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**Renewal of organizational
routines:**
The case study of Upooling

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*"Thinking is easy, acting is hard, and putting
your thoughts into practice is the hardest thing in the world."*

Johann Wolfgang von Goethe

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Introduction

Production industries are going through a period of great uncertainty and change. Mobility is one of the industries that, more than others, is experiencing a real moment of transition. New technologies, innovations related to autonomous driving and Mobility-as-a-Service (Maas) are making the software component increasingly relevant.

In this context, software development companies have to face two different situations. On the one hand, they operate in a field with interesting prospects, and on the other hand, they must face increasingly fierce competition.

Therefore, it is crucial for companies, operating in this industry, to obtain a stable and sustainable competitive advantage over time.

The analysis of the processes, that manage competitive advantage in a company, first leads to the observation of traditional theory. This theory is known to give particular emphasis to the resources coming from the environment outside the company and to maximise their exploitation, which is considered a source of competitive advantage. Subsequently, the resource-based view theory identifies as the true source of competitive advantage the key resource and core competence present within the company.

Operating in an extremely dynamic and heterogeneous environment, companies must be responsive to all changes coming from the context in which they operate, in order not to risk compromising their competitive position. The company's dynamic capabilities, specifically its organisational routines, are crucial. Being the subject of several recent studies, organisational routines have been judged as sources of inertia, stability but also of change.

This paper aims to demonstrate the dynamic aspect of organisational routines by applying the theories developed by scholars to a specific process in a company operating in the Mobility-as-a-Service industry.

The first part of the paper aims to provide the reader with the theoretical tools in order to understanding the second, more empirical part.

The first chapter focuses on an in-depth analysis of competencies, paying particular attention to the different historical approaches adopted, to the technology used, and to the learning processes.

The second chapter will deal with the topic of organisational routines, providing the reader with a general overview of the subject and then focusing on the various theories elaborated by scholars.

The third chapter is the beginning of the empirical part of the paper. It presents the case study company, the methodology with which the research was conducted, and a detailed description of the organisational routine chosen as the object of the case study.

Finally, in the fourth chapter, the governance actions adopted, in order to correct the performance of the organisational routine, will be set out.

I. Competencies

1.1 The evolution of the managerial framework: The adoption of resource-based-view

Until the early 1980s, companies built their business strategy by seeking to forecast the macroeconomic elements of the industry in which they operate and, consequently, to plan step by step what their growth path would be. At first, this planning spanned a one-year timeframe, providing the company with short-term projection and control. Later, in the 1950s, corporate planning, also known as long-term planning, was developed. A fundamental element of corporate planning, as for short-term planning, is the forecast of the future macroeconomic context and the consequent planning of the various actions that the company must undertake. The main distinguishing element between the two is the temporal range of planning, of about five years for corporate planning (Grant, Jordan; 2012).

As described above, long-term planning requires a deep understanding of the macroeconomic environment in which the company operates as well as an awareness of the uncertainty that the company necessarily faces. Not all the factors necessary to develop a strategy can be predicted; some can occur unexpectedly. An important example is the unexpected oil crisis that occurred in 1974 which, combined with increasing competition from Asian companies, severely altered the balance of the business environment (Grant; Jordan, 2012). This coincidence of events effectively nullified the predictions made by companies regarding their growth path. Therefore, there has been a gradual shift in focus from forecasting the company's growth path to taking more account of the market and its competitors, seeking as the primary objective of the company's strategy the achievement of competitive advantage. During this period, companies have focused their efforts on seeking their sources of profit within the confines of the industry in which they operate. In academia, many scholars have analysed this issue by going to study how companies have focused on finding their source of profit within the boundaries of the industry. For instance, Michael Porter has

studied the application of industrial organization economics in order to analyse industry profitability (Porter, 1980). More precisely, Porter first published the five forces model, which has become a pillar in the field of strategic analysis. In this framework, the American scholar highlights the five forces present in the industry which, if not properly managed, can undermine the company's profitability. The analysis of the five forces model, allows the company to obtain a complete picture of its competitive position, to make strategic decisions, and to establish the behaviour and the attitude to adopt towards the "forces" that compose the model. According to Porter, the strength of a company in an industry depends on how it is positioned in that industry and how the five forces act on it accordingly. Other studies have shown that a company's experience and market share can heavily influence its costs and thus its profits (BCG, 1978).

During the 1990s, there was a further shift in the focus of corporate strategy towards the company and less towards the external environment. Until then, companies had based their strategies on what was happening outside the company boundaries, considering the attractiveness of the industry as their primary source of profit (Porter, 1979). This view highlighted two main critical issues.

The first is the high instability of the industry environment, which is made up of various exogenous and endogenous factors, over most of which it is not possible to have direct control, generating uncertainty and instability in companies. As Levitt says "in a world where customer preferences are volatile and the identity of customers and the technologies or services they are changing, a market-focused strategy may not provide the stability and the constancy of direction needed to guide strategy over the long term" (Levitt; 1960).

The second is the awareness by companies that competitive advantage represents a much more secure and stable source of profitability than the attractiveness of the industry (Grant; Jordan, 2012)

In addition, the environment in which the company operates, and its rate of change and renewal, is a key factor in the decision to focus efforts on internal resources and capabilities rather than the external environment.

Prahalad and Hamel make it clear that "the higher the rate of change in a firm's external environment, the more likely it is that internal resources and capabilities rather than external market focus will provide a secure foundation for long-term strategy" (Prahalad, Hamel; 1989). According to the U.S. Bureau of Labor Statistics, one of the industries with the highest rate of change is telecommunications. The main component of this Industry is undoubtedly technology, which by its nature is very dynamic and quick to evolve. Companies operating in this industry cannot avoid focusing on the development of their specific technological competencies, elaborating and building their strategy around them and leaving market evaluation a secondary position.

Prahalad and Hamel underline the concept just mentioned, comparing the strategies adopted and the results obtained by two companies belonging to the telecommunications industry: NEC¹ and GTE².

In 1980, the two companies were operating in the same sector with a comparable technological base but with a different strategy for the future. In this year, NEC's sales stood at about 3.8 billion dollars, as opposed to GTE's sales that were much higher: about 10 billion dollars.

NEC, after analysing the macro-trends that the telecommunications industry was following, recognized how the PC manufacturing, communications and component manufacturing markets would follow a convergent path. The decision of NEC's top management was to invest in developing technological competencies according to the three indicated markets, to gain a significant competitive advantage when these three would merge. On the contrary, the management of GTE, has adopted a market-view approach, structuring its strategy on resources external to the company and, consequently, going to decentralize its organizational structure in such a way as to make autonomous the business units of the company. This has meant that there has been insufficient development of transversal technological competencies in the company, which are fundamental to compete in the telecommunications industry. The result of this different approach adopted by the two companies is as follows. In 1988, after 8

¹ Nippon Electric Corporation's

² General Telephone and Electronics Corporation's

years, on the one hand, GTE's sales still rose to about \$16 billion, but on the other hand, they disinvested in important areas such as semiconductors and televisions. The main consequence was the decline in NON-U.S revenues from 20% of total revenue to 15%.

In comparison, NEC grew from \$3.8 billion in sales in 1980 to about \$22 billion in 1988, becoming the world leader in semiconductors and a major player in PC and telecommunications products. Moreover, it strengthened its position in key industries such as PC mainframes. Finally, NEC in 1990 was the only company in the world that was present in the top 5 revenue rankings in the telecommunications, computer mainframe and semiconductor industries (Prahalad, Hamal; 1990).

Based on these considerations, the focus of the companies has shifted to the resources and competencies that can be found within the company and no longer on the attractiveness of the industry, thus electing them as the primary source of profitability and as the basis for the construction of their strategy (Grant, 1995). This has led companies to adopt a resource-based view (Barney, 1991).

This increased emphasis on values, resources and competencies within the company results in greater differentiation of companies in the market. Whereas previously companies sought to conquer certain attractive markets by adopting similar strategies, they now seek to identify and understand how to be different from their competitors, developing strategies that allow them to bring out these particularities.

"Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value" (Porter; 1996). In this quote, Porter emphasises the concept of differentiation as a primary source of competitive advantage. Market positioning can no longer be considered the key element around which a company's strategy is built, as the highly dynamic nature of markets and the modern technologies available to companies, make a market position easily attainable, making a competitive advantage only temporary. On the contrary, by concentrating on its internal resources and competencies, the company may be able to offer the market a unique combination of values, differentiating itself from its competitors and obtaining a lasting competitive advantage.

Facing changing markets and increasingly strong competition, companies need to focus on two important aspects. The first, as described above, is building a competitive advantage that is sustainable over time.

The second, equally important, concerns the creation of a temporary competitive advantage based on the company's reactivity to changes in the market. In order to achieve this flexibility, companies must undertake a general reconfiguration of their resources and competencies. Strategic alliances, the implementation of open innovation, the adoption of more organic organisations, the reduction of hierarchical decision making and the development of a qualified workforce that knows how to operate autonomously are just some of the options that companies can choose to increase their responsiveness. Indeed, over the last period, there has been a shift in focus towards optimising the processes, practices and routines within a company's daily life as a source of competitive advantage (Grant, Jordan; 2012).

To confirm this, various studies have been conducted in recent years: in addition to the study on resource-based-view, there are also studies on knowledge-based-view and organisational learning. What these studies have in common is that they emphasise and valorise the intangible resources of a company over the tangible ones, integrating people into the corporate culture³ and creating an environment that is favourable to them so that they can bring out their current knowledge or develop new knowledge. Furthermore, it emerges that the correct organisation of these resources through organisational competencies, which will be explained in the next paragraph, can be an important source of profit for companies (Agha, Alrubaiee, Jamhour; 2012).

1.2 Terminology

In the previous section, a brief summary of how business strategies were conceived and how the position and consideration of companies towards resources and competencies evolved. In this section, we will specify the meaning of competencies, and

³ A set of norms and values that are widely shared and strongly held throughout the organization" (O'Reilly, Chatman; 1996)

then focus on their classification and learning. Previously, the words resources, competencies and capabilities have been used with some frequency. Moreover, in the literature, the terms competence and capability are often used to describe the same phenomenon. Therefore, before starting to analyse competencies, it is appropriate to provide the concepts of resources and capability.

Many scholars have developed a definition of resources, highlighting various aspects. Four definitions, summarising the main interpretations of 'resources', are given below:

“The productive services available to a firm from its resources, particularly the productive services available from management with experience within the firm”

(Penrose; 1995).

"Resources are the productive assets owned by the firm" (Grant, 2012).

"Resources include all those assets, tangible and intangible, controllable by the firm - such as skills, competencies, organisational processes, information, knowledge- that enable the firm to effectively and efficiently adopt the strategies developed" (Daft

;1983)

"Firm resources are strengths that firms can use to conceive of and implement their strategies" (Barney; 1991).

Edith Penrose, who is universally regarded as one of the most experienced intellectuals in the study of resource-based theory and business organisational routines (Teece; 2009), clearly highlights the difference between productive resource and productive service, emphasizing that it is not the former that influence the production process but the latter, services, deriving directly from the company's productive resources (Loasby; 1999).

Both definitions, proposed by Daft and Grant, define resources more concretely as the set of assets that a firm possesses: tangible, intangible or human.

Barney goes beyond the purely concrete concept and defines the resources of a company, as those that enable it to implement successful strategies and thus increase the efficiency and effectiveness of the company (Barney; 1991). Thus, certain resources can represent a source of competitive advantage for the company.

Based on the definitions just mentioned and commented upon, a resource can be defined as that productive asset, whether in tangible or intangible form, which provides a productive service through which it is possible to implement the strategy developed, efficiently and effectively. Moreover, resources must possess two fundamental characteristics to be valuable for obtaining competitive advantage. They must be specific and difficult to imitate (Hamel, Prahalad; 1990). Therefore, we can note that competencies, being by their nature deeply linked to the context in which they were developed or to the individual who learnt it, possess the characteristic of specificity. Moreover, competencies are generally tacit (as they cannot be transferred in written form) and therefore difficult to be transferred and even more difficult to be imitated by the company's competitors. Thus, being specific and difficult to imitate, competencies can be considered as sources of competitive advantage.

In addition to resources, there are various capabilities within an organisation that the company has access to, owns and controls (Finkelstein, Helfat, Mitchell, Peteraf, Singh, Teece, Winter; 2007). It is important to focus now on the concept of capability, which is very often confused with competence.

According to Winter, "a capability, whether operational or dynamic, is the ability to perform a particular task or activity". Specifically, an operational capability allows the company to operate in the present using the resources it has, without modifying or changing them. On the contrary, a dynamic capability allows the organization to manage its resources, modifying them by creating or extending them, thus allowing its owners to adapt to future changes in the market and change according to them (Winter; 2003). To summarize, an operational capability is focused on the present activity of the company, while a dynamic capability is focused on its future activity and the various changes it must face.

Analysing competencies, a first important distinction has to be made. Depending on the approach adopted to analyse them, is possible to distinguish between individual and organisational competencies. The former, are defined by Spencer L. and Spencer S. as intrinsic characteristics of the individual, including "ways of behaving and thinking that are repeated in different situations and persist for a reasonably long period of time" (Guion; 1991), meaning that competence is an integral part of the individual (Spencer,

Spencer; 1993). The concept of competence as a fundamental part of the individual is also addressed by Boyatzis, who defines it as an intrinsic characteristic of the individual, linked to excellent performance in a task (Boyatzis, 1982). It is important to underline that all authors agree in defining competence as a set of above-average abilities and performances.

The latter, are defined as the company's ability to use resources, integrating them into organizational processes or the "Firm capacity to deploy resources for a desired end result" (Helfat, Lieberman; 2002). They are information-based and, as will be explained below, are formed through the iteration of processes that are specific to each company. Analysing corporate competencies, this paper will analyse organisational competencies and organizational competencies will be analysed.

Therefore, by mentioning the term "competencies", implicit reference will be made to organisational competencies.

Unlike resources, which can be procured either internally or externally, competencies are based on the development, exchange and dissemination of information through the organisation's human resources. Being based on the transmission of information exclusively within the company, competencies can be defined as different depending on the environment in which they were formed and can represent a solid source of competitive advantage. It is interesting to underline how Amit and Shoemaker define competencies as an intermediate good, "generated by the firm to provide enhanced productivity of its resources, as well as strategic flexibility and protection for its final product or service" (Amit, Schoemaker; 1993). As can be noticed, the definitions of capability and competence are similar and may appear to be synonymous, however, a deeper examination of the two definitions reveals substantial differences. "Capacity" refers to the ability to perform and complete specific tasks, whereas the definition of (organizational) competence refers to the ability of the whole company. Moreover, according to Saxena, the definition of competence identifies a full possession and mastery in handling issues, while the concept of capability can be interpreted as the ability to complete certain tasks but not all of them, thus leaving "some space still being left that can be utilized to achieve the goal of any activity" (Saxema, 2014). In this paper,

the concepts of capability and competence will be used differently, as in this paper are not equivalents.

Returning to the analysis of the concept of competencies, not all competencies in a company are a source of competitive advantage. To be able to provide a competitive advantage to the firm, a competence must possess certain characteristics that are not common to all of them. Selznick describes these as distinctive competencies, defining them as: "those things that an organization does particularly well relative to its competitors" (Selznick; 1957).

1.3 The concept of Core Competencies

Academics C.K. Prahalad and Gary Hamel introduced in the 1990 the term core competencies, defining it as: "the firm's ability to combine and harmonize multiple primary abilities in which the firm excels into a few key building blocks of specialised expertise" (Schilling; 2013). Therefore, this unique combination and harmonisation of particular abilities lead the firm to differentiate itself from its competitors and thus gain a competitive advantage, as they are very difficult to imitate.

To further clarify the concept of core competence, Prahalad gives the example of Sony and its core competence in miniaturisation. The Japanese company, a major player in the technology market, has developed a core competence in miniaturisation by integrating various technologies it owns with its product portfolio, which mainly consists of televisions and radios (Prahalad; 1993). Transparency between the various business units in a company, avoiding any kind of information asymmetry between them, is a fundamental factor in the formation of core competencies. Reduced collaboration and a lack of sharing resources between the various business units can lead to a failure to develop the company's core competencies, with consequences for its competitiveness. In order to avoid this, Prahalad and Hamel suggest not to see the people working in a company as mere employees but to consider them as an integral part of a company's assets on a par with, if not superior to, others (Schilling; 2013).

A very important characteristic concerning competencies in general, especially core competencies, is the development process. According to Prahalad and Hamel, competencies do not deteriorate by using them. All physical assets held by the company, the more they are used, the more they wear out, deteriorating. On the contrary, the more competencies are 'used', applied in various processes and shared within the company, the more they grow, develop and strengthen. Considering the definition of competence given above, they consist of information and knowledge. If competencies are not constantly used and included in business processes, there is a risk that they will be lost and all the efforts made to develop them will be in vain (Prahalad and Hamel 1990). Furthermore, "Companies that judge competitiveness, their own and their competitors, primarily in terms of the price/performance of end products are courting the erosion of core competencies" (Prahalad, Hamel; 1990). The two academics clearly explain how core competencies can also be lost through the outsourcing of departments of the company that are fundamental to its development. Such outsourcing takes place for reasons related to the search for sources of cost savings in the reduction of internal investments. Analysing in a "sterile" way the cost centers of a department and deciding to transfer it to a third party supplier, without taking into account the consequent loss of knowledge, can cause the company significant damage in the medium and long term, with losses of competitiveness in the current market and important reductions in future opportunities to enter other markets.

1.4 Competencies classification

The existing organisational competencies are innumerable. In order to facilitate the process of competence mapping, it is necessary to classify them. As reported in the previous paragraph, Hamel and Prahalad have already provided a first example of categorisation, classifying those specific competencies that drive the company towards success, as core competencies. Competencies can be classified according to various methodologies and schemes, which is why the literature presents various types of classifications. Depending on the purpose of the classification, the structure of the company or its internal organisation, the most suitable categorisation scheme is chosen.

Among the various classifications, there are three methodologies to be highlighted based on two different analysis: functional analysis value chain analysis.

Grant classifies organisational competencies concerning functional areas in the company, thus subdividing competencies according to their area of exploitation (Grant; 2012).

Table 1.1 Example of functional classification of organizational capabilities

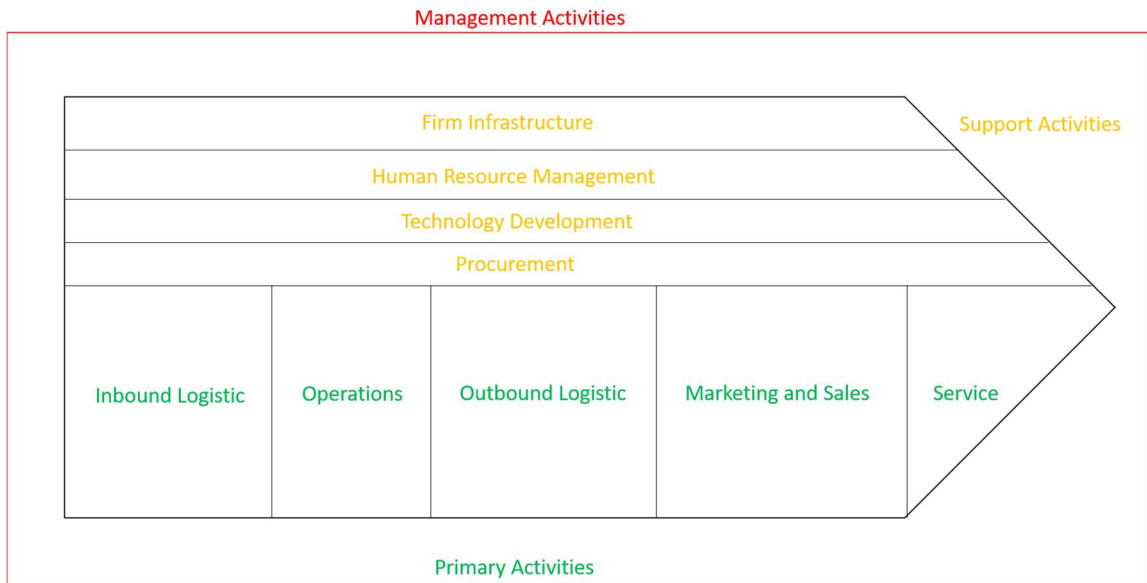
<i>Functional Area</i>	<i>Capability</i>
<i>Corporate functions</i>	Financial Control
	Strategic innovation
	International Management
<i>Research & development</i>	Research
	Product development
<i>Operations</i>	Continuous improvement development
<i>Marketing</i>	Brand management
<i>Sales and distribution</i>	Customer Service
	Efficiency of order processing

Source: adapted from Grant (2012)

In the table 1.1, some examples of competencies divided by functional area are given. By the very nature of competencies, which are deeply linked to the company and its business, each organisation will carry out a functional analysis and classification of competencies that will be different from the others, and in some ways unique.

The second analysis to classify competencies is based on the value chain. Using the scheme theorised by Professor Michael E. Porter in 1985, competences are classified following a criterion of process sequentiality. They are grouped in three different aggregates: Primary, Support and Management.

Table 1.2 Value chain analysis based on Porter's value chain.



Source: adapted from Grant (2012)

On one hand, primary competencies can be referred as primary processes, understood as "end-to-end cross-functional processes which span across the organisation and create direct value to organisation's end clients" (Stojkovic, Mitic; 2014). Are Primary activities, those related to Inbound Logistic, Operations, Outbound Logistic, Marketing and Sales and Service.

On the other hand, support competencies are related to support processes within the company. Unlike primary processes, they do not contribute directly to the creation of value for the end customer. As the term implies, these processes are responsible for providing the primary processes with all kinds of resources necessary for their proper functioning. Such activities are related to firm Infrastructure, Human Resource Management (also known as HRM), Technology Development and Procurement.

Finally, as can be seen from table 1.2, managerial competencies derive from managerial processes, which are responsible for managing and coordinating the primary and supporting processes (Grant; 2012). Both approaches described can be used for the initial classification of competencies. Indeed, no one type of analysis is better than the other, as it depends on the structure of the company in question. Each of the two

analyses can be considered the most suitable for grouping and classifying competencies within the company. Undoubtedly, the value chain analysis defines a more complete classification as it includes both a differentiation by function and hierarchy. On the contrary, the functional analysis allows to group by functional area but does not give an answer on which of these competencies can be considered primary and which secondary. Regardless of whether one adopts a functional or a value chain analysis, the competencies that are identified in the two studies are rather general and not specific. For instance, in Porter's value chain, those related to Human Resource Management are present as support activities that generate the resulting competencies. Being very broad and general, these can be further broken down into even more specific competencies such as those related to recruitment, HR appraisal or career development. To summarise, it is evident that very broad competencies can be broken down into more specialised competencies. Thus, a hierarchy of competencies arises where the more general ones are formed by the integration of specific competencies (Stojkovic and Mitic, 2014). An example is Toyota and its globally acknowledged competence in manufacturing, acquired through its famous Toyota Production System, whose main feature is lean production⁴. This competence is composed of many other more specific competencies, related to "manufacturing of the components and sub-assemblies, supply chain management, production scheduling, assembly, quality control procedures, systems for managing innovation and continuous improvement" (Grant; 2012).

Winter elaborates another hierarchical model of organisational competencies, classifying them into "zero-level competences" and "first-level competencies" (Winter, 2003). First level competencies, also called operational or ordinary competencies (Gurkan Inan and Bitici, 2015), can be defined as those competencies that allow the company to carry out its ordinary activity "producing and selling the same product, at the same scale to the same customers" (Winter; 2003). In other words, they are the competencies that a company uses to derive the revenue to buy the raw materials and produce the product. A circularity of the process, which is extremely mechanical and

⁴ Toyota Production System is a production planning method, based on the philosophy of achieving the complete elimination of all waste in pursuit of the most efficient methods.

repetitive, can be identified. These competencies allow the company to live in the short term, respecting a market equilibrium that sees it in a stationary situation from a product innovation point of view. Interestingly, zero-level competencies are only defined locally. Winter exemplifies this concept by analysing the role of the R&D department of two companies: In the case of a company that produces tangible goods, the competencies found in the R&D department are of the zero level type, whereas a company that deals with product innovation, the R&D department will be composed of zero level competencies, as these allow the company to carry out its regular business without changing its product. Winter cites an independent R&D lab as an example.

On the contrary, the competencies that allow the product to change are identified as first-order competencies or dynamic competencies. More precisely, these are defined as "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, Shuen; 1997). There are no limitations as to which competencies can be defined as dynamic, any organisational competence can be defined as dynamic if it enables the firm to reconfigure its resources and undertake a process of change (Eisenhardt, Martin; 2000).

The concept of dynamic (first-level) competence is extremely important as it enables the firm to innovate by developing new products and processes, responding to continuous market changes, and thus allowing the firm to maintain a competitive advantage over its competitors (Teece, Pisano; 1994). This innovation takes place through the reconfiguration of existing resources, the development of new resources and the renewal of competencies already possessed by the company through organisational routines, as will be explained later. It is important to emphasise that both types of competencies must be present within the company, so that it is focused on both its present and its future. Zero level competencies are crucial as the company must be able to sustain itself and find the funds to continue its current and regular production and sales activities. Whereas, dynamic competencies are necessary for two reasons: the first is that they make the company's activity flexible and adaptable to the uncertainties given by the market, thus allowing it to always propose products in line with the needs of the public. The second is related to the concept of competitive advantage. By innovating and renewing itself, a company is able to develop distinctive competencies,

which are generally exclusive and different from its competitors. The development of these competencies introduces a process of differentiation which then leads to a lasting competitive advantage. To conclude, the complementarity between zero level and distinctive competencies is evident.

1.5 Learning Process Of Competences

Before proceeding with the analysis of the process that leads to the learning of competencies by companies, it is appropriate to contextualize this process concerning the evolution that companies face throughout their existence. Introduced by Richard R. Nelson and Sydney G. Winter in 1982, evolutionary theory studies how processes within companies are transformed through the actions, interactions and experience accumulated by various actors inside or outside the company. In the book "An Evolutionary Theory of Economic Change", the two authors adopt concepts typical of biology such as evolution, natural selection and mutation. The two authors, following Darwin's concept of natural selection, define the market as a mechanism for the selection of firms, where they compete dynamically to conquer their customers. The 'diversity' of companies operating in a market is guaranteed by the fact that they are, more or less, different from each other, as each of them incorporates specific knowledge and competencies. Through the selection process, it is "naturally" decided which companies are destined to survive and which are not. Mutations, which according to Darwin allow for the evolution and adaptation of the various species, are represented in business and economic reality by the changes and innovations that the various companies face as they evolve. They define the development process of a company as a dynamic evolutionary process, determined by key characteristics: knowledge, learning, research, competencies and innovation. These characteristics are not independent of each other but, on the contrary, are deeply linked and interconnected. Nelson and Winter define the accumulation of competencies as one of the two typical capabilities of a company, together with the ability to produce. They have been developed and accumulated over time throughout the life of the company, partly constituting the so-

called Organisational Memory⁵ of a company (Hodgson; 2004). This accumulation was only possible thanks to the processes of learning and innovation.

This formation and further accumulation is made possible by two important processes: learning and innovation.

One of the key assets of the organisation is the people who contribute to economic activity and value creation. Nelson and Winter state that individual competencies are necessary for the creation of the organisational competencies of the company and thus for his evolution. Through a process called routine, individual competencies are transferred and implemented in the business activity and processes, thus enabling the formation of organisational competencies. Therefore, it emerges how individual competencies are decisive for the creation of the organizational competencies. The individual who owns certain competencies, also owns the ability to learn new knowledge which, through the systematic application of this, will be transformed into new individual competencies that will subsequently be translated into organisational competencies. There is a process of innovation whereby new competencies are developed from already established ones. Therefore, a circularity results, which triggers a virtuous circle leading to the formation of new competencies.

It appears that learning and innovation processes are fundamental for the formation, learning and accumulation of organisational competencies. These competencies will subsequently be one of the factors for achieving a competitive advantage over competitors.

Richard Normann emphasises the cyclical nature of competence formation. He states that competencies are generated through an experimental process, where innovation is presented as a means by which learning is translated into active knowledge. Furthermore, Normann emphasises that innovation represents the junction between learning and the generation of new competencies.

⁵ The organizational memory includes the components knowledge acquisition, knowledge processing or maintenance, and knowledge usage in terms of search and retrieval (Walsh, Ungson; 1991)

Previously, the study on learning organisational competencies used the experience curve model. This model states that there is a relationship between average unit costs of the goods produced and the cumulative quantity of goods, which can be justified by an inversely proportional function (Hax, Majluf; 1982). As the quantity of the good produced increases, the average production cost required for its production decreases due to economies of experience. If an individual repeatedly performs an activity, he acquires more experience and knowledge for that particular activity, effectively increasing production efficiency, product quality and reducing the average cost required to perform it. The model, however, does not explain how and why experience is translated into competencies. As a matter of fact, this explanation does not include the process of innovation, evaluated instead by Normann as an essential element for the formation of individual and organisational competencies (Warglien; 1990).

Returning to the evolutionary model proposed by Nelson and Winter, the model encompasses the process of innovation by relating it to the process of learning and accumulation of competencies. Unlike previous theories, the two authors define innovation as the main factor through which the enterprise is able to form new competencies.

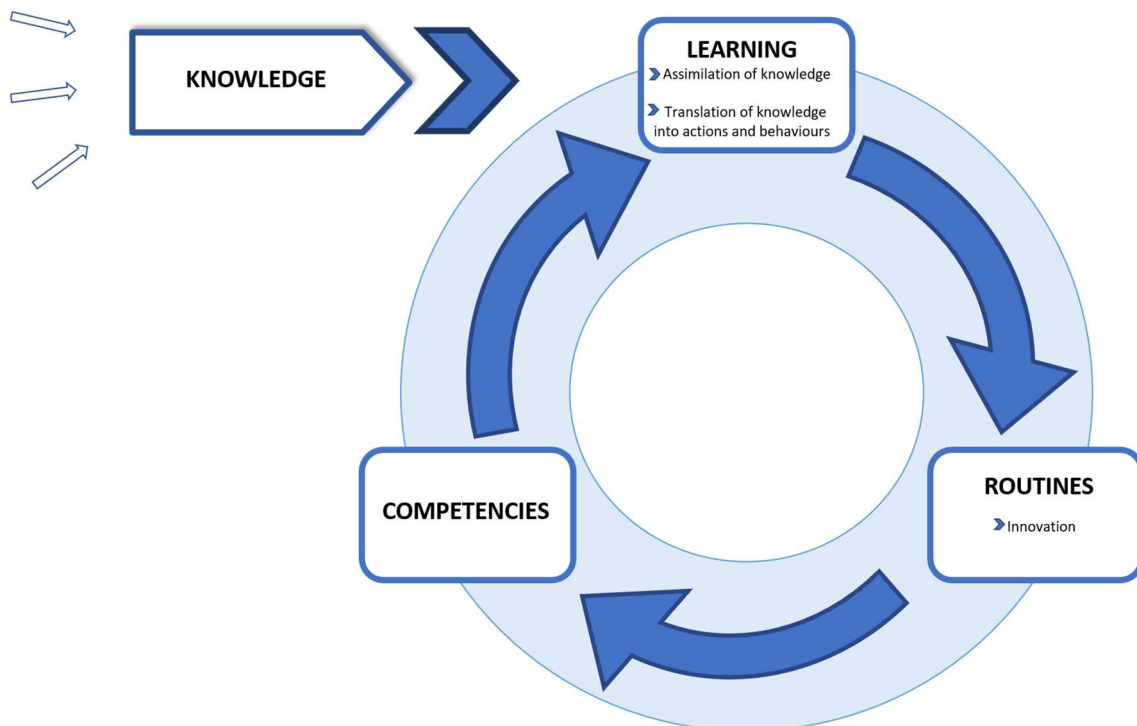
It is possible to define a pattern through which competences are acquired.

A basic prerequisite is the presence of knowledge. It is important to underline the difference between information and knowledge. The former is defined as a neutral set of data, not dependent on who owns it, while the latter is a set of information associated with a purpose through a process of individual interpretation.

Subsequently, the learning phase begins, defined as the acquisition of knowledge in view of a purpose (Nelson, Winter, 1982). In this phase, there is the assimilation of knowledge and its transformation into certain behaviours and actions, which are new compared to the previous ones. Here, the innovative element of the process of formation of new competencies can be appreciated.

Innovation leads to the creation of new competencies through the process of routinisation⁶. This process represents the essential step in the translation of actions and practices into competencies. By introducing routines, the company makes its processes efficient and reliable (Grant; 2012). Routines allow the translation of knowledge and experience acquired in the previous phase into competencies, through a continuous process of learning by doing. Organisational routines are precisely defined as " regular and predictable behavioral patterns comprising repetitive patterns of activity" (Nelson, Winter, 1982). The competencies, generated and accumulated during the life of the company, create the historical basis of the firm. This historical base represents the necessary condition for the learning of subsequent new competencies.

Graph 1.1: Representation of competencies acquisition



Source: data from Nelson and Winter (1982)

⁶ "Routinized learning refers to learning to perform a behavior quickly and effortlessly through repeated practice" (Veling, Aarts, 2012). Through the routinization process, routines are made.

II. The Organizational Routines

2.1 Overview

In the previous chapter, competences were analysed in depth, with a brief mention of organisational routines. This concept represents an essential step in the development of competences, the subject of this paper. In this chapter, the concept of routine will be examined, explaining and contextualising the various definitions, classifying them and presenting their properties.

The concept of Routine was first introduced in 1922 by the intellectual economic movement "Carnegie School" ⁷, defining routines "as a form of routine, as a form of reflective action and as major driver of individual and collective behaviour" (Cyert, 2006). Later, the concept was re-elaborated in 1940 by Edwin Stene (Simon, 1947), who described organisational routines as "interaction patterns that are pertinent for the coordination of organisational activities and differentiated them from actions that are preceded by decision making" (Stene, 1940). Stene introduces an innovative element that will be analysed by many scholars who will deal with the theme of organisational routines in the following years: the concept of pattern.

The first modern studies of organisational routines date back to the 1950s, when the concept of routine was combined with the notion of 'performance program' (March, Simon 1958) and "standard operating procedures" (Cyert, March, 1963). These studies identified organisational routines as black boxes (Salvato & Rerup, 2010), capable of providing organisational stability and "focused on the effects of routines on higher-levels phenomena" such as learning, capabilities or organisational performance" (Dionysiou, Tsoukas; 2013).

⁷ The Carnegie School was a so-called "Freshwater" economics intellectual movement in the 1950s and 1960s based at Carnegie Mellon University and led by Herbert A. Simon, James March, and Richard Cyert (Bauer, Gergen; 1968)

Various definitions of organisational routines have been provided, many of them comparing routines to patterns. The main definitions are given below:

“Organizational routines can be defined as repetitive, recognizable patterns of interdependent actions, carried out by multiple actors”

(Feldman, Pentland; 2003)

“Pattern of behaviour that is followed repeatedly but is subject to change if conditions change”

(Winter, 1964)

“It may refer to a repetitive pattern of activity in an entire organization, to an individual skill, or, as an adjective, to the smooth uneventful effectiveness of such an organizational or individual performance”

(Nelson, Winter, 1982)

“An organizational routine is a 'relatively complex pattern of behaviour [...] while routines may be simple sequences, their interesting feature is their ability to support complex patterns of interactions between individuals in the absence of rules, directives, or even significant verbal communication”

(Grant, 1996)

“Organizational knowledge generated by such activity resides in new patterns of activity, in 'routines,' or a new logic of organization”

(Teece, Pisano, Shuen; 1997)

These definitions can be considered complementary to each other as they analyse the concept of routine from different points of view. It is important to underline that Winter (1964) and Grant (1996) use the word "behaviour", associated with pattern, to define a routine. On the other hand, the authors Nelson and Winter (1982), Teece, Pisano and Shuen (1997) defined it as a "pattern of activity". Behaviour is judged as a directly

observable event (Cohen, Burkhart, Dosi Egidi, Marengo, Warglien Winter; 1996). In contrast, the word "activity" can also be understood as an action performed by an individual. As can be seen from the definitions above, the concept of routine proposed by Becker can be associated with an individual or collective sphere. Moreover, he proposes two perspectives, about the cognitive and the behavioural aspect of the routine. In the first case the activity, and therefore the action, is carried out by an individual, while in the second case the action is collective of the organisation. These collective actions of the organisation are the result of the interaction of the various individuals who make up the company's staff. Thus, an important differentiation emerges regarding patterns.

Table 2.1: Classification of patterns

	OBSERVABLE ACTION	NOT OBSERVABLE ACTION
INDIVIDUAL	<i>"Habits"</i>	<i>"Habits of thought"</i>
COLLECTIVE	<i>"Organizational Routines"</i>	<i>"Unobservable routines"</i>

Source: data from Becker (2004)

As can be noted observing Table 2.1, Becker proposes a classification of routines where they can be classified as individual and collective as well as observable and unobservable actions, underlining the cognitive and the behavioural aspects⁸ (Becker, 2004). On the one hand, unobservable individual patterns are called "Habits of thought", whereas observable patterns, which are linked to behaviour, are called "Habits". On the other hand, unobservable collective patterns are called "unobservable routines" while observable collective patterns are "Routines". This distinction is important in order to distinguish Habits, referred to individuals, from collective routines, the object of the study (Dosi, Nelson & Winter, 2000). This view is also shared by Feldman and Pentland, who state that organisational routines are associated with interdependent courses of

⁸ It is important to underline the difference with the definition provided by Feldman and Pentland. Becker proposes a duality while the two authors propose a dualism composed of the ostensive and the performative part. Moreover, according to Feldman and Pentland, the routine can be defined as a "recurrent interaction pattern" and it is always observable.

action performed by multiple actors (Giada, 2012; Feldman, Pentland; 2003), highlighting again the collective nature of organisational routines.

In general, it is possible to group the definitions of organisational routines into three different partitions, depending on whether the concept of routine is understood between: Behavior patterns, rules or collective dispositions (Becker, Salvatore and Zirpoli; 2005).

As already mentioned, habits refer to the behaviour of an individual while routines are associated with repeated behaviour of a collective (Dosi, Nelson, Winter, 2000).

As for routines as rules, the latter can be defined as standard operating procedures. "rules give rise to recurrent interaction patterns" even if they do not specify the causal mechanism" (Becker, Salvatore and Zirpoli; 2005). In this case, Routines as rules can

Finally, routines can be understood as collective dispositions "to engage in previously adopted or acquired behaviour, triggered by an appropriate stimulus or context" (Hodgson & Knudsen, 2004).

To summarise, organisational routines can be defined as a recurrent interaction pattern, where behaviours as observable actions are repeated by a collectivity of people.

This paper will often refer to Feldman and Pentland's definition of organisational routines.

2.2 Properties and characteristics of Organizational Routines

Organisational routines, having different definitions depending on the context in which they are framed, have various properties and characteristics that make them very particular.

The first important characteristic of routines to be highlighted is the collectivistic one. As previously stated, routines are a set of collective actions, as opposed to habits which are limited to the individual sphere (Dosi, Nelson & Winter, 2000).

This leads to a second characteristic, which is their inability to be faithfully replicated from an organization to an other organization. As they are formed through the repetitive actions of people, based on their knowledge, each routine is more or less unique, as it is conditioned by factors linked to the knowledge and competencies of the individuals who form it. Therefore, their replicability is extremely difficult, especially if one tries to

replicate and implement a routine in a business context different from the one in which it was developed. Mutations occur with respect to the original routine. This is explained by organisational competencies, which are specific to the company in which they were formed. Since competencies are part of the process of forming organisational routines, there is a strong correlation between the two. Their reduced inclination to replicability is a consequence of another factor,

also characteristic of organisational routines: Tacitness.

Tacitness can be defined as something that cannot be readily codified, i.e. cannot be documented in written form (Schilling, 2013). Because of this characteristic and its nature, it is very difficult to transfer the knowledge and competences needed to faithfully replicate a routine. Tacitness has important implications for the management of organisational routines.

In the course of the paper, it will be noted that the written coding of organisational routines is an important step, so that they are learnt more easily by people. Not all activities can be coded in written form; certain activities are not written down for various reasons. For instance, if a step of a routine concerns an interpersonal exchange between two people, this step of the routine may not be written down. Another example, certain activities that are "obvious" for the person performing the activity and to all the agents involved, may not be coded because they are not considered useful. Finally, corporate culture, a fundamental element of an organisational routine, is extremely difficult to codify in written form.

While, as we have seen, they provide a competitive advantage over competitors by effectively preventing them from imitating organisational routines, they also make them difficult to observe and analyse. They are invisible.

Another important feature of routines is the stability they offer to the company. This feature is in common with the definition of bureaucracy⁹ (Stinchcombe, 1959). For a long time, routines have been judged both positively and negatively for the stability they provide. Indeed, the concept of stability is often identified as a source of inertia (Hannan and Freeman, 1983), stagnation (Hummel, 1987), lack of thinking, insensitivity (Ashforth and Fried, 1988), demotivation (Ilgen and Hollenbeck, 1991) and competence traps

⁹ Bureaucracy means the organisation of persons and resources intended to achieve a collective aim in accordance with the legal principles of a given legal system.

(March, 1991). As will be explained later, this negative association is partly disputable. However, the characteristic stability of organisational routines has positive consequences. For instance, routines are associated with "increased ease of coordination within the process between the various actors" (Giada, 2012). In addition, it is useful to apply them in contexts of decision-making uncertainty because, thanks to the stability resulting from repeated and recurring behaviour, the decision-making difficulty of management is reduced.

Again, stability allows routines to be a source of organisational learning (Argote, 1999), as they are promoted by elements such as "reduced variability, standardisation and avoidance of failure" (March, 1991).

In fact, "the emphasis on the stability or rigidity of organisational routines has provided evolutionary theorists with an ideal mechanism for preserving genealogical information" (Feldman and Pentland; 2003).

Finally, organisational routines have the characteristic of being path dependent and context dependent. In other words, they are linked to the business context in which they were developed. This characteristic, as we have seen above, is one of the main factors that makes organisational routines a process almost "tailor-made" for the company, making them difficult to be transferred or replicated in a context different from the one in which they were formed.

Table 2.2: Characteristic of the organizational routines

<i>Characteristic / Property</i>	<i>Implication</i>
<i>Collectivism</i>	Make several people collaborate in a single process
<i>Not replicable easily</i>	Complicate to implement the routine in other companies
<i>Tacitness</i>	Complicate to transfer knowledge and competences in order to recreate routines
<i>Stability</i>	Increase coordination within the process, Decision-making difficulty is decreased; inertia,
<i>Path-Dependency</i>	Makes routines dependent on people, culture and company actions

Source: data from Dosi, Nelson and Winter (2000), Schilling (2013), Stinchcombe (1959), March (1991), Feldman and Pentland (2003)

2.3 Composition of organisational routines

For a long time, the view of organisational routines as a 'black box' has been the one most shared by various scholars (Pentland, Feldman, 2005). The main criticism that has been levelled at this view is the total lack of analysis of the structure and internal dynamics of routines (Pentland, Feldman; 2005; Feldman, Pentland, D'Adderio, Lazaric; 2016). This approach framed routines in a static rather than dynamic form, omitting all the various microprocesses through which the various routines were formed and performed (Becker, 2008).

Feldman and Pentland perceive the dynamic nature of organisational routines and develop their own theory. They start from the concepts expressed by Latour in 1986. The French sociologist studies the nature of human society and more specifically highlights the following paradox: "when an actor simply has power nothing happens and s/he is powerless; when, on the other hand, an actor exerts power it is others who perform the action" (Latour, 1986).

Latour also states that "the nature of society is negotiable, a practical and revisable matter (performative), and not something that can be determined once and for all by the sociologist who attempts to stand outside it (ostensive)" (Latour, 1986). A double definition of power emerges: the first is more theoretical and refers to those who have power, while the second is more practical and refers to those who actually exercise power. Feldman and Pentland also recognise the performative and the ostensive aspect in organisational routines, in practice, defining them as dual. According to the two scholars, "the ostensive aspect of a routine shapes our perception of what the routine is" (Feldman and Pentland, 2003). In other words, the ostensive level refers to the idea that the people have about that process, what the goals to be pursued are and what actions need to be taken to achieve them.

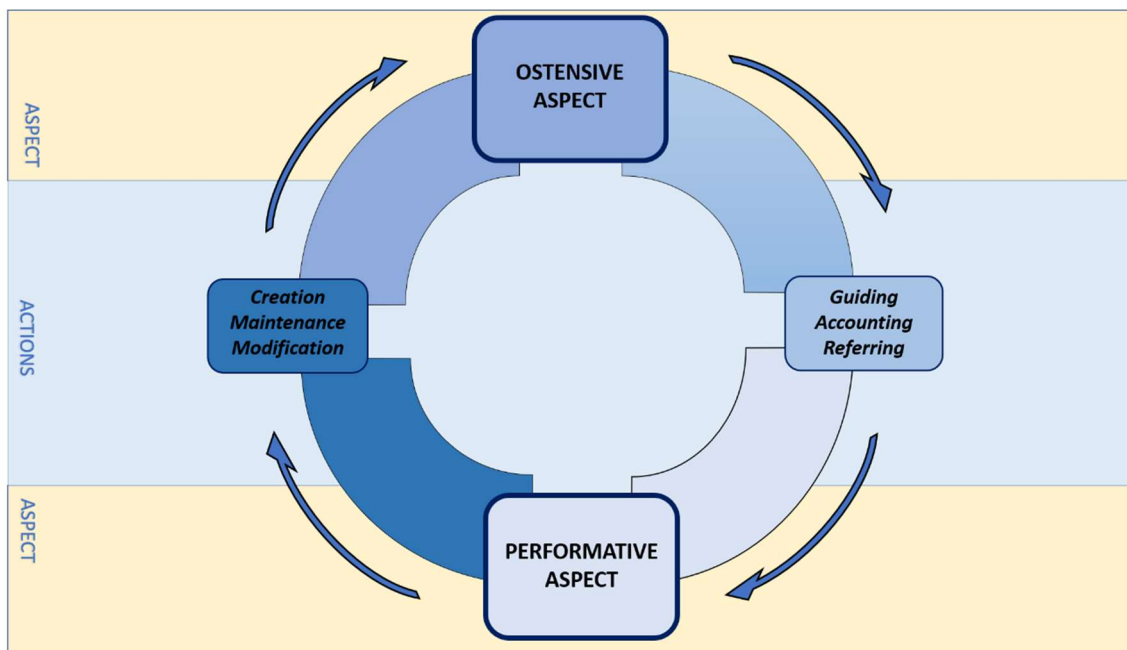
Two aspects should be underlined: The first is the abstractness of the ostensive aspect; since it is a perception and an idea in people's minds, it cannot be represented concretely.

The second is subjectivity. Two people with two different roles in the company can interpret the organisational routine in a completely different way, as each person gives a personal and subjective interpretation of the routine based on their own knowledge

and role in the company. Therefore, it is clear why the ostensive aspect of a routine cannot be represented as unique but, on the contrary, will be multiple (Pentland, Mahringer, Dittrich, Feldman, Wolf; 2020).

Instead, the performative aspect of a routine is defined as "the specific actions taken by specific people at specific times when they are engaged in an organisational routine" (Feldman and Pentland, 2003). Thus, the performative aspect is associated with the actual performances of the routine, more precisely with the concrete actions that the people who are part of the routine undertake. So, the performative part is the practical part of the routine, the visible part. It is important to point out that the people who undertake the actions described above are the same ones who perceive and imagine the concept of the routine in the performative phase. These two aspects are not alternative to each other but, on the contrary, are deeply related and complementary, being part of the same process. Afterwards, it will be examined how the ostensive aspect orients and conditions the performative aspect, while the performative aspect continuously modifies people's perception of the routine, based on what they have learnt from the action. In fact, a circle of continuous mutations of the ostensive and performative aspects is created. An example is represented in the graph below.

Graph 2.1 Ostensive and performative aspect in an organizational routine



Source: Feldman and Pentland, 2003

In this circle of continuous renewal, the ostensive and performative aspects are in constant correlation. However, the relationship between them is not constant and involves the two aspects alternating in the creative role of the other. Pentland and Feldman highlight the interaction of the ostensive to the performative aspect and vice versa.

In the first case, the ostensive aspect can modify the performative one through three different processes: guiding, accounting and referring (Feldman, Pentland; 2003).

People often rely on the ostensive aspect of the routine as a guide and as a model of behaviour when performing their tasks. Ostensive aspect does not give specific instructions on how to perform: people choose how they want to perform. Thus, the ostensive aspect can be used as a method of self-control to monitor the correct performance.

The second interpretation concerns accounting. Since the ostensive aspect encompasses the idea of organisational routine, it is used to give an explanation of why a performance is being carried out. "Connecting one's behaviour to a particular routine legitimises the behaviour if it is understood to be part of the routine and de-legitimises it if it is not" (Feldman, Pentland, 2003). In practice, it can be used as a retrospective tool. It allows people to describe their own actions and to ask other individuals for explanations of their actions.

The third interpretation is related to reference. In this case, the ostensive aspect is understood as a reference to patterns of activity that would otherwise be very difficult to understand. In this way it is possible to clarify and give an order to the various actions that make up an activity by labelling them (Arrow, 1974). Feldman and Pentland give the example of the term assumption, defining it as "an unrecognisable and unpredictable set of actions" (Feldman, Pentland, 2003), but that thanks to the ostensive aspect, it is possible to order and make sense of the activities.

Let us now look at the reverse transition. In this case, the performative aspect acts in three different ways on the ostensive one. Specifically, through the processes of creation, maintenance and modification.

Routines are created. There are situations that can apparently be defined as routine, but which in reality are not. For example, a set of actions performed by several people, within a pattern of actions, without a common idea that gives them meaning. Or a

recognisable pattern of actions, combined with a basic concept, but which only happened once. These two cases, manifested at the performative level, demonstrate the two fundamental elements for creating a routine. Its repetitiveness in practical terms but above all the idea behind the routine, is the essence of the performance aspect. Without one of these fundamental elements, it is not possible to create a routine.

Another very important effect that performance has on the concept is maintenance. Similar to what happens with competences, routines must be exercised and practised continuously to be kept effective and efficient. In this way, the actions taken by people keep the concept of the organisational routine alive. In other words, the performative aspect, through performances, maintains the ostensive one.

Finally, agents who perform actions in a repeated manner (Feldman; 2000) may follow the ostensive aspect and leave it unchanged, or they may also change it by deciding to act in a different way than expected. This deviation, which may have been caused either by external factors or because of self-assessment (see accounting from ostensive to performative aspect), leads to a change in the ostensive aspect and thus in the organisational routine. It is important to focus on this point because it explains why routines cannot be considered fixed and unified entities but, on the contrary, dynamic realities (Feldman, Pentland; 2003). Generally, changes in routines come from the agents who perform them. Changes in organisational routines have been observed in the past but, since they have always been considered fixed entities, they have always been justified as a response to exogenous changes linked to the market or to the introduction of new technologies (Tushman, Romanelli, 1985; Barley, 1986, 1990; Edmondson, Bohmer and Pisano, 2001).

The dual constitution of routines, formed by the two aspects, constitutes the instrument through which it is possible to demonstrate that organisational routines can modify and evolve due to endogenous changes. These changes are the result of the use of the routine itself.

Changes, whether endogenous or exogenous, constitute a modification of the individual's action compared to what the ostensive aspect suggests. There is a gap between the ostensive and the performative level of the organisational routine.

2.4 A gap between ostensive and performative aspect

The individual's decision about how to carry out his tasks, has highlighted how misalignments can arise between the idea of routine and actual practical performance. As mentioned, the ostensive level is not visible and can be interpreted differently by each person. In fact, if a person performs his task, consciously or unconsciously, in a different way from how it is represented at the ostensive level, it may happen that the two aspects are no longer aligned, thus creating gaps.

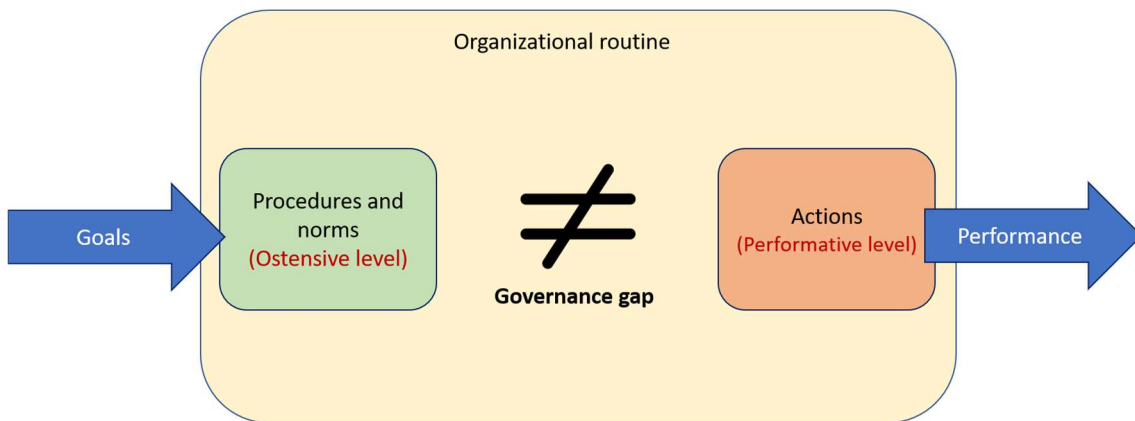
The ostensive aspect of routines is abstract, so it is difficult for management to control it. Like any process, organisational routines must be subjected to a process of constant control. As routines may be different from how they have been imagined, management is unable to supervise the process because it is unrelated to certain actions and behaviours that are carried out in the routine. Indeed, decisions concerning the tasks to be performed and the management of these are taken directly by the person performing the action, autonomously, rather than by the manager. The negative implication stems from the fact that if the decision is made by a person who is not clear about the possible alternatives and does not have an overview of the whole process, there is a risk that directly related activities will be compromised. Furthermore, it is very often the case that the management itself is not aware of certain decisions taken by other people, with the consequence that the management will have an even less clear overview of the actual process.

It is necessary to translate the ostensive aspect of organisational routines into a concrete and visible form, so that it can be compared with the performative aspect, which is concrete by definition. One way in which it is possible to translate the ostensive aspect is through a step-by-step description of what the routine should ideally be. In this way, it will be possible to make an empirical comparison between how the process should be performed and how it is actually performed (Becker, Zirpoli; 2008). Through this comparison, management is able to observe the two levels and identify any gaps. Moreover, having a written document representing the ostensive part allows management to focus its efforts on the factors that are really responsible for this gap, undertaking systematic events that influence performance to realign it to how it should ideally be performed (Becker, Zirpoli; 2008).

Actions taken to close the gap will be part of broader governance policies that management will need to evaluate, in order to improve the efficiency and effectiveness of its processes.

This tool just described, implies the development and introduction of control tools that allow management to observe and periodically verify the alignment between the ostensive part and the performance of the routine in question.

Graph 2.2: representation of a governance gap in the organisational routine



Source: data from Becker and Zirpoli (2008)

2.5 Performative and ostensive aspect: a more detailed view

The above model clearly highlights the ostensive and performative components of organisational routines. As emphasised above, these two aspects chase each other, creating a virtuous circle that allows organisational routines to create and regenerate themselves. The contribution of this model to the conception of organisational routines has been immense. "The performative perspective has helped correct our hitherto stability biased conceptualisations of routines by conceptualizations of routines by suggesting that routines are dynamic processes involving interdependent actors whose agency makes a difference in how routines are enacted" (Dionysiou, Tsoukas; 2013). However, this model does not analyse in depth specific micro-processes that allow organisational routines to be born and regenerated. Dionysiou and Tsoukas, based on the work of Feldman and Pentland, develop a detailed model that underlines the micro processes referred to above. In other words, the two scholars "look within the two parts,

ostensive and performative, to explore their mutual constitution through interactions" (Dionysiou, Tsoukas; 2013). They identify the connections between the participants in the routine as the pillar around which the routine develops. Connections "enable people who perform organisational tasks to develop shared understandings about what actions will be taken in a specific routine and how these actions relate to a larger organisational picture" (Feldman, Rafaeli; 2002). From this insight, Dionysiou and Tsoukas elaborate their model for the creation and regeneration of organisational routines, represented in Figure 2.1.

Before outlining the model, it is important to briefly explain three preconditions on which the model was built.

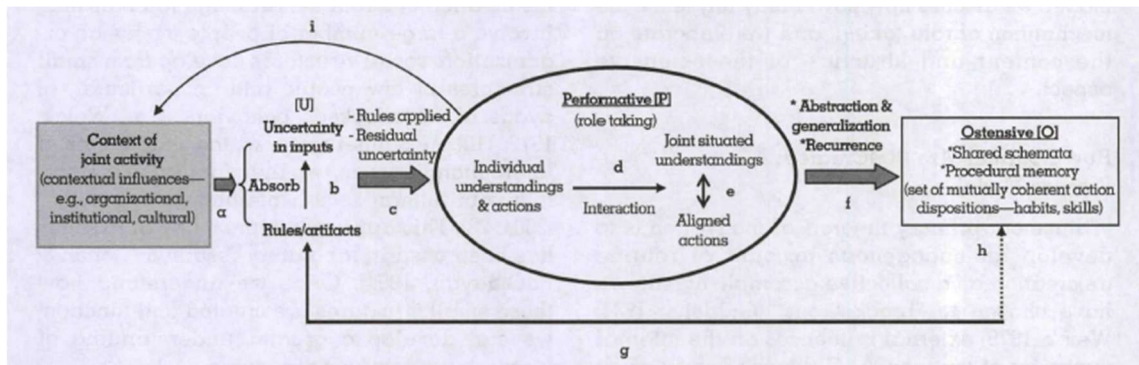
First of all, the two scholars consider the case of a newly created organisation with few rules or artifacts¹⁰.

Second, the number of participants in the organisational routine is small. This condition is given by the fact that the two scholars analyse the creation of the organisational routine, an event that usually takes place in groups of a few people. It is important to emphasise that this simplified form of interaction represents the prototype of "human social interaction in general" (Dionysiou, Thjdhsa;2013). Moreover, "this approach to the study of routines has been used in laboratory research (Cohen, Backdayan; 1994).

Third, it is assumed that all participants in the routine are working towards a common goal by coordinating their actions.

¹⁰ Artifacts are supports such as databases, codification of written rules, manuals or software systems, which help to represent the routine and foster its stability.

Figure 2.1: Graphic representation of an organisational routine



Source: Dionysiou and Tsoukas (2013)

Based on a typical ideal situation of a newly established company with a small number of routine participants, they will face two inputs: The scarcity of rules provided to them by management and the perceived uncertainty about the inputs (Weick; 1979), identified by [U] in the graph. The perception of uncertainty by the participants is important because it conditions the interaction that takes place in the initial phases between them. A high perception of uncertainty results in anxiety and loss of confidence (Feldman, Pentland; 2003). To reduce this uncertainty, rules need to be set. The more rules there are, the easier it will be to reduce the participants' perception of uncertainty (Arrow b in figure 1). In the case examined by the model, since few rules are present, the absorption of uncertainty will be reduced.

Furthermore, this lack of rules requires more interaction between the participants of the routine in order to coordinate with each other. In general, an inverse relationship can be defined between the number of available rules and the interactions needed to set up participants' actions: The more rules there are, the fewer interactions participants need to coordinate (arrow c in figure 2.1). Moreover, the more interactions between participants, the greater the amount of uncertainty absorbed, or rather, the smaller the amount of residual uncertainty " (Dionysiou, Tsoukas; 2013).

The interactions between the various participants are to be identified within the performative aspect of the routine, when role taking takes place. In this process, the participants in the routine compare their roles with the other members as well as their ideas and actions. Here communication emerges as the core element around which the

soul of the routine is built. As a result of this confrontation (arrow d in figure 2.1; Weick; 1995), the various participants align their actions and begin to outline a common understanding of the routine (arrow e in figure 2.1). Through interactions, participants are able to specify an outlined and shared path of actions to be taken. Furthermore, members will be clear about their respective roles and actions. These, through a process of abstraction and generalisation, can be framed in a specific schema (Arrow f in figure 2.1). The process of schematising roles and the actions of the members, develops the ostensive aspect of the routine, which is made partially shared by the participants, so as to strengthen a shared and unitary vision of the routine among all its members (Echterhoff, Higgins, Levine; 2009).

Since the routine is a repeated process, consisting of specific activities performed, it creates an experience that increases "communicative efficiency and coordination among all participants" (Nelson, Winter, 1982). Thus, through the knowledge acquired by performing the routine in the past, participants are able to develop or reshape new rules, triggering a virtuous circle (arrow g in figure 2.1). In order to provide support to participants, "artefacts" are often used, useful to codify, for example in written form, the rules in order to help the members in performing their actions (arrow c figure 2.1) or to help them in the formation of their ostensive scheme (arrow h figure 2.1).

Remembering that the fewer rules present, the greater the perceived uncertainty, as the number of rules increases, uncertainty decreases. It is noticeable how the ostensive aspect, consisting of the idea shared by all participants in the routine, is recognised as the guide to be followed in the future performance of the actions. As the number of rules is progressively increased, the need for communication and confrontation among participants is consistently reduced (Nelson, Winter; 1982). Following a waterfall mechanism, the ostensive aspect of the routine is continuously modified and recreated. Importantly, the re-creation of routines occurs in a coordinated manner among participants, even though their individual understandings may differ due to their different knowledge (Feldman, Pentland; 2003). Setting a common goal to be achieved acts as an incentive to achieve a minimum level of coordination.

The actions undertaken by the participants in the performative aspect, as well as affecting the ostensive aspect of the organisational routine, also influence the

perception of uncertainty of the inputs of the routine as well as the context of joint activity (arrow i figure 2.1). Due to human nature, which is unpredictable and extremely varied, interactions between participants may generate expected as well as unexpected results. This means that it is not obvious that the interactions will reduce the participants' perception of uncertainty, on the contrary there is a risk that this will be increased (Feldman; 2000).

2.6 Routines as a source of change

By many scholars, organisational routines are considered to be a primary source of stability, which can then result in inertia (Hannan and Freeman, 1983). The consequence is the formation of an "ideological barrier", which leads the organisation not to change its routines and not to renew its competencies. As pointed out above, routines can be a source of stability but also of change. Stability and change are two pillars that play a fundamental role in the company. Before illustrating why and how routines can be interpreted as a source of change, it is useful to illustrate how organisations have managed stability and change over time.

For a long time, there has been a debate about the nature of their relationship, whether they are complementary or alternatives to each other. Until the 1970s, stability and change were considered as alternative elements. Companies were faced with a trade-off, choosing whether to gear their organisational structure towards stability or flexibility, in other words change. In particular: "the distinction between the exploration of new possibilities and the exploitation of existing certainties leads companies to behaviours and strategic choices that differentiate them and enable them to achieve different business performances" (March, 1991). The academic James March has defined these two approaches as Exploitation and Exploration. The former involves the exploitation of current production activities, resources and competences. Typically, in an exploitation company, stability is sought through standardisation and the development of routines. Moreover, the ideal organisational structure is mechanical. The exploration approach, on the other hand, involves the search for new strategic

alternatives and a continuous adaptation to the environmental context in search of the development of new knowledge and competences. In this case, the company will have to be much more flexible, adopting an organic organisational structure (Schilling, 2013). Given this trade-off and the importance of both aspects for the company, the term Ambidexterity was coined. This term refers to the need for companies to be both 'explorers' and 'exploiters', incorporating both the flexibility to acquire new competencies, guaranteeing future profits, and the stability to optimise current resources and obtain profits in the present. (Duncan, Tushman, O'Reilly; 1996).

Based on studies on ambidexterity, there is an increasing need for a company to be both stable and ready for change (Feldman, Pentland; 2003). The theories developed subsequently take a complementary view of stability and change. The theory developed by Professor Moshe Farjoun is a clear example. "I construct an alternative conceptualisation of stability and change not as a dualism but as a duality. I maintain that stability and change are fundamentally interdependent - both contradictory, interdependent, both contradictory and complementary" (Farjoun; 2010). The author introduces the concept of duality instead of dualism, emphasising how the two aspects are on the one hand complementary and on the other contradictory. Compared to the concept of Ambidextrousness, Farjoun revolutionises the application of organisational routines, assigning it a leading role in the process. The dualism referred to so far is exploitation and exploration. In the former, the necessary stability was provided by the standardisation and application of organisational routines. Instead, the latter involves flexibility and experimentation in order to "explore" new resources and competences. On the contrary, the duality Farjoun speaks of involves the interdependence of exploration and exploitation and, more importantly, states that stable mechanisms such as routines also promote innovation and exploration. In other words, according to Farjoun, stability enables change and vice versa. This is the main point where this new theory is different from the previous ones.

Focusing on how stability can support change, the author states that routines¹¹ are transitions in rules of experience and deductions that an individual has learned by

¹¹ Farjoun defines routines and other processes that bring stability to the organisation as *institutions*

performing a new action. The application of these rules fosters trust and allows the development of frameworks ready to be used as new actions emerge. In this way, the uncertainty linked to the introduction of new actions is reduced and adaptation is promoted (Farjoun, 2010). This is why organisations deal with situations of uncertainty and change with routines: they promote adaptability by routinising tasks that do not belong to a routine. The framework that is created allows people to implement new ideas, to give meaning to the new experiences they live and to be able to produce new knowledge through codification and replication.

Another author who states that organisational routines are not only a source of stability but also of change is Professor Martha S. Feldman. In her paper "Organisational Routines as a Source of Continuous Change", Feldman shows how "routines are not inert, but are as full of life as other aspects of organisations. The potential for change is located in the internal dynamics of the routine itself, and in the thoughts and reactions of the people who participate in the routines" (Feldman, 2000). From this quote, it emerges how Feldman elevates the role of the individuals who take part in organisational routines, performing their tasks. We move from considering them as a machine, which performs its task mechanically and repeatedly, to considering them as thinking beings capable of voluntarily modifying their actions. The conceptual shift is important: the person no longer has a passive role in the process but takes on an active and proactive role. Since routines are an iterative process, individuals react on the basis of past performance of that routine, deciding to modify the actions that compose it. Therefore, the experience that the people involved in the routine have developed by carrying out their tasks is considered. The author, as can be understood from the quotation, justifies the mutations of an organisation by the changes that occur internally in the company's routines. Specifically, she believes that the conceptual basis of a routine does not consist of a base composed of rules and steps that cannot be changed, but also of a process of continuous renewal of these rules. The factor that enables this change is identified in the internal dynamics of the routine (Feldman, 2000).

As explained at the beginning of this chapter, organisational routines can be schematised in the form of a circle. Starting from the ostensive aspect, the idea of the routine is translated into the performative aspect through the actions taken. These

actions generate results, which can then generate new ideas, different from the previous ones (Feldman, 2000). By doing so, the internal dynamics of routines are able to renew their regulatory and conceptual basis.

Throughout this section, change has been mentioned several times, highlighting that one of the factors of change in a company is precisely the internal dynamics of routines. At this point, it is appropriate to clarify some aspects of the factors that change routines. They can be grouped into two macro-areas: Exogenous and endogenous.

By exogenous, we refer to all factors that have the power to change the organisational routine, which do not come from outside the organisation. Referring to the period in which this paper was written, certainly the Covid-19 pandemic is an example of an exogenous factor that changed certain organisational routines. Due to the restrictions adopted to contain the spread of the disease, most companies had to initiate a rapid transition process towards digital adoption. Specifically, there has been an exponential increase in the use of smart working¹². This has led to a totally different way of doing work, no longer physically in the office, but from home. The lack of opportunities to socialise and the inability of management to supervise the performance of tasks are just two examples of how the epidemic has impacted on organisational processes. Organisational routines have had to adapt accordingly. Previously, we emphasised the importance of management's monitoring of the tasks performed by individuals in order to recognise any gaps between display and performance. With the introduction of smart working, management has reduced power to monitor tasks. In order to avoid performance losses, the trend in organisations is to adopt a goal-orientation rather than task-orientation (Sica, 2020). By being clear about the final objective, the risk of losing performance is reduced.

Talking about endogenous factors, we refer to those factors, originating from within the company, which have the power to change an organisational routine. The human factor linked to the subjective interpretation of the organisational routine, mentioned above, is an example. More specifically, the experience of the individual performing tasks in an

¹² "Reorganisation of work based on new technologies in order to overcome physical and time constraints". (Botteri, Cremonesi; 2016)

organisational routine can have a twofold effect. On the one hand, experience can act as a facilitator of innovation. Thanks to previous successful routines carried out in the past, the individual may see features in common with the current one and attempt to replicate the success of the past one (March, 1991). Moreover, the replication of tried and tested past actions leads to a reduction in the risk of following atypical patterns and making mistakes. On the other hand, experience can also be a source of inertia. In such cases, the known and stable solution tends to be favoured over new actions with a greater degree of uncertainty. It is important to emphasise that are these solutions that have the greatest potential to radically change routines and increase performance.

III. Case study: Upooling S.r.l

3.1 A brief theoretical introduction: Scrum

Before moving on to the case study, a few more theoretical notions are necessary. They will be useful to understand the case study. Specifically, in this introductory part, a type of agile methodology is analysed: Scrum methodology.

The agile methodology originated in the field of software engineering as opposed to traditional development models, especially the so-called 'waterfall' model. The first reference to "agile" methodology can be found in the "Manifesto for Agile Software Development", published in 2001 (Larson, Chang; 2016). Previously, in 1995, Jeff Sutherland and Ken Schwaber proposed a framework for managing the software development cycle based on agile processes, calling it Scrum. Very suitable for IT and software development contexts, its essence is based on a small team of people that is very flexible and adaptive. Basically, The Scrum theory is based on the idea that processes must be empirically controlled and that knowledge comes from experience (Schwaber, Sutherland; 2017). Essentially, there is a shift from a logic of producing a "one-off" finished product to a modular and incremental one. The project no longer has a final project delivery at the end of the work period, but multiple deliveries of small product developments. The total working time of the project is divided into periods called "Sprints", where at the end of each sprint an increment of the product is delivered. The empirical process control is based on three pillars.

Transparency meaning that all significant aspects of the process must be visible to all participants.

Inspection in the sense that it is possible to check, within the framework of scrum events, that progress is proceeding correctly towards the intended goal.

Adaptation, which is necessary when the inspection reveals deviations from the intended path to the goal.

The team that adopts the Scrum methodology, called the Scrum Team, is composed by three main players: the Product Owner, the Development Team and the Scrum Master. This team is characterized by being autonomous, self-organised and cross-functional.

The Product Owner is, in fact, the one who is responsible for the product. He has the power to change the organisation and composition of the team and his main tasks are to define and organise the requirements that the product must have. He has high decision-making power and his decisions fall on the whole Scrum Team.

The development team consists of professionals who work to deliver a product increment at the end of the work period (Sprint). In addition, to being self-organised and cross-functional, development teams are characterised by not attaching any qualifications to their members. The factor of team size is crucial, as a team with only a few members may encounter limitations due to a lack of specific competencies. On the contrary, a team composed by many elements, generally more than nine, requires a lot of coordination and is therefore not efficient (Schwaber, Sutherland; 2017).

Finally, the Scrum Master is a key figure in the Scrum Team. He is mainly in charge of leading the team according to the Scrum methodology, making sure that the goals are understood by all team members and that the members are clear about the requirements expressed by the Product Owner.

As far as events are concerned, they are designed to reduce the need for unscheduled meetings. All of them are time-limited and are opportunities to apply the inspection and adaptation phases, which have been explained above.

The sprint, already mentioned above, is the period of work at the end of which the goal (Sprint Goal) is reached, usually an increase in the functionality or quality of the product. The end of one sprint corresponds to the beginning of the next one. It is composed of various events: Sprint Planning, Daily Scrum, Sprint Review and Sprint Retrospective.

It starts with Sprint Planning, a meeting where all the activities that will be carried out during the sprint are planned. This meeting is usually attended by the development team and the Scrum Master. During the sprint period, usually two weeks, short meetings (15 minutes) are held daily to inspect the progress of the sprint work and, if necessary, correct what is not going well. Usually, only the development team attends

this meeting. At the end of the working period, there is the sprint review. This meeting is very important as the result of the sprint work is shown to the product owner, usually through a demo. Here the product owner can ask specific questions to the development team about the work done and express his satisfaction or dissatisfaction. All project stakeholders participate in this event.

After the sprint review, there is the sprint retrospective. In this event, based on the comments received from the Product Owner during the sprint review, the team is inspected, its work is assessed determining what went well and what can be improved. This is an important moment of team self-criticism. Usually, this event is also attended by all Scrum Team members except the Product Owner.

Afterwards, Sprint Planning is carried out and then the new Sprint starts.

As mentioned at the beginning, the Product Owner interfaces with the Scrum Master for the definition of the product requirements. These requirements, once defined and translated into technical tasks by the Scrum Master and the Development Team, are collected in the Product Backlog, which is the only source of requirements for the project. It is important to underline that during the Sprint Planning event, all activities to be done to reach the Sprint Goal, are taken from the Product Backlog. These form the Sprint Backlog, defined as the set of product backlog elements selected for the Sprint.

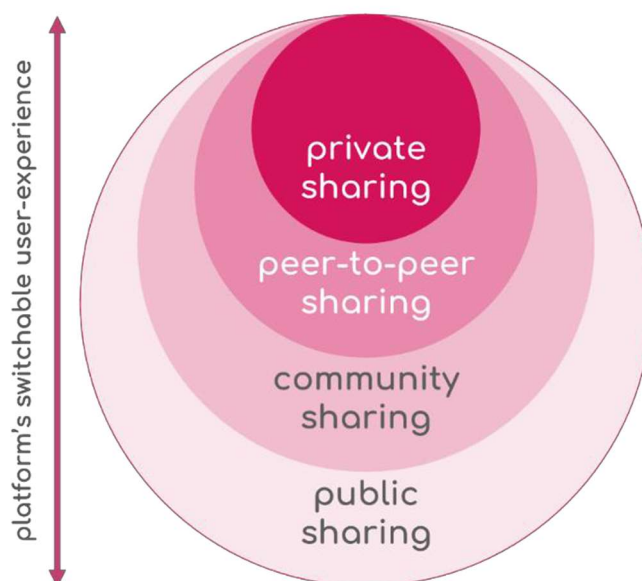
3.2 Overview and history of the firm

Upooling is a start-up, born from the combination of ideas and perspectives of a team of experts with significant experience in the world of mobility, specifically in the Mobility-as-a-Service industry (also known as MaaS)¹³. Upooling's core business can be identified in the development of its digital platform, which started in December 2018 with 65.000€ public grant.

¹³ "Mobility-as-a-Service (MaaS) is a service concept that integrates public transport with other mobility services, such as car sharing, ride sourcing, and bicycle sharing. The core idea is that intermediary digital services make it easier for users to plan, book, and pay for complementary mobility services, thereby facilitating less car-centric lifestyles." (Smith, 2020)

It is interesting to explore the vision of the company. According to various studies that have focused on car use, cars are used on average only 5% of the time, being parked and unused the remaining 95% of the time (Rotatis, Sigura, Sorrano, 2020). Given this, it is clear that the average utilisation rate of each vehicle needs to be increased in order to achieve numerous environmental, social and economic benefits. Therefore, Upooling wants to create a platform that allows the owner of the vehicle to share it by deliberately deciding the degree of sharing. As figure 3.1 show, starting from sharing a car with a small group of people (private sharing), the owner can also decide to enable the car to be exchanged between individuals (Peer-to-peer sharing), to be shared within a larger community (Community sharing) or even to be shared publicly, where any user with a Upooling profile can take the vehicle.

Figure 3.1: Representation of Upooling Vision



Source: Internal data gathered from the company (2021)

While the first two levels of sharing just described are more suitable for a consumer customer, the more extended levels of sharing (community and sharing) can be an interesting prospect for companies, institutions or any entity that owns a fleet of vehicles. In addition, Upooling integrates within its platform an artificial intelligence engine consisting of algorithms developed to optimise the operating costs of each vehicle in the fleet. Thus, it is clear that the digital platform is also designed to provide to people, such as fleet managers, with a tool that can assist them in managing their fleet and sharing cars.

The possibility for the customer, whether consumer or business, to choose between the four degrees of sharing expressed in the vision, implies the development of a technological solution that allows the enabled user to open and close the doors even if the owner is not present or does not have the car keys. This solution allows the user to open and close the car directly from their smartphone. In addition to door management, the user can geolocate the car, activate the turn signals or honk the horn. These actions are possible thanks to the installation of an electronic device in the car: the user from the Upooling platform, through the application installed on his smartphone, gives a command (for example the command to open the doors). This command is sent from the digital platform to the electronic device installed in the car, which will execute the command in the car. The electronic device not only sends data to the car's control unit, it is also able to read specific data. The data that the system is able to acquire are Speed, remaining fuel level, remaining range (in the case of electric cars), odometer. The acquired data is sent to the Upooling platform and then used for a series of functionalities that the platform offers in terms of fleet management.

Following this vision, Upooling started to achieve its first milestones. In April 2019, Upooling was a finalist in the MCE 4x4 competition¹⁴ while in September of the same

¹⁴ MCE 4X4 is an event organised annually by Assolombarda and the Milan chamber of commerce, which focuses on promoting innovation and sustainability in the mobility industry, with particular attention to start-ups.

year it became part of the portfolio of MobilityUP, a business angel¹⁵ that sponsors companies and start-ups in the mobility industry. In March 2020, Upooling was ranked third in Open Italy¹⁶ while in July of the same year a contract was signed with its first customer: Estrima. This represents an important milestone for Upooling because, as various contributors have said, Estrima was the first source of revenue but also the first test for the platform.

Founded in 2008, Estrima is located in northern Italy. It designs and produces an electric vehicle called Birò. This vehicle, according to Italian legislation belonging to the category of "Quadricicli leggeri", is very compact¹⁷ and designed for city driving. These features make the Birò a vehicle potentially suitable for sharing. Hence, the desire to make the Birò a connected vehicle and to develop a sharing platform that integrates MaaS services. As Estrima did not have the resources and technical expertise in-house to develop this platform, it needed a technical partnership. This led to the decision to establish a partnership with Upooling for the development of these services.

The solutions described above, as well as the technological platform illustrated, show that it is necessary to have very strong technical competencies in the field of software development. Indeed, apart from the electronic device, which is not produced internally by Upooling but supplied by a partner, Upooling's core activity is the continuous software development of its platform. Through these activities, Upooling is able to design, develop and implement new functionalities of its platform, as well as solve the problems (called "Bugs" in technical language) that every technological software product inevitably has. This strong IT imprint of Upooling will be of fundamental importance in describing, and understanding, the activities and organisational routines that reside in the company.

¹⁵ A business angel is a private individual who provides funds to a start-up company in exchange for risk capital, becoming a partner. In addition to providing financial capital, business angels also contribute their know-how and network of relationships.

¹⁶ Open Italy is the innovation ecosystem born within the ELIS non-profit Consortium. The aim of this ecosystem is to foster dialogue and collaboration between large Italian companies and start-ups.

¹⁷ Length: 1740 mm; Width: 1030 mm; Height: 1565 mm (Estrima, 2021)

Upooling, being a start-up, is different compared to more structured companies. Various definitions of "start-up" have been given. It is important not to confuse a start-up with a company in the start-up phase, which indicates the first stage of the company's life, when the entrepreneur begins to outline organisational processes and investments. Steve Blank and Bob Dorf, in their book "The Start-up Owner's Manual", define a start-up as "a temporary organisation in search of a replicable and scalable business model" (Blank, Dorf; 2012). Three fundamental characteristics of a start-up emerge.

A start-up is naturally temporary. It will evolve into a more structured company, be sold¹⁸ or, in the worst case, fail. Despite efforts and investments, about 90% of start-ups fail during the first years of their life (Patel; 2015).

Replicability refers to the possibility of replicating the business model in different geographical and temporal contexts, without having to make radical changes.

Another important characteristic is scalability. In other words, a company is defined as scalable if it uses a business model that is able to increase the size of the company, increase its customers and turnover, more than proportionally to the resources invested. For example, a business model is considered to be scalable if it is able to grow the company more than twice as fast by doubling the resources invested. This may be possible thanks to the exploitation of phenomena such as economies of scale.

Finally, the most significant feature of a start-up is innovation. A start-up is born out of the founder's desire to provide an answer to market demand, a solution to a problem that has not yet been solved. Usually, innovation can lie in two aspects of the start-up: in the business model or in the product. It is important to underline that the two innovative aspects can coexist in the start-up.

Regarding the business model, as explained above, a startup can develop a model that can generate value where it was not possible before. The most common examples of innovative business models used by start-ups are: E-commerce, Saas (Software-as-a-

¹⁸ Usually, the aim of a business angel who invest in a start-up, is to progressively increase the value of the company and then to achieve the so-called "Exit", i.e. the sale of the start-up. In this way, the figure who provided the funding will recover the resources invested and make a profit.

service), mobile apps, media site, User Generated Content and Two Sides Marketplaces. Whereas, by proposing an innovative product, the startup tries to provide an answer to a problem through a product or service that has several novel features.

This strong orientation towards innovation is also reflected in the startup's business organisation. Excessive formalisation and standardisation would not allow the startup to be able to improvise and experiment, compromising the company's typical innovation process (Schilling; 2013). Upooling, being a startup engaged in continuous research and development activities to implement new functionalities of its proprietary software platform, presents an organic corporate structure. This structure can be recognised by analysing the roles of the employees, who often do not have clearly defined roles but, on the contrary, are responsible for various tasks that are not strictly related to each other. For example, The author have carried out both testing of new platform functions and web marketing activities. In addition, the degree of formalisation and standardisation is considerably lower than in more structured companies. This ensures that the start-up benefits from greater flexibility and speed in implementing new knowledge into its organisation. For these reasons, the organic structure is considered to be more suitable for companies innovation-oriented and operate in rapidly changing environments (Mcshane, Olekalns, Newman, Travaglione; 2016) as opposed to a mechanical corporate structure that is more suited to achieving operational efficiency goals (Leonard; 1996). Even though Upooling's organisational structure is very lean, flexible and not favourable to the formation of organisational routines, some can still be identified, which will be discussed below.

Although Upooling's organisational structure is very lean and flexible, various organisational routines can be identified which have been formed in the organisation. One motivation can be identified from the analysis by the representation of the organisational structure as it stands today (at the time the paper is written). As can be seen from the organisation chart presented in figure 3.2, the structure appears to be a functional structure. Often, many companies begin their activities by adopting a simple structure (Mintzberg; 1979). Upooling also originally had a simple structure. This type of structure has some typical characteristics. Firstly, it has a "flat" structure, defined by the number of hierarchical layers in the organisation. The lower the number of hierarchical

layers, the "flatter" the organisation (Mcshane, Olekalns, Newman, Travaglione; 2016). Directly linked to the hierarchy is the span of control. Having few lines of management between the general decision-maker and the employees, it often happens that many people report directly to the owner or CEO of the company creating a wide span of control¹⁹. Other characteristics already mentioned are the broad definition of roles, due to insufficient economies of scale that do not allow for greater specialisation of jobs (Mcshane, Olekalns, Newman, Travaglione; 2016), high flexibility and low barriers to the exchange of information between employees. The limit of this structural form lies in its management. As the company grows and increases its complexity, the CEO is no longer able to manage a very long span of control, thus making it necessary to insert intermediate levels of management in order to allow the CEO to concentrate on decisions concerning the management of the entire company. In fact, the CEO progressively delegates the management of various activities to managers who report directly to him. Moreover, "as the complexity of the company increases, there is a tendency to organise people around certain common knowledge or resources" (Mcshane, Olekalns, Newman, Travaglione; 2016). Therefore, employees are grouped according to a functional criterion, hence the definition of functional structure.

Upooling, having integrated into its organisation new people who have increased the organisational complexity, have experienced a period of organisational transition, progressively moving from a simple structure to a functional structure.

Currently, there are 8 people permanently employed by Upooling. Most of them have technical roles and are dedicated to the management and software development of the proprietary digital platform. Most of the tasks that are not directly related to the software development or marketing area are carried out directly by the CEO, who personally takes care of the commercial and financial side of the business. He is assisted by a junior person and a business developer, who is in charge of identifying potential customers, contacting them and creating new business opportunities.

¹⁹ A span of control is defined as the number of people directly reporting to the next level in the hierarchy (Mcshane, Olekalns, Newman, Travaglione; 2016).

The production department is the most developed in Upooling. There are about 4 developers and one tester. The developers are divided between back end and front end²⁰ functions. In addition, a developer is specifically in charge of the dialogue between the two parts. The tester is in charge of testing new platform functionalities, or the actual resolution of problems with existing features, before these are released in the official version of the platform, which can then be used by the client. Given that the application has been developed for both the Android and iOS operating systems, which differ significantly from each other, a problem specific to one operating system may arise and it may happen that the team does not have the necessary expertise to resolve it. At this point, a person from outside the team who has certain specific competencies to solve the problem is engaged.

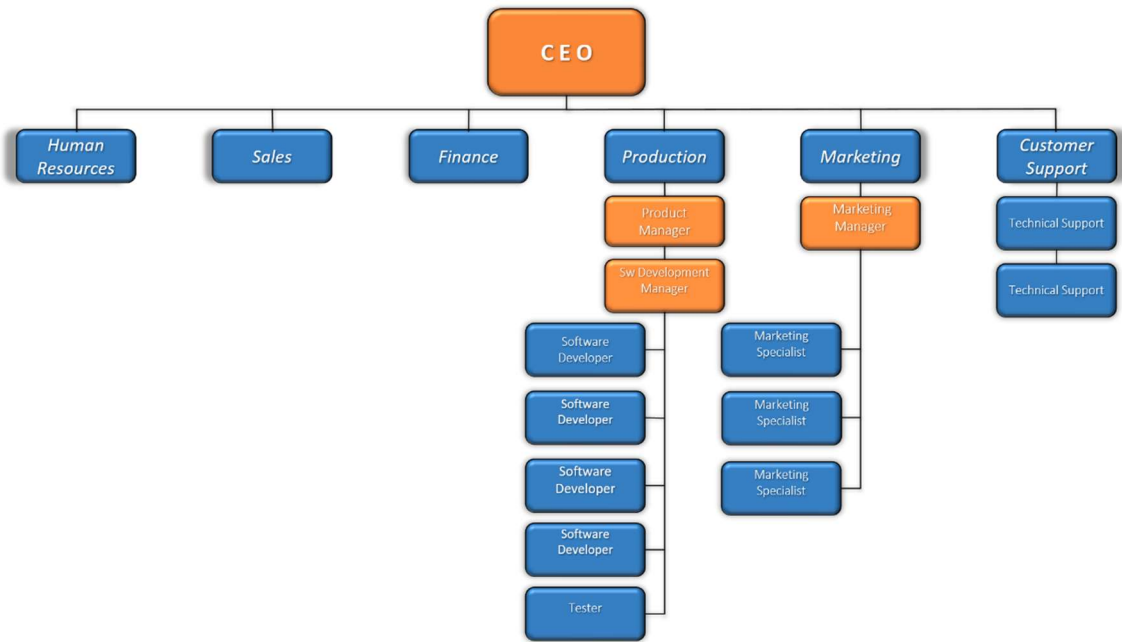
The production team is co-ordinated by a developer with management functions, who reports to a project manager, who is responsible for development.

As for the marketing department, it consists of a team of three people, with the assistance of a fourth as needed. This team is coordinated by a marketing manager who reports directly to the CEO.

The customer support department consists of two people from the production department, who also have customer service tasks. The two figures have different roles. The first one provides support for the technical part of the platform, managing both front-end and back-end issues. The second figure is in charge of assisting with problems related to the use of the platform, with access from both the application and the website. In addition, he provides assistance and training to customers who are approaching the use of the platform for the first time and explains the various features through demos.

²⁰ The front end (FE) and back end (BE) denote, respectively, the part that is visible to the user of a programme and with which he can interact, typically a user interface of an application (front end), and the part that allows these interactions to actually work (back end).

Figure 3.2 The organisation chart of Upooling



Source: Internal data gathered from the company (2021)

Being focused on the development of the proprietary platform, Upooling can be defined as a company that mainly deals with software development. Since its foundation, it has been decided to adopt an 'agile' working methodology, specifically the Scrum methodology.

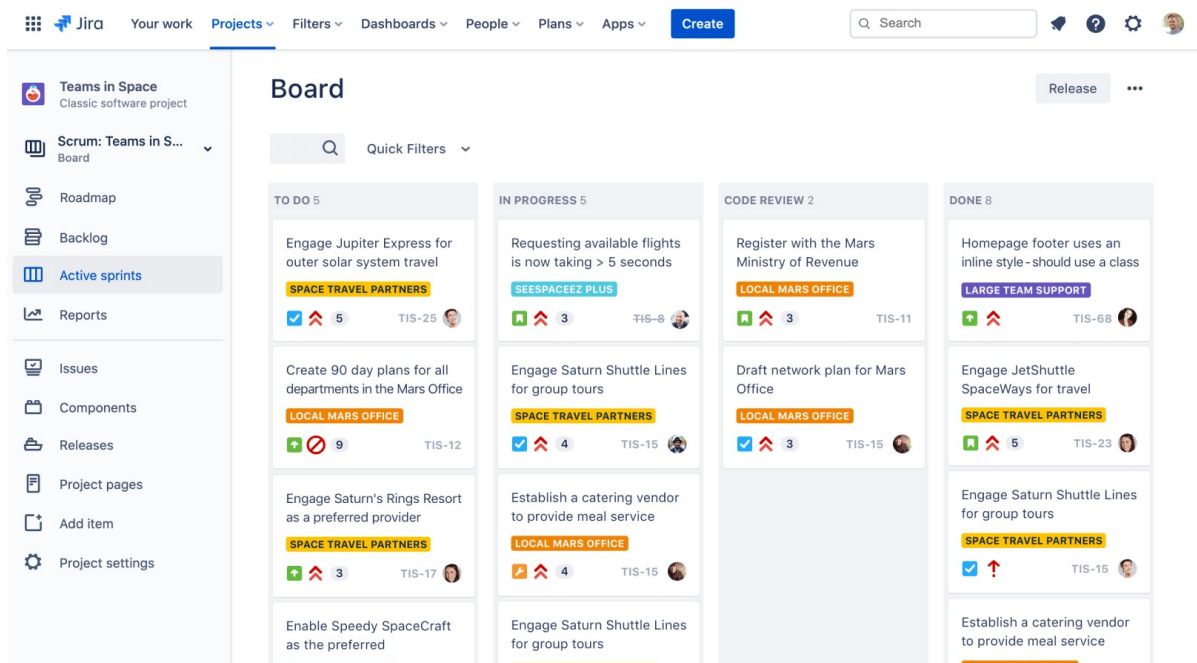
As highlighted above, the scrum team is composed of three main elements: The Product Owner, the Development Team and the Scrum Master. In this case, the role of Product Owner is held by the CEO. As we will see in the description of the selected process, he is mainly responsible for expressing the requirements, which will be later translated into technical characteristics. The role of Scrum Master is held by the project manager of the production department while the development team is composed of all the other team members.

Within the agile methodology, a specific software for agile project management called "Jira" is used. In addition to providing support for project management, Jira facilitates the reporting and tracking of bug reports²¹. It is structured in such a way that each task assigned to one or more members of the development team is displayed in the form of

²¹ Jira is a software developed by Atlassian. For more information see www.atlassian.com

a history. The screen is divided into 5 columns, each corresponding to a phase of software development. The phases are: Open, In Progress, Reopened, Resolved and Closed. Later, during the explanation of the process, the various development phases will be specified in more detail. As the development of a specific task progresses, for example by moving from the "Open" phase to the "In Progress" phase, the story corresponding to that task is moved to the column corresponding to the new work phase by the project manager. Below, in figure 3.3, is possible to see an example of Jira board.

Figure 3.3 : Example of a Jira Board.



Source: Atlassian.com

3.3 Methodology

3.3.1 Implication in the study of organizational routines: Process selection

When studying the organisational routines of a company, the various theories developed by scholars must be translated and interpreted in consideration of the specific case being studied. As mentioned above, each company can be considered as an "incubator" of organisational routines, where routines develop and change differently for each company, creating processes that are similar between companies but will practically never be identical. For this reason, when applying the theories to the real case, they have technical and practical implications to be considered (Becker, Salvatore, Zirpoli; 2005).

After having given a certain definition of organisational routines, the first issue to be faced considers the process to be analysed.

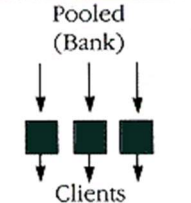
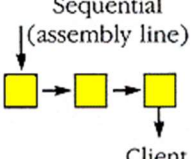
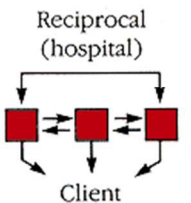
A first criterion useful to selecting the process can be identified in the definition of organisational routine. Commonly the term organisational is associated with the concept of collectivity. This is often the case, but the correlation is not always true. Becker, Salvatore and Zirpoli describe this case with an example: "Think of a couple of people queuing at a bus stop, then boarding the bus. They interact (for instance, in attempting to get into the bus before the others, blocking the door somewhat), and they might do so more or less every time. But it is difficult to see anything 'organisational' in that, other than the fact that multiple persons are involved, they interact, and the interaction is somewhat structured - maybe in a rather chaotic way" (Becker, Salvatore, Zirpoli; 2005).

Organisational routines are patterns of recurring interactions that perform a task in the organisation (Feldman, Pentland; 2003). In order to understand the 'organisational' aspect of routines, it is appropriate to shift the focus to the tasks performed. At this point, we need to understand what makes a task "organisational". Knowing that there are examples of specialised organisational units in companies, they develop interdependencies with each other. Being specialised and diverse, these interdependencies need to be managed and coordinated in such a way as to maintain a

common corporate vision of the objectives to be achieved. This coordination is implemented through the performance of organisational tasks. Returning to the question, the organisational aspect of routines is justified by speaking of "recurring patterns of behaviour that implement and execute tasks that have to do with interdependencies" (Becker, Salvatore, Zirpoli; 2005).

Such interdependencies can be classified into three different types: generic, sequential or reciprocal (Thompson; 1967).

Figure 3.4 Thompson's Form of interdependencies

Form of Interdependence	Demands on Communication, Decision-Making Across Units	Type of Coordination Required	Priority for Locating Units Close Together	Type of Technology
<p>Pooled (Bank)</p>  <p>Clients</p>	Low Communication	Standardization, Rules, Procedures	Low	Mediating EX: Taco Bell (stores within company)
<p>Sequential (assembly line)</p>  <p>Client</p>	Medium Communication	Plans, Schedules, Feedback	Medium	Long-Linked EX: Saturn plant
<p>Reciprocal (hospital)</p>  <p>Client</p>	High Communication	Mutual Adjustment, Unscheduled Meetings	High	Intensive EX: bone marrow transplant unit

Thompson's Classification of Interdependence, Management Implications, and Type of Technology

© 1992 West Publishing Company

Source: Daft (1983)

Starting from the first, it is defined as generic (or pooled) because the performance of one specialised unit has a very low impact on the performance of the other.

In the case of sequential interdependence, the link between the two units is stronger. As can be deduced from the name, there is a sequential link between the actions of the two units, generally, the output of one is the input of the other, generating a chain or sequential effect.

The third type of interdependence, which is also the strongest, is the reciprocal one. Reciprocity is recognised by the fact that the final result of the actions of two organisational units depends on the performance of these two. One can associate this type of interdependence with teamwork, where the final result depends on the work of all and not on that of a single component " (Becker, Salvatore, Zirpoli; 2005).

This analysis of interdependencies makes it possible to weigh the organisational component within the observed routines and to select the most significant ones. It is evident that, in the selection of the process to be analysed, routines characterised by generic interdependencies are less significant than routines containing sequential or reciprocal interdependencies.

Continuing to analyse the tasks that compose the routines, in assessing which process to examine, attention must be paid to the nature of the tasks. Looking at routines carried out in the context of software development, the majority of tasks performed are technical. A routine, composed mainly of technical tasks, requires the observer to possess sufficient technical competencies to recognise, examine and judge the process. As the process grows, the degree of technical competencies required to examine it also increases proportionally, thus requiring increasingly specific and in-depth technical competencies from the observer. On the contrary, a routine less oriented towards pure technicality and more oriented towards the organisational aspect will be easier to notice and study for the observer who does not have a very deep technical background.

Of course, the context in which the organisational routines are studied is very important. Depending on the type of company in which you are observing and studying routines, there will be a different proportion of routines composed of many technical tasks (tasks where you need a strong technical background specific to that discipline to understand

them) and organisational routines. As for the context in which this research is conducted, Upooling is a strongly software development-oriented company. Most of the activities carried out within the company are activities for which a specific technical background is necessary, for instance developing a new platform feature, fixing a software bug, publishing an application on a store. It follows that the routines present within the company are mostly composed of technical tasks, carried out by agents competent in the field of software development (in this case, software developers). The observation of these routines required the observer to acquire some basic technical Competencies, to be able to understand the routines present and observe them during a specific period.

Regarding the method of process selection and the topic of this paper, it was chosen to observe tasks with sequential or generic interdependencies. In this way, the organisational component necessary to coordinate the various activities is emphasised. On the contrary, as has been shown, tasks characterised by generic interdependencies have a rather weak link between them, making them not very significant from an organisational point of view.

Another aspect to be taken into account during the process of choosing an organisational routine is the size of the section of the process to be analysed. In organisations, many processes can be divided into sub-processes which can be decomposed further, resulting in a "level of granularity" (Becker, Salvatore, Zirpoli; 2005). Hence, the difficulty arises to understand which part of the process to analyse (Pentland; 1995). On the one hand, in case one chooses to "crop" a part of the process that is too big, the risk is to include many dynamics, tasks, knowledge exchanges between agents and others that exponentially increase the complexity of the analysed process and make the analysis difficult. On the other hand, isolating too small a segment of the process leads to the "sterilisation" of the whole process analysis. Studying too small a part of the process does not allow to understand the context of which the routine is part and does not allow to describe it in the best possible way. Therefore, the following question naturally arises: What is the correct size of the "grain" to be analysed? The scholars Becker, Salvatore and Zirpoli answer this question by re-proposing the concept of interdependence already seen above, specifically that of specific interdependence.

The correct "grain size" corresponds to a section of the process that contains significant mutual interdependencies. If the size of the process grain is too small, there may be no interdependence between activities within it, making the grain insignificant. On the other hand, if the grain is too large, the interdependencies existing between the various activities would no longer be mutual, but generic (Becker, Salvatore, Zirpoli; 2005).

Finally, the time period that the observer decides to dedicate to observing the process should not be underestimated. As already highlighted in the paper, organisational routines are also characterised by their repetitiveness and recurrence. By choosing a limited period of time, there is a possibility that the observer will attend only once to the execution of a particular process. The risk is that, given the short observation period, it is not clear whether the process observed is a one-off process or a recurring process. Again, the solution to this problem is provided by Becker, Salvatore and Zirpoli. The three scholars state that "The problem of choosing the length of the observation period can be addressed pragmatically by selecting a central task of the organisation, where 'central' means directly related to organisational goals" (Becker, Salvatore, Zirpoli; 2005). By examining particular tasks that are part of the core activities of the company, there is a high probability that they will be repeated over time and thus turn out to be routines.

3.3.2 Understanding of the context and data gathering

Organisational routines have been defined as paths of recurrent interactions (Feldman, Pentland; 2003). Feldman and Pentland, in 2003, described in detail the ostensive and performative components of routines. The former refers to the idea that the people who are part of a routine have of that process, what the goals to be pursued are and what actions need to be taken to achieve them, while the latter can be described as the specific actions taken by specific people at specific times when they are engaged in an organisational routine²². The identification of these two aspects in the context in which the case study takes place, their study and the analysis of the interactions between

²² For more details see chapter 2

them, requires the acquisition of specific data. Regarding the collection of these data, three different methods were used.

The first was the study of existing documentation concerning organisational routines. Since this is a very young company with an organisational structure that is not very sophisticated and strongly oriented towards organicity, the existing written documentation was not sufficient to fully understand the company's dynamics and its internal routines, especially the past ones.

The second method of data collection was based on semi-structured interviews. The interviews were carried out individually by the author with all those who currently have, or have had in the past, a role in the company. In addition to the software development team, the interviews involved the company's CEO, the project manager responsible for managing software development and the scrum master who intervened in the various company processes. The interview schedule consisted of a basic set of questions that were the same for all interviewees and a variable part consisting of questions that arose spontaneously during the interview based on the interviewee's answers. The average duration of each interview was about 45 minutes. It was decided to ask all the interviewees an identical set of questions in order to understand their ideas and opinions on particular topics. The questions mainly concerned the competencies and routines present within the company, trying to identify any changes in these over time and to understand the reasons for them.

Finally, the author worked directly in the case study company for about 7 months. During this period, he performed various tasks related to the process of developing new functionalities in the digital platform. In particular, he worked as a "tester", testing new functionalities before they were released in the official software version in the stores. He regularly took part in most of the meetings involving the technical development team and supported the company's CEO in marketing and business development functions.

Thanks to the simultaneous use of these three methods of data collection, it was possible to observe the same data units from different angles, in order to compare them and achieve a perspective as sterile and objective as possible. Thus, thanks to this

methodology, it was possible to obtain a triangulation of data which was crucial for the reliability of the results obtained.

It is important to emphasise that the entire observation period and interviews took place under the smart-working regime, as the period ran from September 2020 to April 2021. Unfortunately, this period coincided with the restrictions necessary to contain the spread of the COVID-19 pandemic. This could be considered as a source of limitation as the observer, although constantly in contact with the development team and the various members of the company, may not have been able to capture particular dynamics or peculiarities that, if physically present, he would have been able to. For this reason, in order to compensate for the inevitable barriers and filters created by this type of relationship, it was decided to extend the period of observation of company processes as much as possible, maximising the time available. In this way, an attempt was made to capture certain nuances or peculiarities of the observed processes, which are also important. For this reason, even though the data was collected in smart-working mode, it is believed that the data collected is equally valuable and that the resulting results are to be considered reliable.

The prolonged need to respect social distancing, avoiding all possible forms of physical contact between people, may also have affected the corporate culture. Having to perform tasks in isolation leads to a decrease in synergies between people, as communication becomes more difficult and less empathetic, with a greater tendency to work individually. Working physically in different places, communicating using only technological supports such as video calls and not being able to meet for a long time, introduces the risk of a decrease in the perception of corporate values by those working in the company. This element, if not properly managed with the adoption of adequate governance and human resources policies, can lead to a decrease in perception, identification and inclusion in what is defined as corporate culture, an essential factor in an organisational routine. Having been defined as "the unspoken code of communication among members of an organisation" (Cremer, 1993) and "a set of norms and values that are widely shared and strongly held throughout the organisation" (O'Reilly, Chatman, 1996). It is clear why there is a risk of a weakening of corporate culture in situations of forced social distancing. It is important to note that this paper

has not specifically analysed this issue, which could be the subject of future investigations.

3.4 Choice of process: the development of new features

Following the various criteria, it was chosen to examine the process of developing a new feature. There are several reasons for this choice.

First of all, the observer spent the observation period working closely with the software development team. Consequently, the processes he observed were primarily those related to the development of new features.

Secondly, by the selection criteria set out earlier, through this process the main functionalities of the platform, which are fundamental for the company, are developed. Therefore, the probability of observing repeated collective behaviour was higher.

Thirdly, this process is an organisational routine as it has interdependencies between various agents. In this case it is a mutual interdependence as the final performance depends on the result of all team members, there is a high degree of communication and the type of coordination adopted involves unscheduled meetings and mutual adjustment. As a routine encompassing mutual interdependencies, the requirement of a proper "grain size" is also fulfilled, as the analysed process is not too generic.

Finally, as this process is mostly carried out in the production and software development department, it was under observation during the whole period. In this way, the repetitiveness of this process was noted and it was certain that it was a routine.

The process described aims to trace how new software features of the proprietary platform are developed, starting from the requirements provided by the CEO until the development of the feature and its introduction into the platform with its subsequent adoption by the customer. As emphasised above, Upooling has always tried to follow the Scrum framework, however in different degrees and intensities. For this reason, in the description of the processes and the graph below (see graph 3.1), the CEO is identified as the Product Owner (note see scrum part for clarification).

This process represents a crucial part of the whole production process of the company because the feature developed will be used immediately by the customer. Therefore, the performance level of the process must be as high as possible for several reasons. First of all, it is important in order to guarantee the Upooling customer a high-quality product, as free as possible from problems or "bugs", which meets his expectations and does not reduce his satisfaction. Secondly, as we will see later, a feature problem found downstream in the process causes a revision of the feature by the development team, leading to delays in the development of new features and an increase in costs. For these reasons, this process must meet very high performance and operational standards.

As evidence of the relevance of the process described, is the number of employees involved. Most of the staff, varying from 8 to 10 people, are part of the production department, which is directly involved in the development process of a new feature. Also from a financial point of view, analysing the distribution of the budget allocated each year to the various activities carried out by the company, it emerges that the management of research and software development activities is allocated most of the budget. In 2019, approximately 85% of the budget was allocated to research and development activities²³ making this process the most expensive within the company.

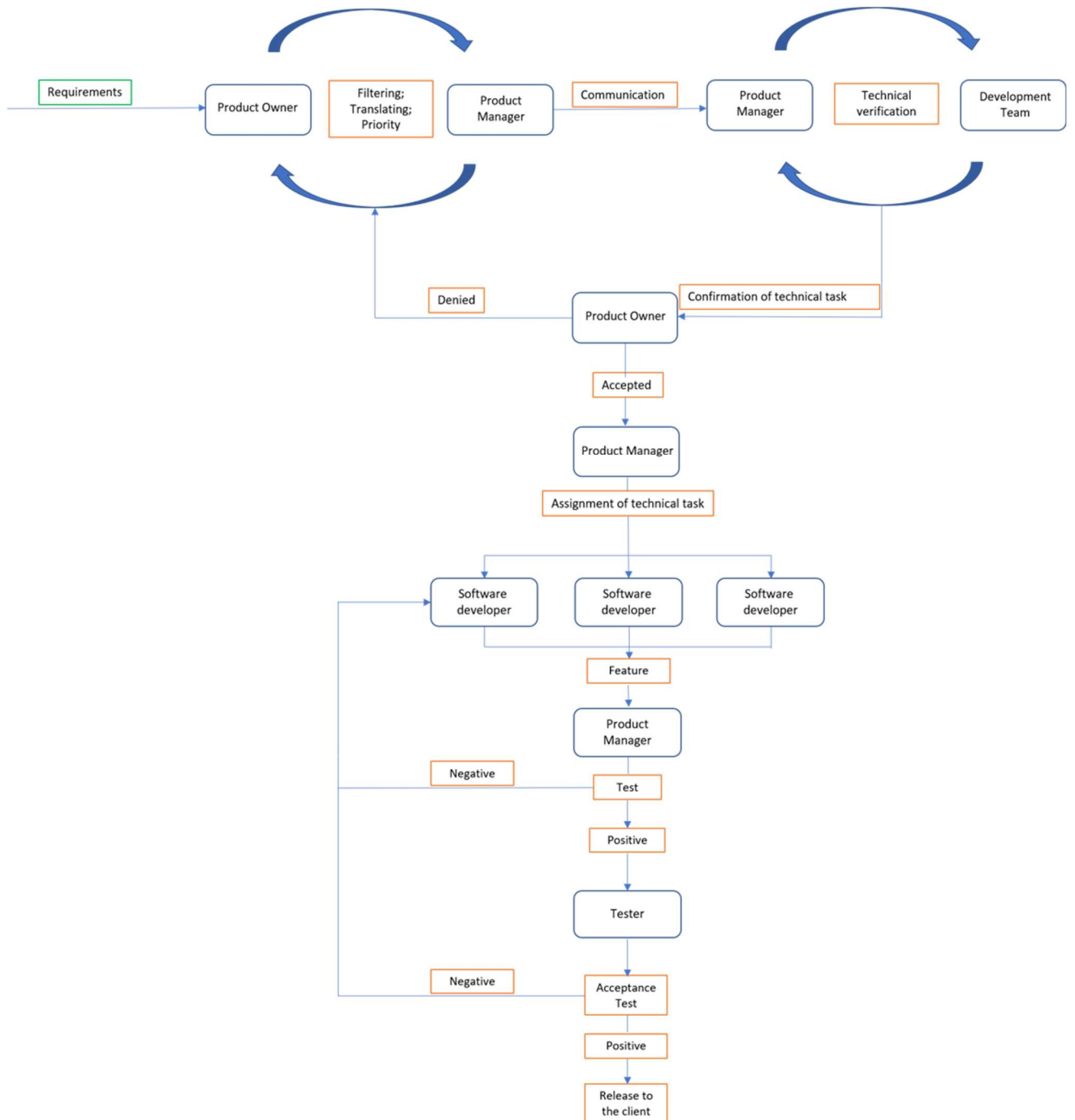
It has been observed that the process examined is repeated very frequently. In the course of the two working weeks of a sprint, the process is repeated for each task performed by the development team. On average, about 60 tasks are planned in a sprint. Consequently, the process occurred and was observed with a high frequency.

As Feldman and Pentland argue, in order to fully understand the changes that have taken place within organisational routines, it is necessary to describe both the ostensive and performative layer. Furthermore, it is important to emphasise how agents influence their interaction (Feldman, Pentland; 2003). Following the framework outlined by the two scholars, in the next section, the routine under study will be described and analysed, focusing on the ostensive aspect.

²³ Data from the company's internal balance sheet

3.5 How the development of a new feature should be done: the ostensive aspect

Graph 3.1 : Ostensive aspect of the development process of a feature



Source: Elaboration by the author based on data gathered in the company (2021)

In order to make it easier for the reader to see and understand the ostensive level of the routine, a graph has been drawn up which attempts to represent it. During the presentation, explicit reference will be made to graph 3.1, which will be used as a guide. The data with which this graph has been constructed are the result of the observation period spent in the company, the interviews conducted with the agents and the study of existing documentation.

Starting from the top left, a fundamental precondition is to have the requirements made by the product owner. In the field of software development, the client provides the analyst commissioned by the software product development company with a list of requirements that the development company must fulfill with the product. A requirement is a specific description of the behaviour that the software product must comply with. In addition to a detailed description of the behaviour, non-functional requirements can also be provided, such as use cases describing the interactions users will have with the software (Bourque, Fairley; 2014).

In the specific case of Upooling, the role of the developer is played by the CEO while the software developer is the development team. The requirements were all listed in a specific document, divided by areas and sections that the platform should have. In addition, specific use cases related to the customer journey have been foreseen. Using the Scrum methodology, Upooling adopted the "Jira" software for the organisation of agile work. The structure of Jira provides for these requirements to be transcribed into "Epics". The term Epic is used to define a high-level requirement, formulated by the client. It may contain a specific use case or a list of elements to be developed, arranged as a "check list". This is considered the basis from which the whole project is built. It represents an external precondition of the routine, and not a phase forming part of it, since the requirements definition operation generally takes place at the beginning of the project. Naturally, requirements evolve as the project progresses and may be integrated, modified or even eliminated.

Phase 1: The first phase of the routine coincides with the beginning of the sprint. In this phase, as can be seen from graph XY, there is a moment of confrontation between the product owner and the product manager. The product manager and the product owner, based on the requirements provided in written form by the product owner, perform two

different actions. First of all, a filtering of the prerequisites provided by the product owner takes place. Combining the product owner's experience in the industry with the project manager's more software development-focused experience, they identify the important requirements that can give an important value to the platform (also differentiating it from possible competitors) and those that might not be so essential. This action is important because the company's resources are not unlimited and developing features of little value would not be efficient. Linked to the efficiency dimension, the project owner and project manager identify the requirements with the highest priority. Developing a feature, or a requirement in general involves investing scarce resources such as time or money. In addition, a single requirement often results in multiple tasks that must be performed. If you do not prioritise your requirements, you run the risk of developing requirements that would be of low priority, delaying the development of high priority requirements. Finally, a translation action is carried out. This action, conducted by the project manager, consists of translating the filtered and prioritised requirements into technical IT language. Specifically, he identifies and determines for each requirement the necessary technical tasks to be developed by the development team in order to meet that requirement. In practical terms, the product manager is the one who is responsible for translating epics into tasks.

Phase 2: At the end of the first confrontation phase, the project manager communicates the outcome of the discussion to the development team. This opens the second phase of comparison between these two agents. By condensing the knowledge and experience of the members of the development team with the project manager, it is possible to conduct a technical check on the tasks to be performed by the development team. In this way, any technical or development difficulties can be flagged up, thus preventing them from arising during the actual development process of the functionality.

Phase 3: After this phase of comparison and verification, the tasks are submitted to the Product Owner, explaining how they will satisfy the requirement proposed by him. The product owner, having verified that the tasks are consistent with the requirement, may accept the proposal. In case the tasks are not consistent with the written requirement, the product owner may deny the proposal. The reason may be that the requirement may not have been made sufficiently clear by the product owner, or may not have been

understood correctly by the product manager. At this point, a new confrontation between the two agents is appropriate to clarify any doubts or misunderstandings. The requirement follows this cycle until the product owner considers the tasks developed by the product manager to be consistent with the requirement. An interesting feature emerges. It concerns the involvement of the product owner in the definition and production process. Since the software product is based on requirements provided by him, his involvement in the first phase of the routine is evident. Moreover, this involvement is even more evident in the perspective of the Scrum methodology. As explained earlier in the introductory part of this chapter, one of the key elements of this framework refers to the systematic involvement of the product owner in the process. It is important to underline that, with the acceptance of the tasks by the product owner, a first part of the routine is concluded: the definition of the requirement. The following phases will analyse the development of the feature, defined by the requirements.

Phase 4: Once approved by the product owner, the product manager assigns the tasks to the various members of the development team. This phase takes place at the beginning of each sprint, within the Scrum event "Sprint Planning". In order to exploit the full potential of the development team, each member is assigned points corresponding to the hours that person can dedicate to the project during the sprint. These points are called "Story points". During Sprint Planning tasks, starting with those of highest priority, are ranked according to how many Story points are needed to solve them and then allocated to the various members until the points are used up or the tasks are finished. The allocation is not made randomly, but according to the competence, training, experience and working area of the various team members. Nevertheless, the characteristic of cross-functionality of the team applies. In case a developer is unable to complete his task (e.g. due to an emergency), any other team member must be able to perform that task, even if it was not initially assigned to him. Moreover, cross-functionality is linked to the composition of the team, which is formed in order to possess all the necessary competencies to accomplish the assigned tasks and develop the required feature, without requiring resources from outside the team. The task assignment operation, like the subsequent operations that will be described, is always accompanied by an action on the project board (shown as an example in figure

3.3) of the Jira software. This is very important for two reasons: the first concerns transparency between the work team and the product owner, a fundamental pillar of the Scrum methodology. At any time, by looking at the project board on Jira, the product owner is able to check the progress of the work. Secondly, the board is a useful tool for the team to check the work progress of the other members and coordinate accordingly. Once the tasks have been completed in story points and assigned to the various members, they are entered in the first column on the left of the board, called "Open".

Phase 5: The developers start processing the task and act on the project board by moving the task from the "Open" column to the next one on the right called "In progress". In this way, the whole team is informed that the task is being processed. The task is performed by developers through certain technical procedures and specific micro routines. As the purpose of this paper concerns the analysis of organisational routines, the specific technical micro routines that the development team follows to develop the feature are not examined. The purpose of the technical verification phase, outlined above, is to minimise the occurrence of problems or doubts related to the performance of the task and thus the development of the feature. In any case, if a member of the development team has doubts or encounters difficulties, they can consult the documentation that is available for the team's consultation. The developer's process of performing the task tends to be mainly autonomous. The only moments of communication with other team members are during formal and planned events and meetings.

Phase 6: Once the task has been completed, the developer conducts a quality check. This test takes place in a special software environment (called Test) that reproduces part of the software platform but relates to a different database. This allows developers to try out the newly developed part of the features without compromising the data present in the official version of the platform, defined as "Production". Once the team member has completed the task assigned to him, he moves the task on the project board from the "In progress" column to the "Resolved" column. Afterwards, the results of the tasks assigned to the various software developers are assembled by the project management and he will compose the required feature. In practice, it is like building a puzzle made up of as many pieces as the number of tasks needed to develop the feature. The crucial

importance of the project manager emerges, who coordinates all the various development activities of the developers and makes it possible to assemble the final results of the tasks. After that, the feature is passed to the tester for examination. The corresponding action on the project board is to move the task from the "Resolved" column to the "Closed" column, the last position on the right-hand side of the board.

Phase 7: This was the role played by the author of the paper for the time he worked in the company. Basically, the tester's task is to fully test the feature, which has now reached the end of the development process. He performs the "acceptance test". This test verifies the actual integrity and correctness of the functionality, trying to reproduce as well as possible the use case and the experience that the customer will have, the so-called customer journey. This test is much more detailed than previous tests as the agent also checks the congruence of the new feature with other elements already present in the platform and verifies that there are no conflicts. Furthermore, the tests are no longer carried out on the test version of the platform, where the tests carried out by the developers used to be, but on a version called 'stage'. The main difference between the test version and the stage version is that the stage version is more faithful to the final version of the platform. This version could be defined as a mirror of the current version with the addition of new features. This test phase is of fundamental importance for the entire process because it represents the last check on the feature developed before it is published in the official version of the platform, which is used by the customer. For this reason, the test acquires the characteristic of acceptability. A pass or fail process is triggered here. If the feature does not fit, and therefore the test is negative, the tester reports the malfunction to the development team, describing the problem in a writing form. Then, the development team must review the feature to identify any mistakes made. Regarding the description of the process, the feature is brought back to the phase of task assignment to the development team and it is reported to the team on the project board by moving the task from the "Resolved" to the "Reopened" column. On the contrary, in case of a positive outcome of the test, the new feature is ready to be included by the project manager in the update that will implement it in the official "production" platform used by the customer.

The duration of the routine described above varies according to the type and complexity of the feature to be developed. Accordingly, the number of activities required for its complete implementation varies, thus changing the time needed for its development.

As mentioned at the beginning of this paragraph, the process just described represents the ostensive level. It is the idea of how the development process of a new feature should be carried out. The period spent by the author of the paper in the organisation as an observer and the interviews conducted with the various agents involved in the routine, highlighted how the various phases that constitute the routine are performed differently from what has been seen above.

In the next section, the performative aspect of the routine will be described and analysed, in other words how the various phases of the routine are actually performed.

3.6 How the development of a new feature is actually done: the performative aspect

In this paper, it was described how the scholars Feldman and Pentland identified two different levels in organisational routines (Feldman, Pentland; 2003).

Only an accurate description of both aspects of routines can reveal how the routine has been implemented in the organisation, whether it is conducted according to procedures and the initial idea or whether how the various activities are performed is different from how the idea of the routine was conceived.

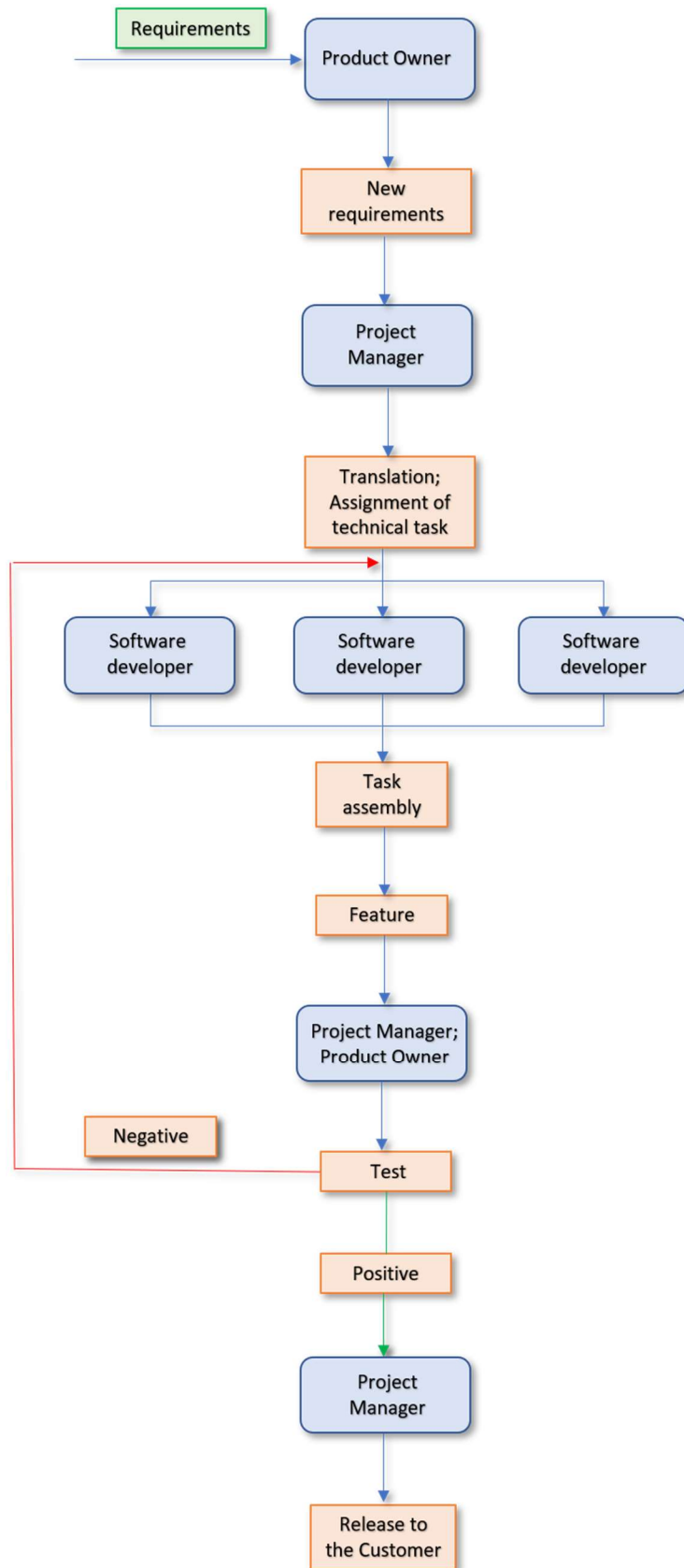
In this section, we will analyse how the various phases of the routine are actually performed.

In addition, regarding the different phases already explained in detail in the previous paragraph, only the action performed by the agent will be described.

Before starting the description of each phase, two clarifications are necessary. The first concerns the documentation. What has been developed is not very extensive. Moreover, the process of developing a new feature for the platform was not codified in written form. Even the more technical micro routines, which are not the subject of this

paper, have not been coded in written form. The documentation present is technical and is of support for the developers who are members of the development team. Secondly, regarding the precondition of the system requirements provided to the team. Based on which the development team will develop the feature, these were expressed verbally by the product owner during the meetings between the product owner, the project manager and the development team. Thirdly, the scrum methodology was implemented in the project but without in-depth training on how to embed and implement it in the organisation's processes.

Graph 3.2: Performative aspect of the development process of a feature



Source: Elaboration by the author based on data gathered in the company (2021)

Phase 1: During this phase, which takes place at the beginning of the sprint, the product owner again provides the requirements to the project manager. These requirements are provided verbally and not in written form. Requirements may have various sources. They may be re-proposals of requirements made at the beginning of the project, new requirements coming from specific requests made by the customer who uses the platform, or requirements arising from new market needs that did not exist at the beginning of the project.

Phase 2: In this phase, the project manager carries out two important actions. Firstly, he transcribes in written form the requirements that were given to him verbally by the product owner during phase one of the process. Secondly, once he has transcribed the requirements, he translates them into technical computer language and identifies the various tasks that need to be developed in order to fulfill the requirement of the product owner.

Phase 3: At this point, after defining the requirement, the development of the feature starts. The first important step is to assign tasks to all members of the development team. This activity takes place at the beginning of the sprint, in a dedicated meeting. The person responsible for this is the project manager. The assignment of the tasks to the developers is done according to the competencies of each member of the team, taking into account the hours for which the developer is available, and a theoretical estimate of the time needed to perform the task. No evaluation method based on "story points" is used. In addition, tasks are assigned to developers without any degree of priority. In other words, tasks are assigned according to the list with which they have been formulated and not according to a degree of priority.

Phase 4: The developers start the development process of their assigned tasks. In this delicate phase of development, the role of the project manager is crucial. As there is no extensive written documentation, if any member of the development team encounters a problem or has a doubt about the procedure to follow, the documentation they can consult is scarce and may not provide an adequate answer to their questions. The project manager, being an experienced figure trained in software development with a lot of experience, is in charge of providing support and assistance to all the developers who need it. For this reason, the process of task development by the developer is

characterised by frequent information sharing and communication with the other members of the development team and the project manager. In addition, the product owner frequently interacts with the entire development team, personally monitoring the work of the developers and providing support and clarification regarding the context in which the feature will operate. This information mainly concerns the characteristics of the platform and the use case. Again, as there is not enough documentation in written form to clarify all the doubts and concerns of the developers, direct support from the product owner is necessary.

Phase 5: Finally, the project manager runs a final test. The test is broader as it is not limited to testing the single task but covers the entire feature developed. In addition, he considers and tests the feature about the context to which it refers. He does not only check that it works but also that it harmonises correctly with the context of the platform. A pass or fail process is triggered here. If the feature does not fit, and therefore the test is negative, the project manager reports the malfunction to the development team, who must review the feature to identify any mistakes made. Regarding the description of the process, the feature is brought back to the phase of "task assignment" to the development team. The aim of reviewing the feature is to understand and solve the problems that have occurred so that it can work correctly. Instead, if the test is successful, the new feature is ready to be included by the project manager in the update that will implement it in the official "production" platform used by the customer. It is interesting to note that, in parallel with the project manager, the product owner is also engaged in testing the developed feature to verify its correct functioning. He performs the same tests as the project manager but, having different competencies from him, he focuses more on testing the user experience of the feature, the correct implementation in the platform and the verification of the graphical interface.

Having analysed both the ostensive aspect of the routine and the performative aspect, the next section will proceed to investigate the gap between the two aspects by focusing on performance.

3.7 Analysis of the gap between ostensive and performative aspects

By observing, describing and analysing the ostensive and performative aspects of the routine, it was possible to detect considerable 'gaps' between the two levels. In this paragraph, the two aspects will be compared phase by phase and the gaps will be described. In addition, an attempt will be made to identify the main consequences and effects in terms of performance caused by this difference.

Before starting the examination of each step of the routine, it is important to point out that the management tried to implement the Scrum methodology since the beginning of the project but without in-depth training on how to embed and implement it in the organisation's processes. The roles, well defined by the Scrum framework, were not so well defined in Upooling. In addition, the Jira project management software was not used correctly, thus not giving the expected added value. Furthermore, Scrum events were carried out by the team but, as emerges from some interviews collected in the organisation, they were done without knowing the real meaning of that event. The result was that even though the meeting was named according to the name of the Scrum event, the content of the meeting was different. These listed represent a first crucial difference that, as we will see, will have various implications in all phases of the process described.

Starting from the analysis of the first phase, important differences emerge.

First, the definition and revision of requirements does not take place during a confrontation between the product owner and the project manager. Here, there is neither a joint evaluation of the requirements nor a filtering action of them. The requirements, expressed at the beginning of the project, are made clear by the product owner together with new requirements arising from new market needs or customer demands.

A key element is the method of requirements are communicated from the product owner to the project manager, which are communicated verbally to the project manager without using any written form. As will be shown during the analysis of phase 5, this element was decisive. The statement of an employee who defines this procedure as "a

routine that almost led to a breakdown in the company" is emblematic. During the analysis of the following phases, the implications and consequences of using this method of communication will be explained.

Concerning the second phase of the process, the main difference lies in the activities carried out by the project manager. In this phase, he transcribes the requirements previously provided by the product owner in verbal form into a formal document in written form. At the same time, he updates the project board on Jira by writing and entering epics. Finally, he performs the function of translating the requirements into technical language. He identifies and divides the requirement into tasks, which will be carried out by the software developers. Also here, some criticalities emerge. First of all, the transcription of the requirements proposed by the product owner includes the risk of misinterpretation of the information received by the project manager. This task should be carried out by the product owner. In fact, it may happen that, during verbal communication, some important information for the correct understanding of the requirement is lost. The consequences are relevant as there is the probability that a feature is developed which does not comply with the product owner's wishes. Another critical point concerns the lack of an opportunity for discussion between the project manager and the development team. The lack of this opportunity does not allow a technical check to be carried out on the translation and the tasks developed by the project manager, thus running the risk of encountering problems during the development of the feature. In addition, as the development team is composed by members with different backgrounds and experiences, the opportunity for suggestions from the members is not exploited. Finally, to the project manager are assigned tasks that are not part of his role, resulting in an overload of work or a potential reduction in performance over the medium - long term.

Regarding phase three, the step of confirmation of the technical tasks by the product owner, foreseen in the ostensive aspect, is not actually present in the performative aspect of the routine. The elimination of this control moment may have important repercussions on the quality of the feature obtained at the end of the development process. The control activity, which should be undertaken at this phase, is particularly important if the requirements are provided verbally by the product owner and not in

written form. As specified above, the use of the oral communication channel leads to the introduction of uncertainty during the specification of the requirement. Therefore, the control of the product owner on the translation carried out by the project manager, would allow intercepting the tasks related to the requirements that have not been perfectly interpreted by the project manager, avoiding that they are introduced in the development process. However, since there is no intermediate control mechanism, such tasks are not intercepted. Again, looking at the performative aspect of the routine, this phase includes the assignment of tasks to the development team. In contrast to the ostensive aspect, the performative aspect does not include any empirical evaluation method to quantify the number of hours required to perform the task. Referring to the Scrum methodology, no story points are used for task evaluation. Since a theoretical evaluation is used, there is a probability that the tasks are not evaluated correctly and that they take a different time to complete than expected. From the point of view of the members of the development team, a developer may be overloaded by failing to complete all the assigned tasks in time. On the contrary, a team member may complete his tasks in less time than expected. This leads to obvious coordination problems. Finally, tasks are assigned to developers without following a priority order dictated by the product owner. The order of assignment follows the list according to which requirements have been translated and drafted into tasks. As a result, important features that would have a higher priority than others are developed later, which does not maximise the economic investment and causes delays in the development of core features that are strategic to the quality, productivity and competitiveness of the platform.

Moving on to examine the organisational dynamics occurring during the feature development step, identified as the fourth phase of the process, one can note differences between the ostensive and the performative aspects.

The first concerns the autonomy of the development team. As previously stated, in Scrum, one of the key principles on which the work of the development team is based is cross-functionality. The main interpretation of this principle is linked to the composition of the team, which is formed in such a way that it possesses all the necessary competencies to accomplish the assigned tasks and develop the required

feature, without having to employ resources from outside the team. At the performative level, it may happen that the team does not have sufficient competencies to complete certain tasks, requiring the intervention of experts from outside the team. By being involved in single tasks, the resource becomes part of the team even if for a short time. Consequently, the resource must be trained on the work of the team and given a general overview of the project so that they can understand the development context correctly. As there is no solid base of written documentation that can be consulted, during the training period the resource is supported by a team member, usually the project manager, who will update him on the dynamics of the project. One of the reasons why it is advisable to create written documentation is related to the training of new team members. Ideally, a newcomer should be able to learn and align with the progress of the project by consulting the written documentation. The implications of this lack are various: First of all, as a new team member joins, the complexity of the team increases and therefore so do the coordination costs. Also, as the new resource is joined by a team member, the time devoted to his training is deducted from tasks that the team member could perform, resulting in possible delays in development and increased costs.

The scarcity of written documentation leads to a reduction in the autonomy of development team members. From the interviews conducted with team members, this implication is evident. Below, we compare two quotes from two interviews with different team members. The first one: "if we were a perfect machine, that is a machine financed without limits, we would also be able to have documents and therefore to have less informal communication between us. Since we are not a perfect machine and we don't have a big enough economic budget, there is a person who coordinates and then goes to tick off the doubts of the resources that they have to develop". Secondly, when asked what procedure he follows in case of doubts or problems, the respondent answers: "I ask the project manager for clarification". Two important consequences clearly emerge. The first refers to the increase in informal communication, consisting of calls, video calls and any contact between members outside planned meetings. The absence of consultable documentation able to resolve doubts or uncertainties of team members leads them to ask the project manager for support, as confirmed by the

second interview. This results in increased coordination costs, increased uncertainty, increased development time and increased costs.

The second consequence relates to the financial issue, specifically the project budget. This issue will be analysed with particular attention in the next chapter.

Finally, it can be seen that the product owner is very present and involved in the development process. This presence turns out to be necessary when there is no very precise written documentation regarding certain aspects that the feature will have to assume, above all graphic aspects²⁴. As with the project manager, the product owner offers support to clarify doubts on these issues.

During the fifth phase of the process, one of the most important activities of the routine is conducted: the testing of the feature just developed by the development team. In this case, the differences that emerge between the ostensive and performative aspects are of absolute importance as they are closely related to the inconsistencies detected in the previous phases.

The first difference lies in the person in charge of the tests. According to the routine described in the ostensive aspect, the person in charge should be a dedicated and specific resource for this role, the tester. In reality, the person who performs this task within this process (and also in other similar ones such as solving a software bug in the platform, not examined in this paper) is the project manager and the product owner. The implications of this choice are obvious. As they play different roles, they have to allocate time by including tasks other than those foreseen, sometimes adding them to those they already have. In fact, missing a key agent in the routine, its task is shared between the project manager and the product owner. The main consequence is an overload on these two figures. In addition, since they are not fully dedicated to this role, it may happen that some less evident problems, which can only be found with a more detailed feature test, are not found. Passing the test, the defective feature is added to the official version of the platform, defined as "production", with a high probability that

²⁴ Usually, in companies specialising in software development, a graphic requirement for a feature is provided by the client to the developing company by means of a mock-up of how it is to be represented.

the final customer incurs the problem not detected by the previous tests. This scenario is clearly not optimal as it generates dissatisfaction in the end customer and the product owner, if repeated.

As mentioned above, the product owner is very much present in the whole feature development process, including the final testing phase.

Being at the end of the feature development process, it is also possible to make a comparison between the expected and actual quality and development time. The differences between the appearance and the performative aspect found and described in the previous phases often lead to a negative final test result. Such a result means that the developed feature has functional problems or graphic discrepancies that make it unacceptable for inclusion in the official version of the platform. Once the problem has been detected, the feature is "sent back" to the software development team, which undertakes a series of checks to identify and correct the defect that gave rise to the problem. At this point, the feature is tested again by the project manager and the product owner. It has been observed that although the feature is reviewed by the development team, this dynamic occurs several times on the same feature, as the defect giving rise to the problem is either not resolved or not completely resolved. These dynamics listed above lead to perceived lower quality of the product compared to expectations and a significant increase in average development time. Moreover, since this dynamic is repeated over time, the degree of dissatisfaction expressed by the product owner about the work of the team inevitably increases.

At the end of this chapter, it is possible to identify which are the main "governance gaps" thanks to the comparison made between the ostensive level of the routine understood as rules and the performative level of the routine, interpreted as behaviour (Becker, Salvatore, Zirpoli; 2005).

To summarise, the main "governance gaps" found along the process are:

- Lack of requirements provided in written form.
- Scarcity of written documentation that can be consulted by the development team.
- The lack of moments of comparison and technical verification between the figures of the product owner, the product manager and the development team.
- The absence of key resources for the correct development of the final product, specifically the figure of the tester.
- A general incorrect implementation of the Scrum methodology throughout the process.

The following chapter will analyse the main governance actions needed in order to close the 'gap' and improve performance.

IV. Governance gap: actions needed to improve performance.

In the previous chapter, much emphasis was placed on the comparison between the ostensive aspect and the performative aspect. This comparison showed that there were deviations between the routine set up by management and the actual execution of the tasks in Upooling. These "gaps" could be the cause of some critical aspects that emerged during the analysis and of some performances that were below expectations. In the course of this chapter, the actions that have been taken in an attempt to align the concept of routine as a rule with that of routine as a behaviour will be explained.

4.1 Overview of the context

Before starting to describe the corrective actions that have been taken to close the "gap", it is appropriate to describe the context in which these actions have been taken. As mentioned above, during September 2020, Upooling established a partnership with the electric vehicle manufacturer Estrima. This partnership has been an important stimulus for the whole organisation. Primarily, being the first customer for Upooling, it brought increased pressure on results. In addition, it led to an important increase in the complexity of the project from various points of view. On the technical side, being a dedicated product for Estrima meant that many processes were duplicated. In other words, whereas previously the processes concerned only the Upooling platform, now the processes concern both the version dedicated to Upooling and that specific to Estrima. These processes, being managed in parallel, have significantly increased the complexity of the project. In addition, the specific requirements led to new additional requirements to be managed as well as fixed deadlines for the processing and development of Estrima-specific features. From a management point of view, the increase in complexity meant a substantial increase in the communication and coordination required, with a proportional increase in the resources needed to manage it. An important aspect is the financial side. The resources made available by the partnership meant an acceleration towards an expansion phase of the development

team. In addition, they enabled the implementation of corrective actions in order to close the "gap" mentioned above.

A second factor to be specified to fully understand the context concerns the COVID-19 pandemic. The partnership with Estrima and the corrective governance actions took place from September 2020 onwards. At the time of writing (May 2021), some actions are still being implemented. This period was subject to forced restrictions caused by the containment of the spread of COVID-19 disease. For Upooling, this meant an immediate implementation of smart working. As it coincided with a period of great organisational change, the necessity of having to implement smart working may have constituted an element of difficulty, especially as regards the perception of the company culture and the training of the new resources added to the development team.

4.2 Governance actions taken to close the gap

Having considered the temporal context in which Upooling operates, it is now time to examine in detail the governance actions that have been taken in order to close the gap between the ostensive and performative levels.

At the end of the previous chapter, a summary of the main "governance gaps" found following the description of the two well-known aspects of the routine was provided. Most of them are directly related to the incorrect implementation of the Scrum methodology. Hence, the first corrective action that was decided to undertake was to engage an external resource, an expert in Scrum methodology, as Scrum Master in Upooling. This first corrective action, implemented in October 2020, was the trigger that led to the most important changes in the organisation and the routines in Upooling, including that of feature development.

It is important to note that Upooling already started with an attempt to implement an agile methodology, even if it was erroneous, but with similarities that helped the work of the scrum master. This was confirmed directly by the scrum master during an interview with the author.

We will now proceed to describe the areas of intervention and actions carried out by the scrum master.

Firstly, he trained all members of the development team on the scrum methodology using a school-based approach. In other words, by providing a guide on the scrum methodology, he asked all team members to study it in order to create a solid theoretical basis for everyone to work on.

Next, he redefined the framework in which to work, reorganising working time and formal meetings according to Scrum (Sprint, Sprint Review, Sprint Planning, Sprint Retrospective, Daily Scrum). Some of these were already being used previously but without full awareness of why the meeting was being held. The scrum master, through the creation of the theoretical basis, remedied this lack.

Then, he helped the team to use the project board in Jira in a timely and efficient manner.

Contextually, through the creation and writing of epics in Jira, he redefined what is identified as phase one of the routine under analysis. The product owner, unlike what happened before, expresses the requirements that the feature must satisfy through the epic, a written document digitized within the Jira project management board. This corrects a behaviour that could be judged as one of the most incisive on the performance of the routine, i.e. the expression of requirements through the verbal form. In addition, feedback from the project manager on epics written by the product owner is introduced. This comparison, present in the ostensive aspect of the routine in the first phase, was not present in its performative aspect.

The aspect related to the lack of written documentation to consult triggered, as we have seen, various criticalities especially in the development team. The scrum master began, in collaboration with the project manager, a progressive work of creating written documentation. A written document, called the "Upooling Project handbook", was set up, containing the main information about the project, useful for those entering the project for the first time or for a team member who has a doubt²⁵. By undertaking this action, an attempt is made to restore autonomy and cross-functionality to the development team, trying to remedy the criticality that had emerged.

With the introduction of the written form regarding the indication of the requirements for the development of the feature and the increase of the written documentation, the

²⁵ Examples of information contained in the "handbook" are: How meetings should be held, where is the technical documentation inherent to the code, what is a "bug".

scrum master also redefined the roles of the product owner, the project manager, and the development team. During the description of the performative level, it was observed that the product owner and the project manager had to provide support to the development team for the clarification of any problems or doubts inherent in a particular technical procedure to be followed (project manager) or in a peculiarity that had to be incorporated in the feature (product owner). With the gradual introduction of written documentation, the need to provide constant support to the development team has been reduced, since they can rely, in case of doubt, on the written documentation created specifically. In practice, the presence of the project manager, but especially of the product owner, along the process has been reduced.

Another area of intervention of the scrum master concerns the phase of assigning tasks to the development team. Here, the corrective action aimed to provide an empirical method to quantify the time needed to complete the task and to estimate, in a more precise way, the working hours for which the developer is available. The method provided consists of evaluating the tasks and the total working hours available for each developer with points, the "Story points". As this methodology has already been explained in the paper, the reader is referred to the previous chapter²⁶.

Finally, the scrum master set up the task prioritisation action. Currently, as seen in the performative aspect, tasks were assigned following an order not based on priority. This could create critical issues related to the efficiency of the workflow and the resources invested. There was a possibility that a feature could be developed adding a little value to the platform, taking valuable resources away from developing one that added more value. By introducing a priority assessment, categorised into Lowest, Low, Medium, High and Highest, an attempt was made to solve this problem.

The introduction of an experienced scrum master, to refine the application of the agile methodology in the organisation, was the action that brought the most changes in order to correct and close the gap. At the same time, other important actions were undertaken.

²⁶ Paragraph 3.5 named: "How the development of a new feature should be done: The ostensive aspect".

First of all, regarding a redefinition of operational roles already examined above, it was decided to introduce the figure of the tester and to relieve the project manager and the product owner from this task. As mentioned above, the task of the tester is of fundamental importance. He performs a series of tests called acceptance tests. The purpose of these tests is to check the developed feature, its correct functioning, its correct insertion in the platform and to intercept any possible anomaly or problem before it is released in the "production" version. The downstream testing phase of the process presents an important gap between how the routine has been designed and how it is actually executed. As we have seen, if this phase is not well implemented, it may lead to performance that does not meet expectations. With the introduction of a figure dedicated exclusively to test execution, an attempt was made to strengthen this important phase. The person assigned to this task is a member of the organisation, who is not a member of the development team, and has been specially trained. To improve the testing phase, the implementation of automatic tests is also planned. These tests, which are carried out autonomously by a computer on the feature, are based on a test list that has been drawn up by the tester. Specifically, the tester draws up the list and a developer translates the list into IT language, following a practice similar to that which can be found in the first phase of the routine, during the identification of requirements between product owner and project manager. Since a test list is the same for all features that will be tested, the purpose of automatic tests is to check the basic functionality of the feature, thus allowing the tester to spend more time on more specific and in-depth tests and thus improve the quality and quantity of the tests performed. At the moment in which this paper is written, they have not yet been implemented, but their use is planned for the future.

Finally, special attention was paid to the resources that make up the organisation's development team. The corrective actions reported above have had a major impact on the organisation. They have led to many changes in the methodology and organisation of work. Changing how tasks are performed means that team members learn new competencies. In this specific case, for a few team members with more experience compared to the others, it was not a matter of learning " Ex Novo " but of taking over

competencies already acquired but no longer used²⁷. As extensively described in the first chapter of this paper, competencies are learnt through the assimilation and translation of knowledge into action (Nelson, Winter; 1982). Subsequently, through a process of routinisation and "learning by doing", these actions are transformed into competencies. Again, Nelson and Winter state that individual competencies, through their transfer and implementation in company processes, are necessary to create organisational competencies (Nelson, Winter; 1982). Concerning the specific case study, a major internal change in the organisation is taking place. The numerous corrective actions undertaken in order to bridge the gap between the two aspects of the routine are reflected in the creation of new knowledge that is assimilated and translated into actions. These actions, embedded in the described routine, will allow team members to acquire new individual competencies, which are crucial for the formation of strong organisational competencies. Competence strengthening also includes core competences, which are crucial in the competitive perspective of the company. Connected to the strengthening of the Scrum methodology, thanks to this internal process of renewal, improvement and enhancement of competences, the cross-functional characteristic of the team is emphasised. According to the ostensive aspect, a team member who performs a task within the organisational routine should be able to take over the task of any other team member, even if this requires different competencies. Currently, according to the performative aspect, this aspect is still weak. By implementing the competence renewal process described above, the gap between the two situations should be reduced, allowing the team to be more cross-functional.

The general renewal has led to the recruitment of new members of the development team, some of whom have replaced previous ones. This action is justified by the intention of the company's management to increase the performance of the feature development process and other similar processes, to reduce development time and increase product quality. Therefore, the renewal of organisational competencies and the change of routines passes through two channels. The first is internal, by strengthening the individual competencies of existing team members. The second, external, by

²⁷ The more competencies are 'used', applied in various processes and shared within the company, the more they grow, develop and strengthen. If not used and exploited, competencies tend to deteriorate (Prahalad, Hamel; 1990).

introducing new members to the development team who are able to bring new knowledge and individual competencies.

V. Conclusions

The market in which Upooling operates is relatively young and has significant future growth prospects. Recently, the competitive environment developed around Upooling has seen a number of companies enter the market, many of them startups. The product offered by these companies is often competitive with the product developed by the company in the case study. Therefore, in order to maintain a competitive position compared to competitors, it is essential to achieve a high level of performance and establish a lasting competitive advantage.

At the beginning of this paper, the resource-based-view theory was explored, which pays great attention to the knowledge of people and the organisation. Therefore, related competencies represent a fundamental source of competitive advantage for any company. These competencies, as we have seen, can be developed internally within the company or by acquiring them from the external environment.

The Upooling case study showed that organisational competencies need to be supported by a solid organisational capability in order to maximise the exploitation of these competencies.

At first glance, the process of developing a new feature was static in its phases, with an apparent lack of willingness to change.

Following the theory written by Feldman and Pentland, the interactions between the various agents participating in the routine were analysed, paying particular attention to how tasks were performed in the routine. In particular, how tasks should be performed and how they are performed in reality were reconstructed. The comparison between the ostensive and performative levels of the organisational routine revealed important gaps between the two aspects. In addition, the analysis made it possible to identify the potential causes of these discrepancies, the probable source of the unsatisfactory performance.

By adopting corrective governance actions, an attempt was made to initiate organisational change in order to close the gap and re-establish the expected performance.

During the observation period, as these corrective measures were implemented, performance improved. The gap between the ostensive and performative aspects was reduced as well as the "pure" performance of the process, specified in speed of feature development, percentage of failed final tests and customer satisfaction. Subsequently, during the period in which this paper was written, a new deviation between the ostensive and performative aspects was noted and a new drop in performance.

The main reasons for this new deviation could be the following:

In a more general process of organisational renewal, routines must always be accompanied by the competencies necessary for change. The process of competence renewal, undertaken in the organisation, has not yet been completed.

Moreover, some new resources were included in Upooling during the period related to the COVID-19 pandemic, forcing all employees to social distancing and smart working. The prolongation of this situation undoubtedly has consequences on the corporate culture perceived by people, a fundamental element in organisational routines as it acts as a "glue" between all agents.

In conclusion, what emerged from this study is the nature of organisational routines that are devoted to change as well as stability. The relationship between the ostensive and performative aspects constitutes a virtuous circle that repeats itself cyclically. Through the relationships that connect the two aspects, routines are modified, modelled and generated according to the agents who perform them and the context in which they are applied.

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