect the critical resources described by RBV. Obviously as suggest by path dependence theory the resources are integrated with the capabilities of the spin-off's members.

2.3 Definition of research question and method applied

The number of academic spin-offs is growing. Actually, more than 1.000 ASOs are active in Italy. There is not framework that defines them yet. There is not unique theory that establishes the development of the company over time with the illustration of their distinctive characteristics. As illustrated previously, more theories and more definition exist to define this trend. This evidence represent our research problem because there is not a univocal point of view.

From the literature we notice the common elements of vary theories. Starting from this point, we create a theoretical framework of the development phases of academic spin-offs and also we identify the key characteristics that distinguish this new venture from other business entity. We want to answer to the following question: What are the development phases of academic spin-offs?

The answer is not immediate. More authors identified different development steps and we exploit the past theories to extract the information to create the guideline over time. We formulate a table in which at first we identify the main development stages: research phases, opportunity framing phase, pre-organization phase, re-orientation stage and sustainable returns. Then, for each steps we define main characteristics with the related variables required for the company's evolution. Finally for every variable we determine the strength and weaknesses. The table represents our theoretical framework abstracted by literature. It helps to determine the variable developed and the existing step of ASO. We conduct a qualitative analysis and our goal is to compare each single variables of the following table with the real case in order to understand the positioning of our case study in the development process. For each steps we analyze the variables to capture the presence or not of all elements required by each development phase. In addition, our theoretical framework determines the critical junctures

that the company has to overcome to pass from one step to the next one. In this way, we highlight the necessary transaction passage for the company growth.

The development step and the related variable are summarized in our table that represent the method of analysis (see table 1). In the next chapter, we will apply this method to the Unired Srl that is academic spin-off of the University of Padua. We will analyze the development phases with the identification of the actual position among them. And we will illustrate the variable for each step with the related description of strength and weaknesses.

Developing phase of Academic Spin-Offs		
MAIN VARIABLES	STRENGTHS	DIFFICULTIES
1) Research Phase: identification of research results to commercialize. To transform innovative idea into business.		
Professors, students or academic researchers		
Scientific knowledge	The academic actors have specific knowledge within their competent areas: agriculture, biomedical, pharmaceuticals, etc.	
	Tacit knowledge It is inimitable	It is difficult to transfer. The people can not delegate the work, because individuals have different tacit competences.
	Codified knowledge It is the result of the research activities (scientific publication, report) It is specific for the competent area It provide scientific education to students	This competences can be copy or replicate by the competitors. To protect these knowledge, the researchers use legal means: patent, copyright, etc.
Economic knowledge	The capacity to assess the economic potential of technology and of the new idea	The academic actors have lack of entrepreneurial experience and business competences
Critical juncture: transaction from "Research phase" to "Opportunity Framing phase"		
Opportunity recognition	The ability to recognize the idea/technology with economic value. To transform innovative idea in a new business. The opportunity recognition require technical knowledge linked with economic backgrounds (skill set)	The founders could have scientific and economic competences, and generally this is not occur. There is: - Lack of market's knowledge; - Unrealistic expectation of the return due to inexperience in the market. The potential founders of ASOs have only scientific competence
2) Opportunity framing phase: before the ASO's creation, the founders define the business proposals		
Business Model <i>Anna Bialek-Jaworska and Renata Gabrylszyk applied the business model canvas structure to the commercialization of R&D results. They identifies six building blocks of business model.</i>	Defining of the static structure of the firm's organization, production technology and the resources. It allow to understand the key factors of the company. The main elements is the "Value Proportion": thinking to clients' needs.	It requires business competences
Customer segment	Each customer segments have its needs that affect the output produced. The offer is specific for customers'need to capture the clients.	The evaluation of the clients profile requires: - determination of clients'activities (Job to Be Do) - the difficulties afford by the clients in their activities (Pains) - the advantage that the clients want to obtain (Gains)
Value proposition	It creates competitive advantage, if the company satisfies the clients' need.	The identification of services/products that: -satisfy clients'needs; -solve the difficulties face by the clients in their activities; -generate advantage for clients

<p>To gain clients' trust Consolidation of the relationship over time Identification of the relationship that better satisfy the clients.</p>	<p>The relationships represents an important factors for each type of customer segments: the type of customer relationships integrates the value of the services offered. The types of customer relationships with the customer segments are: - personal assistant - self-service - communities - automated services - co-creation</p>	<p>Customer relationship</p>
<p>Identification of the core activities with the required asset and external support (partners) The estimation of the cost structure related to acquisition of resources, activities and key partners.</p>	<p>The level of profits represent the estimation of the success of the company proposals. The profits are generated by the outputs produced with the services connected to them (assistant post-purchase, insurance, personal assistant, etc) The level of profit (revenues-costs) is generated by each customer segment.</p>	<p>Potential profit</p>
<p>No include unnecessary activities within this building block. Determining the activities that - represent the key for the business; - allow to realize the company's value proportions; - allow to maintain the customer relationship.</p>	<p>The key activities represent the most important activities that the company has to conduct to create the Value Proportions. The key activities determine the competitive advantage. The main activities are: - manufacturing activities: the companies that offer products; - problem solving: these activities are typical for the company that offer services; - development of platform of networking (google, facebook, linkedin, etc)</p>	<p>Key activities</p>
<p>The protection of the R&D results require the purchase of legal measures</p>	<p>The protection of R&D activities (patent, license, copyright) by other firms. Creation of competitive advantage through the use of R&D results</p>	<p>Firm survival activities</p>
<p>Litigation from a rival patenting a competing idea it is difficult to protect the knowledge that inventors disclose in a patent for the first time</p>	<p>With the protection, the knowledge is not expropriate by potential partner Reduce the bargaining power of competitors Increase the cost of the information that we offer Attract the investors</p>	<p>Protect knowledge</p>
<p>it could be not realist due to the lack of business competences</p>	<p>It summarizes the operational and financial scope of the company. It is a guide to reach the company's objectives It illustrates if the business model is valid</p>	<p>Business Plan</p>
<p>They have be: - specific - measurable - realistic - time-related</p>	<p>Company's description Definition of strategic intent: company's ambitions Definition of industry foresight: the objectives that the company want to realize in the long-term</p>	<p>Overview company Mission Vision</p>
<p>It is a qualitative analysis (no quantitative)</p>	<p>Determination of the companies' weaknesses and strengths This instruments allow us to analyze: - strengths - weaknesses - opportunities - threats</p>	<p>Competitive Analysis SWOT Analysis</p>

	Production Plan	<p>Description of the services offered:</p> <ul style="list-style-type: none"> - characteristics - the distinction of the services line - client's advantage to use our services - price policy <p>Illustration of future services that the company intend to launch</p> <p>Focus on advertising and promotions.</p> <p>This plan wants to incentive the sale: i.e attractive website</p> <p>We study the marketing mix (4P):</p> <ul style="list-style-type: none"> - Products: description - Price: price policy, discount policy. - Place: costs and benefits of distribution channel. Direct or indirect communication with the clients - Promotions: TV, internet, coupon, delivering sample, discount, telemarketing, call center, public relationship 	<p>Definition in the clear way of the:</p> <ul style="list-style-type: none"> - characteristics - objectives - possible evolution
	Marketing Plan		<p>If the elements are not clearly defined, the marketing plan is not correct to pursue the company's objectives.</p> <p>Obtaining the customer satisfaction that is the aim of marketing strategy</p>
	Management plan	<p>Skilled managements create competitive advantage because they attract investors.</p> <p>In this plan, the company defines:</p> <ul style="list-style-type: none"> - the function of the team's members (production, marketing, sales, R&D, etc) - the characteristics and competences of the company's members. - the hierarchy with the related responsibility - presentation of the key member through CV - possible new hiring plan 	<p>The team's members do not have the same objective</p> <p>The number of members is not adequate with the production.</p> <p>The member's competences are not adequate.</p> <p>The hierarchy is not clearly defined</p>
	Operating plan	<p>It illustrate in what way the company realize the products/services.</p>	
	Service development	<p>Description of R&D process:</p> <ul style="list-style-type: none"> - gap between the knowledge and output - knowledge required for the production (researchers CV) 	<p>High gap in the passage from the employees knowledge and the output realized</p> <p>The employees are not skilled people</p>
	Production	<p>Definition of the resources and process required for the production.</p> <p>Definition of the plan to purchase raw materials</p> <p>Estimation of the workforce's costs</p>	<p>The company buy in a moment of need without predict the purchase plan</p>
	Sales	<p>Developing e-commerce solutions.</p> <p>Exploiting the packaging to attract the clients.</p>	<p>To sale sufficient output for producing profits</p>
	Post-sale services	<p>These add value and attract the clients; the company creates the fidelity bonds.</p>	<p>Offering adequate services based on customer segments and customer relationship</p>
	Financial plan	<p>The financial forecast illustrates the need funding or financing. Showing the funds required and the funds type acquired.</p> <p>Forecasts of the company's sales over the course of three years.</p> <p>The best way to do it is to look at past results</p> <p>You predict the cost required to produce output. (Cost of sales)</p> <p>This shows physical money moving in and out of the business</p>	<p>The forecast has to be realistic.</p> <p>The financial planis not the same as accounting; the peolpe confused the financial projections with accounting statements.</p> <p>Consideration of past data affected by extraordinary events (biased forecast)</p>
	Sales forecast		
	Expensive budget		
	Cash-flow statement		

	<p>Income projections</p> <p>Assets and Liabilities</p> <p>Break Even Analysis</p>	<p>This is a proforma of income statements over three years, we define: - Gross margin=sales-cost of sales - Net Profits= gross margin-expenses-interests-taxes</p> <p>It is a forecast of the Balance sheet</p> <p>This instrument shows if the sales try to cover the costs and so it reveal of the company makes profits</p>	
Resource-based views			
	<p>Financial resources</p> <p>Current Liabilities <i>Trade and other payables</i> <i>Current tax liabilities</i> <i>Current loan payable</i> <i>Governments Funding</i> Long-term liabilities <i>Loan payable</i> <i>Deferred taxes liabilities</i> Equity <i>Capital</i> <i>Retained earnings</i></p> <p>Technologies</p> <p>Acquisition of innovative equipments Continuous innovation in the R&D area</p>	<p>The integration between resources and capabilities create value</p> <p>They allow to acquire new resources for developing</p>	<p>This is static theory. It is based on the assumption of stable market with fix resources and capabilities</p> <p>Determine the financial needs How does the company get capital?</p>
Tangible			
Intangible	<p>Human capital</p> <p>Graduate students Researchers Entrepreneurs</p> <p>Social networks</p> <p>Internal External</p>	<p>Skilled academic team</p> <p>They have specific knowledge linked with their competent areas</p> <p>They have the ability to coordinate resources and knowledge.</p> <p>They capture the market opportunities</p> <p>They recognize and exploit the innovations</p> <p>They know the market and the economic world</p> <p>They have managerial experience</p> <p>Relationship among individuals</p> <p>The people know each other because they are part of the same environment: the collaboration is born more easily</p> <p>The cooperation helps to solve the work obstacles</p> <p>Technologies' stimulation Exploring new reality</p>	<p>The technologies require update, continuously</p> <p>Generally, they do not have economic competences</p> <p>The spin-offs' founders do not accept external specialist. They prefer to academic employees with economic competences because they believe that the external consultant do not understand the university world with its technologies</p> <p>The network is restricted to the university environment.</p> <p>The competences are restricted to their background. Not explore other "word"</p> <p>There is the problem of acceptance</p>

<p>Path dependence</p>	<p>Resources (see RBV)</p> <p>Human capabilities</p> <p>Service capabilities/Dynamic capabilities</p>	<p>It consider the evolution of the resources with the consideration of the history. We have to consider:</p> <ul style="list-style-type: none"> - end-state resources - the way to organize and manage the resources (utilization process) <p>Two companies with the same resources could have different competitive advantage due to previous two variables.</p>
<p>Require investment in training. Hiring skilled personnel</p>	<p>The organization capabilities and specific knowledge exploit in efficiency way the resources</p>	<p>These competences transform the resources and capabilities into service innovation</p>
<p>High velocity markets are characterized by non-linear and unpredictable change system that, quickly and easily shares data when needed</p>	<p>Integrate together different resources to create value (i.e. diverse existing systems)</p>	<p>Dynamic capabilities prospective: reorganization. The dynamic market require dynamic capabilities: continue reconfiguration of resources has positive effects</p>
<p>This require an ability to sense relevant environmental changes, constant surveillance of markets and technologies.</p>	<p>Reconfiguration</p>	<p>Co-evolution of tacit experiences with explicit knowledge and codified activities. These process create collaboration among internal and external relationships to generate resources combinations.</p>
<p>Require advanced skills.</p>	<p>Co-evolution</p>	<p>Critical juncture: transaction from "Opportunity Framing phase" to "Pre-organization phase"</p>
<p>Developing ASO requires entrepreneurial skills. The lack of economic competences</p>	<p>Entrepreneurial Commitment</p>	<p>Transforming the academic knowledge in business transactions.</p>
<p>The network is restricted to academic actors without economic backgrounds. They do not have experience in business world</p>	<p>Background of founders</p>	<p>Skilled people in their competent area</p>
<p>The training cannot be consider as at the same level of experienced consultant. With university training the academic actors should receive the basic notions. It is not easy to understand the economic dynamics</p>	<p>Acquisition of commercial competences</p>	<p>The founders complete their background: following a university training They have a complete overview of the business They are more awarness of their activities and economic dynamics</p>
<p>He has to understand the R&D activities (ASO's activities) The presence of the problem of acceptance because the consultant comes from an external environment</p>	<p>Hiring external economic consultant</p>	<p>He completes the background of the team's members He influences the ASO's environments with his entrepreneurial behaviour</p>
<p>Do not specify in appropriate way the hierarchy proposed before</p>	<p>Creation of the entrepreneurial structure</p>	<p>Fix the role of each one with the related responsibility</p>
<p>3) Pre-organization phase: academic actor decide to start or not the ASO. The decision is based on the BP and SP transaction from "Pre-organization phase" to "Re-orientation stage"</p>		
<p>Optimism view</p>	<p>Threshold of credibility</p>	<p>Critical juncture: transaction from "Pre-organization phase" to "Re-orientation stage"</p>
<p>Focus on no-necessary activities. This can be push away the investors</p>	<p>Be sensitive</p>	<p>Trying to convince a team of stakeholders and investors to pursue a new project without a proven concept</p>
<p>Do not have the leadership skill</p>	<p>Be honest and sincere</p>	<p>Have and demonstrate empathy for the people on your team Investors want the honesty, in this way the company obtain their trust</p>
<p>Initially there is a lack of professional experience and achievements to build credibility</p>	<p>Be objective</p>	<p>Focus resources only on the tasks and activities that help you meet your goal</p>
	<p>Be knowledgeable</p>	<p>Have the skill to pursue the business objectives with the skill to lead a team</p>
	<p>Promote achievements</p>	<p>Promote you professional accomplishments to acquire the investors</p>
	<p>Find your confidence</p>	<p>Can speak volumes about you without ever saying a word.</p>

4) Re-orientation stage: start the Academic Spin-Off	
University's role	Role as incubator. We can see the the university as mother that provide the initial resources required to start the business
	Laboratories/Space offices
	Equipments
	Raw materials
	Researchers
	Financial capital
	Academic's reputation
	Technologies
	Networking
	Students
	Specific/Advanced knowledge
	Share capital
	Require training
Strategic Plan	<p>It guides the main operating choice.</p> <p>It defines the actions to achieve the company's objectives</p> <p>It defines in what way the company intend to make money.</p> <p>It describes how the company intends to create value.</p> <p>The strategic aims specify the choice of management in term of:</p> <ul style="list-style-type: none"> - expected role of the company - value proportions proposed - company's role in the markets.
	Strategic aims
	Action Plan
	<p>It identifies the action projected to realize the strategic aims.</p> <p>The actions reduce the gap between the strategy pursued and strategy aims.</p> <p>For each type of strategic aims, the company has to identify the action to apply.</p>
Action required to achieve the company's objective	This action are specific for each objectives that the company intends to reach

	<p>Organization design</p> <p>It defines the quality of the company's activities. It develops the core competences and favorite their combination The organization capacities are organized inside the company, so they are difficult to replicate outside. The organizational design is defined by the concept of division of labour and coordination.</p>	<p>The company's variables are a lots. Generally there is a gap between the theory and practice. The identification of the single task To create the connection between the sub-task (coordination). To reach the coherence between: - company's objectives - system of responsibility - company's relationship - human resources - reward systems</p>
<p>Behaviour</p>	<p>The promotion of the correct behaviour in the firm: - collaboration - communication - integration of competences - growing together Breaking up the task in sub-task. The sub-task are executed separately, and the advantage are the following: - Increasing ability - Reducing the cost of training - Less cost of labour market: with the division of labour, the tasks become easier and so they require less capacity - Reducing the time of the passage from one step to another - When the management decides the task, it consider the skill of each team's members</p>	<p>The creation of common language to overcome the communication's barriers. Team's members with the same value.</p>
<p>Division of labour/ Specialization</p>		<p>It requires the coordination among the sub-task. Defining the level of specialization Conflicts between tasks Task not clear (ambiguous); not clearly defined</p>
<p>Coordination</p>	<p>To connect the sub-task to reach the company's objectives It increase the communication. The people share more information</p>	<p>The activities and the people are perfectly connected Mechanic and rational process</p>
<p>Integration</p>	<p>Create collaborative situation Exploiting the different knowledge Overcoming the barrier of communication</p>	<p>Creation of the common language If the incentive to collaborate is tenue, the people do not have the incentive to collaborate. Offering a strange incentive to collaborate</p>
<p>Control/motivation</p>	<p>It refers to the people's advantage obtained if they collaborate</p>	
<p>Process</p>	<p>It is a mix of actions in which the human resources are important. The human capital decides and create the outputs. The organization design is a process. It is developed on vary phases: - problem identification - analysis of the problem - identification of the alternative solution - the choice - the implementation - results rating.</p>	<p>The activities has to guarantee the company's objectives. The limits are represented by: - people's capacity - people's knowledge (attention to the variables, the communication) - the objectives are not coherent between them</p>
<p>Space issues</p>	<p>If the offices are adequate to the activities: - we can think to expand the production - the workers have their room It is defined as a mix of instruments, rules and relationship to control and protect the company's interests. It defines the behaviour that all has to take The corporate governance take decisions and it manage the company in fair and efficient way.</p>	<p>It represents an obstacle for the production if it is small. Can create an hostile environments because nobody has an independent space</p>
<p>Corporate Governance</p>		
<p>System of responsibility: Job description</p>	<p>Definition of each task with the relate responsibility: job responsibility leads worker to be more careful</p>	<p>Define sub-task clearly</p>

	Investments	Creation of competitive advantage: an important investment is in the human resources because the people add and create value	More expensive Continuously the company innovates the investments: especially for training
	Equipments		
	Human capital: training		
	Developing solution		
	e-commerce		
	Continuous innovation in the R&D area		
	Hiring new personnel		
	Software/Database	Helping in manage: - the production - the stock (warehouse) - inter-communication with only one database - accounting system	
	Assumptions and forecast of financial data	We formulate the assumption to forecast the future financial data. The formulation start form the hystorical data. This last phase can predict the possible future scenarios Estimate different scenario and then calculate the effect on financial data.	Risk of unrealistic assumption. Uncertain situation
	Analysis of different scenario		
Critical juncture:			
transaction from "Re-orientation stage" to "Sustainable returns"			
Threshold of sustainability		Maintain the returns over time. There is the interconnection between three elements to reach the concept of sustainability	This require re-configuration of resources and capabilities, continuously
Environmental capital		Provide natural resources and wellness for the society	Guarantee the renewal of natural resources
	Natural resources		
	Ecosystem services		
	Beeties of nature		
Social capital		People interacts among them and create the value though: - thier competences - relationships - personal experience	
	Person		
	Ability		
	Responsibilities		
	Education		
	Health		
	Relationship		
	Family		
	Comunity		
	Government		
Economic capital		Maintain the profit over time with the combination of resources with human capital	
5) Sustainable returns: generation of profit and labour over time			

Table 1 Developing phases of academic spin-off

3.1 Overview

Unired Srl is an academic spin-off. It was born on 2th of May in 2012 in Padua. The company conducts the R&D activities in cosmetics products, nutritional supplement, household products and medical devices. It conducts survey on sensoriality, psychophysics, marketing, customer satisfaction aimed at the development, promotion, and marketing inherent the well-being of the use of the products themselves. Again, it organizes training activities in order to revise the knowledge of external professionals in the same competent areas. The spin-off nature is not in conflict with the university because it supports the development of the research and development activities. Its activities occur outside the university offices and its aim is to reduce the gap between academic know-how and labour market.

3.1.1 History

Alessandra Semenzato, professor of pharmaceutical sciences, proposed to establish an academic spin-off. The initial proposal took place in 1999 with the participation in the first edition of the announcement "Research projects" promoted by the University of Padua. Semenzato's idea was to establish a start-up to offer technological services for cosmetic companies on the basis of formulation studies (rheology). The competition announcement envisaged the financing of research projects in order to promote the launch of research activities. 189 research projects were presented including the R&D project proposed by Dr. Semenzato. Only the winning projects would have received the capital from the University and among these, even if it arrived in the final phase, there was not Dr Semenzato's proposal. After this event, years passed before it was discussed again. In fact, it was Unifarco⁵ years later, to

⁵ Unifarco was founded and is made up by pharmacists. It produces a range of cosmetic, dermatological, nutraceutical and make-up products that are effective, safe and affordable. Unifarco is leader in the design, production, and marketing of cosmetic products, food supplements and make-up products for pharmacists. It creates the following brand:

- Research Pharmacists: dermocosmetics, personal hygiene products and food supplements
- Unifarco Biomedical: medical devices and dermocosmetics

propose the realization of the R&D project previously conceived. The idea was to make innovative services for cosmetic sector with the support of Unifarco. The company decided to finance the Unired Srl project because it wanted to invest in R&D area. In the past, the Unifarco's team had collaborated with Dr. Semenzato yet. This relationship, over time, gave the incentive to invest in the ASO due to the confidence in the professor's capabilities.

Instead of private consultant to connect the university with Unifarco, the big company decided to establish a new venture that provided R&D activities for Unifarco in the first place, but was also willing to do it for others. In this particular situation, Unifarco invested in R&D without limiting itself in offering the service to others companies. Unifarco bought the offices for the Unired's activities and it signs each year a contract with serious of analysis that the Unired (subsidiary) has to conduct. The amount of contract guarantee to cover the expenses required for the business. Every years, Unifarco guarantees amount of net sales required to make R&D activities.

Unired is not a manufacturing company, the ASO offers services to the cosmetics market where the companies can always work at zero innovation; if they invest in innovation, they acquire a competitive advantage. Everyone can make cosmetics without technological innovation but if you want to grow in the market you have to make innovation, what Unifarco has done. Without Unifarco's financial support, Dr. Semenzato would not have set up Unired. With the only turnover of rheology it is not possible to support a company. Unifarco understood the role of innovation in the market. Research as an added value: Unifarco believes so much in the know-how developed in Padua that it puts the money to invest in these activities. The Unired activities can be used by the other companies, if the others are willing to invest in the academic knowhow. Unifarco is set to research value: the growth of know-how is growth for everyone. It has not bought exclusive know-how, it does not care. For pharmacists the relationship with Unifarco that has a share in an ASO with the University of Padua is a value. Unifarco focuses on collaborations: this is an investment for its without constraints.

Connecting innovation to university know-how is a great thing. In fact, within this innovative research service, Unifarco has grown. It has found its product differential over time and therefore this thing can become something more. Unired started very well because it has a fixed insurance given by Unifarco's capital but at the same time it has a limit that is to work with

Unifarco's competitors. This situation is complicated. Alessandra Semenzato is a scientific director and Unired's administrator, she can work with other companies without informing Unifarco, but obviously this for a commercial point of view has a limit.

Initially, Unired Srl offered services only for cosmetic division. Considering the positive trend of the company and the market growth, in 2016 Unired's managers decided to expand the R&D activities to the nutraceutical division under the responsibility of Dr. Stefano Dall'Acqua. The added activities have created profits immediately, with net sales of 56.000 Euros in 2017 (see Figure 8).

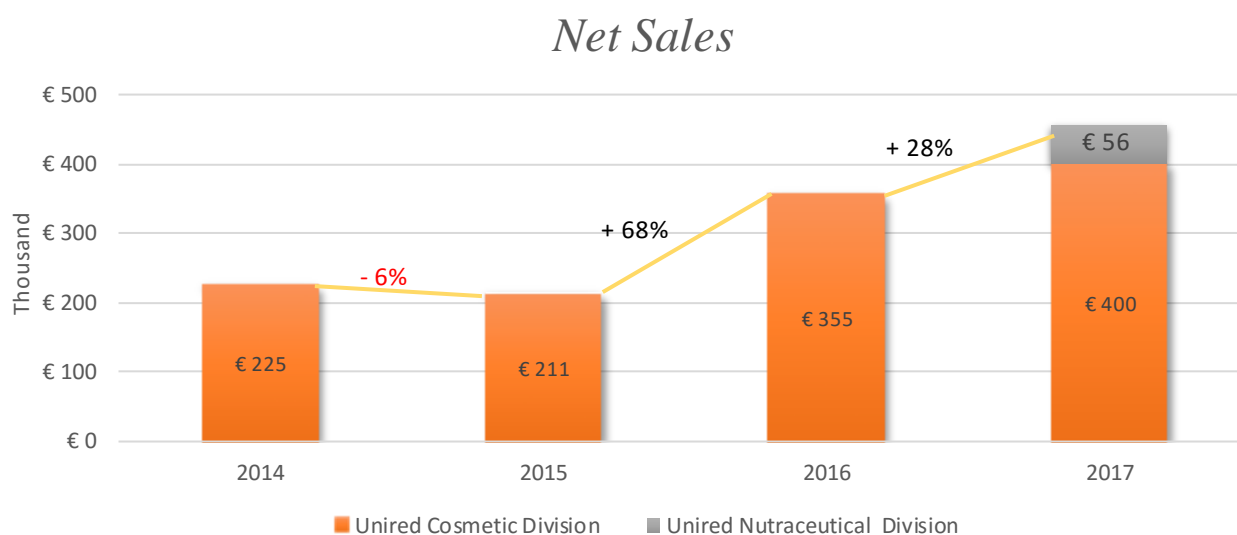


Figure 8 Unired's net sales

	2014	2015	2016	2017
Net Sales	€ 224.600,00	€ 211.223,00	€ 354.891,00	€ 455.977,00
Delta Net Sales		-€ 13.377,00	€ 143.668,00	€ 101.086,00
Delta Net Sales %		-5,96%	68,02%	28,48%
Unired Cosmetic Division	€ 224.600	€ 211.223	€ 354.891	€ 407.562
Unired Nutraceutical Division				€ 48.415
EBITDA	€ 42.586,00	€ 24.474,00	€ 39.452,00	€ 84.226,00
EBITDA Margin EBITDA/NET SALES	19%	12%	11%	18%
ROS EBIT/NET SALES	17,83%	10,39%	10,15%	17,14%
NFP (BANK NEGATIVE ACCOUNTS+ M/L LIABILITIES)-CASH	-€ 51.792,00	-€ 60.007,00	-€ 99.780,00	-€ 64.338,00
ROE NET INCOME/TOT. EQUITY	28,39%	10,97%	15,29%	26,9%
ROA EBIT/TOTAL FUNDS INVESTED	22,13%	14,58%	16,82%	26,9%

Table 2 The Unired economic trend

About financial data, the visual representation shows the growth of the Unired's activities over time (see Table 2).

The company's profitability is indicated by the EBITDA Margin. This indicator determines the Unired's earnings before interest, tax, amortization and depreciation. It is positive over time. EBITDA considers only the operative revenues and costs and it does not have an accounting standard value. For these reasons, we illustrate the other indicators in order to give a complete overview of economic trend of the company.

ROS measures how much profit is being produced per euros of sales. Between 2014 and 2015, we see a negative variation because of the higher costs for external consultants. We want to highlight that the value remain stable around 10% for these two years. To understand if the ROS value is a good or not, we refer to the standard value. For services business, the ROS value is evaluated a good performance indicator if it is higher than 5/6%. It is our case.

The net financial position indicates that the assets are higher than liabilities. Even if the value is indicated with negative sign, the figure reported indicates a positive value because we calculate the NFP as negative item minus positive ones. The company has financial position as 64.338 in 2017. For the other years, the company recorded positive value.

Another indicator is ROE. It indicate whether the company is growing profits without pouring new equity capital. This is the case of Unired. The growth is due to the net income that increase over time. The ROE at the end of the 2017 was 26.9%.

Finally, ROA indicates the return on assets and so it allow investors to understand if the company is able to create value. This indicator is considered good if it is higher than interest rate fixed by the central bank. Also for the ROA, we can sustain that the value found is a good performance indicator.

All these features show a positive trend of the ASO. The indicators show as the company is growing over time.

After this overall view of the history with the economic trend, we will start to analyze in more detail the firm Unired in the following section.

3.1.2 Corporate Identity

Unired vision⁶ is to develop synergy between academic knowledge and business culture giving to final customer personalized solutions and in the same time giving new elements for the advanced research.

⁶ A vision focuses on the future and what an organization wants to ultimately become

Manger Dr. Semenzato explains that their mission⁷ is:

“to offer technological services for cosmetic companies on the basis of formulation studies (rheology): the application rheology’s advantage in the development of the formulation. In this way, we promote the know-how of University of Padua. The idea is to sell a service based on a specific technology. This specific technology is physical techniques of product evaluation as the way to save a lot of time during production tuning.”

The development of new product have three phases: ideation, developments formulation and final valuation. Unired proposes to the company a typology of innovative services both in the technical approach and in positioning with respect to the product development. These services are not aimed at the final quantification of what has been achieved; these services define the parameter of the product structure with rheology application. This product knowledge allow the customer to understand if the new product created satisfy or not the fixed requirements before.

The advantages offered are different:

- Overcome empirical approach
- Rationalization of development phases of product formulation
- Increase customer know-how
- Pre-screening of products quality and consequently the optimization of the plan on the product final evaluation
- Reduction of study time of the products for the customers

In addition, Unired evaluates the products stability (basic service) and products performance with formulation consultant (advanced service).

Company’s mission is sustained by the fact that this type of activities are very expensive for the customers in term of investments in human resource and know-how. For this reason, the productive companies prefer to externalize this study (outsourcing). With this type of analysis, there is a faster development of the product and over time, a cost saving because it allows Unired’s clients to overcome the empirical approach to products development (driven-dream =

⁷ A mission focuses on today and on what an organization does to achieve its vision. The mission is the guide to realize the idea.

I hope to succeed). The consequences of this evidence is the improvement of the product quality. The services offered, to pursue Unired's objectives, are the following:

FORMULATION IMPROVEMENT

- Rheology applied to product formulation and development
- Physical characterization of complex fluids
- Stability risk assessment
- Associating and combining new raw materials

PERCEPTION EVALUATION

- Attitudes towards personal care products
- Perception and positioning
- Research on the impact of quality of life

COMMUNICATION DEVELOPMENT

- Product Targeting
- Debriefing plan of marketing strategy
- Scouting and benchmarking
- Training methods and using the social media

From 2017 Unired Srl enlarges its services to the nutraceutical division. The nutraceutical division, as cosmetic area, offers personalized solution that can not be categorized in fixed services.

Nutraceutical division is a company that deals with research and development in the nutraceutical and analytical field.

The main work takes place for Unifarco. Unired carries out basic research projects and also deals with analytical control and compliance of their products. An analytical control is carried out for prototypes that are developed by the R&D department for food supplements. The same control is conducted for prototypes developed by the laboratory that extracts the raw material (ie very original plants of the territory of Belluno or regional or even coming from an internal cultivation of Unifarco). The final aim is to create plant extracts to be used in the client's products, both cosmetic and supplements.

The basic research projects currently concern the development of new eco-sustainable solvents for the solubilization and distribution of water-soluble active products with bioavailability problems, the study of new potential raw materials and the formulation of new products.

Unired has contacts with various food / cosmetic / chemical companies that mainly look for "non-routine" analytical services that are not standardized that other companies in the sector do not supply.

In general, Unired offers innovative solution to the client's problems.

All services are offered with problem-solving approach. Unired's team propose personalized solution to its clients and the customer assistance is guarantee. The strength is the use of advanced technique and technical skilled. The specific knowledge allow Unired to offer alternative solution to better analyze the raw material or to propose a new raw materials. The ASO offers the added value.

The geographic area of action is mainly in Italy, and in 2017 Unired started to provide services also abroad.

Unired activities are conducted by professionals with advanced skills. The evidence of this fact is given also by the composition of Unired's corporate governance.

Actually, Unifarco owns 60% of share capital of Unired Srl. The other shareholders of Unired Srl are:

- Alessandra Semenzato: professor of the department of Pharmaceutical and Pharmacological Science, University of Padua
- Stefano Dall'Acqua: professor of the department of Pharmaceutical and Pharmacological Science, University of Padua
- Anna Belloni Fortina: specialist in dermatology and venereology
- Andrea Peserico: director of the dermatological clinic of the department of medicine
- Padova Risorse Srl: academic spin-off of University of Padua. Its activities are strategic, organizational, commercial and business consultancy.
- Giulio Vidotto: professor in psychometrics, mathematical psychology, perceptions and psychophysics, quality of life, functional measurement, research method

Shareholders

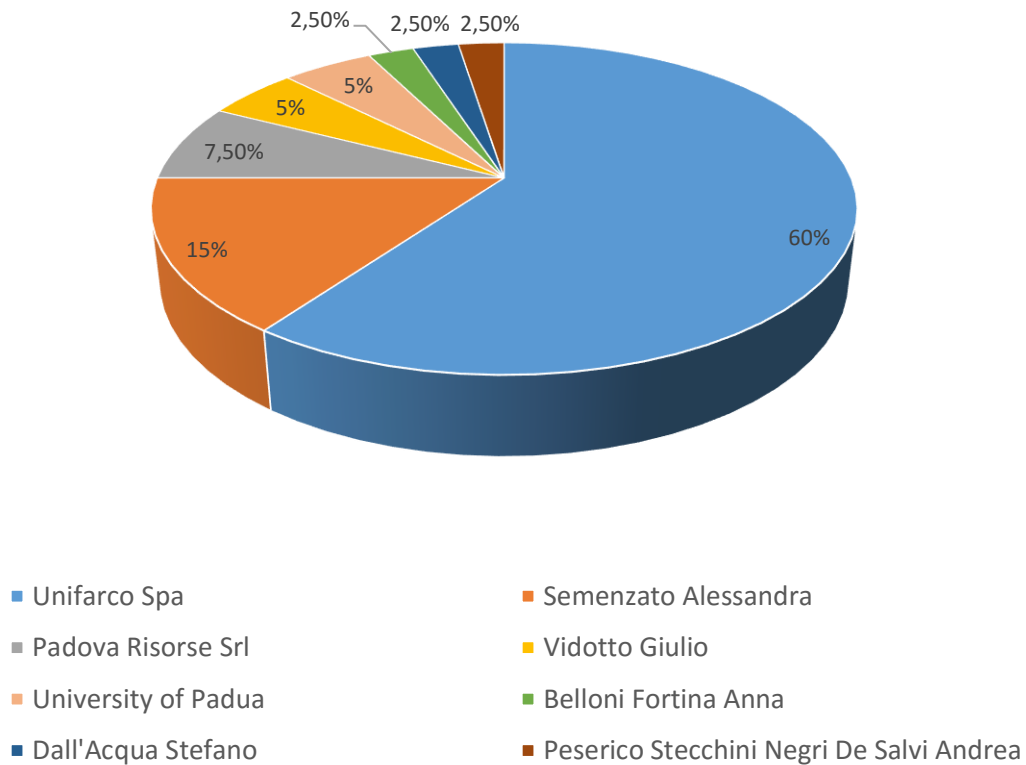


Figure 9 Composition of Unired's corporate governance

This initial composition is not maintained over time. Unired was born with an economic component represented by Padova Risorse Srl that completed the picture. Padova Risorse had to cover the commercial area. The commercial role of Padova Risorse Srl is not realized. The relationship between Unired and Padova Risorse was not successful. Commercial employees in Padova Risorse that had to take care of the commercial area for personal reasons went away. This role has never been covered by anyone. The only one who could carry out the commercial task is Dr. Corvi, who is member of board of director, but having a lot of commitment with Unifarco he is not able to develop and then follow a commercial area for Unired also.

The board of directors is composed by:

- Director Baratto Giovanni: teaching professor of Cosmetic Technology. Scientific Director of Unifarco.
- Vice-chairman Semenzato Alessandra: assistant professor of Chemistry, Department of Pharmacological and Pharmaceutical Sciences. Expert in rheology of complex fluids and in the development and analysis of cosmetic formula prototypes

- Council Members
 - Corvi Luigi: commercial director of Unifarco
 - Moro Stefano: professors of Medicinal Chemistry Molecular Modeling Section
 - Muzzu Paola: psychologist, psychotherapist

Unired management structure clarifies how decision-making is allocated to different level of the hierarchy (see Figure 10). The organization chart is composed by team with technical-scientific skills. For the missing skills, the company uses external consultant. In this way, Unired does not weight down the company structure. ASO wants to create a specialist consultant networking that support the company for complementary tasks required by the clients

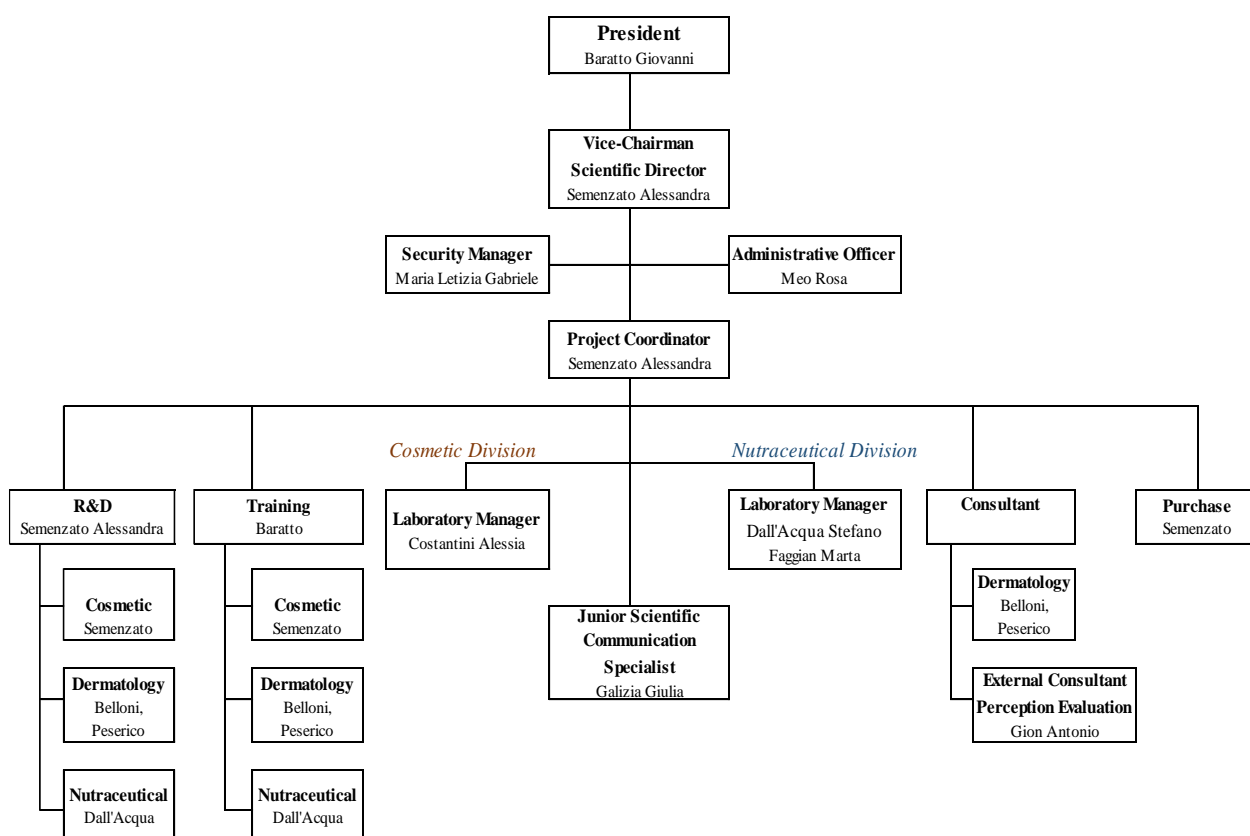


Figure 10 Unired's organizational chart

3.2 Unired's development

After the previous presentation of Unired Srl with the description of its history, its corporate identity including the company's mission and vision, its activities and the organizational chart;

now we focus on the Unired's development phases based on our method of analysis defined in table 1. We start from the first step "*Research phase*" with the description of scientific and economic knowledge of the company. Then we pass to the next one "*Opportunity framing phase*". In this section, we describe the business model of Unired Srl with the identification of the main building blocks. After we introduce the Business Plan. At first, the Business plan determines the company's mission and vision that we are defined in the previous part; for these reason we start with the SWOT Analysis. After there is the marketing plan. About the other plan, they are illustrated in the previous paragraph with the detail of management body and the activities conducts. Whereas about the financial data, we will analyze later this aspect linked with the strategic plan section. In this second phase emerge the importance of relationship between resources and capabilities of workers. The key resources in Unired Srl are the human skills, the advanced PPE and the financial support of parent company. The third step "Pre-organization phase" refer to the decision of establishing the Unired Srl. The company was born in 02 May 2012. This phase are not explained in the specific section because it refers to the action of the creation and in the concretization of the previous stages. For this reason, we pass directly to "*Re-Orientation stage*". It refers to the starting business, and in this section, we analyze the university role at first. Then we develop the strategic plan. During its business life cycle the company requires the realization of the strategic plan to understand in what way it intends to create value with the possible future development of the activities based on the specific strategy in line with the vision and the mission of the company. Before the creation of the strategic plan, we decide to introduce an analysis of the cosmetic and nutraceutical market trend. Then we formulate the strategic plan in order to increase the net income over time and reduce the weaknesses that we find in the SWOT Analysis.

The Unired Srl is in this fourth phase "Re-Orientation phase". It has not overcome the critical juncture of *threshold of sustainaliby* that allow company to pass to the final stage of "*Sustainable return*".

This analysis allow us the identification of the actual development stage but also the study of the single variables that are important for the company growth.

3.2.1 Research Phase

Starting point is identification of research result to commercialize. As anticipated in the history section, Dr. Semenzato Alessandra proposed Unired Srl project. Her figure of professor gives her the possibility to establish the academic spin-off composed by researchers' team. In the

previous chapter, we illustrated that to set up a new venture the founders should have two competences: scientific and economic knowledge.

Scientific Knowledge

All the professors and researchers engaged in the project are qualified and skill people. Everyone has university relationship. They are not replaceable for their tacit knowledge owned. One document that proves their capacities is the curriculum vitae of everyone. The composition of shareholders and of the board of directors suggest the specific capabilities in:

- Pharmaceutical and Pharmacological Sciences
- Medicinal Chemistry Molecular Modeling Section
- Cosmetic Technology
- Psychology and Psychotherapist
- Dermatology

Economic Knowledge

The Unired's members with scientific knowledge, have a basic economic skill. This is not sufficient to manage a business. To compensate this lack of economic competences, Unired's staff is composed by "Padova Risorse Srl" and Dr. Corvi Luigi. They had to affect the company's actions with their economic views. This was only the initial intention because they do not have an active role in the ASO. The lack of economic professional remain a constant condition over time.

Now we have to identify the activities that the company will make. In this initial phase, the critical point is the identification of technologies that could generate value. In our case, the *opportunity recognition*⁸ is represented by the use of rheology to create innovative services for the companies. Adding the study of the customer satisfaction, marketing, neuroimaging about the output produced. This create competitive advantage for the clients due to technological innovation. As anticipated before, everyone can make cosmetics and supplement foods without innovation. If you want to grow in the market, you have to make innovation. The companies as Unifarco are willing to invest in these services to create more value.

⁸ See section 2.2.5 Stage-based model; pg.34

3.2.2 Opportunity framing phase

After the identification of technologies to commercialize, the business professionals have to provide a business proposal.

At first, there is the identification of the main building block of business model (see figure 11). As explained in the previous chapter we use the version proposed by Anna Bialek-Jaworska and Renata Gabrylezyk.

Customer segments

Unired Srl identify its customers segments in medium and large companies. Companies that are willing to invest for improving the overall quality of their products and that can benefit from quickly marketing of their products.

The potential customers are:

- Small-medium companies
- Contractors in the cosmetics and nutraceutical sector
- Producers of raw materials for the cosmetics and nutraceutical industry that provide formulation advice to companies (B2B)

The target customers are represented by Italian companies as first step. Later, Unired will intend to offer its services to Europe companies.

Value Proposition

Unired's value proposition is achieved by meeting customer needs and to satisfy their preferences. The value created is:

- Innovation
- Quality
- Identity given by the fact that ASO is linked with the University of Padua. This can represent an safety in the mind of customers
- Productivity: the optimization of the product through rheological characterization entails for the clients
 - Significant reduction of development time and costs
 - Greater competitiveness on the market
 - Growth of internal knowhow

Customer relationships

The customer relationships establish have two main motivations:

- Customer retention
- Increased sales

Considering the type of services offered and the company' activities, the type of relationships established are:

- Personal assistance: clients communicate with a Unired representative
- Dedicated personal assistance: continuing human interaction between Unired and customers over a long period of time. This is a sort of personal relationship with the clients.

Potential Profits

The building block of “potential profits” refers to cost structure and revenue streams.

Cost structures refer to how the production costs are distributed. Unired is a value driven company because the quality of services produced is high. About the cost characteristics, we have to consider:

- Fixed costs: same regardless of quantity (salary paid, administrator remuneration)
- Variable costs: depend on quantity produced (raw materials)
- Learning economies: cost advantages by increased services offered

Revenue streams refer to how money is transferred in Unired by selling the services. The amount of revenues generated depend also by the type of relationship with the clients.

Key Activities

Unired's key activities are:

- R&D
- Training and coaching of external individuals who want to update their knowledge
- Problem solving: consultant activities focuses on problem-solving activities requiring advanced knowledge and continual staff training.

Firm Survival Activities

Generally, the academic spin-off protects its innovation with the legal means to avoid the imitation of competitors. For Unired Srl, particular case, this activities are not conduct because the protection means are applied directly by Unifarco. Unifarco as parent company acquires the innovative knowledge and directly it protects the research result to produce in exclusive way the related final products.

Key Partnership

Even if the model proposed by Anna Bialek-Jaworska and Renata Gabrylezyk not include this building block. Considering the Unired’s history establishment, we decide to include this element: Unifarco as key partnership. Without the Unifarco presence, maybe Unired would not exist.

Another key partnership is University of Padua that cover an important role for the R&D activities.

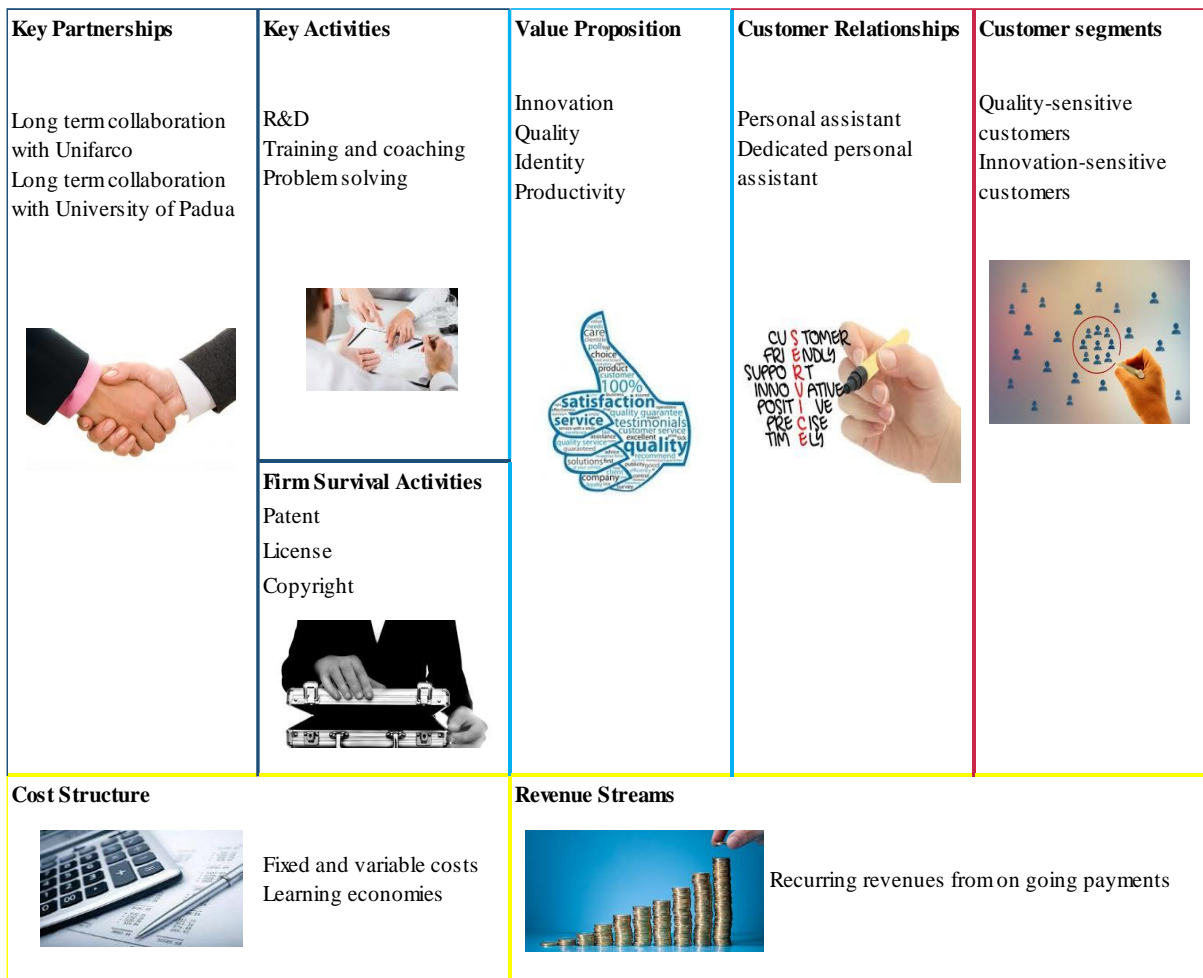


Figure 11 Building blocks of business model

After the presentation of Unired Srl: company’s history, services offered, management team and main financial indicators. We defined its mission and vision. We specified the building blocks of the business model. Now, based on the Business Plan scheme we have to clarify the following point:

- Competitive Analysis (SWOT Analysis)
- Marketing Plan

SWOT Analysis

Unired' SWOT Analysis defines Strengths, Weaknesses, Threats and Opportunities of the company. Strengths and Weaknesses have internal origin. Whereas Threats and Opportunities have external origin (see figure 12).

<p style="text-align: center;">STRENGTHS</p> <ul style="list-style-type: none"> - Flexibility of supply - Competitive cost - <u>Innovative PPE</u> - Univeristy'networking - <u>Unifarco prestige</u> - Value of university brand - Integration of University and entrepreneurial cultures <ul style="list-style-type: none"> - <u>Academic and Professional Knowhow</u> - Heterogeneity of the company composition 	<p style="text-align: center;">WEAKNESSES</p> <ul style="list-style-type: none"> - <u>Need to develop a commercial networking</u> - Possible internal constraints of the acadmic structure <ul style="list-style-type: none"> - <u>Internal constraints of Unifarco structure</u> - <u>Office restrictions on the breadth of services offered</u> - <u>Need to develop marketing</u> - Lack of benchmark on similar services - Forecast the net sales is difficult because Unired offers personalized services
<p style="text-align: center;">THREATS</p> <ul style="list-style-type: none"> - Entrepreneurial culture not inclined to the use of high know-how <ul style="list-style-type: none"> - <u>This type of consultant is considered as subordinated activities and not as an important instrument to develop the business</u> - Market bias against the academic components 	<p style="text-align: center;">OPPORTUNITIES</p> <ul style="list-style-type: none"> - Significant potential market - Lack of similar competitors - <u>Possibility to offer a competitive commercial supply</u> <ul style="list-style-type: none"> - Customers need quick answers - Customers need competent answers - <u>Customers need innovative answers</u> - <u>Customers need personalized answers</u> - <u>Public subsidies</u>

Figure 12 Unired's SWOT Analysis

The sources of competitive advantage are:

- Advanced quality services
 - Knowledge supported by University of Padua
 - Careful selection of external consultant for adding competences
 - Focus on quality
- An efficient production process
 - Quickly times
 - Personalized solution for each type of clients
 - Economies of scope
 - Autonomy and responsibility in the work of employees

- Key relationship
 - The presence of Unifarco as parent company, attracts customers
 - Skill consultants who work for Unired: Dr. Baratto, Dr. Semenzato, Dr. Peserico, Dr. Gion, etc.
 - University of Padua that give a sort of certification of advanced consultant offered to the clients

Marketing Plan

Unired demands its customers to invest in improving the product quality. This idea of quality should be instill in the clients mind.

Initially, the marketing plan is based on the direct contact with the clients though presentation days and public documentation. Adding activities consist in proving the services to increase the client's awareness on the services produced and on their potentially.

Initially, the clients of the company are part of University and Unifarco's contacts. Also, they can arrived by personal relationship with the consultants engaged in Unired activities.

After, Unired will increase advertising through the publication in the special magazines and the use of social media pages.

About the prices, the company for the basic services applies minimum prices of 250/300 Euros for sample, but for specialized services, the price depend on the type of tasks required. Unired applies discount policies based on the number of the services commissioned by the same company. It establishes a discount police of 10% on the total amount.

Summarizing, the background of founders is technical and this allow Unired to offer an innovative services. The key resources are skilled personnel and technical knowhow. About missing competences, Unired intends to contact external consultants. The team members conduct in responsible way their tasks. Everyone know their tasks and they are responsible for their actions. All these aspects represents the *Entrepreneurial Commitment*.

The technical skill and tacit knowledge of academic actors convince Unifarco to invest in this new venture. The peculiarity is that Unifarco proposed to academic researchers to create this new business because it believe in the University's knowledge. This initiative was influenced by precedent collaboration with Dr. Semenzato. Unifarco was an idea of knowledge potential to exploit (*Threshold of Credibility*).

In 2012, the people involved in ASO's project decided to establish the Unired Srl.

3.2.3 Re-Orientation stage

After the creation of academic spin-off, we want to analyze the University's role in this context. University of Padua owns share capital of 5% of total equity. It does not provide financial capital for the establishments as an incubator. It offers other services that are:

- The use of university department with the related PPE. This allow Unired to exploit other space. The Unired's legal residence is restricted office
- Graduate students with scholarship are paid by the University but they work for Unired Srl in the departments. In this way, Unired labour force increases without an increase in term of payroll. The scholarships are assigned by Dr. Semenzato because each professors has a funds to invest in graduate students.
- Students who are about to graduate and apprentice support the Unired's employees in their works. The students can promote new idea with their thesis or report. Unired gains time and it receives external incentive in term of academic knowhow.
- Some raw material are received as sample because Unired is in the university environment.
- Unired gets University's reputation on loan. The connection with the University represents a sort of certification of knowledge owned.
- University networking creates value for Unired, in fact it can exploit the university'contacts. For example Unired can achieve other researchers.

Between Unired and University there is an agreement. Each year Unired settles annual payment to benefit for all these services. This agreement in term of money is convenient for Unired: the advantages received are higher than costs sustained.

A certain point of business life cycle, the company defines its strategic plan to forecast the next three years in order to understand in what way the company can increase its profit. Actually, Unired is at this point of the development phases.

Before analyzing the strategic plan, we want to give an overview of the market situation.

3.2.3.1 Market Analysis

From 2017 Unired is a company divided in cosmetic division and nutraceutical division. For these reasons, we have to consider two sectors in our market analysis: cosmetic and nutraceutical.

Cosmetics sector is into a period of growth in the market. The production value have increased by five points, pushing the total to 10.500 million euro in 2016. In 2017, the global turnover is expected to growth by 4 percentage points with more or less 11.000 million euro (see table 3)⁹. In the table, the turnover of Italy is specified for distribution channels. In the category of traditional channels are included pharmacies, perfume shops, mass markets, door-to-door and mail order sales. Whereas in the professional channel, there are beauticians and hairdressing.

Evolution

The cosmetics industry (millions euro)

<i>figures in million euro</i>	<i>final figures 2015</i>	<i>variation % 2015/14</i>	<i>final figures 2016</i>	<i>variation % 2016/15</i>	<i>forecasts % 2017/16</i>
Turnover Italy (sell-in)	6,164	1.5	6,209	0.7	1.3
Traditional channels	5,504	1.8	5,540	0.7	1.3
Professional channels	661	-2.4	669	1.3	1.5
Exports	3,807	14.3	4,275	12.3	8.0
Global turnover	9,971	6.0	10,484	5.1	4.0

Table 3 Evolution of cosmetics industry 2015/2017

The cosmetics industry continues to focus on the investment in innovation and on the qualification of production capabilities. About the export, the results for 2016 approaching 4.300 million euro (+12.3) and this value expected to increase by eight percentage points in 2017.

In the cosmetics export (see figure 13), the Italian companies are taking advantage of these continued positive trends. The “made in Italy” is becoming a strength.

⁹ Cosmetica Italiana: the personal care association
www.cosmeticaitalia.it

The most widely-exported Italian products are:

- 1) Toilet waters and colognes in the first place with almost 880 million euro (+5.8%)
- 2) Make-up products with 794 million (+25.2%)
- 3) Body care and hair care both with value of 730 million euro

The single best selling product is cream with more than 730 million euro (+21.2%).

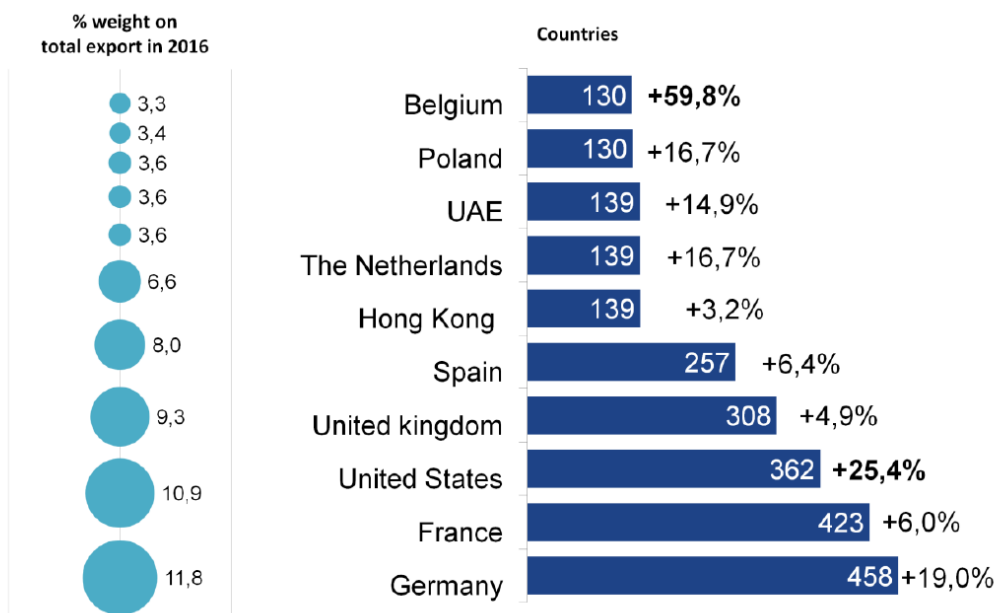


Figure 13 Italian cosmetics industry exports – top 10

About the sales of cosmetics, a recent analyses on the distribution channel has identified the consumption patterns (see figure 14)¹⁰. The cosmetic market is growing over time. There are real possibilities to acquire new clients that want to consolidate their position in this growing market.

¹⁰ Cosmetica Italiana: the personal care association

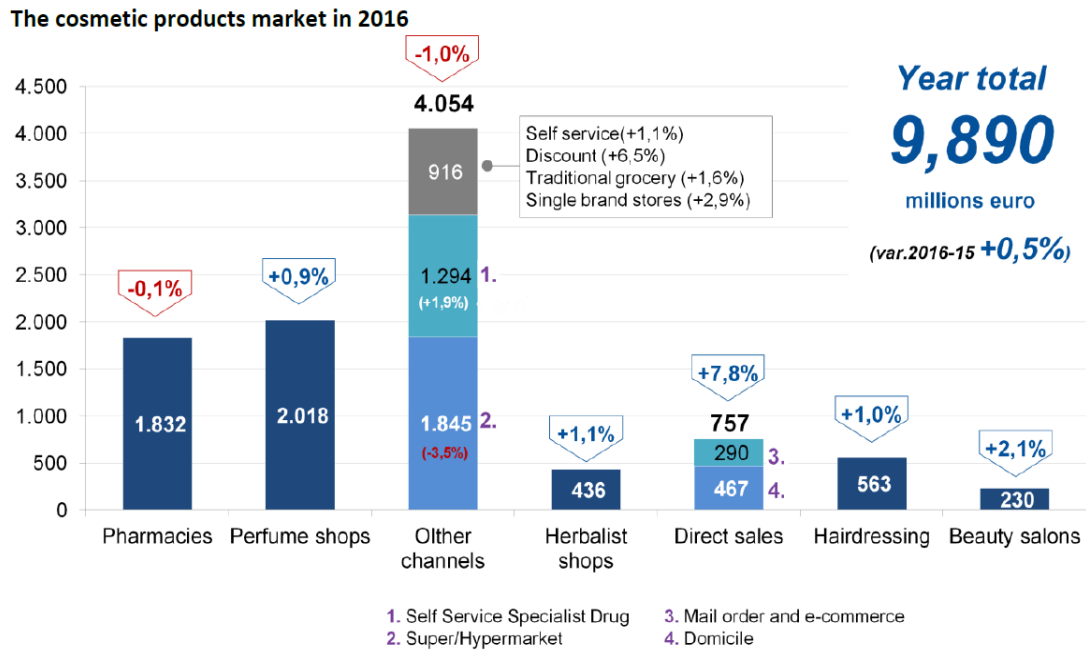


Figure 14 Cosmetic market channels (2016)

Cosmetica Italia forecasts the data for 2017 of the distribution channels of cosmetics,. It estimates the percentage variation respect to 2016:

- Pharmacies + 0.5%
- Perfume shops 0%
- Hairdressing +1.8%
- Herbalist shops + 0.9%
- Direct sale including e-commerce +8.5%
- Beauty salons +2.3%

About the products sold, the most products sold are for the body care and for face care. Considering that the parent company support the pharmacies selling its products, we notice the increase in sales of pharmacies channel. The positive variation is particularly significant for the products of body care and face care: respectively by +0.9% and +2.3% (see Table 4)

Total retail consumption of products - traditional channels in 2016								
Retail prices VAT included - figures in millions of euro								
	Total	Pharmacies	Perfume shops	Mass market and other channels	Total var %	Pharmacies var %	Perfume shops var %	Other channels var %
	8,340.0	1,831.6	2,018.4	4,490.1	-0.2	-0.1	0.9	-0.8
Hair and scalp care	1,063.1	185.5	42.0	835.7	-4.1	-0.4	-7.1	-4.7
Products for face care	1,313.7	499.4	401.4	413.0	1.2	2.3	2.4	-1.1
Products for face make-up	403.9	56.8	179.7	167.5	4.5	-2.2	2.8	9.1
Make-up packs	30.1	0.1	28.4	1.6	2.0	-51.7	1.2	23.8
Products for eye make-up	333.0	29.7	132.1	171.2	0.7	-9.1	-1.5	4.4
Products for lip care	280.9	45.2	95.6	140.1	6.8	3.6	9.0	7.1
Products for hand care	177.9	37.0	29.5	111.4	-5.0	-2.1	-11.5	-4.1
Products for body care	1,383.1	447.2	132.1	803.8	-2.1	-2.1	-4.8	-1.7
Products for body hygiene	1,102.1	272.6	28.8	800.7	-1.1	0.9	-7.5	-1.6
Products for oral hygiene	714.4	145.0	4.4	565.1	0.1	-0.8	0.0	0.3
Skin cleansing products for children	205.4	90.7	-	114.7	-2.0	-0.9	-	-2.9
Products for men	165.9	10.8	38.4	116.7	-1.7	-0.9	-1.8	-1.8
Alcohol-based perfume products	1,064.2	11.8	808.1	244.2	2.5	2.1	1.4	5.5
Gift packs	102.3	-	97.9	4.4	3.0	-	3.2	-1.1

Table 4 Total retail consumption of products (www.cosmeticaitalia.it)

Now we focus on the **nutraceutical market**. The study of FederSalus shows that the value of this sector is growing. In 2016 the market sector records the following data¹¹:

- the turnover increased by + 6%
- volume of sales growth by 4.8%
- global turnover with 2.7 billion euro

Over than 50% of companies sustained investments. In detail, they invested in:

- product innovation (68.9%)
- marketing and communication (62%)
- PPE (55.6%)

¹¹ FederSalus's estimation based on the sample of 112 companies

- Training (52.6%)
- Process innovation (46.7%)

Nutraceutical market has international prospective. In 2015 FederSalus notices that big companies with net sales of 12.2 million euro operate in the international markets. The thirty percentage of these companies receive one quarter of internal turnover from abroad.

Recent data shows in November 2017 an increase of internal turnover by + 6.9% with a positive variation of the volume sales by 5.2%. The global turnover overcomes 2.9 billion euro.

In 2016 the pharmacies represented by 80%¹² of the total value generated in the nutraceutical market. The supermarkets registered the higher percentage of growth by 13.4%.

The previous figures illustrate the positive trend of the nutraceutical market because also this market sector as cosmetic invests in quality and innovation.

In general, talking about spin-off we can sustain that the market is growing but the problem is to enter in the market. Even if the academic spin-offs are growing in term of numbers and in term of profits generated, they are distant from the market. In Italy, 46% of ASO is located in the North, 34% South and 20% Center (see figure 15)¹³.

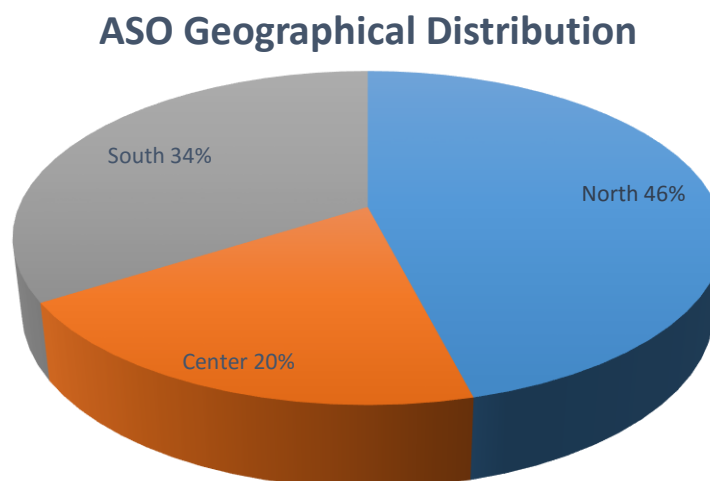


Figure 15 Geographical breakdown of the ASO in Italy (2017)

¹² www.ilsole24ore.com

¹³ Giampaolo Colletti's article on "Il Sole 24 Ore" 01/16/2018

The 40% of academic project are protected by license but only 35.4% of ASO realize a business partnership. Unired Srl is included in this 35.4%.

As showed by PNI Cube only 3.1% of ASOs are in the market, the remaining part has some difficulties to enter in the markets. The majority of ASOs (58%) present services or products that are prototypes. By 61.5% of ASOs search business partnership. Our case does not have a market position as the majority of spin-offs.

3.2.3.2 Strategic Plan

After the beginning business years, the company make the strategic plan to reviews the firm situation and forecast the development for the next three years. Considering the market analysis and the SWOT Analysis illustrated in the previous section, we define the strategic plan of Unired Srl starting from these points.

Executive Summary

At first, Unired's strategic aims are to reduce the company's weaknesses¹⁴. The company's strategy for the next three years is planned to generate more "external" net sales in order to become more independent from parent company. This represents the main goal of ASO. In 2017 Unifarco's commission covered more than 67% of net sales. This percentage impact also on the availability of the labour force to accept external order.

Starting from the next year the company will undertake a growing path characterized by an important changes, such as:

- Hiring of qualified personnel
- Introduction of royalties system with parent company
- Rent new space office
- Advertising in specialized sector such as linked-in and scientific magazine
- Renewal the website
- Hire multifirm agent
- Introduction of managements system

¹⁴ SWOT Analysis; pg59

Over time, Unired will try to increase the collaboration with other business partner in order to raise the client’s networking. All the strategic actions are summarized in the strategic map with the total amount of costs required for the next three years (see figure 16). The strategic plan focuses on these main actions.

	Perspective	New Investments	Total amount (3 years)
Profitability	Increase revenues → Profitability	Personnel dedicated to study innovative formulation for face care products (Royalties with parent company on cosmetic product line)	€ 17.400,00
Customer	Operational efficiency → New clients	Scientific article in specialized magazines to attract Unired's customer segment	€ 13.500,00
		Multifirm agent who manages the commercial area	€ 45.000,00
		Renewal the website to integrate the added activities conduct by nutraceutical division	€ 1.000,00
		Social media pages (Linked-in) to create a connection with the clients with the same interests.	€ -
Internal	More qualified personnel → Adequate space office	Hire two employees: - one for cosmetic division - other for nutraceutical division	€ 1.605.600,00
		New Office to manage more projects	€ 59.904,00
		Managment system (Starty ERP) to improve the communication between administration and operative section	€ 4.000,00
Learning	Specific know-how	Worker's training program to improve know-how	€ 12.000,00
TOTAL			€ 1.758.404,00

Figure 16 The strategic map

These actions have a timeline. In 2018, Unired’s action will be:

- The purchase of management system
- Recruitment of one workers for nutraceutical division
- Selection of multifirm agent to manage
- Publishing of scientific articles
- Creation of link-in social page
- Rent the new office
- One person dedicated for the formulation of cosmetic line, in order to propose Unifarco Royalty system.

In 2019 the company will decide to:

- Hire new worker for cosmetic division
- Publishing of scientific articles
- Gain the revenues from the introduction of royalties system

Between the actions planned for the next three we do not consider the investment in training program because Unired each years invest in the knowhow of employees. This activity is included in the ordinary investment operation that the company realized. The same concept is applied to the investment in PPE because each year more than 50% of the net income t-1 is invested in the tangible assets. Among the investments, we will include the furniture for the new space office.

The goal for the long term is to consolidate the relationship with the existing clients at first. Then Unired wants to attract new client and among them to create a partnership with other business entity. Consequently of the company growth, Unired will develop an appropriate commercial division to run all relationship and capture the market opportunities.

About financial data, we compare the strategic plan that considers the implementation of new strategy with the stable plan without the adoption of new strategy (see table 5). The figures show that with the implementation of new strategic action Unired records higher growth than the application of stable plan.

Considering the positive trend of Unired Srl over time, for the forecast of stable plan we consider the growth by around 20 % each year. The constant growth by 20% is justify by Unifarco's willingness to invest in the R&D activities over time.



	2016	2019E stable plan	2019E strategic plan
Net Sales	455.977	749.131	1.108.302
EBITDA	€ 84.223	€ 137.259	€ 194.844
ROS	17,14%	14,88%	15,60%
NFP	-€ 64.274	-€ 235.625	-€ 139.135
ROE	26,92%	19,65%	27,30%

Table 5 Stable Plan VS Strategic Plan

The cosmetic revenues will increase due to the introduction of royalties system but also an increase in “external commission”. With the term “external commission”, we refer to all clients that are not Unifarco firm. The services offered by nutraceutical division will increase due to a positive trend of the market. The growing market is only one reason that justify the increased revenues. We have to consider the impact of multifirm agent’s activities but also the new hire personnel who allow Unired to follow a larger number of commission. Again, more professionals are willing to invest in innovation, as showed in the market analysis. The awareness of Unired activities increases because of introduction of advertising in specialized magazine, active social web life and the promotion realized by commercial agent.

Obviously, both divisions record an increase of Unifarco investment (see Table 6).

We want to add that the consultant costs and the payroll represents the greater part of Unired’s expenses. Over time, the average cost of labour force will decrease because of achievement of economies of scope. The cost of consultant is around 50% of net sales gained for each division. The role of consultant is linked with the type of services claimed. Unired refers to vary type of consultant specialized in the required competences.

	HISTORIC				FUTURE											
	2017		2018E		2019E				2020E							
UNIRED NET SALES	455.977				592.770				800.240				1.104.331			
Unired Division	Cosmetic		Nutraceutical		Cosmetic		Nutraceutical		Cosmetic		Nutraceutical		Cosmetic		Nutraceutical	
Net Sales for division	410.379		45.598		444.578		148.193		568.170		232.069		773.031		331.299	
Clients	Unifarco	Others	Unifarco	Others	Unifarco	Others	Unifarco	Others	Unifarco	Others	Unifarco	Others	Unifarco	Others	Unifarco	Others
Net Sales for clients	290.200	120.179	19.350	26.248	315.650	128.927	59.277	88.916	357.947	210.223	81.224	150.845	401.976	371.055	132.520	198.780
% of UNIRED NET SALES	63,6%	26,4%	4,2%	5,8%	53%	22%	10%	15%	45%	26%	10%	19%	36%	34%	12%	18%
Royalties on Cosmetic formulation	0				0				3.470				3.971			
TOT REVENUES FOR DIVISION	410.379		45.598		444.578		148.193		571.641		232.069		777.003		331.299	
TOTAL	455.977				592.770				803.710				1.108.302			

Table 6 Revenues and costs distribution between Unired divisions

Marketing strategy

The criticality of Unired is the lack of commercial propensity: the researchers’ activities are technological-scientific driven. Common companies are marketing driven: the market drives the company. While Unired has neither the marketing component nor the commercial component. If Unired began to engage seriously in the commercial area, it would risk losing its autonomy. As then the market would impose times and methods to the technological and scientific part. In this case, Unired would lose its nature as a company offering innovative and customized solutions. To offer a personalized and technological service, employees must have time to study the problem and possible solutions. Furthermore, it should be added that every problem requires its timing that can not be standardized. Standardization will result in a limitation in freedom and the services offered will not reach the high degree of personalization.

The standardization strategy could be applied to basic analysis such as

- Stability analysis
 - Required 30 workers days
 - The amount required is 1000.00 + VAT
- Microscopy
 - Required 30 worker days
 - The amount of 500.00 Euros + VAT

We select these types of services because they respect the requisite of innovation and they not require more time. Not all the other companies offer these type of services.

Unired could be offer a limited number of innovative services that require a little effort in order to increase a margin generated by other clients. In this way the company could capture little commission without huge effort but especially, it maintains its approach of problem-solving.

For Unired's clients, it represents the symbol of R&D: the relationship with the University of Padua is value added. This perception is increased by Unired's employees who are precise and serious and try to get the best out for their customers. The company is always in contact with the academic knowledge and follow the innovation. The introduction of the commercial aspect would probably reduce this technological-driven perception.

Unired is technological-scientific driven. Researchers and professors represent the technological components of ASO. Unifarco is increasing its willingness to invest in R&D and so in the ASO "Unired Srl". The increased investments are justify by the good client's perception of Unired companies.

About this argument, Dr. Baratto added:

“each year Unired records a growth by 20%. This positive result is enough. Our clients are satisfy of Unired's activities. The lack of commercial area not necessary represent a weaknesses because the company is focus on the research and innovation. The marketing development with the consequently standardization of the product could be affect the strength of Unired”

Our marketing strategy concerns to make marketing with advertising for determined category of clients. The advertising is direct to specific clients with the willingness to improve the quality of their product. Unired does not offer the common services and so it not make marketing in the “common way”: i.e. attractive web site, list of services offered with the detail. Maintaining its nature, Unired wants to increase the revenues. To make this, Unired makes specific

advertising for professionals that are competent in the same scientific sector. Through scientific publication and linked-in social page, Unired tries to attract a specific segment of customer: people who want the innovation (see table 7).

ADVERTISING & PROMOTION				
	2018E	2019E	2020E	
Scientific articles in specialized magazines	€ 4.500	€ 4.500	€ 4.500	
Number of articles	3	3	3	
Amount for each articles	€ 1.500	€ 1.500	€ 1.500	
Social media pages: Linked-in	€ -	€ -	€ -	

Table 7 Annual investment in advertising

Dr. Semenzato, who is scientific director, manage the “commercial” area. She finds the new clients and defines the offer. Obviously, the commercial activities is not her competent area. For these reason, we decide to consult a **multifirm agent** with commercial skill.

Considering the actual dimension of Unired, we decide to pay an external consultant with private VAT. This relationship will be regulated by annual agreement. The annual payment will be 15.000 Euro as fixed amount, in addition to commission by 1% of the total sales realized.

If the relationship between commercial consultant and Unired’s staff will become successful, in the future Unired will decide to develop internally a commercial division.

Multifirm agent should have the following characteristics:

- Excellent knowledge of both commercial channel and sales techniques
- Medical-scientific knowledge
- Ability to manage heterogeneous customers
- Portfolio of consolidated customers developed in the reference commercial channel

The activities that external agent will develop are:

- Linked-in support. Using the web social page not only for scientific information but also to increase the image and perception of Unired
- The ability to have access to public subsidies
- To make an effective analysis of the market and commercial opportunities to perform business development
- Constantly maintaining the relationship with the customers though a high level of services and high level of attention of the relationship
- Manage existing clients with constructive and effective systemic relationship

- Production of periodic reports on the actions taken on the evolution of the reference market and on the possible new business opportunities
- To promote the exhibitions

Now, we can start to illustrate the logic under the Unired's web site. The web site is not define clearly because Unired intends to attract only specific types of customers: people who seek innovation. The potential customers do not research the common services that other company can offer without advanced skill. Leaving the website very vague pushes the customer to contact ASO in person to understand what Unired actually do. This type of interaction allows company to make a double function: Unired who tries to understand if the request is in line with its nature and the customer who understands if the company can satisfy his needs or not.

Actually, the web site do not indicate the evolution of the Unired. There is not the information on the two division: cosmetic and nutraceutical. Again, Dr. Dall'Acqua's role is not illustrate. The information are not update with the real situation of Unired. For the update of web site, we estimate a cost of 1.000 Euros in 2018. The development of new web site will be support by the advice of commercial consultant.

Royalty System

In 2016, Unifarco was the first in the market in the dermo-cosmetic sector. In the cosmetic market, Unifarco produces 10 mln of products annually. It covered the fifth place in the selling of nutraceutical products.

In 2017, it was fourth in maquillage before Rouji and La Roche. Unifarco is the multinational with the highest growth by more than 25%¹⁵. The Unifarco's products are distributed in 2.600 pharmacies located in Italy and others 1.900 situated abroad¹⁶.

In 2016, this company recorded net income of 71 mln (+15%) with the forecast on the growth by +18% for 2017. The main element of this success is the research and the relationship with the University of Padua focus on the academic knowledge (Unired Srl).

Given an idea of the market position of the parent company with its potential, we explain the introduction of royalty system with the Unifarco. The actual relationship between Unired and Unifarco is based on annual agreement. The amount of agreement is based on the services

¹⁵ www.repubblica.it : Roberta Polini's article, 11/06/2017

¹⁶ Beauty.pambianconews.com : "Unifarco punta a 20 mln di euro" 07/03/2017

required, obviously. The capacity of Unired to generate the formula is given by advanced knowledge of raw material and chemical relationship among the elements. Unired intends to exploit these competences with a royalty. We suppose the formulation of cosmetic product for actinic keratosis that Unifarco will produce and instead to receive a fix amount given by agreements, Unired proposes to receive 4% of net sales realized for this skin cream.

In 2018 Unired will engage in the formulation of the product.

We suppose that Unifarco will start the new production in 2019 (see table 8). Initially the launch of new product is restricted to Italy.

	2019		2020	
	Pharmacies	Wholesalers	Pharmacies	Wholesalers
Products allocation hypothesis	6	6	6	6
Distribution channel	1000	50	1000	50
Sub-Total (Products distributed)	6000	300	6000	300
Reorder hypothesis	3	9	5	12
Distribution channel	500	60	500	60
Sub-Total (Reorder products)	1500	540	2500	720
Total budget of products realized	€ 7.500	€ 840	€ 8.500	€ 1.020
Price of cosmetic product	€ 10	€ 14	€ 10	€ 14
Total revenues Unifarco	€ 75.000	€ 11.760	€ 85.000	€ 14.280
Royalties	4%	4%	4%	4%
Unired's revenues	€ 3.000	€ 470	€ 3.400	€ 571
Total revenues Unired	€ 3.470,40		€ 3.971,20	

Table 8 Unired's royalty system

Management System

The next year Unired will invest in management system (see table 9). The aim of this choice is the improvement of the company organization.

The actual organization system is manual. There is a lack of update in real time of individual task. Each one has its task and the communication of the development happen with no-periodical data. Obtaining the information of the projects means to write the email to ask more details, because only who manages the project know the related evolution. Nobody has the general view of all projects, especially between cosmetic and nutraceutical division.

The management system has to run from the composition with creditors to the issuing of the invoice. Between the initial and ending phase, the software manage the development of the

projects. When Unired start the client's commission, in the database there will be the deadline, the name of responsible with the difficulties degree. The responsible of the commission has to put in the software the project progress. Obviously, the software is shared between team members in order to give an overall view of existing projects. This system allow Unired to share in equal way the projects to avoid that someone has to manage too projects compared to others. Another advantage is given by majority responsibility and respect of the deadline because there is a sort of control: everyone can see if you respect the deadline. There will be a promotion of correct behavior.

To summarize, a software will help to:

- Manage the project
- Coordinate administration with laboratory's activities
- Increase the supervision of projects development phase
- Reduce the update time because everyone can follow the progress indicated in the software
- Increase the responsibility

MANAGEMENT SYSTEM			
	2018E	2019E	2020E
Software	€ 4.000		
Annual assistance	€ 200	€ 200	€ 200
TOTAL	€ 4.200	€ 200	€ 200

Table 9 Investment in management system

The Revenue Plan

Cosmetic and Nutraceutical division produce the Unired's revenues. From 2019, Unired will gain the royalty on the Unifarco's products sold (see figure 17). The visual representation shows the higher creation of the total value over time and the incidence of each source of revenue. In detail, we see an increase of revenues that are generated by others clients. The growth in term of sum of money received increases over time.

In 2018 the total revenue will be around 600.000 Euros (+30%). In 2019 the revenues will reach 800.000. If we look the revenue generated by contractual agreement (without royalty income), we notice an increase in value by +35%. Finally, in the last forecast year the higher value will be 1 million.

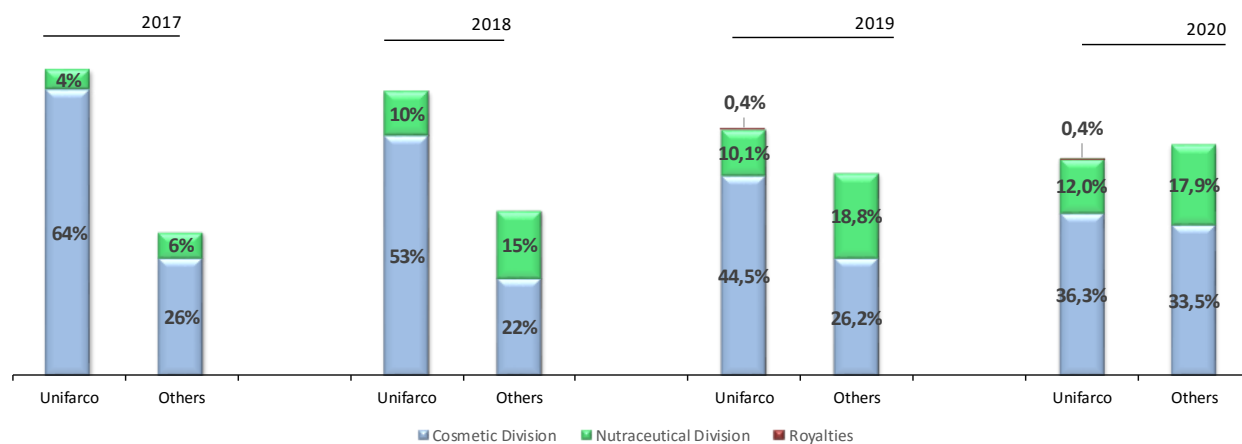


Figure 17 Trend of Unired's revenue

The Human Resources Plan

The main initiative about the Unired's human resources concerns the new hiring at first. In our action plan, we include the training activities implicitly, because the training activities is present in Unired continuously.

Increasing the labour force is indispensable action to manage the larger number of commissions. Actually, Unired has only two employees who manage and conclude the projects: one in the cosmetic division and the other in nutraceutical division. Only two people are not sufficient to manage unexpected commission. Unired is not able to face unexpected increase in working. The new two workers will be classified within IV category of business agreement (see figure 18). The annual salary will be equal to 22.300 Euros. The human resource bridge shows in more detail the increase in payroll over the year. We decide to hire an employee in the nutraceutical division in 2018 and in the next year to hire the other worker for cosmetic division. This choice is justified by the fact that in the cosmetic division each year there are undergraduates and graduate students with scholarship who works in Unired.

These investments are rewarder by better internal technical efficiency.

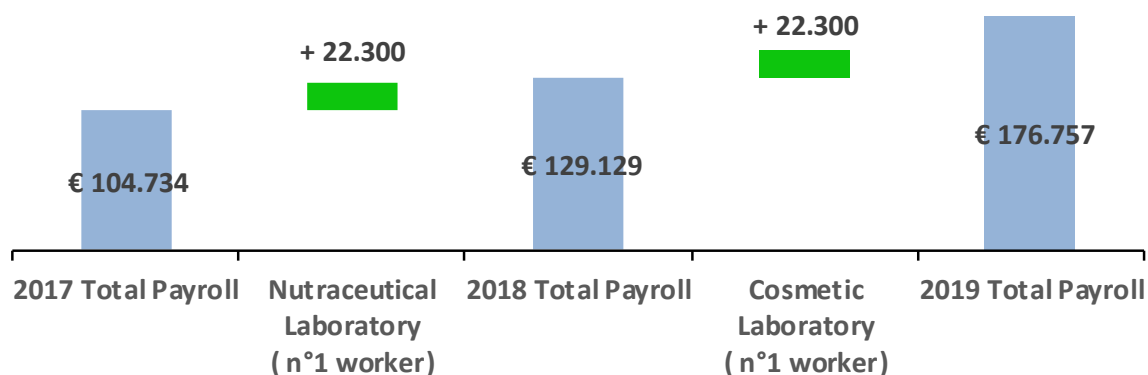


Figure 18 The trend of human resource

About the human resource employed in Unired, as anticipated in the “marketing strategy” section, we decide do not employee a commercial worker in permanent way. For the next three years, we hire only two workers and about the competences not own, Unired will pay external consultants.

Financial Data

Unired will increase the net sales because of strategic action implied. The investments carried out in 2018 increase in company’s image due to the activities of commercial consultant, and the advertising action. These aspects are direct linked with the higher number of employees and the larger space office required.

In 2018, we report a lower income than previous year because of the initial investment:

- Increase in payroll because of new personnel hiring
- Increase in marketing expenses (publishing of scientific articles)
- Introduction of management system

The added expenses are represented by rent for the new office, the costs to update the website and the fee of commercial agent (see table 10)

From 2019, investments start to generate higher positive results, because to the high growth of the sale. The growth rate of revenues is respectively by +30% in 2018, +35% in 2019 and +38% in 2020 (see figure 19). The growth rate are also due to higher number of services required by other clients. These rate refer only the revenues generated by contractual agreements, they do not refer to the royalty income. About the investments in PPE, Unired each year invest more than 50% of its net income in tangible assets. These type of investments are necessary to acquire the innovative tools in order to offer advanced services. Not all the company can each year to acquire PPE, this is an advantage for our case study.

	STABLE	STRATEGIC		
	2017	2018E	2019E	2020E
Net Sales	455.977	592.770	800.240	1.104.331
Royalties of Skin Care	0	0	3.470	3.971
Purchases	7.095	17.783	20.006	22.087
Payroll	104.734	129.129	176.757	226.239
Services (Energy, consultancy, board compensation)	202.239	282.448	400.915	581.961
Rents (Office space and car)	50.999	70.967	70.967	70.967
Other operating charges	6.687	7.021	7.372	7.704
Advertising expenses (internal)_Scientific Publication	0	5.500	4.500	4.500
Ammortization and Depreciation	6.053	13.484	16.304	21.980
Interests	581	631	681	731
Unexpected occurrence	-313			
Unexpected loss on accounts receivable	0	0	3.000	0
Taxes	35.056	29.613	46.444	77.460
NET INCOME/ NET LOSS	42.846	36.194	56.765	94.673

Table 10 Profit and Loss: Main line items

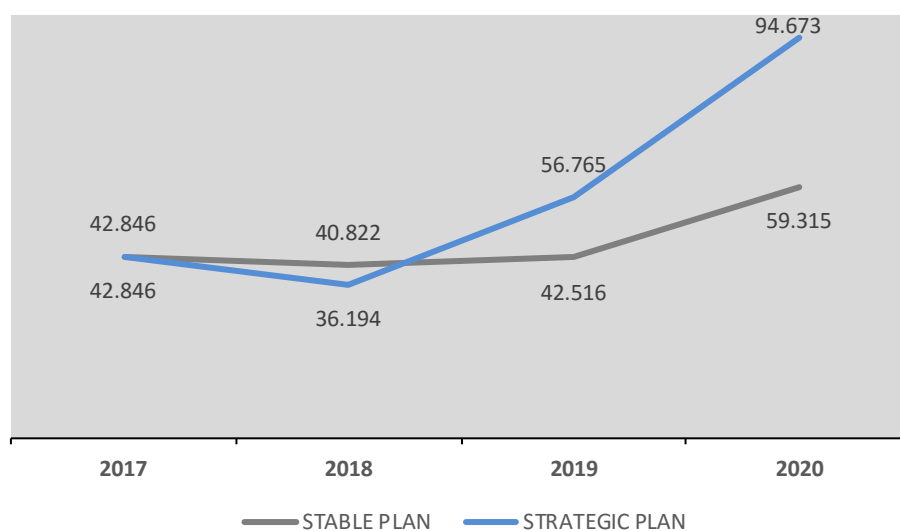


Figure 19 Compared Net income: Strategic Vs Stable Plan

The new strategy will entail a gradual increase in operating working capital due to the growth in accounts receivables. The value of net operational non-current assets and liabilities vary over time because each year Unired invests about 50% of the net income generated in the previous year. The value of investment decreases because of the amortization impact. The amortization value is based on the previous investment in tangible and intangible assets. In 2018 there is an investments in intangible assets: it represents the purchase of management system (see table 11).

	STABLE	STRATEGIC		
	2017	2018E	2019E	2020E
Cash and cash equivalents	0	0	0	0
Trade receivables	183.979	177.831	240.072	331.299
Inventories	0	0	0	0
Trade payables	-26.696	-30.023	-33.674	-30.202
TRADE WORKING CAPITAL	157.283	147.808	206.398	301.097
TOTAL OPERATING CURRENT LIABILITIES	-77.503	-51.232	-67.630	-98.011
NET WORKING CAPITAL	79.780	96.576	138.768	203.086
Tangible assets	41.998	63.421	81.518	109.900
Operating intangibles	0	4.000	0	0
TOTAL OPERATING NON CURRENT ASSETS	41.998	67.421	81.518	109.900
Accumulated depreciation	-17.085	-30.569	-46.873	-68.853
TOTAL OPERATING NON CURRENT LIABILITIES	-17.085	-30.569	-46.873	-68.853
NET OPERATING NON CURRENT ASSETS AND LIABILITIES	24.913	36.852	34.645	41.047
TOTAL FUNDS INVESTED	104.693	133.428	173.413	244.133

Table 11 Balance Sheet: total funds invested

Focusing on the balance sheet, we consider the source of financing. We record an increase in net financial position due to positive cash flow (see figure 20)

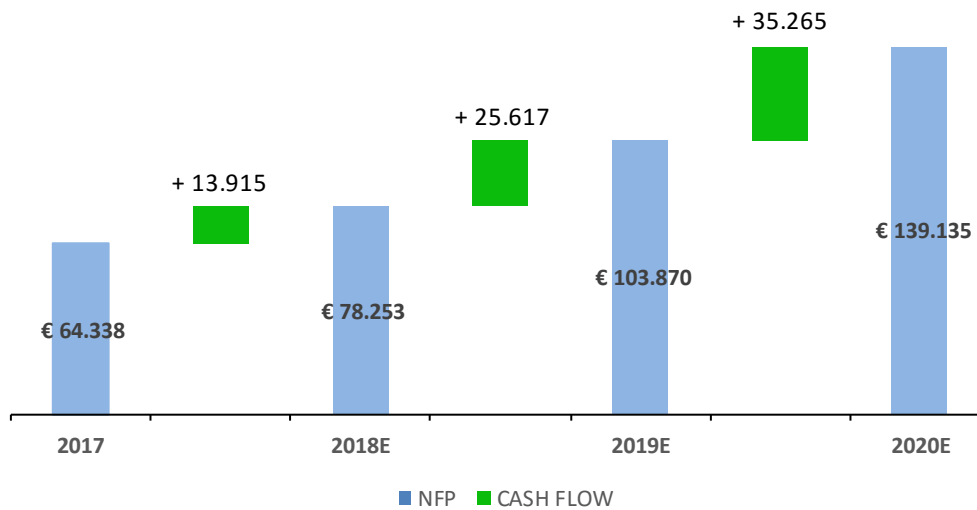


Figure 20 Source of financing: focus on the Net financial position

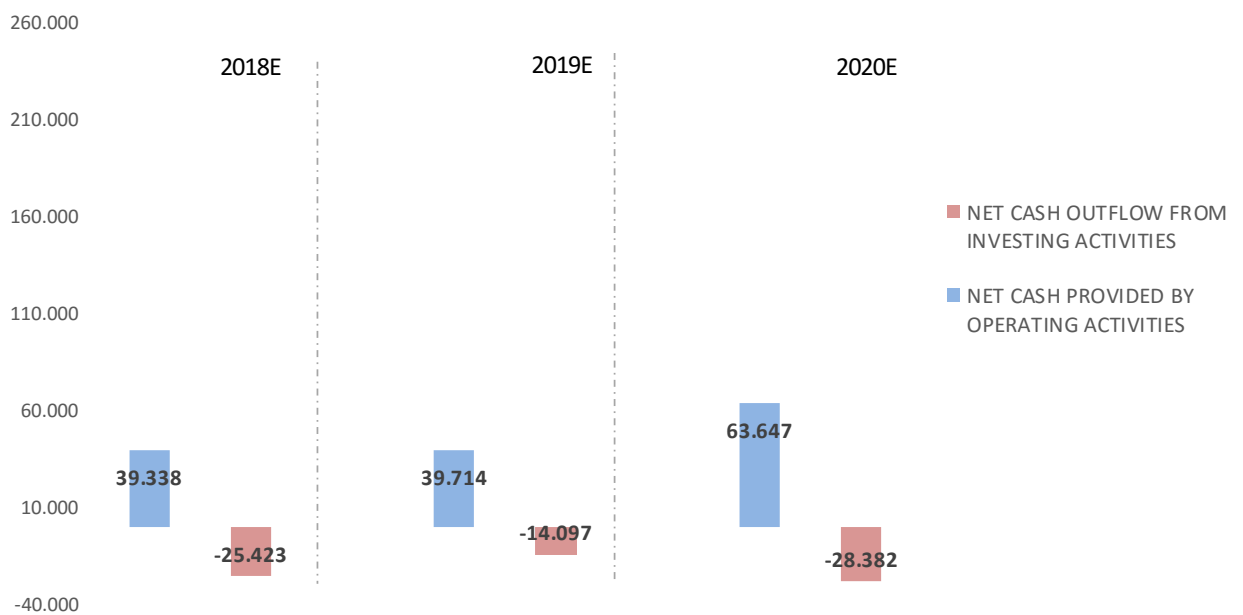


Figure 21 The cash flow statement

The progressive generation of net income and the positive cash flow from operating activities will allow Unired to invest over the years (see figure 21). The amount of investment depend on the net income recorded in the previous year. In fact, we notice a lower value in investment activities recorded in 2019E. This is due to lower value of net income recorded in the previous year.

Now we compare the stable and the strategic plan through the profitability ratio. The comparison between the stable plan and the strategic plan shows how much valuable and sustainable our business idea will be (see figure 22). The new strategy helps Unired Srl to improve its situation, which is proven by the highest positive trend of the main profitability ratio. 2018 is characterized by the main investment. Unired will sustain higher expenses, for these reasons the ratios of strategic plan are lower than stable plan. From 2019E when the investments will produce profit, the strategic ratio reach the highest value.

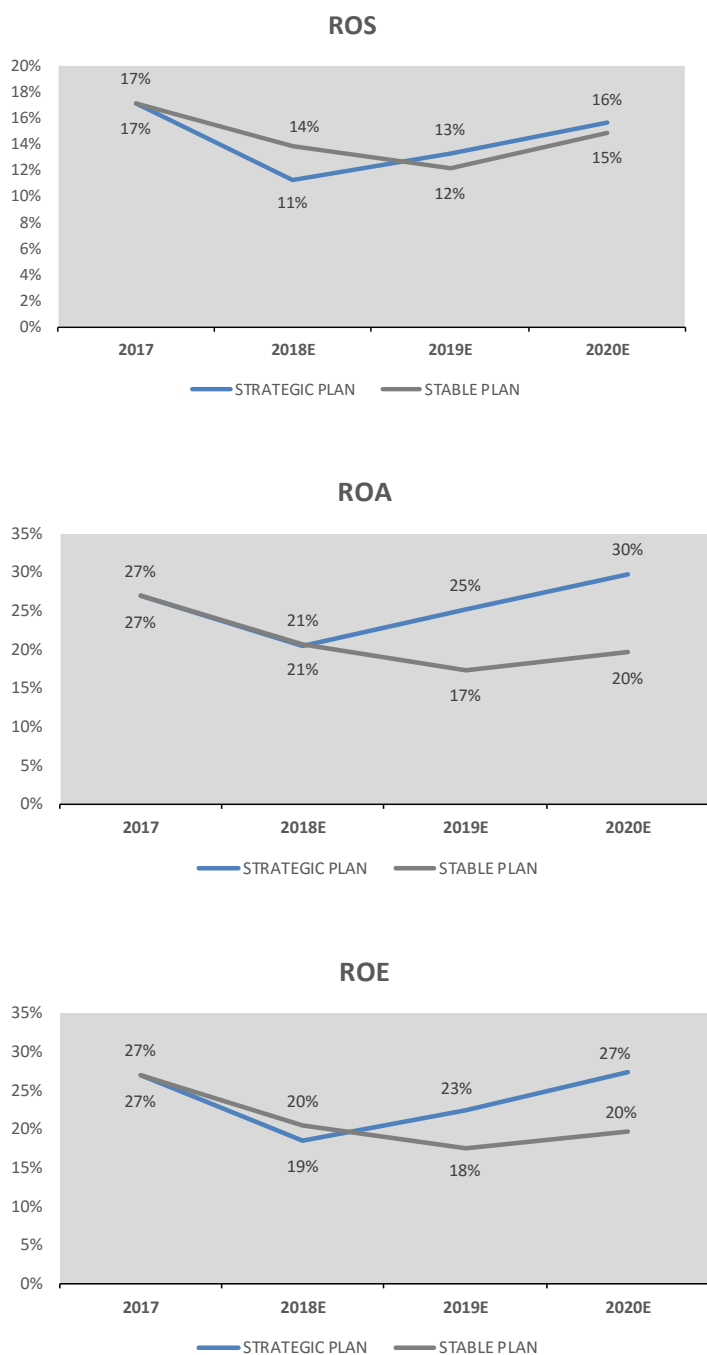


Figure 22 The main profitability ratio

Summarizing, Unired's goal is to increase the customer relationships and consequently becoming more independent from Unifarco's commission. To do it, we have proposed the strategic plan for the next three years. The main strategic actions are:

- To hire new workers in order to realized more services
- Introduction of management system to improve the internal efficiency
- Support of multifirm commercial agent in order to attract more customer and capture the market opportunities
- Advertising though the scientific publication
- Introduction of royalty system with the parent company

With this strategy, the company will have higher net income over time. In 2018E the net income will be lower of the previous year, this is due to the high level of investment. We will see the result of the initial investment from 2019E with the increased level of net income. Over time, Unired will increase its investment in PPE and in training program. The higher investment are linked directly with the higher level of economic results. With increased dimension, Unired will create partnership with business entity in order to become the benchmark for the companies who want to introduce innovation in cosmetic and nutraceutical market.

The development of the strategic plan happen in the fourth phase "Re-Orientation stage". For the passage to the next one, the company should overcome the critical juncture *Threshold of sustainability*: to maintain the return over time with the interconnection of three elements that are environment capital, social capital and economic capital. Unired Srl has not yet achieved this step. We can sustain that the actual step is the "Re-Orientation stage" in which the company try to understand in what way generate the profit and the labour over time.

Conclusion

Abstracting the developing phase from the literature, we created a qualitative method of analysis. The framework created in the table 1 defines the timeline of developing phases of ASO. For each development steps, we determined the variables that allow the ASO to growth over time. Consequently, we identified the strength and the difficulties linked to their application. We used the framework developed to analyze the real case: Unired Srl.

Now we consider the column of “Difficulties” as reference to evaluate the presence of each variables in our case study, considering the level of effectiveness of their application. We decide to attribute an evaluation criteria based on the effectiveness of single variables for each development phases. This assessment indicates the ability of the company to overcome the variables’ criticality. Our evaluation criteria is:

- High: the company overcomes the main difficulties in the realization of the variables
- Medium high: some obstacles remain linked with the variables examined
- Medium: middle ground
- Medium Low: more difficulties remain
- Low: the company does not make the necessary action to improve the critical variable.

The difficulties linked with the application of the elements remain over time.

To interpret this evaluation criteria, it has been useful to translate these level into scores (see table 12).

EFFICIENT LEVEL	SCORE
HIGH	4
MEDIUM HIGH	3
MEDIUM	2
MEDIUM LOW	1
LOW	0

Table 12 Range of score

Now we apply the theoretical table 1 to Unired Srl, using the evaluation criteria with the related scores. The identification of efficient level is based on the capacity of the company to develop the critical variable overcoming their difficulties (see table 13). Each variables present the

obstacles in their application and we based on this critical aspect to define the actual efficient level of the variables. Our judgment is based on the previous business analysis conducted on Unired.

MAIN VARIABLES	SCORE	JUDGMENT
1) Research phase		
Scientific Knowledge	4	All professors and researchers engage in the Unired's activities are qualified and skilled people
Economic Knowledge	0	There is not a qualified person in fields of economics
2) Opportunity framing phase		
Business Model		
<i>Customer Segment</i>	4	<i>Unired evaluates the customer's profil. It determines the clients activities in cosmetic and nutraceutical market. It offers the customized solution in order to allow clients to obatin competitive advantage in the market with the innovative solutions</i>
<i>Value Proposition</i>	4	<i>Unired guarantees innovation, quality, identity and productivity</i>
<i>Customer Relationship</i>	3	<i>The company identified the relationship that the clients research (dedicated personal assistant) and it gains their trust. Actually there are few relationships consolidated over time.</i>
<i>Potential profit</i>	2	<i>The company is value-driven: the quality of services offered is high.Unired identifies clearly the core activities and it is supported by business partner. There is the lack of estimation costs, the difficulties to predict the revenues excluded the Unifarco's revenues. There is only one business partners that guarantee the income based on annual agreement.</i>
<i>Key Activities</i>	4	<i>The company identified the activities that represent the key value for the business: R&D, Training and coaching, problem solving. Unired's activities are clearly defined and they conduct to the creation of Value Proposition.</i>
<i>Key Partnership</i>	2	<i>The existance of important partnership with Unifarco and University of Padua. Unired has to increase the business partnership in order to increase its bargaing power.</i>
<i>Firm Survival Activities</i>	0	<i>There is not the adoption of legal measure. The partnership with Unifarco limits the use of this instrument.</i>
Business Plan		
<i>Unired's mission and vision</i>	4	<i>They are clearly defined and they are in line with the nature of activites conducted.</i>
<i>Production Plan</i>	3	<i>The services offered are clearly defined: personalized solution. The advantage gives to the clients is the innovation. But there is not a clear idea of the possible evolution of the services offered. There is a lack of medium-long perspective.</i>
<i>Marketing Plan</i>	0	<i>The marketing activity is not pursued.</i>
<i>Managment Plan</i>	2	<i>Skilled management create value. The hierarchy is clearly defined, the member's competences are adequate but the number of workers is not adequate with the production.Unired's members do not have the general view of all the activities conducted, and there is not the continue update on the advanced projects.</i>
<i>Operating Plan</i>	2	<i>Only one worker follow the entire production process from the commission to the production of the output. Even if the Unired's members are skilled people, only one worker cannot run a lots projects in the same time.The company does not follow a purchase plan, the purchase are made only in a moment of need.</i>
<i>Financial Plan</i>	0	<i>The absence of financial forect: income projection, expensive budget, sales forecast. This is due to the revenue's Unifarco that guarantee to Unired a sufficient income to cover a major part of business costs.</i>

3) Pre-Organization phase: Unifarco and academic actors decide to establish the Unired Srl		
4) Re-Orientation stage		
<i>University's role</i>	4	<i>Actually the University of Padua has a positive impact on the Unired's performances. For example: the access to the laboratory with the PPE; labour force given by graduate students; university's reputation. In this situation University does not represent an weaknesses.</i>
UNIRED'S POSITION		
TOTAL SCORE	38	
AVERAGE	2	The score corrisponds to MEDIUM LEVEL
5) Sustainable return: Unired still have not been reached this phase		

Table 13 Developing phases of Unired Srl

As shown in the previous table, Unired is located in the fourth phase “Re-Orientation stage” with an evaluation of medium level of efficiency. Unired is distant from the realization of the last step of sustainable return because of the multiple aspects still to be improved. To reduce the distance from the last step is indispensable to review the Unired’s situation and to forecast the possible future developments. To do it, we developed the strategic plan in order to reduce the company’s weaknesses and to establish the bases for the future Unired growth.

Our strategic plan, described in detail in the previous chapter, defines the strategic forecast for the next three years. The strategic actions has the following goals:

- Introduction of marketing policy
- Improvement of management and operating plan
- Growth of potential profits
- Increase the relationship with business partner
- Widen knowledge also in the economic area
- Reduction of dependency ratio between Unired and Unifarco

For each goals, we determined the strategic action that Unired has to make. Following, we briefly review each actions with the related impact on the Unired’s situation.

1 - The **acquisition of management system** wants to increase the communication among the divisions but also increase the company’s efficiency. This system permits easier communication among team members and guarantee a major supervision of the projects. In addition, it gives global overviews of the Unired’s projects that now there is not. This strategic action improves the management and operating plan. In this way, the Unired’s team member will be more awareness of the global activities.

2 - Higher production requires a greater number of workers. Actually, Unired has only two employees who work in laboratory. Obviously, they are not able to manage an increased number in commissions and one worker cannot run a lots of projects in the same time. Nowadays, the number of laboratory workers is not adequate to the production of services. In anticipation of future growth, it is a need to **hire new workers**. This strategic action has positive impact on the management and operating plan. Obviously, this affects directly the net income due to higher output produced. But also, an increased number of workers allow Unired to accept more external commissions (now workers employ about 60% of their labour time in Unifarco's services) and so the reduction of the power of Unifarco on Unired.

3 - We decided to stipulate the **annual agreement with multifirm economic agent**. His tasks are to develop the marketing activities and financial forecast, to make market analysis in order to capture the new opportunities, to manage constantly the relationship with the clients, and to bring his portfolio of consolidated customers. This strategic choice has positive impact on the following variables: potential profits, key partnership, marketing and customer relationship. In addition to the external economic agent, we decided to start a marketing focus on **publication of scientific articles in specialized magazine**. In the long term, Unired could offer as services the publication of the scientific articles on behalf of its clients. This could become additional services because not everybody has a dedicated worker who is able to write the scientific paper. Also this action has positive impact on marketing and net profits.

4 - Finally, the **introduction of royalties system** with parent company has the goal to guarantee an extra income and also it wants to decrease the dependence of Unired to Unifarco's commission increasing the potential profits of Unired. Actually the revenues that cover the main costs (payroll, services and board compensation), are originated by annual Unifarco agreement.

Our strategic plan will generate the growth rate by +30% in 2018, +35% in 2019 and +38% in 2020. All the strategic actions want to create a growth over time, consequently they want to increase the number of consolidated relationship with business partner and raise the bargaining power of Unired.

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