Dipartimento di Impresa e Management

Cattedra di Organizzazione Aziendale

DIGITAL DISRUPTION: IMPACTS ON ORGANIZATIONAL STRATEGY AND STRUCTURE.

ING BANK CASE STUDY.

RELATORE

Prof. Chiara D'Alise

CANDIDATO

Ludovica Ancora

Matr. 181601

ANNO ACCADEMICO

2015/2016

INDEX

INTRODUCTION

"*Digital disruption is a mindset that ultimately leads to a way of behaving; a mindset that bypasses traditional analog barriers, eliminating the gaps and boundaries that prevent people and companies from giving customers what they want in the moment that they want it."*

James McQuivey, "*Digital Disruption: Unleashing the next wave of innovation*", Forrester Research, February 2013.

Recently digitization has permeated people everyday life. Its effects have been reflected into customers' behaviours, since technology and easy access to key information has brought to a new "democratization", rebalancing the power between clients and companies.

As a result, the competitive environment is becoming a more and more complex arena, where traditional approaches, old strategies and structures are not effective anymore.

Many players and new entrants are better fit "to surf on this digital wave" and to understand the new pace of the change, adapting organizations mindset and behaviours, to create an enduring connection between companies and existing customers. These players are real "Digital disruptors" that introduce completely new value propositions into the market and change the way business is run.

Understanding the impacts of the new digital environment on the organization variables and what options the managers have, to define successful strategies and operating models to adapt their companies to the new competitive arena, is the focus of my dissertation.

Several organizational theories have studied the relationship between the organizations and their environment. Among these, I chose Chandler's "Strategy and Structure" paradigm to perform my analysis. Many managers, daily cope with a complex decision-making process to design new open systems at every level. The leading role of strategy, setting how resources and efforts have to be addressed to defined goals, identifies which rules have to be followed in order to satisfy the organization mission.

The organization design evolution overtime shows how different models were born from various companies' strategies and environmental changes; moving from rigid and hierarchical structures towards flatter ones, with a horizontal dimensions prevailing. Finally the focus on the technology- structure relationship is aimed to demonstrate how designs have embodied technological advances in the course of the time. In fact, the new information

technologies have permeated the everyday working activity, allowing designs which greater speed, efficacy and effectiveness.

The aim of my thesis is to show how the new environment has disrupted companies' strategies and structures, pointing out that organization theory and its tools highlighted in the Chapter 1 help managers in surfing the way of digitalization. Thus the organization sciences support management in orienting choices, which ensure value deliver to customers and competitive advantage creation. The extreme uncertainty coming from an extremely connected world, which not only empowers clients, but overturns competitive rules and the regulatory frame, can be managed seizing new opportunities that the same give back. We are assisting at structures flattening and decentralizing, with silos breaking down and lines blurring, and new ecosystems and networks spreading. The culture is increasingly embracing digitalization and it is inspired by value of collaboration and interaction between employees, who have to renovate their set of skills.

The first chapter sums up organization theory key concepts, giving a theoretical framework of themes stressed further on. It develops, at first, an analysis of the key variables and criteria helpful to design organization macro and microstructure, single units and coordination mechanisms between each other. Then it passes through the definition of the organizational strategy, which is strongly influenced by environmental changes, and through the role of human resources and culture inside the organization. In addition it shows the focus on the technology-structure relationship and the evolution of the design models over the time, considering information technologies impact on open systems.

The second chapter frames the phenomenon of the digital disruption, exploring its drivers and the meaning of the new disruptive innovations. After a zoom of the principle and relevant environmental changes, the analysis shifts on the main influence the latters have had on the organization design, explaining the new trend in developing blooming networks and ecosystems. Thereby it is described how organizations are transforming their structures and strategies to satisfy new empowered customers, being driven from the Big Data opportunities. Later it unveils the renovate policies for the Human Resources and the new culture, which both embody the characteristics of the digital age. Finally, there is a focus on how organizations designs are changing with the impact of the digital disruption, starting from a collection of concrete examples and data.

This context fits the third chapter on ING BANK case history, as a digital disruptor in the financial services market, which coined an extremely agile way of banking, shifting organization strategies and design to size opportunities of the modern digital environment.

Here, in the end, are presented ING culture and innovative HR positions like the Digital Transformation Manager and the Digital Channels Analytics Supervisor.

Finally, the principle focus of my thesis is to understand organization key concepts, in order to answer some question about digital disruption: how digital disruption has changed the organizational environment? How the empowered customers have forced organizations to switch strategies and internal processes? Which are the most used trend today while designing? Which are the concrete examples of organizational changes happened? And in the end, in which way ING has built an organizational disruptive model, that perfectly embodies the essence of those digital ages?

Through a logical thread, which starts with organizational key concept and their role within an organization, goes on with digital disruption impact on tools described in the first chapter and closes with a concrete example, I will explain how the organizations have reviewed their organization choices, in particular strategies and designs, in order to survive in an extremely speed and complex environment.

1. ORGANIZATION THEORY AND DESIGN EVOLUTION

1.1. Organization theory and design

Organizations are social entities that are goal-directed, are designed as deliberately structured and coordinated activity systems, and are linked to the external environment (Daft, 2008). The traditional literature offers a wide range of definitions that are always built upon three key concepts, which are people, resources and relations. Thus, the organization can be defined among metaphors, as machine, organism, brain, culture, political system, psychic prison, system of flux and transformation or instrument of domination. It exists when people interact with one another to perform essential functions and coordinate organizational resources that help attain goals.

The organizational theory studies provide *an interdisciplinary focus on the effect of social organizations on the behaviour and attitudes of individuals within them, the effects of individual characteristics and action on organization, the performance, success, and survival of organizations, the mutual effects of environments, including resource and task, political, and cultural environments on organizations and vice versa, and concerns with both the epistemology and methodology that undergird research on each of these topics* (Morgan, 2007).

Organizational theory analyses how enterprises work from the inside, in order to identify normative, patterns and structures, which lead a well functioning system. It uses principles and methods, deriving from the experience, which don't change together with different enterprises nature, but cross every field. It helps companies in making the right choice to strive for the excellence and let them being efficient, innovative, mouldable to the environmental needs and value creators.

Obviously miscellaneous approaches and ways of thinking have prevailed in the course of the time and have shown divergent considerations about how people and resources should be managed to realize a specific goal.

Today, with the advent of the digitalization and the processes speed-up, most organizations are forced to change very often their structure and coordination activities, striving for greater horizontal coordination of work activities, often using teams of employees from different functional areas to work together on projects. Boundaries between departments, as well as those between organizations, are becoming more flexible and diffuse as companies face the need to respond to changes in the external environment more rapidly. An organization cannot

exist without interacting with customers, suppliers, competitors, and other elements of the external environment. Its resilience, ability to proactively respond and adapt to the change, is the key for prospering. The digital disruption is presenting to organizations new threats and opportunities, opening the academic debates on how to shape the different organizational variables and levers at speed to cope with the new challenges.

1.1.1. Criteria and key variables of organization design.

Nadler and Tushman define organizational design as involving *"decisions about the configuration of the formal organizational arrangements, including the formal structures, processes, and systems that make up an organization"* (Nadler and Tushman, 1997).

Organization direction is implemented through decisions about structural forms, including whether the organization will be designed for a learning or an efficiency orientation, as well as choices about information and control systems, the type of production technology, human resource policies, culture, and linkages to other organizations. An effective organization design concerns also the definition of formal dependency, people grouping into business units and business units' role in the whole organization, with their communication systems, level of coordination and BU integration.

The first step for the organization structure choice is to look at a series of internal and external criteria and key variables with which a specific organization system has to be aligned. Key elements are considered the tool to define an organizational solution.

Contextual dimensions, gather a wider range of elements, which characterize the whole organization. They can be envisioned as a set of overlapping factors that underlie an organization structure and work processes. It is important to take into account external factors as:

- **Company size**. It is referred to the resources volume that has to be managed, as people, raw material, products and clients.
- **Product/market situation**. It is the description of a single product weight on the enterprise activity, in terms of sales and production volumes or employment etc.
- **Technology**. It points out the products technological content, in order to manage the division of labour in the productivity processes.
- **Environment**. It includes all elements outside the boundary of the organization, in particular the strains to which the enterprise is exposed.
- **Strategies**. It defines the purpose and competitive techniques that set the organization

apart from other organizations, referred either to a corporate either to a single business unit level.

- **Culture**. It is the underlying set of key values, beliefs, understandings, and norms shared by employees.

Structural dimensions, on the other side, provide labels to describe the internal characteristics of an organization. They consist of:

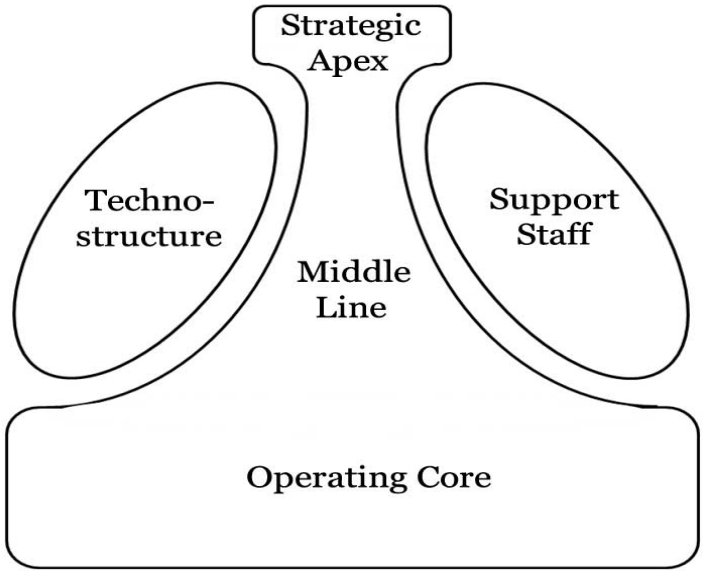
- **Specialization**. It is the degree to which organizational tasks are subdivided into separate jobs. As soon as it rises, the tasks number pertaining to singular mansion goes down.
- **Formalization**. It pertains to the amount of written documentation in the organization. Documentation includes procedures, job descriptions, regulations and policy manuals. A higher level of formalization brings, as a consequence, less flexibility into the organization.
- **Centralization**. It refers to the hierarchical level that has the authority to make a decision. When decision-making is kept at the top level, the organization is centralized, it is decentralized, instead, when decision-making is scattered among different levels.
- **Hierarchy of authority**. It describes a vertical specialization level of job (depicted the vertical lines on an organization chart). It also concerns hierarchical reports and the span of control.
- **Professionalism**. It is the level of formal education and training of employees, referred to a single person or a group of people.
- **Personnel ratios**. It refers to the deployment of people to various functions and departments.

Managers are responsible for the organization design of a structure, which adjusts itself to different contingencies. The right fit leads up to organizational effectiveness, while an unstable balance could bring to the organization decline and death.

Another important decision regards organization configuration, which establishes components and their adaptability. Henry Mintzberg, referring to this theme, proposes a model of five different basic parts: *Strategic Apex, Middle line, Operating Core, Techno-structure and Support Staff (*Mintzberg, 1979) Operating core is where the primary transformation from input into output takes place and involves people who do the basic work of the organization. Techno-structure helps the organization to adapt itself to the environment, being responsible of the innovation making in the technical core. Then, Support

Staff function is responsible for the accurate operation, including physical and human elements. Strategic Apex, instead, is a function set apart responsible for directing and coordinating other parts of the organization. This component works as a guide, deciding about strategies, policies and goals for the whole organization. In the end, between the Strategic Apex and the Operating Core, the Middle line finds its place. As it position shows, it enables the mediation between top management and operating core, passing information up and down the structure.

Exhibit 1.1 Mintzberg Five Component of the organization



Source: https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/computer-supported-cooperative-work

Components size and interaction could vary substantially according to different contingencies, giving birth to five configurations that have to be coherent also with the internal structure.

1.1.2 Levels of organization design: design of the microstructure and the macrostructure.

Once the key variables and the main criteria are selected, the next step is to choose the best suitable organization model and to adapt it depending on internal and external dynamics. Moreover the organization designer has to set organization design levels and relations between actors, departments and external companies.

The organization design levels are commonly based on two different planning

perspectives, going from an organizational dimension, to an individual one. They consist of: **macrostructure, mesostructure and microstructure** design**.**

Firstly, the macrostructure design is referred to the whole company organizational framework that brings as a result the selection of the organization model. The activity of macrostructure design involves the business units' grouping, with their roles and coordination mechanisms within the organization chart, and their main activities and size setting. This implies significant difficulties, as it has to be coherent with the main internal and external factors highlighted in the previous paragraph.[1] The hierarchy level is introduced thanks to the business units' grouping. Given the company goals and objectives the designer determines a set of units' objectives, that helps the company to clarify the purpose of the business and help identify the actions required. Then, he is involved in ensuring the best exploitation of synergies, coming from different positions' distribution into one main unit. The grouping of positions and units is a key way to coordinate the work of the organization. In fact, it introduces a common system of supervision between positions and organizational units. It also leads to share common resources and fosters mutual adaptation by sharing physical spaces and the birth of informal relationships. At this level are also set the inter-organizational relationships, which facilitate purpose achieving, thanks to a creation of a fruitful network.

Then, the mesostructure design concerns all the job design, involving a group of individuals. As it can be noticed, the perspective goes down, focusing on a more restricted dimension, being at an intermediate level, between the whole company structure and single job analysis (e.g. products, functions, single project). The main objective of the mesostructure design is to set the horizontal and vertical specialization degree.

In the end, the microstructure design is involved in planning the single job assigned to an individual, which includes all the homogeneous tasks that can be carried out by the employee. Here the responsibility degree and the decision-making autonomy are assigned to every worker. Furthermore, microstructure gathers also position setting activity, viewed as the result of *job evaluation, job analysis, job description* and *job specification.* The designer, in fact, has to manage a broad, general and written statement of a specific job, based on the findings of a job analysis. It generally includes duties, purpose, responsibilities, scope, and working conditions of a job along with the job's title, and the name or designation of the person to whom the employee reports. Then a detailed examination of: tasks, performance elements that make up a job (employee role), conditions under which they are performed,

[1] See 1.1.1 Criteria and Key variables of organization design.

attitudes (behaviour characteristics), knowledge and skills occurs. Its objective includes a determination of the most efficient methods of doing a job, by improving training methods and employee satisfaction. Once the job is assigned to every actor, the focus passes on the interpersonal relationships, promoting a cooperative approach and a knowledge sharing in order to render the organization reactive and effective.

1.1.3. Organization coordination mechanisms

Once the job is divided and assigned in different tasks to single individuals within an organization, and interdependences between tasks are set, it is necessary to establish coordination mechanisms between them (Mintzberg, 1983).

Mintzberg theorized six various coordination mechanisms, described as follows.

- *Mutual adjustment.* It achieves coordination trough the simple process of informal communication. It fits for both simple and complex organizations in which the success depends on the activity of the specialists' teams, adapting mutually without following any route. The control remains in the hands of the executors.
- *Direct supervision.* It achieves coordination through one person who assumes others' job responsibility, giving them orders and checking their actions. When organization dimensions increase, it is necessary a figure which is in charge of planning, resource allocation, training and controlling. It fits for medium-size companies close to the military model.
- *Standardization of work processes.* It achieves coordination through the predetermination of standards referred to the work processes. Job execution is scheduled to the point that work processes become routine. Standard processes, allowing automation, require limited supervision, thus coordination is demanded to the system and to the management control.
- *Standardization of output.* Coordination is achieved with the standardization of the results. In particular the latters can be specified with dimensional parameters, conversion relations, profitability and cost/time ratios. Adaptation between the activities is predetermined and can be monitored through standard set.
- *Standardization of skills.* Coordination takes place through the definition of thorough skills for the actors involved into the requested performance. Standardization of skills in ensured by training workers have received.
- *Standardization of norms.* It ensures coordination with established common values

and beliefs in order for people to work among common expectations.

In practice, coordination categorization is not so strictly. In fact different standardization forms can coexist in the same activity, using hybrids of coordination mechanisms.

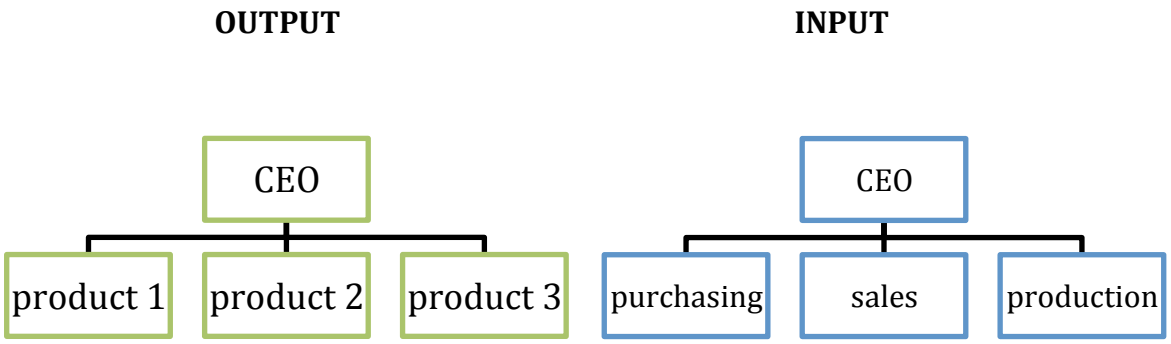
1.1.4. Designing the organization and the single organizational units

The organization design has to be in line with the company strategy at every level, from corporate levels to the single functional subunits. In addition, there is never a single best structure for every company, but a careful work on the macrostructure design helps them to be competitive and to develop different capabilities.

The macrostructure design, as said above, is in charge of single organization unit's design and of relationships setting. In particular, organization units are defined as a container of actors, resources and activities with a common performance and whose partial objective is in line with the organizational one. The most strategic choices occurring with them are represented by: their specialization criteria selection, borders definition with the activity combination inside each of them and their creation processes.

Firstly, an organization unit could have an **input** specialization criterion or an **output** one (Exhibit 1.2). Both could be either applied at different hierarchical levels, but the first specialization level is dominant, whose selection is led by the importance of internal and external relationships. The choice depends on a trade off between advantages and disadvantages of the two different structures. In fact, on one side an input criterion is efficiency-oriented and could reach economies of specialization and learning, but at the same time, could bring only a partial goal achieving and poorer company interaction. On the other side, an output criterion originates a preferred results check of products and markets that the organization supplies, but, at the same time it implies, a lower possibility to develop economies of specialization and learning, with a costs increasing, as the required resources double.

Exhibit 1.2: Input and Output specialization criteria



Source*: personal elaboration*

Afterwards, units' borders definition is the result of the analysis of *which* homogeneous core tasks should be assigned to every department and *how* activities should be gathered inside them. This process passes through three different steps, from the analysis of factors influencing the nature of core activities, to the key variables recognition, to the evaluation of costs/benefits coming from different activities grouping. Factors influence analysis considers how technology level, markets and institution could imprint core activities nature and strategic actions that should be adopted. Key variables recognition aims at pointing out actors' competences and orientation, combinations of actors, resources and activities, studying also the level of interdependencies, in order to maximize internal and to minimize external ones. The third step, instead, seeks to verify the presence of economies of scale, of specialization, of scope and to quantify the amount of coordination costs, in order to find the most convenient actors and resources combinations.

Finally, the units' creation could happen thanks to the activities splitting or integration. In the first hypothesis a main department is split into two separated units; in the second one, instead, two separated units are unified into one.

As a result, the criteria according to which organization units and the whole organization are designed, strongly depend on company strategy and needs, as there is no a *one way* solution to choose the structures that should be adopted.

1.2. STRATEGY AND ITS ROLE FOR THE ORGANIZATION DESIGN

The primary responsibility of top management is to determine an organization's goals, strategy, and design, therein adapting the organization to a changing environment

(Kotter, 1982).

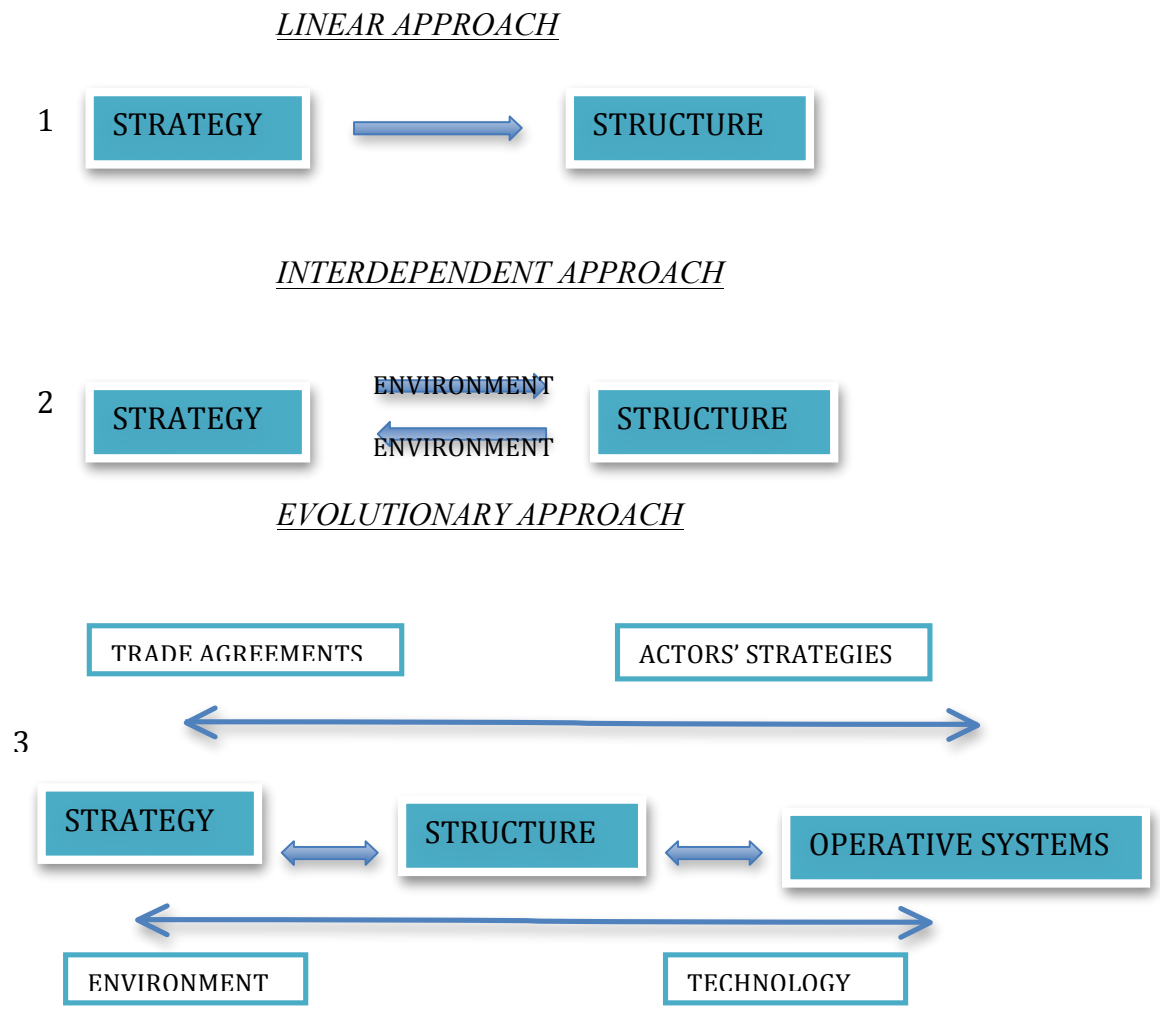
An organization goal is a desired state of affairs that the organization attempts to reach (Etzioni, 1964). In that way the choice of goals and strategy influences how the organization should be designed. The direction-setting process often begins with a competitive analysis related to the internal and external environment. The second step consists of defining and articulating the organization strategic intent. It includes an overall mission and official goals explanation based on the correct fit between external opportunities and internal strengths. The consequential organization design reflects goals and strategies implementation, in order to consistently focus the organization's attention and resources toward achieving the mission and goals. The organization design, so, is involved in selecting structural form (efficiency/learning), information and control systems, production technology, human resources policies and incentives, culture and linkages to other organizations. In the end, managers evaluate the effectiveness of organizational efforts thanks to different ways of performance measuring. This last step is of a vital importance, since it gives an internal feedback about how the organization is performing.

Furthermore, inside an organization various goals type coexist each of them performing a different function. However, to achieve success, organizational goals and strategies are focused on strategic intent. Strategic intent means that all the organization's energies and resources are directed toward a focused, unifying, and compelling overall goal. The three different facets consist of: mission, core competence and competitive advantage. As regards mission, it is the overall goal for an organization, describing its shared values, beliefs and its reason for being. Core competence instead, is something the organization does especially well in comparison to its competitors. Lastly, competitive advantage refers to what distinguishes the organization from others and provides it with a distinctive edge for meeting customer or client needs in the marketplace. Its importance is linked to the need to be varied quite often as contingencies change, starting from a study on the competitors' moves.

In order to achieve what is stated in the strategic intent, managers have to choose between different options of strategy and structure. A strategy is a plan for interacting with the competitive environment to achieve organizational goals; "*is the determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals*". Structure, on the other side, determines lines of authority, communications, rights and duties of the organization; *" structure follows strategy and the most complex type of structure is the result of the concatenation of several basic strategies"*(Chandler 1962).

Chandler, in 1962, theorized the STRATEGY-STRUCTURE paradigm, highlighting different approaches by which they influence each other.

Exhibit 1.3 Strategy- Structure Relationships



Source: *based on teaching material*.

The first example is referred to the linear approach, with a total deterministic vision. This kind of model works only in stable conditions, in which the enterprise is considered as an autonomous system, free from the environment influences.

The second example, instead, shows the interdependent approach, enriched by the presence of the environment, which integrates and influences strategy and structure links. The relationship changes direction becoming biunique, as the term *interdependent* highlights. Structure in particular conforms to strategy, which in turn is influenced by the structure in a circular process. The tomorrow strategy is the product of the actual structure, which has received and reprocessed environmental stimuli. This interdependent approach makes the background less simplistic, complicating strategy and structure relations.

In the end, in the third example strategy and structure relationship from circular becomes contextual. Together with the environment appear actors' strategies, structures which manage actors relationships, operative systems and technology. Organization here is an open system, learning and transforming through the action of a plurality of internal and external subjects, which interact with environmental changes. The evolutionary approach to the firm belongs to a family of approaches, which consider the firm as "a processor of knowledge " (Fransman, 1994). On this point, it differentiates itself from more traditional theories; in fact the behaviour of the firm can be understood as an optimal reaction to the environmental signals, which are detected by the firm.

Moreover, the concrete study of a big number of organizations, suggested different ways by which implemented strategic choices have driven organization design.

Porter, indeed, identifies in the **Differentiation, Cost Leadership** and **Focus** three different strategies to make a company more profitable and less vulnerable if applied in different competitive environment (Porter, 1980).

In a differentiation strategy**,** organizations attempt to distinguish their products or services from others in the industry, increasing product or service supplied value. It has the advantage to reduce rivalry with competitors and fight off the threat of substitute products because customers are loyal to the company's brand. But, by contrast, successful differentiation strategies require large costs to realize high quality and exclusive products. This justifies a premium price setting, targeting customers who are not particularly concerned with price. The differentiation results on the organization design are translated into a selection of an organic model extremely oriented to learning. It means that a company has few constraints and an extreme flexibility, encouraged by a strong horizontal coordination. Here more responsibility is assigned to the employees, who are pushed to have familiar relationships with customers and who are rewarded for their creativity and innovation.

The cost leadership strategy tries to increase market share by keeping costs low compared to competitors. The organization aggressively seeks efficient facilities, pursues cost reductions, and uses tight controls to produce products or services more efficiently than its competitors. Its action is focused on acting on costs drivers and value reconfiguration. In particular, this strategy aspires to economies of scale and of learning achievement, technological process improvement and maximum capacity use. Managers not always opt for low prices, even if they supply their products at cheaper conditions. The cost leadership strategy is concerned primarily with stability rather than taking risks or seeking new opportunities for innovation and growth, as it is shown even in its organizational design execution. Structure is efficiency-

oriented, inspired by a mechanistic model, in which control is extremely centralized. Cost cutting is realized with standard procedures use and with efficient distribution and procurement systems. Moreover employees, under a direct supervision, have a restricted set of responsibilities, being every day undergone to routine behaviours.

Porter's focus strategy aims at beating competition, focusing on a restricted competitive set and targeting a specific market area or group of customers. A distinct feature of this strategy is that it can be applied in conjunction with the cost leadership or differentiation, depending on the organization available resources and the targeted customers' needs.

Business strategies were also developed by Miles and Snow, who formulate four solutions, congruent with external environment and internal organization characteristics.

The **prospector** strategy is to innovate, take risks, seek out new opportunities and grow. It is more suitable for dynamic and growing environment where creativity counts more than efficiency. Its consequent organization structure is extremely flexible, fluid and decentralized, where a learning approach stimulates also wide spaces for new research.

The **defender** strategy, on the contrary, is the opposite of the prospector. In fact it seeks to hold on current customers, offering them quality and reliable products in a typical declining environment. Its aim is to improve productivity efficiency, with a centralized efficiency-oriented structure where supervision is high and responsibility degree is low.

The **analyser** tries to maintain a stable business while innovating on the periphery. It is in the middle, comparing to the previous strategies, as it balances efficiency and creativity. In fact, current products are sold to a stable environment seeking for efficiency, instead, new ones are targeted towards new customers. Its manifestation on the organization design, brings as a result, flexible and mouldable structures that varies according to different product lines.

The **reactor** strategy is not a real strategy at all. In fact, reactors answer to the environmental opportunities and threats case by case, not having a long run perspective. Furthermore, its structure affords to take whatever actions seem to meet immediate needs, shifting abruptly.

1.3. Environmental influence on the open systems.

In the broadest sense, the environment is infinite and gathers everything is outset from the enterprise borders, nevertheless the economic analysis takes into account only those elements useful for the organization survival. Hence, it is defined *organizational environment* everything exists beyond the organization boundaries and influences it partly or entirely. After considering the domain, we can distinguish the environment into three categories:

- The *task environment*. It covers all the sectors with which the enterprises directly interact and that have an immediate hit over aim achieving. It typically includes belonging sector, raw materials and market, and eventually human resources and international factors.
- The *general environment.* It consists of those sectors that may have indirect influence on a firm's daily activity, as governments, social and cultural elements, economic conditions, technology and financial resources.
- *The international environment.* It can directly affect many organizations and it has become, with the market globalization and the boundaries break-down thanks to digital, extremely important in the last few years.

Organizations are open systems that relate to one another and are influenced by environmental change and complexity with strong backlash on the enterprise architecture and managerial actors. We can consider two main drivers according to which the environment shapes organizations. The first one is represented by the **uncertainty**, the second by the **resources dependency** (Koberg and Ungson, 1987).

Uncertainty means that decision makers don't have enough information about environmental factors and it's hard for them to forecast external changes. Furthermore it increases the risk that enterprises answer could fail and renders problematic costs and probabilities accounts related to different decisions options.

It comes out as a result of two different dimensions. On one side, simplicity-complexity dimension reflects the background complexity referred to heterogeneity, or the external elements number and diversity impinging on organizational activity (Dess and Beard, 1984). The higher is the external factors influence, the higher will be the complexity. On the other, background stability-instability relies on dynamism level of the environment in which firm operates. It is stable when environmental elements remain unchanged for a certain period of time, on the contrary it is instable when they undergo sudden changes.

We can use a model to describe the two dimensions relating to simplicity- complexity and stability instability.

An organization in a certain environment will be managed and controlled differently from an organization in an uncertain environment with respect to positions and departments, organizational differentiation and integration, control processes, and future planning and forecasting. Organizations need to have the right fit between internal structure and the external environment and to be much more adaptive than the past, according to pace of rapidity due to digital.

Traditional economy gave a lot of answers for a firm to be ready to properly face different environmental conditions. As the complexity in the external environment increases, so does **the number of positions and departments** within the organization, which in turn increases internal complexity. Each sector in the external environment requires an employee or department to deal with it. For example today, many companies are adding e-business departments to handle electronic commerce and information technology departments to deal with the increasing complexity of computerized information and knowledge management systems.

Furthermore, another traditional approach was to establish **buffer departments** (Thompson, 1967). The buffering role is to absorb uncertainty from the environment. The technical core performs the primary production activity of an organization. Buffer departments surround the technical core and exchange materials, resources, and money between the environment and the organization. They help the technical core function efficiently.

A newer approach some organizations are trying is **exposing the technical core to the uncertain environment**. These organizations strongly believe that being well connected to customers and suppliers is more important than internal efficiency. Opening up the organization to the environment makes it more fluid and adaptable. For example banks in the recent years have built important links going to create ecosystem that enables them to push out and try different ideas relating to their products. Another key factor are **boundary-spanning roles** that link and coordinate an organization with key elements in the external environment. Boundary spanning is concerned with the exchange of information to detect and bring into the organization information about changes in the environment and send information into the environment that presents the organization in a favourable light. Organizations have to keep in touch with what is going on in the environment so that managers can respond to market changes and other developments. A survey of high- tech firms found that 97% of competitive failures came out from lack of attention to market changes or the failure to act on fundamental information. One of the fastest growing areas of environmental boundary spanning is the *business intelligence* based on analysis, made with high-tech instruments, composed by relevant quantity on internal and external data to highlight models and relations that could be significant. As a brunch of the business intelligence is born another important boundary spanning: the *competitive intelligence*. Companies large and small are setting up competitive intelligence departments or hiring outside specialists to gather information on competitors. Competitive intelligence gives top

executives a systematic way to collect and analyse public information about rivals and use it to make better decisions.

Another response to environmental uncertainty is the amount of differentiation and integration among departments. Organization **differentiation** is "*the differences in cognitive and emotional orientations among managers in different functional departments, and the difference in formal structure among these departments.* (Lawrence and Lorsch, 1970).When the environment start becoming extremely complex and changes rapidly, organizational units, become highly specialized to manage external uncertainty. A study from Paul Lawrence and Jay Lorsch, on three different units of ten companies, revealed that each of them had evolved toward a different orientation and a different structure in order to deal-with distinct specialized sections of the external environment. As a negative consequence of large differentiation, is the coordination difficulty between each unit, so they need **integration**, which is the quality of collaboration among departments. When the environment has a relevant level of uncertainty, frequent changes need a deeper data processing in order to obtain a horizontal coordination, so that integrators become necessary addition to the organization structure. Liaison personnel, project managers, brand managers and coordinators cover integrator positions. Lawrence and Lorsch's (1970) analysis achieved that organizations perform better when differentiation and integration levels match with environmental uncertainty level.

A different response to environmental uncertainty was observed by Tom Burns and G.M. Stalker who, thanks to a research on twenty firms form United Kingdom, found out that internal **management structure was related to the external environment** (Burns and Stalker, 1961). They brought out that when the external environment was stable, organizations were formalized, characterized by rules, procedures and a clear hierarchy of authority. They called this a **mechanic** organization system. On the contrary, in rapidly changing environment, organizations were more free and adaptive, without a clear hierarchy and a decentralized decision-making authority. Burns and Stalker called them **organic** structures to indicate this kind of management structures. They showed a lucid and still alive idea that can be recognised even in the latest born firms of the XXI century. In fact, with an eye on our times, it is easy to point out that digital disruption has strongly quickened environmental changes and it has shown how it is necessary for the enterprise to flatten structures rendering them extremely suitable for external conditions.

1.4. Human Resource as a key factor to improve organization performances

Human Resource can be defined primarily as bundles of knowledge and competencies, not as people, who are, instead, the actors owning that resources. By the way, in most cases, people physically incorporate human resources. This way to consider them inside an organization comes from the resource-based view theory, whose intuitions date back to Edith Pernose studies (1959). Actors, in fact, are seen as resources and knowledge holders, who can realize activities and services.

The Human Resource Management takes on a key part in the success of any system (Collings, 2009). This function concerns all the policies, praxis, strategies and systems, which influence employees' behaviours, performances and attitudes. A good HR administration, allows improving organizations results. In fact, it also contributes to the customers and employees' satisfaction by rising innovation and productivity degree and helping a positive reputation development. HR management team suggests how to strategically manage people as business resources, fixing hiring, coordination, rewarding and training rules.

Firstly, the human resource management focuses on the employees' performance and scores them in that way. They provide the right job as per the employee's accomplishments and expertise, thanks to a detailed job evaluation and job design. Furthermore, they compensate for the ones who are superior in their chores. As they create employees awareness and direct all their efforts towards a main objective, they reduce goal conflict and the consequent possibility of not performing well. Goal harmony, indeed, is also a different way to maintain at the same time a professional level into a friendly environment, bringing discipline and morality. Thereupon, HR management is crucial either in the moment of organization design setting. In fact, they also fixed relationships that should be carried on between employees and top management, between departments and single actors, according to the structural criteria already chosen.

Nowadays, HR approach is inspired by the Evidence- based HR, intended to show how HR management praxis determine positive results both on profits and on main institutional actors (employees, customers, shareholders, stakeholders etc.). This stream moves from data collecting importance, which is considered as the main driver for HR decisions.

Lastly, HR management helps the organization to deal with competitive challenges, which influence it. On one hand, thanks to the employees' empowerment, psychological contracts and talent management they face sustainability challenge. On the other hand,

intercultural training and offshoring help them to survive in a competitive environment. In the end, professional skills required changes, team working and e-HRM reinforce their abilities against technological challenge.

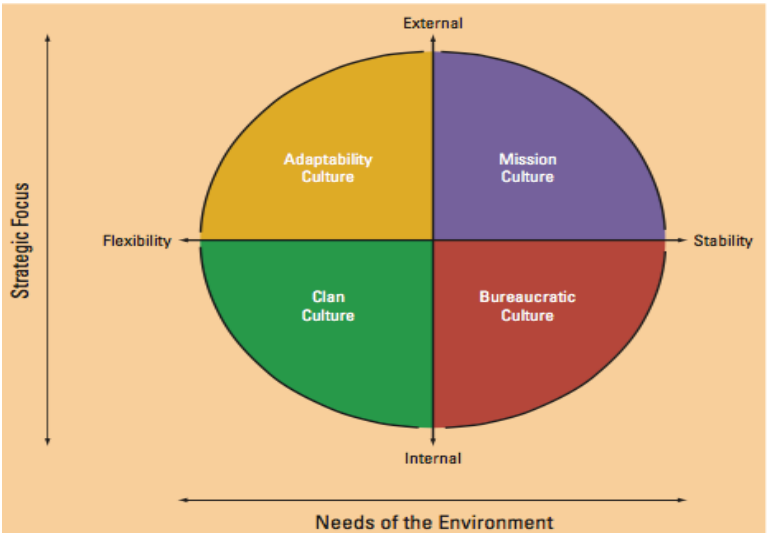
1.5 The leading role of a shared and constructive organization culture.

The organization culture is the set of values, norms, guiding beliefs, and understandings that is shared by members of an organization and taught to new members as the correct way to think, feel and behave. (Chatman and Eunyoung Cha, 2003; Ghobadian and O'Regan, 2002). All the organization own a series of structures and formal systems, beyond informal values, rules and assumptions pertaining to the culture.

Basically, it includes two levels. On the surface there are visible artifacts and observable behaviours, which reflect deeper values in the minds of organization members. These underlying ones, in fact, operate unconsciously to define the true culture and consist of assumptions, beliefs, and thought processes.

It's clear that culture provides people with a sense of organizational identity and generates in them a commitment to beliefs and values that are larger than themselves. But its importance, in an economical perspective, is linked to the strategy strengthening to achieve company success into the task environment. Thus, culture can be assessed along two different dimensions, which are: the extent to which the competitive environment requires flexibility or stability; and the extent to which the organization's strategic focus and strength are internal or external. The result of their interaction is a model of four different culture types.

Exhibit 1.4 Four types of organizational culture



Source: Richard L. Daft, *"Organization Theory and Design"* Tenth edition, South-Western Cengage Learning, USA (2008).

The adaptability culture is characterized by strategic focus on the external environment through flexibility and change to meet customer needs. It encourages values, rules, procedures and opinions useful to support the company capability, to detect and translate environment signals. Furthermore, it doesn't only react to external changes, but stimulate them actively. That's way it is a culture where innovation, creativity and risk taking are rewarded.

The mission culture is characterized by emphasis on a clear vision of the organization's purpose and on the achievement of goals. Therefore, its typical adaptability is for organizations, which have to serve target customers without the necessity of rapid changes.

The clan culture, although inserted into an extremely flexible external environment, has the primary focus on the involvement and participation of members' organizations. The latters create a sense of responsibility and ownership and, hence, render employees more satisfied as well as productive.

Finally, the bureaucratic culture, supports a methodical approach of doing business, since its focus is primary internal, with a consistency orientation for a stable environment. Referring to the above mentioned clan culture, members' involvement is lower, but it is outweighed by a high level of consistency, conformity and collaboration. This model succeeds by being highly integrated and efficient.

After all, seems to be clear that a strong, constructive and evenly shared culture, which encourages adaptability and changes, can lead to optimal performance achieving.

1.6. The technology-structure relationships. The role of technology in the organization.

Technology refers to the work processes, techniques, machines, and actions used to transform organizational inputs (materials, information, ideas) into outputs (products and services) (Perrow, 1967). It includes production process and work procedures as well as machinery. We can distinguish two different kinds of technologies: core and non-core technology. In particular, the core technology is the working process strictly linked with the organization mission and design. In fact, when designing, managers have to choose which is the most suitable structure to ease work processes. The non-core technology, instead concerns an important process for the organization, but not directly linked with the mission.

The first attempt to understand the technology-structure relationship was carried out by Woodward who, observing different organizations, collected info on technology and

structures (1965). Woodward ranked firms on a scale of three groups, according to technical complexity of the manufactory process, which concerns the mechanization degree.

- Group I: Small-batch and unit production. Firms belonging to the first group, although use computerized machines for a part of the production, are characterized by employees' major influence in the working process. The production is unitary on the clients' order and requires a high level of complexity. An examples is given by Hermes Kelly handbag or by Rockwell Collins which makes electronic sophisticated equipment for airplanes.
- Group II: Large-batch and mass production. Firms here have a manufactory process characterized by long production runs of standardized parts, which are assembled in different ways. An example comes from the cars production, in which is both required the use of electronic machines and of employees.
- Group III: Continuous-process production. Firms belonging to the third group use entirely a mechanized process with a poor use of employees' manual work. Automated machines check the continuous process at the end of which products are almost standardized. Examples include oil refineries, liquor producers, pharmaceuticals etc.

She found out, after ranking firms in those three groups, that highly skilled employee need decreases with an increase of technical complexity, because most of the work is made by electronic machines, while are needed only support workers.

Then she compared the structure–technology relationship against commercial success and discovered that successful firms tended to be those that had complementary structures and technologies, especially when competitive conditions changes. It came out, so, that different technologies impose different individuals and organization requests, which need to be satisfied in different ways. Nowadays, the higher level of competition asks companies to adopt new technologies in order to be more flexible. Nevertheless, also structures and management processes have to be realigned, as a mechanic model can obstruct the answer rapidity required by the new environment.

Technology applied to services, instead, is different from those applied to manufacturing system, and it implies different organization designs. Firstly, service technology produces intangible output, abstract, which often consists of knowledge and ideas rather than a physical product. Furthermore, they are characterized by a simultaneous production and consumption, and ask for extreme rapid and personalized answers. According to their features, the first need, while designing, is for the employees to be close to customers

(Finch and Luebbe, 1995). It finds a reflection in the use of boundary roles and structural disaggregation. In fact, boundary roles are widely used in manufacturing company, rather than service, where customers must interact directly with technical employees, such as doctors or brokers. Moreover, a service company doesn't need to be large, but on the contrary it finds its strengths into disaggregation, since employees con be closer to customers.

The last focus shifts the analysis to a business unit level. Here Perrow identifies in task **variety** and **analysability**, the relevant tools for structure and organization processes (Perrow, 1967). On one hand task variety is the frequency of unexpected and novel events that occur in the conversion process; on the other, analysability is the possibility for the work to be reduced to mechanical steps, where participants follow an objective, computational procedure to solve problems. The two dimensions provide elements for management style, structure and characteristic process evaluation.

Routine technologies are characterized by little task variety and the use of objective, computational procedures, which implies high level of analysability. From this kind of technology arise mechanic structures, where tasks are formalized and standardized, so the actors don't need a high experience in the field. Communication is enabled with written documents, which flows vertically from the top downward.

Craft technologies, instead, are characterized by a quite stable stream of activities, which are not too vary, but the conversion process is not analysable or well understood. Tasks require extensive training and experience in order to respond to intangible factors. The structure is mostly organic, where prevails a horizontal and verbal communication.

Engineering technologies tend to be complex because there is an increasing variety in the tasks performed. However, the various activities are usually managed with established formulas, procedures and techniques, which provide a reasonable level of formalization. It is characterized by a mostly mechanic structure where communication is both written and verbal.

Non-routine technologies have high tasks variety while the conversion process is not analysable or well understood. In non-routine technology, a great deal of effort is devoted to analysing problems and activities. Structures are mechanic, where low formalization and low centralization are balanced out with a high level of training plus experience. Communication moves towards a group perspective, where meetings are often required.

Technologies impact also the activity of job design, which consists of objectives and tasks assignment, which have to be carried out by the employees. Researches have showed

that mass production tends to produce *job simplification, job enrichment and job enlargement*. The first one is related to the reduction of single tasks variety and difficulty. The second one creates a major level of abilities, responsibilities, opportunities and appreciation. The third one lies in higher number of different tasks performed by one employee. Generically, with the introduction of advanced technologies workers have to learn continuously, according to the technological progress.

Furthermore *socio-technical systems* approach recognises the interaction between technical and human exigencies that happens in an effective job design, combining people urgency with the organization technical effectiveness need. The *social* element refers to the people and to how job is assigned and coordinated within an organization; while the *technical* element refers to tools, materials, machines and processes to transform input into output. The principle aim of the socio-technical approach is to design an organization in order to obtain a joint optimization, making an organization work at high level of effectiveness and efficiency when social systems and technical systems are designed to adopt to reciprocal needs.

Last technological characteristic affecting organization design is the **interdependence**, as the extent to which departments depend on each other for resources or materials to accomplish their tasks (Thompson, 1967). James Thompson defined polled interdependence as the lowest degree of independence, where each unit contributes to the common good for the organization, but works individually. Then he stated that the sequential interdependence is based on the assumption that the first unit must work correctly so that the second unit can do the same. The interdependence is of a serial form where departments depend one on each other and exchange resources, occurring horizontal mechanisms. Lastly, he pointed out the reciprocal interdependence, where the output of the A operation is the input of the B operation and vice versa. It is characterized by a horizontal communication and a high level of coordination between departments, in order to make them work in the right way.

1.7. Alternative organization designs and their evolution overtime.

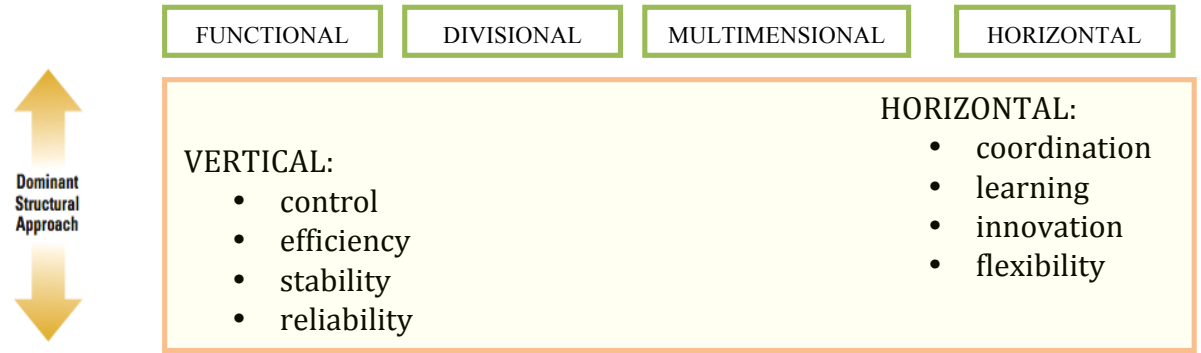
The organization structure results from the definition of three key points.

- Formal reporting relationships, including the number of levels in the hierarchy and the span of control of managers and supervisors.
- Individuals grouping inside the organization unit and units' number.
- Effective communication and coordination systems and efforts integration between

units (Child, 1984).

These three elements pertains both to vertical and horizontal aspects and are visually represented by the organization chart. Generically, organization structures should be designed in order to facilitate the information flow that is pivotal for the goal achieving. But, they can opt for the efficiency-oriented organization, where there is a vertical prevailing dimension in the flow, or for a learning organization, more modern and flexible, which emphasizes horizontal dimension. Thereby vertical linkages are mainly used to detect the whole organization with a top down approach, using structural mechanism as hierarchical referral, rules and plans or vertical information systems (Galbraith, 1973-1977). Horizontal linkages, oppositely, allow overtaking departments' barriers, realizing unity of efforts and organizational objectives, thanks to tools as informative systems, direct contact, task forces, full-time integrators and teams.

Exhibit 1.5 Relationship between structure and efficiency or learning need.



Source: Richard L. Daft, *"Organization Theory and Design"* Tenth edition, South-Western Cengage Learning, USA (2008).

The key points presented above influence the overall organization design, which gathers the work activities required, reporting relationships and departments grouping, giving birth to distinct options of organization structures (Exhibit 1.5).

Furthermore according to the alternative organization designs, Mintzberg identifies five different fundamental configurations, in which the five organizational parts varies in size and importance (Mintzberg, 1979).

1. *Entrepreneurial structure.* It is typical of a new start-up company, suitable for dynamic environment, where standardization and formalization degree is low. The strategic apex is its key part, supervising directly on the whole organization and managing workers of the operating core, while technostructure, support staff and middle line are almost absent.

2. *Machine bureaucracy*. It is used when companies are mature and large oriented to the mass production, into an environment simple and stable. Technostructure is pivotal together with the middle line, which reflects the tall hierarchy of control. Standardized work processes and high formalization allow coordination and the efficiency achieving, as its primary goal.
3. *Professional bureaucracy*. It is adopted by companies, which are services suppliers and require highly skilled professionals, so that the operating core is crucial. Technostructure instead, is almost absent, while support staff is developed. Coordination is achieved thanks to skills standardization, which let the company survive into complex environment.
4. *Diversified form*. It is common for large companies divided into products or market groups, which help to solve problem as inflexibility, typical of the bureaucracy machine. Middle line is the key component, but also techonostructure and support staff have a relevant importance. Output standardization coordination mechanism renders it suitable for not too complex and instable environments.
5. *Adhocracy*. This last form is typical for complex and rapidly changing environment, in which innovation management is always required. Mutual adjustment coordination uses technostructure and support staff merged with the middle line, for the organization goal achieving. The low formalization degree and rules lack require necessarily highly skilled employees, which are grouped not in separate departments but in teams when needed.

Different grouping options of activities imprint end structure and the employees work. Nevertheless organization theory has identified several standard structures, adopted and modified depending on company exigencies. Thus models have been developed in the course of the time, being influenced by the new external environmental changes and customer needs.

1.7.1. Simple and functional organization structure.

Simple structure is usually the default operating system used by most small businesses or familiar little companies. Organizations are led by the top management, which thanks to direct supervision coordinates the technical core, checking working flows and giving instructions (Exhibit 1.6). Being that structure extremely centralized and small in dimension, verbal communication substitutes necessity of formalization. Moreover, the low

specialization and formalization level, if followed by marked entrepreneurial, leadership, motivational and involvement abilities, render the organization extremely innovative and effective. In fact the presence of only two levels reinforces in all the employees a common feeling of being a part of the whole organization. A strong culture, thereby, ensures informal relationships and a common orientation to the overall organization management. A unique leadership with a unitary vision reinforces decision-making rapidity, rendering company extremely flexible. In addition workers availability to perform many various tasks, increases operative flexibility. All the employees' tasks in the simple structure are fulfilled following routines, which are regular and predictable way of doing actions sequence coordinated by the individuals (Nelson and Winter, 1982).

Exhibit 1.6 Simple Structure

Source: *personal elaboration*

However, this kind of structure entails some disadvantages. One of these is linked to the presence of the decisional centralization, depending on a single person, as it could imply vertex overloaded, or succession difficulties. Furthermore, unclear tasks borders and low formalization degree generate: inadequate management competences, which limit workers possibility of growth, and difficulties in preserving and handing over tacit knowledge. Finally, the restricted dimensional scale doesn't give the possibility to have access to high competences and sophisticated technologies.

Simple structure unveils three variances presented below.

- *Entrepreneurial form.* It underlines the entrepreneur centrality, which takes decision for the whole organization and directly communicates with collaborators. These, consequently have low decision responsibilities, but are involved into typical activities.
- *Craft form.* This kind has a restricted structure articulation without any specialized functions. Integration mechanisms are hierarchical: where abilities and know-how are standardized, while operation systems are, once again, limited and informal. But,

even if employees undergo central coordination, the spread of professionalism leads to the technical core major discretion.

- *Group of equals.* It is characterised by a widespread entrepreneurship, to the point that all the partners are allowed to participate to group decisions. Here operative systems are absent, except for control systems.

From the evolution of the simple structure takes its origin the *Functional Structure*, which is one of the most used designs.

The functional structure, also known as U-form, gathers first level responsibilities according to the fundamental enterprise functions. The activities, so, are grouped under the criterion of work processes similarity, picking employees who perform similar tasks or processes or have similar knowledge and competences. It is most effective when in-depth expertise is critical to meet organizational goals and when the organization needs to be controlled and coordinated through the vertical hierarchy, with a low grade of horizontal coordination (Duncan,1979; Randolph and Gregory G. Dess,1984).

It's possible to identify conditions that maximize functional structure effectiveness. In fact, it is perfectly suitable for small or medium size companies, which have a restricted product portfolio realized with a stable technology. Furthermore, companies have to be settled in a stable environment, in which they promote market development and market penetration.

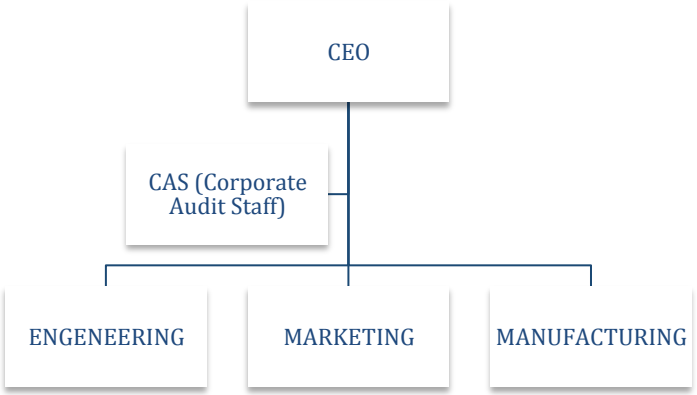
Functional structure grouping has a lot of advantages. It promotes economies of scale and of specialization inside the single departments, thanks to an extreme knowledge and abilities development. It also allows functions goal achieving and simplifies the efficiency reaching in the whole organization. But, being preferable in presence of one or few products, when their number increases, it may provoke disorders. In fact, it is a structure exposed to many weaknesses, according to the continuous monitoring efforts required for coordination and control systems. The emphasized hierarchy and the strong centralization of responsibilities can cause decisions accumulation at its vertex and a poor horizontal coordination between departments. Moreover, the careful determination of organizational procedures, operative mechanism and operative systems, renders it extremely formalized and rigid, implicating slowness to answer to environmental changes. Lastly, there are problems linked to the restricted vision of organization goals and the decrease of innovation. In accordance to the previous statement, the need of splitting organization objectives into a series of parameters, significant for each function arises. The leaders' major consideration of

their function over the others, indeed, causes interdepartmental conflict of interest and the consequent difficulties to form an interdepartmental professionalism.

As regards the intermediate management, although decisions remain centralized at the top management levels, there is a higher involvement of directive functional authorities. Thereby, they program and coordinate functional activities, valuate performances and manage not only top and down communication but also functions borders.

Considering a functional organization chart (Exhibit 1.7), primary functions (line) are those which identify the enterprise: raw materials finding, input transformation into output and in the end, output supply. Secondary functions (staff), instead, ensure technical efficiency (technical support) and organization efficacy (administrative support), thanks to aid or service activities, which varies depending on global size, organization variety/complexity, interdependences kind and use of outsourcing degree.

Exhibit 1.7 Functional grouping



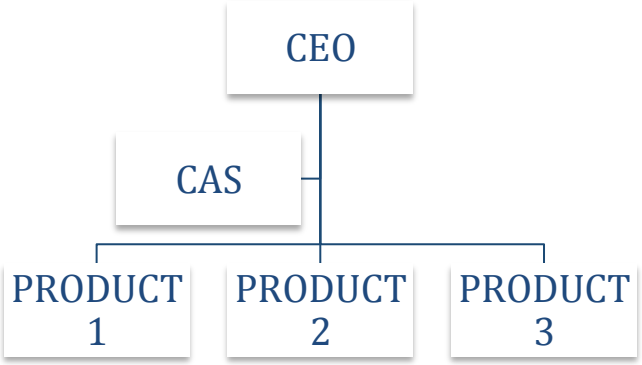
Source: *personal elaboration*

In today's fast-moving world, very few companies can be successful with a strictly functional structure. As already mentioned, in fact, one of the biggest limits of the functional grouping is its rigidity. Organizations can use specific devices to mitigate this effect as installing horizontal linkages or using the second level branching based on product or market criteria. The relevance of using horizontal linkages, thanks to full-time integrators or project managers task forces, or teams, is that they compensate vertical functional hierarchy. These positions (product, brand, project managers) are responsible of given tasks and, even if they are not invested of authorities on functional representatives, they coordinate and manage the workflow, spreading a common trans-functional perspective.

1.7.2. Divisional organization structure

The *Divisional Structure,* also known as M-form, allows organizing single divisions according to products, services, groups of products, major projects or programs, divisions, business o profit centres (Miles et al, 2010). Thus divisional grouping criterion reveals immediately how design logic is completely overturned, passing from an input to an output one (Exhibit 1.8)

Exhibit. 1.8 Divisional Grouping.



Source: *personal elaboration*

The M-form makes organization structures more consistent and extremely flexible, thanks to the divisions' consideration as single profit centres, in which the overall operative and organization conditions are reproduced. In this way, the creation of semi-independent departments working as semi-enterprises yields power decentralization, but always maintaining corporate choices at a higher level. Moreover the unitary business vision recover into a unique division produces function coordination and as a result, answer rapidity, decisive to be ready to external contingencies variation. Therefore, the evaluation of divisional design reveals that, being close to customer different needs, it is extremely effective in attaining high customer satisfaction rates.

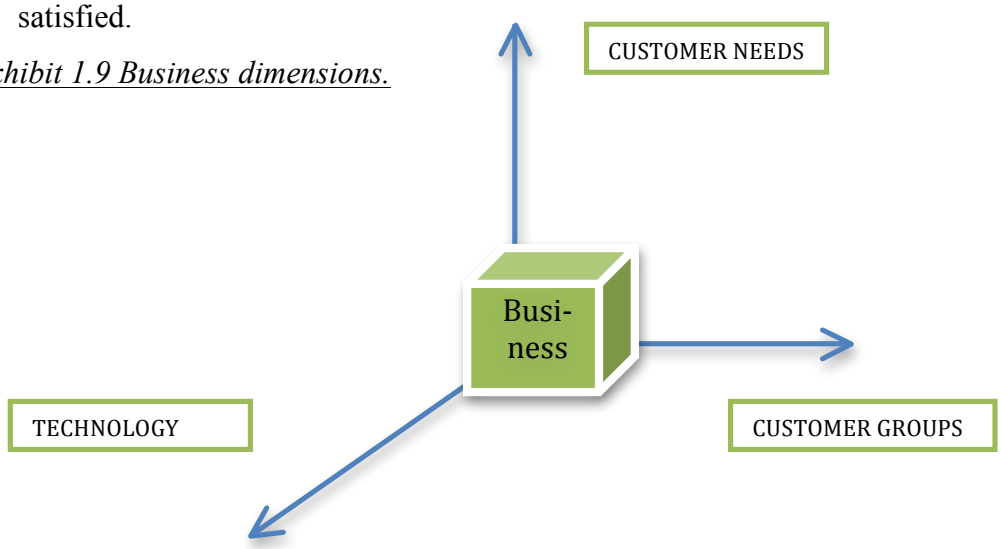
Obviously, the divisional model is useful when company size is growing, taking advantage of technological development in a continuous changing environment. Furthermore it is typical to be adopted from multiproduct organizations, which address their strategies to the supply differentiation. In fact, if compared to the functional structure, where sizes are smaller, technology and environment stable, strategies different, the scenario is completely overturned. Nevertheless, companies using divisional model have encountered some difficulties and disadvantages (Duncan, 1979). Firstly, it deletes economies of scale typical of

functional units, partially due to the in-depth competences and technical specialization cutting off. In addition it brings a poor cross-units coordination and causes difficulties for product lines integration and standardization, as it requires effective horizontal linkages.

Divisional structure may envisage allocating first level responsibilities according to business criteria, as divisions could represent the organization representation of the strategic business units. Business, in essence, is the strategic area covered by the enterprise, identified by three dimensions, which are customer groups, customer needs and technology (Abell, 1980) (Exhibit 1.9).

- *Customer groups* represent the category to which the organization addresses its supply, divisible again among geographic areas, demographic, socio-economics and personal characteristics and lifestyle.
- *Customer needs* correspond to the needs that have to be satisfied. They are different from the way in which products are realized and from core benefits felt when purchasing.
- *Technology* embraces the alternative ways in which a customer need could be satisfied.

Exhibit 1.9 Business dimensions.



Source: Fontana and Caroli *"Economia e Gestione delle imprese", IV Edition, (2013).*

The advantages of using SBU representative of divisions are linked to the possibility to split sectors into segments and to analyse diversification alternatives. In particular, strategic business units may amount to:

-Enterprises branches without legal autonomy;

-Enterprises with their own legal and management autonomy depending on executive management of a lead or holding company;

-Holding which manage interrelated activities.

SBUs are defined according to *divisionalization degree*, which determines their autonomy,

depending on specificity level of company activities, and corporate functions role. Corporate functions, precisely, are required to elaborate the overall strategy, to realize performances control system, to find the best financial resources allocation and to offer common staff services, trying to minimize costs. Thus, the divisionalization degree balances divisions' flexibility with the control and coordination need, thanks to the interrelations exploitation, ensured by corporate functions.

Thereby an organization may opt for *centralisation*, when different products require homogeneous materials and divisions deal with stock operative management; gaining economies of purchasing at the expenses of a higher probability delay, compared to single production exigencies. Or, contrarily, it may opt for *decentralisation*, when all the purchase functions are completely divergent for each division (small batches) and the corporate functions take care only of materials studies and researches; gaining optimal provisions' time management but loosing economies of purchasing. Nevertheless intermediate solutions are assessed to answer to flexibility exigencies, centralising common materials purchasing and decentralising specific divisional provisions.

An example of divisionalised structure is the Holding company (H-form), in which it doesn't occur a sophisticated system of internal control. Single divisions are often affiliated to the parent company, which can be either an operational or a financial Holding company, through subsidiary relationships. In particular this model considers different divisions as single companies. Thus the parent company performs support, integration or services activities, taking care of strategic, operational, managerial and fiscal functions.

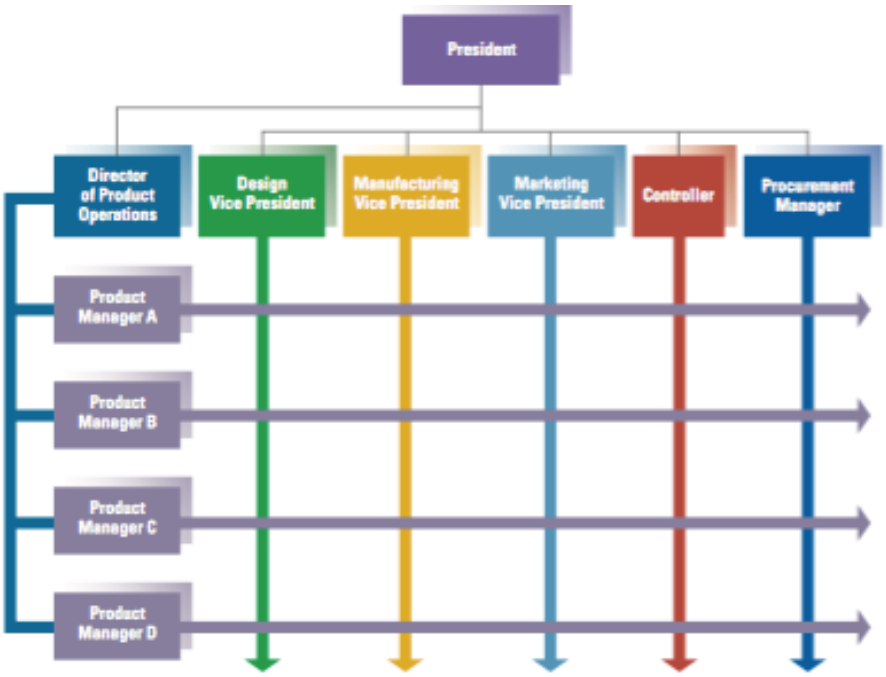
Another basis for structural grouping is the organization's users or customers (Daft, 2008). The most common structure in this category is geography, widespread between multinational corporations where self-contained units are created for different country and parts of the world. Since tastes and needs may vary, this structure focus on specific geographic regions and sales target, which are entrusted to identified managers and employees. However geographical criterion could emphasize horizontal coordination within a region, rather than linkages across regions or national office.

1.7.3. Multidimensional structures: matrix, front-back and modular organizations

Multidimensional structures are required when companies need to be multi-focused on more than one specialization criteria, to which correspond specific lines of authority (Davis and Lawrence, 1977; Galbraith, 2010). Matrix structure in particular includes two

dimensions simultaneously (e.g. functions, geographic area, products, customers, projects etc.), aiming at balancing effectiveness and efficiency and at solving hierarchical problems. Specialization criteria are often represented by "Functions and Products" or "Functions and Projects", in which functional and product units objectives are both maximized, as equal importance is given to product innovation or technological in-depth specialization or market adaptability (Exhibit 1.10). Mangers have the same authority within the organizations and are co-responsible of goal achieving. In particular, functions managers (vertical authority) have to select specialists per project, to provide resources checking performances; while project/product managers (horizontal authority) have to manage and coordinate projects and products assigned, to encourage members and to check costs.

Exhibit 1.10 Matrix Structure



Source: Richard L. Daft, "Organization Theory and Design" Tenth edition, South-Western Cengage Learning, USA (2008).

Even if a dual hierarchy may seem an unusual design, there are conditions under which it represents the right choice (Davis and Lawrence, 1977).

- A pressure exists in sharing limited resources across product lines. It concerns organization typically medium sized, with a moderate number of product lines, where there is a flexible use of people and equipment.
- Environmental pressure exists for two or more critical output, as in-depth technical knowledge and frequent new products. Here the balance of power required, between

functional and products sides, is obtained thanks to the dual-authority structure.

- Organization operates in an unstable and complex environment, in which it needs for large amount of coordination and information processing in vertical and horizontal directions.

Being respected these conditions, matrix structure is also suitable for medium-big sized companies, which supply multiple short-life cycle products and seek for differentiation strategies, but always maintaining a high internal technological development.

Matrix model offers a wide range of advantages in particular when it is built in a continuous changing environment (Ford and Randolph, 1992). In fact the dual authority structure encourages communication and coordination, to facilitate adaptation to unexpected problems. Matrix achieves coordination necessary to meet dual demands from customers and provides the employees' opportunity for both functional and product skills development. Resources can be flexibly shared between different products, as it is suited for complex decisions and frequent changes in unstable environment (Burns, 1989). On the other side, contrarily, dual authorities may frustrate and confuse employees, in particular when role and responsibilities are not well defined (Hymowitz et al, 2003). Moreover, working in matrix means that employees have to demonstrate good interpersonal skills and extensive training, being open to cooperate with one another rather then rely on or vertical authority, and have to understand perfectly how it works. Managers are frequently involved into meetings and into conflict-resolution problems, which both are time consuming (Bartlett and Ghosal, 1990). Lastly, it requires an elevate amount of efforts to maintain balance between the powers, otherwise it doesn't work. In addition, a study on 294 top level and mind-level managers from seven major corporations in six industries identified top five contemporary challenges of the matrix organization form, which are: misaligned goals, unclear role and responsibilities, ambiguous authority, lack of a matrix guardian and silo-focuses employees.

Matrix can take many forms on the basis of the power balance (Sy and D'Annunzio). In *Functional Matrix* employees remain members of functional departments, under the functional managers supervision, who are responsible for the design and completion for technical requirements. Processes and procedures are instituted to ensure cross-functional collaboration, while project managers are limited to coordinating efforts of the functional groups. *Balanced Matrix* strives for equalized power and authority between organizing dimensions and equal pursuit of multiple business objectives. It represents the classic model in which project managers are responsible for defining what needs to be accomplished and when, while functional managers define personnel staffing and how tasks will be

accomplished. In *Project Mat*rix employees move between functional departments and projects, respectively retaining membership with those units during the same period. Here project managers have primary control over resources and project's direction; functional managers, instead, serve in a support or advisory role and hold control over much of the team responsible for carrying out plans and controls established by project managers.

Another multidimensional form is individuated into the *Front-back* structure*,* which is considered to be suitable for the progress of globalization (Warren, 2012). While in the pure matrix dimensions are different and variously combined, in the front-back, the front-end concerns market units and the back-end concerns products units, responsible for developing or manufacturing products. Sometimes front and back end are linked by a customer-suppliers interface, in which market departments, representing customer needs, receive orders and ask for products or services from the back-end departments. Even if the internal customers-suppliers relationships may be informal, roles and positions may be formalised in the form of an internal market, in which departments buy and sell from each other. It represents an attempt in to derivate the advantages of economies of scope and specialisation, or leverage and focus (Nadler and Tushman 1997). Leverage is obtained because resources are consolidated in a product unit, deriving advantages of scale. Simultaneously, focus is gained as market units are able to concentrate on a set of customers or market segments. Even though the front-back doesn't require the dual authority structure of the matrix, this does not imply that companies avoid overlapping responsibilities or conflicting goals, which sometimes are mitigated thanks to additional coordinating layers between front end and back end units. This structure in many cases represents a "push" model, meaning that in the product development process, market units may provide suggestion based on customer feedback regarding possible new products or existing ones improvement.

A second alternative to structuring is the *Modular Organisation* (Warren, 2012). Ackoff (1994-1999) pointed out that market units carry out internal customers role, while products units, suppliers role. Unlike units in a front-back model, the product units within a modular organisation have no fixed assets, and only consists of few managers. With modular structure, units share human resources together with market and production ones. Employees, indeed, are formally organised in a resource pool in one of the input units and used on market and product units. It implies a dual hierarchy introduction (Malone, 2004) where people managers lead skills groups within the resource pool. Once allocated to a defined project, employees work for a project manager, who is the internal client of the people manager in the resource pool. In particular resource pool inside modular organisations earns a strategic

importance, since it provides required resources and develops the skills that the company will need in the future. Comparing to the front-back, units have greater autonomy, while the main difference from the matrix is that there is the elimination of dual functions and reporting relationships.

A lot of organisations today are structured among multiple dimensions, as they perfectly reflect the exigencies of a dynamic environment. Obviously, external and internal contingencies favour a model over the others.

1.7.4. Toward structures flattening and horizontal models: the importance of the business process reengineering

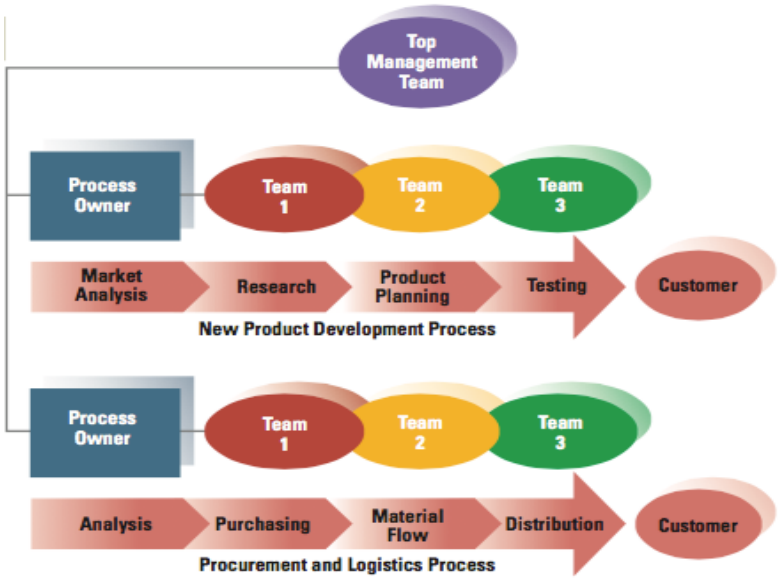
Today we are assisting at a new horizontal structures spreading, which group activities according to the key processes. They essentially flatten hierarchy and emphasize an employee-centred approach, enhancing workers involvement into companies' goal, promoting teamwork and collaboration. This structural approach is a response to the deep changes that have occurred in companies, workplaces and, in general, in the business environment in the last two decades. Technological progress underlines how, today, customers expect faster and better services and employees want to capitalize on their minds, improving their skills portfolio. Organizations have to experiment horizontal mechanism, aided by computer- and Internet-based integration and coordination, to accomplish temporary project, linked to the rapidly shifting customers' tastes. In this way they have moved from hierarchical, function-based structures to horizontal models based on processes, thanks to the *reengineering* method.

Initially, The idea of reengineering was proposed in an article in *Harvard Business Review* in 1990 by Michael Hammer, then by a professor of computer science at MIT, investigating how information technology was affecting business processes. Porter said: "*The literature on re-engineering employs the term processes. Sometimes it is a synonym for activities. Sometimes it refers to activities or sets of activities that cut across organisational units. In any case, however, the essential notion is the same—both strategic and operational issues are best understood at the activity level.* Business process reengineering (BPR) was described by its inventors (Hammer and Champy, 1993) as a "*fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service and speed"*

The technique concerns at a first level of a deep company's central processes analysis, after which come processes re-sequencing, disintermediation and efficient re-assembling. Thus, BPR radically affects all the parts of the organization and allows value creation, exploiting new processes, which pursue customers' need. It moves from the consideration that not all the organization processes are rationally designed. Existing processes re-adaptation means obtaining marginal and slow performances improvement. Thereby, in order to reach high level of performances, the key point is to re-conceive processes from the beginning, implementing radical innovation. Furthermore, BPR is the result of the Total Quality Management evolution and of Information Technology progress. The first one is an approach to succeed through continuous improvement, aiming at obtaining a major employees' involvement that focus on customers in all the process. Information Technology, on the other side, has been used as an instrument to align information and operation flows, relying on computerization of single departments activities and inter-department activities.

When a company is structured horizontally, all the employees with interdisciplinary competencies work on a particular process among a horizontal dimension, deleting in this way vertical hierarchy and interdepartmental boundaries (Exhibit 1.11) (Ostroff, 199). An *organizational process* is an activities' set structured, measured and designed to produce a specific output for a determined customer or market (Davenport, 1993). It designates an activities sequence with a start and an end, in which time, space and method of work are settled, together with processes responsibilities. In this way, when a company is horizontal structured, self- directed teams work on jobs related to different process steps, under the supervision of a process owner, who has the responsibilities for coordinating the entire process. Horizontal structures are customer-oriented, as all the efforts are addressed to promote innovative solutions and products, gaining customer satisfactions. Therefore company effectiveness is measured by end-of-process performance objectives, as well as a series of ratio signalling customer or employees' satisfaction. Moreover, organization culture takes inspiration from openness, trust and collaboration and gives a deep importance to employee empowerment, responsibility and wellbeing. In this way teams, thinking innovatively and freely, give the company the right flexibility to answer to new external challenges.

Exhibit 1.11 Horizontal Structure



Source: Richard L. Daft, *"Organization Theory and Design"* Tenth edition, South-Western Cengage Learning, USA (2008).

Obviously, the horizontal structure use implies both advantages and disadvantages (Daft, 2008). Firstly, its new way of coordination radically increases flexibility and rapid response to change in customer need. Specifically, this structure directs all the workers' attention toward the customer, to which it must deliver value, coming from improvements in productivity, speed and efficiency. In fact, teamwork and collaboration focus promotes each employee to have a broader view of organizational goals, as there are no more boundaries between functional departments. In the end, working in a horizontal structure improves employees' quality of life, giving them the opportunity to share responsibilities, to make decisions and to be accountable for outcomes.

On the other side, core processes determination, which is critical to bring value to the customer, can be difficult and take a lot of time. In addition, re-inventing a structure requires changes in culture, job design, management philosophy, and information and reward systems. Traditional mangers balking when they have to give up power and authority, indeed, amplify this effect. Furthermore, employees have to be trained to work effectively in a horizontal teamwork and their cross-functional training nature, can limit their in-depth skills development.

Horizontal structures are the clear representation of the transition from Fordism to Post-Fordism, in which flat collaborative organizations achieve their objectives thanks to the efforts of teams composed by wide skilled employees, with an effectiveness-oriented

approach. Enterprises are increasingly moving towards flatter models and surely, digital disruption, is favouring the speed of the shift.

1.7.5. Network structures and outsourcing

The recent progress in the field of the organization design, together with the dematerialization of physical distances and borders between the enterprises, have afforded to swell strategic cooperation and horizontal collaboration beyond traditional organization limits. The recent trend, when structuring an organization, has been to outsource various part of the organization to external partners (Anan and Daft, 2006).

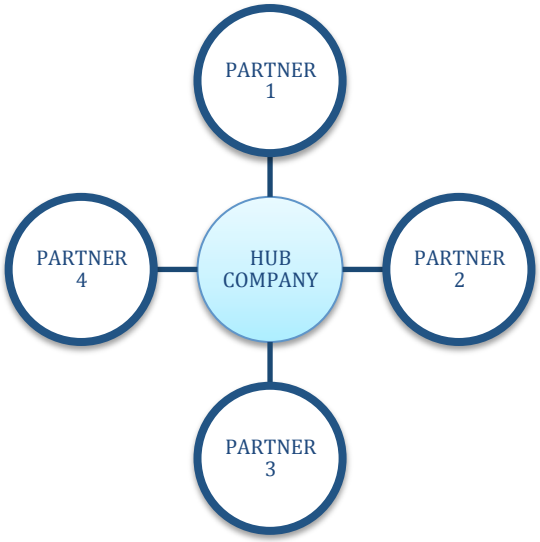
Outsourcing date back to the American Glossary (1981) and involves contracting out certain tasks or functions, to other companies, beyond organization borders. For example human resource management, supply chain management, accounting, or even customer support and service, can be transferred to other companies or contractors that specialize in these activities. Outsourcing resorting has been so strengthened, that today is difficult to etch visible lines of what is part of an organization and what is not. Principle advantages of outsourcing are linked to the company chance to face with activities complexity and environment evolution. In fact, in this way, organizations can internalise market problems, lowering competitive pressure and increasing the possibility to develop new innovative solutions. In addition, the fixed costs' decreasing gives a major flexibility and allows a reduction of investments riskiness in specific assets. An enterprise is able to have access to specific resources, not internally developable, and to raise supply value. However, outsourcing shows some weaknesses. Relationships between parts may be confrontational, arising from difficulties in concluding exhaustive contracts. Besides, companies could have selfish interests, being necessary continuous update and coordination to work as a unique system. Costs may be high, either due to provisions either to exit barriers, as there may be idiosyncratic investments made by the outsourcers.

When an organization subcontracts a relevant number of its major functions and activities, to separate companies and supervises activities from a small headquarters, we are in presence of a virtual network structure (Miles and Snow, 1995). Even if it is a recent trend, its theoretical basis comes from the "Resource Dependency Theory", which considers resources as a power basis, that when are not internally developed, have to be purchased in the environment.

Today, digitalization has afforded companies to build structures in which the organization is a central hub surrounded by a network of outside specialists. In fact, organizational partners located in various parts of the world act as if they are one company. They can use connected computers and Internet to rapidly exchange useful data and information as soon as they are required. The virtual network structure is based on the existence of agreements between the hub organization and its partners. In particular, equity agreements determine a modification into the partners' ownership structure, giving birth to a new corporate made of partners or shareholdings exchanges. An equity agreement can be set, if partial, by joint venture, minority shareholdings or shares exchanges; if total, by trust or keiretsu. On the other hand, non-equity agreements don't produce partners' ownership structure modification. They can be born from contractual basis (e.g. franchising, licensing, cartel etc.) or informal agreement (e.g. sub-supply, district, constellation).

The central hub of the network structure maintain control over activities in which it has world-class and exclusive abilities, while others are transferred to partners, that can flow into and out of the system according to their needs. Partner organizations manage and accomplish their work using their own, ideas, assets and tools (Engle, 2002). Therefore the virtual network structure acquires value making a firm concentrating on what it does best and contracting out anything else in which other companies have distinctive competence (Tapscott, 2001). Horizontal relationships and coordination are pivotal, emphasizing lateral communication and teamwork. In addition processes and structures are designed in way that maximum action flexibility and rapidity are ensured. (Exhibit 1.12)

1.12 Network structure



Source: *personal elaboration*

As a result of all the main characteristics, network structure is perfectly suitable for small start-up companies, which need an initial support for their market escalation, providing international resources and letting them compete in a global scale (Daft, 2008). Besides, it helps the company to launch products or services without huge investments in factories, equipment and distribution facilities. Network structure adjusts itself to modern environmental changes, since its design is gifted of a high flexibility. As regards costs, the administrative overhead is reduced; indeed, large teams of staff specialists and administrators are no more needed.

Contrarily, because of the extreme decentralization, managers do not have hands-on control over all the activities and employees, so it is time and resource consuming. In fact, managers have continuously to manage relationships and potential conflicts between the partners. This structure is also exposed to failure risk when a partner fails to deliver, not respecting its commitment, or goes out of the business. In the end, referring to human resources, employees' loyalty can be weak as they can be replaced by contract services. That could bring to a faint corporate culture, which is not cohesive and widespread between workers.

As already underlined, today the environment presents a high complexity and uncertainty degree that generate multiple challenges for the companies. This is the reason why actual widespread trend is to reduce companies boundaries and to increase the pace of collaboration. In fact, globalization and technological development have increased costs of doing business and made difficult for companies to take advantages of opportunities, arisen in new scenario. Network structures though, which are born form collaboration and partnership, are the new way to be effective in the market. Organizations think of themselves as a small part of bigger system pivoted on teamwork and believe in the creation of values jointly, rather than autonomously, being in competition with all others.

1.8. The evolution of the technology-structure relationship

Today two big issues are challenging the organization environment, which are the advent of digital and the sustainable development need. Computer, information and communication technologies have revolutionary transformed ways of productions, to the point that factory of today, is far different from the one studied by Woodward. Markets and customer's environment require the designing of manufacturing systems with modern approaches and

tools. In particular the modern application of the manufactory technology gave birth to *flexible manufacturing technology* and *lean manufacturing*.

Digital Factory is the phenomenon having its background in computer aided and computer integrated technologies, using advanced virtual reality technologies, as robot, numerically controlled machine tools, wireless technologies and software for product design and engineering analysis (Gregor et al, 2010). Digital Factory creates the environment for digital innovation of any part of production systems, e.g. products, processes and resources (Furmann, R. & Krajčovič, M., 2009).

The late flexible manufacturing system (FMS) links manufacturing components that used to be alone, under computer system coordination. As a result, the shop floor has been revolutionized, enabling large factories to produces a wide range of custom-made products at low mass-production costs. The FMS is the result of five different components.

- CAD (computer aided design). Computers help drafting, designing and engineering new products, experimenting new design alternatives.
- CAM (computer aided manufacturing). Computer-controlled machines manage materials, fabrication, production and assembling. Thanks to the immediate modification of software instruction, is possible to produce various products.
- MPM (manufacturing process management). Software to manage productive processes, building a real virtual factory in which is possible to preventively test productivity and performance.
- Integrated information system. A computerized system connects all the firms aspects, using a common data and information base. Mangers are allowed to make fast decisions and direct the integrated manufacturing system.
- PLM (product life management). Product management software scans all the steps the products pass through, awarding integration and coordination between factory activities, suppliers and eventual partners. PLM enables to operate and manage the entire network of all players (enterprise, suppliers, customers) as a single entity (Mleczko,J., 2008).

The lean manufacturing represents the maximum potential improvement of the flexible manufacturing system, when all the parts are interdependent and combined with flexible management processes. It uses high skilled employees at every stage, being extremely careful to details in order to cut waste and improve quality. Therefore the heart of the lean manufacturing are people, even they are aided by CAD, CAM and PLM integration. They are continuously stimulated to strive for the excellence, finding everywhere room for problem

solution and for all areas improvement (Heymans, 2002). In order to support workers involvement into organizational goals and participation in decision making, lean manufacturing needs to be re-engineered into a structure in which horizontal dimension prevail. In addition a shared organization culture helps to obtain a widespread focus on customers and a quality perspective.

Together the lean manufacturing and the flexible manufacturing system have fostered the mass customization rise, which refers to *using mass-production technology to quickly and cost-effectively assemble goods that are uniquely designed to fit the demands of individual customers* (Pine II, 1999).

The main advantage of the advent of the modern technologies, applied to manufacturing, is that computerised machines can changes instantaneously, without slowing the production line. Furthermore FMS brings more efficient machine utilization, an increase in productivity, customer satisfaction and product variety, and scrap rate decrease. The FMS characteristics show a narrow span of control to the point that decision-making is decentralized. Specialization degree is low, while the overall environment is self-regulating and organic, with high horizontal cooperation and collaboration. The structure reveals the importance of teams, composed by broadly trained employees with cognitive expertise and problem solving capabilities. In addition FMS firms deal with changing customers demand, so they need close inter-organizational relationships with suppliers to provide top-quality row materials (Daft, 2008).

Nevertheless technology alone can't give organizations desired benefits and flexibility, unless organizational structures and management processes are not redesigned in the same direction.

However managers steady need of information has brought to implement first IT systems into the organizations. Firstly, Transaction Processing systems were applied to reduce production costs, automatizing routine and daily activities, and to collect and store data. In the last decades, data warehousing, together with business intelligence software, have allowed to make a better use of the already existent data collection. Data warehouse is massive database (typically housed on a cluster or servers, or a mini or mini-frame computer) serving as a centralized repository of all data generated by all departments and units of a large organization. While business intelligence allows analysing company data to improve strategic decision-making process. It permits research and analysis to improve data coming from both internal and external sources, in order to identify potentially relevant relations and schemes.

Thanks to the computer-based information evolution has been developed tools for supporting managers in their decision-making and control process.

A *management information system* (MIS) aids managers in their decision making process. In particular the information reporting system provides first level managers with reports about synthetic data, useful for daily decisions. An executive information system (EIS) is applied to highest levels of management, converting a huge amount of data into relevant information. A decision support system (DDS), in the end, brings advantages at all levels. In fact it works asking question as "what-if" to test possible alternatives and selecting the one that will likely have the best result.

Feedback control systems determine if the organization performances meet set standards, helping company to achieve its objectives. The control cycle passes through four moments consisting of: strategic goal setting, metrics and standard performances decisions, metrics of actual performance comparison to standard and corrective actions.

Management control systems are defined as the formal routines, reports and procedures that use information to maintain or alter patterns in organizational activities (Simons, 1991). They are made of budget and financial reports, periodic nonfinancial statistical reports, reward systems and quality control systems. With a management control system, once the goal are set, the results are compared with objectives and variations are communicated to managers, in order to let them take required actions.

Digitalization and information technologies are also strategic tools to improve internal and external coordination between the company and customers or external partners. Main instruments are represented by:

- *Intranet*. Enables information sharing and cooperation, linking people who work for the same company. This networking activity allows employees to keep in touch in real time with the organization, finding information needed and sharing ideas on project.
- *Social Network.* Gathers both blog, used for opinion and ideas sharing about processes and projects, wiki, useful for contents sharing, and social networking activities. The power given to an organization by social network lies on a push toward collaboration and knowledge management improving.
- *Knowledge Management.* Consists of the effort to find, organize and make available intellectuals and creative resources. It promotes culture empowering and knowledge sharing.
- *Enterprise resource planning systems (ERP).* Collect various kind of information,

analysing the effect in one part of the organization caused by actions and decisions (Slater, 1999 and Zygmont, 1998). ERP integrates data coming from all the facets of operations with the use of a software system, which identifies and plans resource needs. It helps the organization to act quickly and to be as much effective as possible.

The IT contribution to external coordination ensures data sharing between two or more organization thanks to use of Internet. There are different ways by which companies make use of extranet.

- *The integrated enterprise.* Is an organization that relies on IT to obtain simultaneous internal and external coordination.
- *Supply chain management systems.* Manages the sequence of suppliers and purchasers in each step, from the row materials provision to the end products distribution.
- *Customer relationship management systems.* Helps company to scan the organization interaction with customers, allowing coordination of sales area, marketing and customer service.
- *E-business*. Refers to any business *that takes places by digital processes over a computer network rather than in physical space* (Daft, 2008). E-business can come from an internal unit, which works differently from a traditional organization, a spin-off, or a strategic partnership.

1.9. Conclusive remarks

The themes carried out in this chapter are functional for the issues treated later on. In particular the framework helps to understand which are the theoretical rules underlying the organization theory and design, without which it would be impossible making any consideration about digital disruption variables.

This chapter has highlighted which are the single levels and units composing the organization and how they interact following traditional rules. In addition the technology- structure analysis has pointed out that successful firms tend to be those having complementary structures and technologies, especially when competitive conditions changes, a statement that we will find again later, while talking about digital disruption.

The evolution of the design models over time has showed how from functional structures organizations passed to increasingly horizontal models, with a decentralization tendency, which has been facilitated by information technologies progress. As a result the use of digital

systems inside modern organizations has been increasingly having results in improving products performances, production precision, management systems and coordination among departments.

A deep understanding of the various tools composing organizations reveals how IT and Digital have changed enterprises structure and strategy, permeating every level. The aim of the next chapter is to understand how digital disruption has shaped new companies both from an internal and external perspective, revolutionising organization levels, the way in which single units interact, Human Resource policies, culture and design models.

2. THE DIGITAL REVOLUTION AND ITS IMPACT ON ORGANIZATIONS

2.1. Digital disruption: birth and meaning.

The Digital disruption found its origin with Clayton Christensen (1995) -Kim B. Clark Professor of Business Administration at the Harvard Business School -who firstly coined the term "Disruptive innovation", that describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors.

We are now standing at the dawn of a digital business revolution, in which everyone is realizing that something big is happening (Wang, 2015). The pace of change is rapidly hastening, sothat old rules doesn't apply anymore. Everyone can see the impact digital technology is having on the everyday personal lives, starting from how we interact with one another to how we engage with organizations. These years are just the beginning of an era of extreme velocity, crystalline transparency and unforgiving precision that daily will show us different shades in every field. New models will accelerate the delivery of innovation, new resources will free-up resources and, moreover, different skill-set requirements will create new types of jobs.

Digital disruption is something that has repeatedly happened over the last three decades, with different waves occurring across different types of industry segments. Initially, in the 1990s, sectors such as music, photography and video were all disrupted by new entrants and new players, who were embracing digital technologies.

In the 2000s, a new set of industries started to be disrupted by the digital revolution, such as TV, travel and recruitment. With the advent of YouTube, people started to deliver their own content. In the travel industry, people started to book their own holidays using Internet. In recruitment, companies started to leverage social media, with tools such as online jobs boards.

The recession of 2008 did not slow the pace of change, instead, sooner the recession was a catalyst and accelerator because billions of dollar were poured into new business models in order to give the impulse for a consistent growth. In the past decade we've seen new business models arise from concepts such as social media, video unified communications, mobility, big data and the *Internet of Things* (Wang, 2015). Today what we have come to realize is that it is the convergence of these technological advances, with political, environmental, societal, economic and legislative shifts, that has formed the basis of the digital business

revolution. A significant example is given by the bank system revolution, which in the last decade completely reinvented products, services and strategies to reach customers, thanks to the process digitalization and to the experience modernization.

The companies, brands, enterprises and organization that are winning this digital era are doing so not just because of the use of disruptive technology, but also because of a deep understanding of what it takes to build an organization in a digital age. Successful leaders foster a culture of digital DNA and infuse an understanding of what's required to build new business models with disruptive technology. In fact, business leaders following the right path have been rewarded with significant marketplace advantages.

Several analyses have recognised as the main driver of digital revolution:

- *Customers' behaviours and their expectation*. Customers are already very spoilt by the experience that they receive from sites such as Facebook and Airbnb. As a result, their expectations have increased. Enterprises, so, are forced to make a process more customer-centric, because they have to be redesigned so that there isn't a bottleneck when the customer uses the interface.
- *Technology innovation*. Technology investments are considered intensively profitable because they ensure company's lasting competitive advantage. That's the reason why most companies have encouraged a strong capital flow in new technologies that have become the driver of digital revolution.
- *Regulatory context*. For more than a decade organizations have been submerged by new and burdensome regulatory requirements. The adequacy to them has requested a cultural change so that organizations' business model are adaptive to legislative landscape modification.
- *New competitors*. The new digitalized context has completely broken down every kind of entry barriers. An example is given by Google that has enlarged its product portfolio, using digital technologies, service as *Google Wallet,* which let users purchase at thousands of online stores.
- *A strong pressure towards the sustainability and profitability.* The main mission of the enterprises is not only to build an exclusive competitive advantage, that renders the company different and distinguishable from the others, but also to be competitive thanks to sustainable investments for future, that generate a cash flow sufficient to ensure the costs coverage and create value.

Most reactive companies today are rushing headlong to become digital, in terms of achieve good results by changing completely the way of doing things (Edelman and Doner,

2015). To develop a new business idea it's pivotal to aspire to be:

- *Value creator at new frontier of the business world.* It means that being digital requires being open to re-examine the entire way of doing business and understanding where new frontiers value are. Sometimes, it implies to develop a new business in adjacent categories, some others it's about identifying and going after new value pools in existing sectors.
- *Value creator in the process that execute a vision of customer experiences*. This assumption links being digital with the customer role. It is necessary to be closely attuned to how customer decision journey are evolving in the broadest sense, in order to design and deliver the best possible experience, across all the parts of the business.
- *Builder of foundational capabilities that support the whole structure*. It is the crucial point of our analysis, because it entails a sustainable competitive advantage over the rivals. Foundational capabilities embrace both technological and organization processes, that allow an enterprise to be agile and fast. These are made up of two elements: mind-set and system and data architecture. On one side, mind-set is about using data to make better and faster decisions, devolving decision making to smaller teams, and developing much more iterative and rapid ways of doing things. On the other side, system and data architecture approach is embodied in a continuous-delivery model where cross-functional IT teams automate systems and optimize the inside and outside communication.
- *Relevant, authentic and networked.* Digital provides trust and radical transparency through massive data back-bones and open access.

The secret of success is developing a disruptive digital model that requires the simultaneously mastery of these four areas. Data confirm this assumption, highlighting how many of today's digital business winners outpace their market competition exponentially in revenue growth and overall profitability. As a result, organizations assets and designs evolve, forcing management to reconsider past choices and to undertake new strategic choices, competitive options and operative models.

2.2. Towards a model of disruptive innovation

Existing organizations have always to be prepared to take action for a continuous evolution, not only to thrive but also to survive in a world characterized by destabilizing changes and growing competition. A lot of environmental forces pull for a substantive need of revolution

that includes all the enterprise assets.

An innovation describes the process of translating an idea or an invention into a good or service that creates value for which customer will pay. To be called innovation, an idea must be replicable at an economical cost and must satisfy a specific need required. It involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all process by which new idea are generated and converted into useful products. It's important to remind that when we speak about organizational innovation we are referring to a new behaviour, in the whole sector, market or task environment, that needs a combination of the following elements to beget a revolution (Bacharach, 1982).

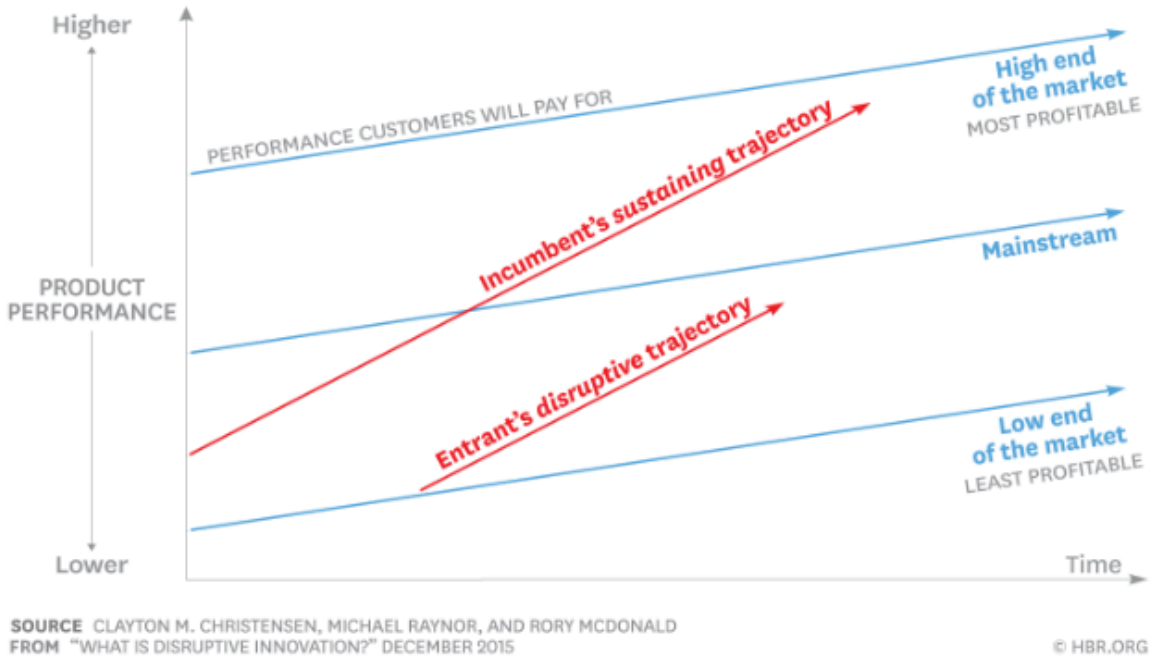
1. *Idea*. It concerns a new way of doing things that can come from an internal impulse or an external one. It relies on creativity, that means the new ideas generation which is crucial for the organizational changes. None of the enterprises can be competitive without it (Woodman et al, 1993).
2. *Need*. Ideas are not generically considered seriously until managers identify a detected necessity of change that occurs when, inside the organization, there is a gap between effective and desirable performances. A study about innovative capability suggests that are the most careful enterprises for market conditions and customers' need, that are also the most cutting-edge ones.
3. *Decision*. The decision to be adopted crop up when managers choose to carry on an already proposed idea. What's relevant with it is that the whole organization, from the most powerful characters to the simple employers, should be informed adequately to take advantage of that new idea.
4. *Implementation*. It is the real handling of the new idea, technique or behaviour. The importance of this stage is due to the fact that without it, all the efforts would be wasted. It is recognized as the most crucial point of the change process.
5. *Resources*. Obviously to undertake and to achieve the innovation route, we have to count on energies and human activity. Change does not happen alone: it needs time and resources, either to create or to realize a new idea.

We are used to think, from the traditional literature of Schumpeter (1942), that we can categorize an innovation in terms of its impact on the established capabilities of the firm, on its architecture, on its products or services and consequently on its performances (Henderson and Clark, 1990). We can classify firstly innovation either as incremental or radical, even if it

could result potentially misleading and not accounting of some relevant effects. Incremental innovation introduces relatively minor changes to the existing products, exploits the potential of the established design and often reinforces the dominance of established firms (Nelson and Winter 1982; Ettlie et al, 1984; Dewar and Dutton , 1986; Tushman and Anderson 1986).
Radical and incremental innovations have such different competitive consequences because they require quite different organizational capabilities. Although it draws from no dramatically new science, incremental innovation often calls for considerable skill and, over the time, it has very significant economic and competitive consequences, by solidly reinforcing the capabilities of established organizations. Incremental innovation refines and extends an established design, but improving and underlying core design concepts and links between them.
On the other hand, radical innovation is based on different set of engineering and scientific principles and often opens up whole new markets and potential applications (Dess and Beard, 1984; Ettlie et al, 1984; Dewar and Dutton, 1986). It often creates great difficulties for established firms (Cooper and Schendel,1976; Daft, 1982; Rothwell,1986; Tushman and Anderson,1986) and can be the basis for the successful entry of new firms or even the redefinition of an industry. It is more stimulating, thanks to an approach that forces all the employees to ask a new set of questions, to draw on new technical and commercial skills, and to employ new problem solving-methods. Inside the frame of competences, it settles a new dominant design and, hence, a new set of core design concepts embodied in components that are linked together in a new architecture. Unfortunately this kind of distinction has shown many limits, because it doesn't take into account the fact that today enterprises are full of different faces that render hard to classify innovation models with the previous ones.

A disruptive innovation describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. Specifically, when incumbents focus on improving their products and services for their most demanding and most profitable clients, they satisfy the needs of target segments, while ignoring the needs of the others. Entrants wanting to be disruptive begin by successfully targeting those overlooked segments, delivering more-suitable functionality, at a lower price. Incumbents, chasing higher profitability in more-demanding segments, tend not to respond vigorously, because they don't perceive disruptors as a real threat. The latters then move upmarket, delivering the performance that incumbents' mainstream customers require, while preserving the advantages that drove their early success. When mainstream customers start adopting the entrants' offerings in volume, disruption has occurred (Exhibit 2.1).

Exhibit 2.1 The Disruptive Innovation Model



The diagram contrasts product performance trajectories (the red lines showing how products or services improve over time) with customer demand trajectories (the blue lines showing customers' willingness to pay for a performance). As incumbent companies introduce higher-quality products or services (upper red line) to satisfy the high end of the market (where profitability is highest), they overshoot the needs of low-end customers and many mainstream customers. This leaves an opening for entrants to find footholds in the less-profitable segments that incumbents are neglecting. Entrants on a disruptive trajectory (lower red line) improve the performance of their offerings and move upmarket (where profitability is highest for them, too) and challenge the dominance of the incumbents (Christensen et al, 2015).

Disruption theory differentiates disruptive innovations from what are called "sustaining innovations." Those in fact, make good products better in the eyes of an incumbent's existing customers: the fifth blade in a razor, the clearer TV picture, better mobile phone reception. These improvements can be incremental advances or major breakthroughs, but they all enable firms to sell more products again to their most profitable targets. Disruptive innovations, on the other hand, are initially considered inferior by most of an incumbent's

customers. Instead, they wait until its quality raises enough to satisfy them. Once that's happened, they adopt the new product and happily accept its lower price. This is how disruption drives prices down in a market.

In general, innovation comes to the light as a small-scale experiment. Disrupters tend to focus on getting the business model, rather than merely the product. When they succeed, gaining mainstream customers, they first erode the incumbents' market share and then their profitability. This process can take time, and incumbents can get quite creative in the defence of their established franchises. This is why, complete substitution, if it comes at all, may take decades.

At the heart of the digital development, there is the enterprises' ability to play with virtually limitless set of possibilities in order to find ever better ways of doing things. Digital disrupters' focusing on their existing customers becomes the key of their success. By understanding how powerful could have been the impact of digital technology over customers, the cleverest enterprises have reinvented their architecture in order to sell new products with a series of new services related, day by day, bringing an absolute news in the market. They have been using digital to spread products or services that were historically only accessible to consumers with a lot of money or a lot of skills.

Nowadays becoming digital disrupting innovators doesn't seem to be an alternative given to the companies, but, at most, an unavoidable choice that has to be done if firms want to survive in revolutionary panoramas. Old models, in fact, has been revealing inadequate to surf the digital wave without incurring in large share losses, that could bring, in the end, to go out of the market. The only solution, is given by a deep understanding of this new phenomenon, that provides right instruments to remain solid in the business.

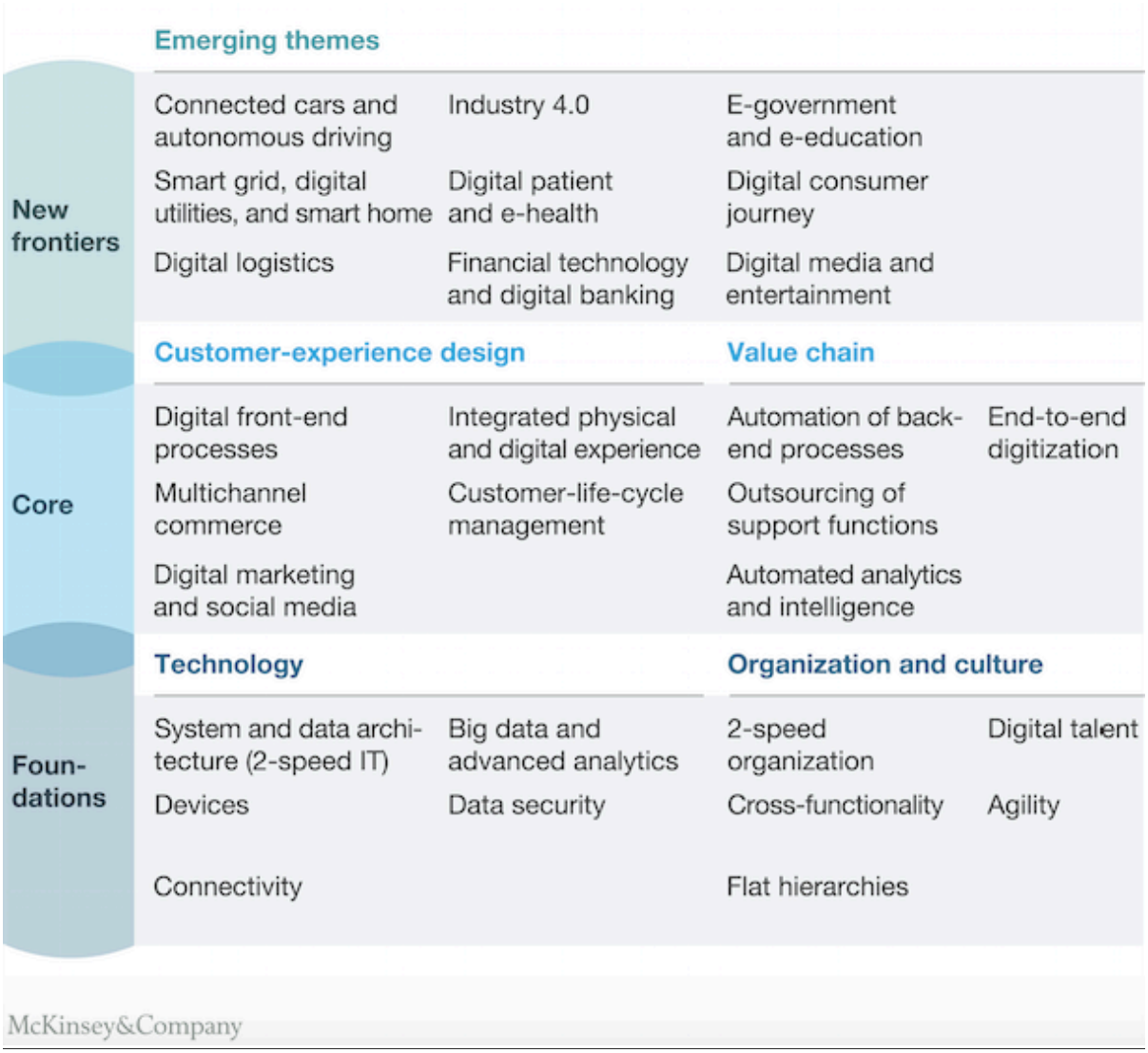
2.3. Environment evolution: new challenges for the enterprises.

Environmental evolution, due to digital impact, can't be overlooked. Every enterprise, from the most technological to the most traditional one, faces deep uncertainty in managing external environment events and often has to comply rapidly with new competitive challenges, unruly economic circumstances, customers' need shifts and avant-guard technologies.

Systematically working through the elements that change organizations and ranking them along the depth of their impacts, provide a clear picture of how landscape is changing and how organizations have to be re-managed and designed. Digital, in fact, affects core

businesses, opens new frontiers and requires foundational change (Exhibit 2.2).

Exhibit 2.2 New digital disrupted landscape



Source: K. Dorner and J.Meffert " *Nine questions to help get your digital transformation right",* McKinsey&Company,(Oct. 2015).

Leaders must understand where digital is having greatest impact. Digital affects core businesses, open new frontiers and requires foundational changes (Dorner and Meffert, 2015).

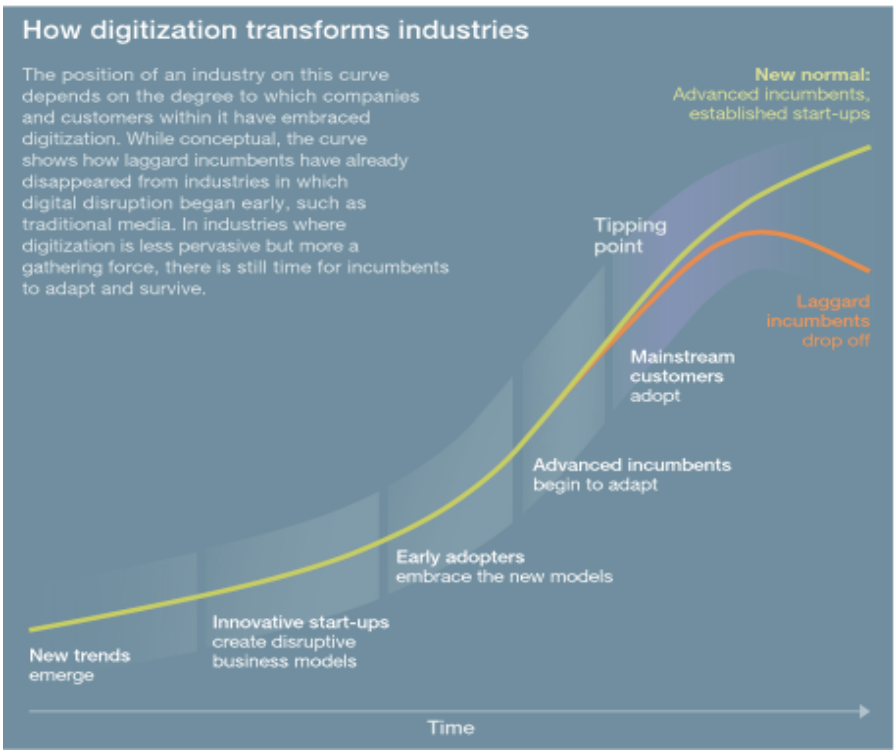
Trade once was largely confined to advanced economies, with large multinational companies exploiting business, but now things are changed, as a new form of digital globalization has opened the door either to developing countries, in particular to small companies and start-ups and to billions of individuals (Manyika et al, 2016). Tens of millions of small and midsize enterprises worldwide have turned themselves into exporters by joining e-commerce marketplaces such as Alibaba, Amazon, eBay, Flipkart, and Rakuten. Today approximately 12 percent of the global goods trade is conducted via international e-

commerce. As a result smallest enterprises can either be born global (86 percent of tech-based start-ups surveyed by MGI report some type of cross-border activity); large companies instead, can manage their international operations in a leaner and more efficient way.
Thanks to digital, goods, services, finance and people movement have reached unimagined levels, creating new degrees of connectedness among economies. The spread of Internet and digital technologies have transformed all types of flows and is creating new ones. Global online traffic across borders grew 18-fold between 2005 and 2012 and could even increase more by 2025 (Manyika et al, 2014).

Furthermore, with the digital disruption advent we are now assisting at a continuous background change that reveals a high level of uncertainty for the firm to face with. In fact a lot of elements, belonging to different sectors interfere with the organization, which changes frequently and reacts markedly to satisfy the all needs. The greater element of complexity and dynamism is identified in the fact that today the world is more connected than ever, but the nature of its connection has changed in fundamental ways. The amount of cross-border bandwidth that is used has grown 45 times larger since 2005. It is projected to increase by additional nine times over the next five years as flows of information, searches, communication, video, transactions, and intra-company traffic continue to surge. Customers' connectedness has changed their expectations and environmental complexity degree. They want to receive rapid solutions to their needs, having access anytime and anywhere. The enterprises must take it into account, as an organization in a certain environment will be managed and controlled differently from an organization in an uncertain environment with respect to positions and departments, organizational differentiation and integration, control processes, and future planning and forecasting. A survey of high- tech firms found that 97 percent of competitive failures resulted from lack of attention to market changes or the failure to act on vital information (Cook, 1999).

Digital disruption has also changed the rules of competition, increasingcompetitors' number in each sector (Exhibit 2.3). As a result, a lot of traditional enterprises are exposed to the risk of being left behind if immediate solutions are not adopted.

Exhibit 2.3 How digitalization transforms industries



Source:M.Hirt and P. Willmot, "Strategic principles for competing in the digital age", Mc-Kinsey Quarterly, (May-2014).

Information technologies threats come from the profound change of a strategic context, as all the businesses seem to be interconnected. In fact, Digitalization often lowers entry barriers and increases the possibility for new entrants to scale up the market rapidly, at lower costs (Hirt and P. Willmott, 2014).

A clear example is represented by the competition banks are facing, coming from different areas, even non- traditional. In particular the highest competitive pressure they suffer comes from FinTech. Financial technology (FinTech) is a line of business based on using software to provide financial services. Financial technology companies are generally startups founded with the purpose of disrupting incumbent financial systems and corporations that rely less on software. They are currently very active at trying to disrupt the financial services market. There is a huge funding boom happening in financial services, similar to the one that happened in the 2000s, when the Internet was starting to take off and there was a lot of money chasing a lot of different ideas. Fintechs today primarily sit across three segments of the financial services industry: payments, lending and personal finance. There are also many sub-segments within these. As a result, some banks believe that fintechs are competitors that will ultimately take a large share of the financial services. These banks feel that customers

might prefer the solutions provided by fintechs because they are able to move more rapidly than banks can at the moment. As a result, banks could lose the customer relationship on the Internet to the fintechs. In fact, although banks have completely rethought their traditional business and organization models in order to deliver products and services in the way that customers expected, many of new entrants, fintechs in particular, have showed themselves to be better in using customer information to improve services supplied.

However, in the medium term, customers will want to keep their accounts with a bank because trust is a very important issue to them. As a result, many fintechs will want to form partnerships with banks. The banks will have the advantage of greater efficiency and customer service and will therefore try to keep the best partnerships with the best fintechs. Nevertheless, some banks are doubtful about investigating too much in a digital partnership because in the future, the fintechs (with less investment) will be able to do a great job and will be faster and more customer-centric.

The organizations desire to be widely informed about customers' habits, this has brought companies to be collectors of a huge quantity of information. The Big Data analytics can surely represent an innovative improvement for business, but also a source of privacy risks. Streaming data demands ultra-fast response times from security and privacy problems, as customers are day-by-day perceiving big data riskiness. Certain industries, such as financial services and healthcare, often draw the most attention in the privacy discussion because of the relevance of personal information they preserve. Protecting sensitive information is, in fact, one of the most important actual objectives of governments and business share. Many industry associations such as the Payment Card Industry (PCI), the Healthcare Information Trust Alliance (HITRUST), Telecommunication Services Companies Privacy Regulation and many others have set their own standards to supplement existing laws and regulation. Even the company, privately, have implemented and developed privacy and data protection programs, for various reasons, as organizational policies are inadequate and customers are not well informed about personal data processing.

Understanding the economics and the environment of disruption is essential. Companies must evaluate the most effective ways to create value, trying to modify structures and strategies in order to identify opportunities and to respond to threats. Even if some industries have progressed in terms of digitization and some others have been barely affected happening at different speed, it's vital to understand that the organization fundamentals have changed. When companies pass through a period of great uncertainty, a real strategy occurs, based on understanding what are the actions needed to have success. Change enables success

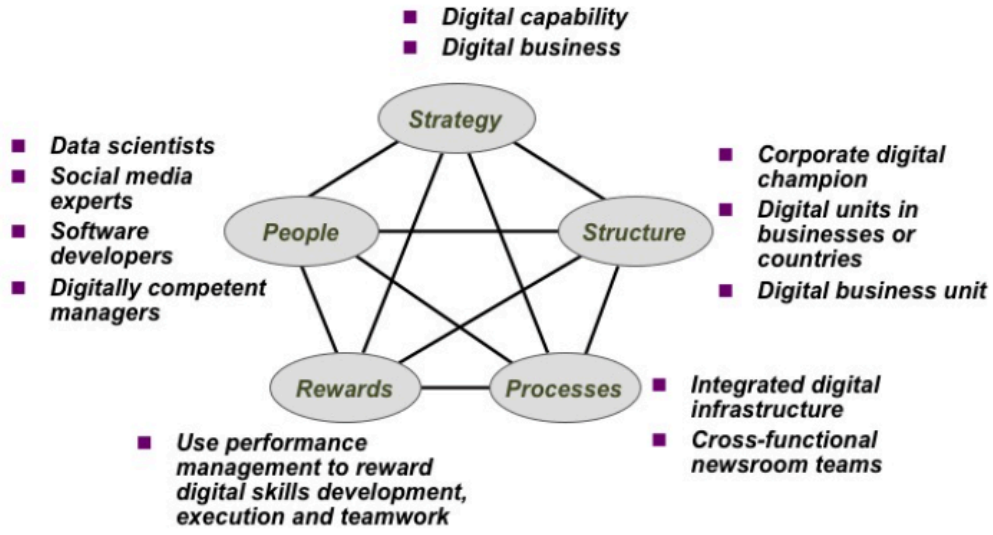
and inertia leads to failure. And moreover if organisational inertia is said to grow or accumulate over time (Hannan and Freeman, 1984; Huff and Thomas, 1992), especially when organisations have been successful for a long period and gained legitimacy in the past (Miller, 1994), an environmental cognition has to be translated into strategic action (Bourgeois and Eisenhardt, 1988).

2.4 How Digital revolution is changing organizations?

Digital disruption is affecting organizations in several ways. Concepts as Big Data, blooming networks, customers' empowerment and digital culture are making their way. As a result strategies, processes, systems, people and the way they are rewarded, are completely overturned.

The way in which the digitalization influences an organization can be represented by the Five Star Model (Kates and Galbraith, 2010) (Exhibit 2.4).

Exhibit 2.4 Five Star Model



Source: *Kates A, Galbraith JR. 2010. Designing Your Organization: Using the Star Model to Solve 5 Critical Design Challenges. Jossey-Bass, San Francisco, CA.*

Companies are using dual strategy for implementing analytics capability. The first is represented by the need to build digital capabilities able to make better and faster decisions and to improve existing products. Real-time decision-making in fact, is ensured by data scientists or analytics experts embedded into decision processes. The second one concerns the use of data and analytics to create insight and custom reports that can even be sold to customers, becoming new profit center (Digital business). The external digital environment puts pressure on important strategic choices, making companies choose between

maintenance, expansion or diversification.

Together with strategy, digitalization impacts structure, as a company has to modify its organization in order to take action. We can analyze structures modification according to a macro and micro perspective. In particular it is important to fix level of centralization and decentralization, together with level of integration and differentiation. According to the micro-structure, digitalization impacts employees' roles defining their clarity, prescriptivity and the possibility to give a personal contribution while working. Thus technology is establishing whether a structure should be rigid, flexible or variable according to different contingencies.

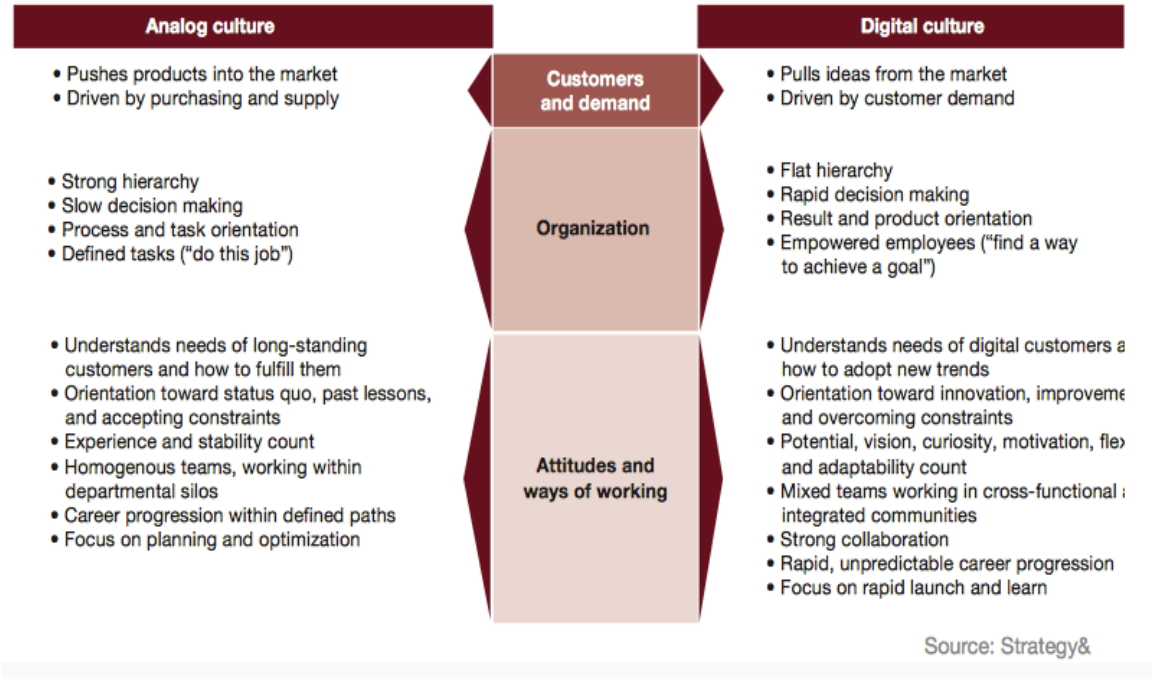
A company aspiring to take advantages from digitalization has to create information and decision process in order to support strategy and structure. Companies today need to be equipped with infrastructure to combine information stored in various database. In this way, the immediate availability of cross- functional information can help teams to make use of them for a faster insight and problem-solving, based from data coming from different perspectives.

Nevertheless, real time decisions should be taken by talent people, who are skilled in digital tools and work effectively in teams. A lot of companies have shifted hiring and training processes, looking for digitally skilled and social media experts, software developers and managers confortable with quantitative decision practice.

Finally, according to the new reward systems, big data enables the use of performance management. Thereby managers and employees are rewarded according to digital skills development, execution and teamwork criteria.

Many companies are adopting a digital culture, which infuses, not only tolerates, digital values. The new digital culture is permeating customers and demand, the whole organization, attitudes and way of working. (Exhibit 2.5)

Exhibit 2.5 Features of Analog vs. Digital culture



Source: *Harshak et al, Strategy&, April 2013.*

In particular, the next sub-paragraphs run through again key concepts highlighted in the previous exhibit.

2.4.1. Changes in organization-customers interactions

2.4.1.1 The customers' empowerment as a source for a sustainable competitive advantage

One of the biggest challenges companies face with is the customers' empowerment. Customers' role, lately, has been completely reconsidered, since it is no longer labelled as passive. Thus, organizations are forced to interact with individuals quickly, openly and continuously, in order to understand how to best meet their expectations. Customers are now driving the need for different services and goods and are increasingly using social networks to gain recommendations from friends and peers. The various kind of digital devices and platforms available have been exploding and consequently changing consumption habits. In addition, they are starting to be aware about what they purchase, carrying out more research on their own. All these elements have brought companies to change their customers approach, now based on personal relationships and digital interactions.

The customers' empowerment has impacted the organizations highlighting the need of omni-channel approach, making use of several integrated tools that seek to provide

customers a seamless shopping experience. Omni-channel, by incrementing companies touch points, has also allowed making the most of the huge quantity of data available, thanks to which organizations can be more precise in reaching and satisfying their demand. A deep understanding of how customers make decisions, allows digital leaders to tailor their approaches, making purchases a real unique experience (Desmet et al, 2015).

Furthermore customers' empowerment has brought companies to *actively shape decision journey*. The latter involves shoppers in taking advantage of technology for the evaluation of product and service more critically, adding and removing choices over time.
Companies, today, have a set of digital technologies that can be used to design and optimize decision journey. They, in fact, have been investing a lot in new technologies and digital capabilities, in order to deliver value both to consumers and company and to build a competitive advantage. A recent survey from the Association of National Advertisers found out, in fact, that top performers understanding of the customer journey is a useful way for capturing insights and feeding them back into the products they deliver, improving performances of the 30% (Edelman and Singer, 2015). As a result these companies are rewarded satisfactorily, becoming successful leaders in the business.
Customers today can use digitalization to create their own products thanks to the organizations' open innovation and co-creation. In particular open-innovation (Chesbrough, 2006) is a paradigm, which affirms that if companies want to progress in technological competences having access to the markets, through internal and external paths, they can to rely on both internal and external ideas. Organizations are opening the door to the development of new business strategies as co-creation, which allows and encourages a more active involvement from the customer to create value rich experience. The role of digitalization is that it increases the level of shared information and people connectedness, creating communities and platforms where they can share their personal ideas and conceptually develop new products. An example of these successful strategies is represented by Lego Minstorms, which became the most popular Lego line, being originally developed in collaboration with MIT engineers and then improved by the work of more of 1000 people on line and by customers' feedback.

In addition, the deliver of extremely rapid and satisfactory experiences to clients unavoidably depends on organizational process automation, reached by automating end-to-end processes (Berger, 2015). Indeed, the digitization is considered not only as an occasion for cost reduction which directly benefits the whole organization, but also as a source for differentiating themselves from competitors, making the customer experiences as diversified

as possible. IT should operate at two speeds, building a system able to provide quick customer-facing capabilities. New digital services (apps or database) can be added as independent, without involving systems that run their-selves the rest of the business. They support agile development of customer-facing programs, while evolving core systems designed for stability and high-quality data management more slowly.

Organizations have to create deeply expert IT teams, whose goals are to fuel a nimble infrastructure that can support instant cross-channel deployment and real-time decision-making (Desmet et al, 2015). An example is given in banking, by the creation of a team, which after prototyping an account-registration process, tested it with real customers in a real environment. The team, thanks to meticulous analysis, was able to make constant refining until process steps were cut from 15 to 5 (Advedillo et al, 2015). In the same direction, new DevOps and continuous delivery (automation of testing, deployment and infrastructure processes) have introduced capabilities that increase speed to market and lower costs. In particular DevOps, the integration of technical development and operations, *is an enterprise software development phrase used to mean a type of agile relationship between Development and IT Operations.* It comes from the collision of the agile system of administration and the agile operations, which strive for applying agile and lean approaches to the operations work aided by digital, by advocating better communication and collaboration between the two business units.

2.4.1.2 Seizing new opportunities: Big Data approach as a strategy to better know customers' need.

In the recent years, digitalization has quickened information collection by the enterprises, which have to manage a huge amount of heterogeneous and continuously updated Data. Firms and other organizations, lately, have been using large databases and analytics. What is changed today is that Data are unstructured, coming from various sources, and are accessible in real time. In order to extract insight, transactions are stored into data warehouses and analyzed with data-mining systems.

Customers being always connected leave consciously and unconsciously traces of their actions. Companies that make use of customer analytics see a 126 percent profit improvement over competitors (Burton et al, 2014). But the only way to have that substantial return comes from organizations decision about which data to use, from the analytics focus on delivering goals and useful insights and from developing right capabilities and processes

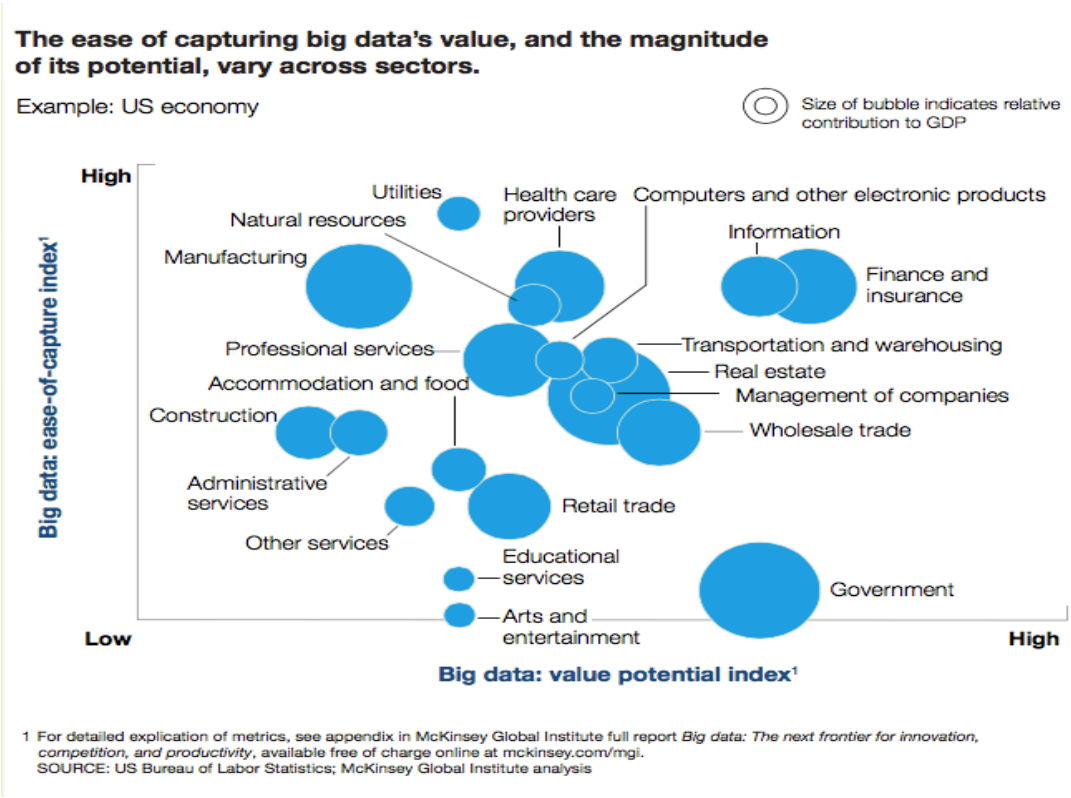
to treat them.

Big Data can be defined as *the enormous amount of generated information in row or unorganized forms (e.g. alphabet, numbers or symbols) that represent ideas, conditions or objects*. Organizations starting from them, using some instruments, are able to extract information they need. They are at the hearth of the data science, which makes companies address their choices on the base of evidence, creating transparency, improving performances, targeting clients, delivering tailored experiences, supporting decisions and innovating products.

Big Data impacts companies' strategies and structure, as a company has to modify its organization in order to take action. Firstly, it is required a champion for data and analytics, on the leadership team. The digital leader, which could be a Chief digital officer, a CIO or a digital division head, has to consider data as a strategic asset, in which company has to invest for the future growth and success. In addition, to support each business unit, customer segment and country, a digital unit will be needed, which will report to their respective profit center heads and CDO. These structural changes provoke power shifts from experienced and judgmental units to digital ones, implying also consequences for faster decision making. In the end, there will be a digital business unit that will earn revenue, becoming the real profit center and constituting a new dimension of organizational structure, like functions, businesses, customer segments and geographic area.

The opportunity to build a competitive advantage from data analytics is real, and top-performing companies see themselves as more effective in every aspect of analytics, including capturing, collecting and storing data, as well as parsing and drawing insights from it. Some industries are more suitable for structures and business models redesign, starting from data insight. Some others instead seem to be far from a real perception of business data benefits, but opportunities exist in almost every industry (Wegner and Sinha, 2013) (Exhibit 2.6). There are different methods to use Big Data, as those realized by Amazon or Netflix, which according to clients' interests suggests buying some items; or those realized by credit card producers, which thanks to unusual linkages are able to valuate people financial riskiness.

Exhibit 2.6 Big data impacts on different sectors



Source: *McKinsey, 2011*

Leaders industries in valuing Big Data are surely represented by financial services, technology and healthcare, which are able to detect the environment and customers' attitude to render their actions extremely effective.

Recently the progress of using Big Data in Healthcare seems to be vital and forces companies to be involved in. In fact, pharmaceutical companies have been aggregating years of research and development data into medical databases, while providers have digitized their patient records. Meanwhile, US public institutions have been opening their stores of healthcare knowledge, including data from clinical trials and from patients under public insurances programs. In addition digital technologies advances have offered the possibility to store data coming from multiple sources, but always referred to a determined patient. In the last few years there has been a move toward evidence-based medicine, which involves systematically reviewing clinical data, making treatment decisions based on the best available information but always considering the expert's judgement. Aggregating individual data sets into big-data algorithms often provides the most robust evidence, since shades in subpopulations may be so rare that they are not readily apparent in small people samples.

On the other side, in the financial services field, there is a wealth of data that banks can gain about their customers, based on what they're buying and how they're paying for it. Banks can use this to target additional offers, make smarter recommendations and even give their

customers better advice (for instance, they can offer a home equity loan as a method of payment instead of using a credit card, as this can give them a tax advantage). So, data is becoming a new key asset that financial institutions can use to gain new insights and to make smarter recommendations to their customers. The information available includes a combination of both data outside the bank and data inside the bank. Ultimately, the key to success could lie in the amount of data that a bank can gather, translate into customer insights and use wisely. Data needs to be used carefully, in combination with whatever activities the customer is involved in at the moment. If it's used correctly, it can provide relevant outcomes.

2.4.2. Changes in organization design choices: strategy, structure, processes.

The advent of digital disruption has drastically increased the pace of change. Companies have to deeply rethink their "Entrepreneurial Formula" (Coda, 1984), reconsidering their strategy, structure and processes, to meet mutable customers' expectations and acquire/defend their own market share.

In this context, new responses are required to ensure a future prosperity to the enterprises. Traditional approaches are not effective anymore and the management has to find new solutions. In particular:

- Organization boundaries are re-evaluated, transforming competitors into partners that provide important contributions to develop a unique offering.
- Formal structures are reconsidered and new dedicated teams, loosely coupled to the rest of the organization, set-up to foster innovation
- Standard processes are completely revamped, leveraging self-service options, with clients that autonomously perform activities typically managed internally, or outsourced to third parties
- Long term coordination mechanism redesigned to meet the change speed.

As a consequence, the management has to rethink many of the organizational variables, impacted by the digital disruption coming from the outside, starting a digital transformation journey on the inside.

2.4.2.1 New ecosystems and blooming networks development

One of the way in which enterprises answer to the environmental changes due to digital revolution is the building of digital ecosystems and networks. Both are built on inter-organizations relationships such as appointing preferred suppliers, establishing agreements, business partnering, joint ventures or even M&A. They are often enduring resource transactions, flows and linkages that occur among two or more organizations (Oliver, 1990).
Organization Ecosystems are proposed by James Moore (1993), who considers them as *" An economic community supported by a foundation of interacting organizations and individuals--the organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organizations also include suppliers, lead producers, competitors, and other stakeholders. Over time, they co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments and to find mutually supportive roles."*
Few years ago coordination across functions and product lines was unsatisfactory, implying an effective and efficiency loosing in many processes. The key problem with the lines and boxes of formal organization charts was that they hide a series of relationships cutting across functions, hierarchies and business units.
Many industries today are embedded into confusing relationships deriving from blooming networks. Their convenience resides in the possibility of a coevolution between all the partners, getting stronger market positions and lowering the intense competitiveness of the environment. The number of corporate alliances has been increasing at a rate of 25 percent a year and many of those used to be competitors (Hughes and Weiss, 2007; Muson, 2002). Within ecosystems managers learn to move beyond traditional responsibilities, catching the opportunities to evolve thanks to evolving external relationships (Ghosal and Bartlett, 1995). The cut of the top down approach is bolstered by a horizontal view which not only breaks units borders, but even organizational ones, considering suppliers and customers part of a unique team. Today, the way of managing thanks to collaborative roles is becoming an important key for success. In fact, organizations have to demonstrate great ability in maintaining the right balance and control of the entire ecosystem, ensured by a solid business plan or strategy. Ecosystems are a way to cope with organization resource dependency,

increasing value and productivity for all.

The creation of office-free village, speeded up by the use of IT, promotes collaboration and innovation, even without requiring the need of a physical space. In addition a network approach helps an enterprise to make change trough different employees experiences, to focus on points where network should be expanded or reduced and to measure how effectiveness of new ventures and innovations have impact on the creation of value. Network analysis reveals that employees being always connected to partners with in-depth knowledge, could find answers to questions and problems more quickly than a collaboration within organization borders. Boosting network connectivity reduces the numbers of steps required for any workers to get in touch with colleagues. As a result a lot of outsourcing and IT-consulting firms have known an incredible global growth, breaking through the silos that obstruct collaboration.

As companies recognize that every business today is becoming digital, they can change together, collaborating to shape experiences and outcomes, creating the new "We Economy". Companies in fact, are using connections to offer new services, entering new markets trough digital ecosystems. Ecosystem development is an opportunity that may have potential results on global scale, realizing ambitions that transcendent a single organization or industry and driving the growth. Accenture, in its Accenture Technology Vision for Banking 2015, found that 35 percent of respondents are already using partner APIs (Application Programming Interface) to integrate data and collaborate with business partners, while 38 percent plan to do so. Building ecosystems with digital platforms, doesn't only involve large tech companies; in fact, most of traditional enterprises uses digital partnership to integrate their data exigencies. Philips, for example, is teaming up with Salesforce to build a platform that will reshape and optimize the way healthcare is delivered.

Some other companies instead opt for building digital ecosystems not only to improve their core competencies, but also to develop new ones, interconnected and extremely profitable.

For instance, Intesa San Paolo has delivered an opportunity for the development of non-financial services via digital commerce, creating a digital ecosystem (Exhibit 2.4). The growth strategy is developed on two key streams, which are: *Digital Banking*, innovating in their core business and *Digital Commerce*, developing non-banking business. The key point is that they want to be partner of their Best Business Customers to support them in accessing digital and international markets. The relevance of the bank role is being at the centre of an ecosystem where digital is the key enabler between enterprises and consumers.

Exhibit 2.4 Intesa San Paolo new ecosystem.

Source: *Intesa San Paolo, distribution summit 2015*.

The launch of the initiative was supported by:

- Consumers. ISP has more than 10 millions customers (including 4.5 million online), targeted and clustered on the basis of purchasing habits.
- SMEs. Customers aiming at broadening their national and international market with digital commerce, looking for logistic and back-up services. Among these SMEs there are the "Italian Excellences", perfect target for ISP initiative.
- ISP connectedness. They had the possibility to exploit their expertise, knowledge, connections and links with Italian SMEs, based on a network of more than 4.000 branches in Italy and more than 90.000 expert employees.

The result was the creation of a portal "Created in Italia", which is a food, fashion, design, hospitality and restaurants e-commerce portal, that is aimed at giving visibility to "Made in Italy" excellent SMEs, by providing tools to create value from digital channels and to access international marketplaces.

2.4.2.2. New characteristics of organization design. Options and Examples

Progress of digitalization is increasingly changing relationship between technology, design and functioning. The digital disruption impact had specific implication for the organization design, that can be translated into smaller organizations, decentralized structures, improved internal and external coordination, new network organizations and so on.

Criteria and key variables of organization design are moulded according to the different weigh linked to contextual and structural dimensions. The significant impact having the environment on the organization design has forced companies to establish digital

strategies, which make use of digital tools to reach their objectives. Digital technologies are easing the manage of labours' division in the productivity processes and are changing companies size, building a series of partnerships to manage assets as people or raw materials and to better reach customers' satisfaction. The level of specialization is sensibly decreasing, making uses of high skilled employees, whose capabilities are cross-functional, performing a series of tasks. Hierarchy of authority is cut, being substituted by reinforced and privileged horizontal linkages; as a result decision-making process is not kept at the top level but is decentralized, scattered among different levels. Formalization is going to disappear relying on more flexible methods that don't need written documentation to rule an organization.

Macrostructure design reveals a prevalence of lean and horizontal models, often organized according to project or products exigencies. Business units are becoming everyday more flexible, without well defined borders, lured to cooperate thanks to the use of digital technologies and cross functional teams. Microstructure design instead makes large use of employees with defined skills, relying on digital to improve training methods and job assignment effectiveness. All the workers, not having a strict job assignment, are stimulated to cooperate in order to promote a faster problem solving.

As regards coordination mechanisms, traditional ways don't work anymore, since they concern relationships planning within the organization. Nowadays to follow environmental changes, organizations use initiatives recurring to the mutual adjustment in order to give back to the environment extremely rapid feedbacks.

Traditional businesses today works with few employees thanks to ERP and other IT systems, that enable to automatically handle many administrative and pragmatic duties within the organizations, lowering the need of additional staff and reducing organizations size. The employee can manage data with the only help of mobile devices and laptops, using road construction management software tied to computers at headquarters and sharing solutions with the use of Internet. Furthermore digitalization has deleted a lot of positions that once were considered vital, since customers can reach enterprises in different ways that not involve physical interactions. For example financial services organizations, thanks to the automation of a lot of operations that once were brought about in branches, have reduced consistently their dimensions, developing systems, which foster digital interactions. According to a 2010 Tower Groups study the costs of handling a customer transaction varies widely by channel, from as much as $3.75 for a call agent interaction and $1.34 for a branch transaction down to as low as $.60 for an ATM transaction and $.14 for a mobile transaction.

Based on just these numbers, it would seem prudent and efficient to move as many customers as possible to automated or digital channels and away from branches and call center.
Internet-based businesses instead, exist almost exclusively in the cyberspace, without any formal organizations in terms of building with offices and visible tools. They work thank to few people managing website from home or rented work space.

The use of digital software and systems, together with the new customer-centricity enabled by always connected tools, represents an occasion to redesign the organization. Organizational redesign involves the integration of structure, processes and people in order to support the implementation of strategy, going beyond the traditional tinkering of *lines and boxes*. Thus the company's structure, processes and people match with the strategy and support objectives achieving

Digitalization has substantially reinforced the late organization trends of decentralizing organization structures and authority. The new organizations designs present themselves extremely lean, agile and increasingly collaborative, focused to rapidly serve customer needs. This effect is increased by the use of digital tools that break down silos and facilitate value sharing among all the organization parties. The Internet of things (Ashton, 1999), a neologism referred to extension of Internet to the objects and concrete places, gives an important power to the enterprises that consist in real-time information sharing throughout organization, even overcoming great geographical distances. In that way managers have the possibility to quicken decision making processes, having in their office information they need. This kind of technologies, enabling people meeting, coordinating and collaborating online, foster communication and decision making among groups of people, which are representative of virtual teams. As a result tasks that used to be performed in a physical office or space, are easily carried out with the use of digital tools, promoting a more efficient management of time.

One of the greatest outcomes of digital disruption is a prevailing horizontal dimension, enhanced by a mutual interdepartmental coordination and by communication improvement within a firm, which causes the decentralization of structures and authority. New digital mobile devices connect people scattered around the world. A lot of multinational leaders, as Livanova PLC leader in healthcare products delivering, make digital instruments available to their employees in order to facilitate information flows. Using for example, teams' conference calls they can communicate in real time, arrange meetings and find solutions together. Or for instance, Accenture People online tool is a leading-edge environment that makes it easy for employees to interact and share skills, interests and

activities across Accenture's global corporate network, meshing the best of business networking and social networking capabilities (2012).

As already highlighted in paragraph 2.4.2.1, digital has disrupted inter-organizational relationships, since there was a strong boost even in the horizontal coordination with external parties, as suppliers, customers and partners. Today suppliers are becoming closer organization partners, allowing companies to recover efficiency and reduce wasted time, using electronic tools for orders, invoices and payments. Studies have shown that inter organizational information networks tend to increment integration, blur organizational boundaries and create shared strategic contingencies among firms (O'Mahony and Barley, 1999). Today the most common system that allows inter-organizational information sharing is EDI (Electronic Data Interchange). By moving from a paper-based exchange of business document to one that is electronic, business enjoy major benefits such as reduced cost, increased processing speed, reduced errors and improved relationships with business partners.

Meanwhile digitalization enables to reach the high level of inter-organizational collaboration needed in a network. In fact outsourcing has become an increasing trend, thanks to computer advanced technologies, giving birth to virtual linkages that can tie companies together into a seamless information flow. The advantage of the outsourcing is that a company, that want to keep costs low but expand activities or market presence, can rely on various functions that are performed outward with speed and ease. For example IBM, the technology giant based in Armonk, New York, maintains a reputation as a global entity that specializes in technology outsourcing service. IBM started touting "Next-Generation BPO" in 2010 and the company gives customers every available resource to make an informed decision on whether to outsource its technology needs. (Trust us, this is a smart play) Key figures from IBM include supply chain savings anywhere from $3 to 5 billion each year and over $500 million in productivity improvement. Or, Wipro Technologies specializes "Total Outsourcing" which has targets geared towards achieving specific IT objectives. Wipro can provide IT infrastructure solutions that seamlessly align with the organizational processes and practices of any business. They are one of the world's top technology vendors and are widely considered the outsourcing partner of choice for IT-specific infrastructures.

Furthermore over the past years, many companies have tried to digitize the front ends of their businesses, to create smooth customers interactions (apps or websites), with the help of shared-service organizations (Chandok et al, 2016). These groups manage and deliver technical and administrative support in common units as finance, human resources and IT.

Thanks to the automation, virtualization and digitalization of operations, shared-service organizations streamline processes, helping companies in a more effective decision-making process and customer interaction. In particular *"Shared services" is a term defining an operational philosophy that involves centralizing those administrative functions of a company that were once performed in separate divisions or locations*. In this digital environment the shared-service organizations and IT groups can partner with business units to determine how to automate or transform end-to-end processes. In a world in which most customers rely on different digital channels to interact with companies in the fastest way, shared-service organizations have an essential position in offering a quick and efficient delivery of software and services. As a result, shared-service organizations affect companies with:

- *Changes to process and workflow.* Shared-service groups working with IT and the business, decide which are the areas requiring automation and digitalization. After categorizing activities according to automation needs, managers take the decisions about technological investments, architecture and operational changes accordingly. Shared- service groups may want to use information to measure performance metrics, giving guidelines on how to manage resources in a better way.
- *Changes to talent development.* Shared-service groups can redefine the core competencies required to support increasingly digital business. Some of them may need to hire, train and retain employees differently under this model.
- *Changes to operating model.* Shared service organizations should invest in building capabilities that will allow for continual-business model renewal, so that as soon as a new technology emerges, the shared service group can adopt it and ensure consistency of operations across business units.

In the end, digital disruption, revolutionizing the organization scenario, has moved on to adapt and reform structures to take advantages of the digital environment. According to numerous studies new advanced digital technologies will have an increasing impact on the organization design, to the point that will be substitute traditional hierarchy as a coordination and control primary mean.

It seems clear that the analysed phenomenon doesn't only involve the isolated IT theme, but enlarges its area of influence in the whole organization environment. In fact, digital enablers are converging to create an environment of connectedness, linking people, processes, data, and things in new ways. Disrupting an organization does not mean discarding what has made it successful or applying new digital tactics. Rather, it involves

challenging the assumptions that have underpinned that success, and stress-testing the ways in which it delivers value to customers. It means changing the organization itself, including its operations, culture, revenue model, and more in fundamental ways, and perpetually connecting new reliable digital strategies with extremely renovated organization designs (Bradley et al, 2015).

2.4.3 Changes in attitudes, values, way of working

*People and culture lie at the heart of organizational performance and typically drive both success and failure (*Deloitte, 2015).

A company's culture gives an organization its personality and shapes both its internal processes and the way it is seen by the outside world. It is an intangible asset that requires precise targeting of new key behaviours when it occurs. Digitalization has forced organization to invest in new technologies in order to renovate work processes and to develop new skills.

Organizations have become customer-centric, extremely focused on customer experience and expectations. Clients' centricity has brought companies to be *attentive and pragmatic*, trying to deeply understand customers' prospects and anticipating them (Dorner and Meffert, 2015). This requires a change in mindset and practices, including new social interactions, maintaining live interaction through diversified channels and developing concept spaces where companies can study customers' habits and behaviours. In addition enterprises have to be ready and creative, maintaining leading-edge technology. The ability to capture the full potential of new technologies starts with an agile IT organization and cross-functional teams, studying customer desires. Ideas should come from market inputs, left by customers' data that once picked, can help companies in developing new solutions or products.

Today, organizations are showing a broad openness to innovations. Digital teams, with a mix of IT and other internal or external know-how, often produce concrete innovations ready for client use. The mixture of specific functional capabilities linked with IT ones, seeks to create solution for building agile organization that merges client needs with fast solution delivery. The new culture stimulates the creation of processes and teams that integrate, various functions across the business and developing incentives for sharing. Participation is enabled by new agile IT platforms that help the proliferation of new initiatives within organization borders, empowering employee for a decentralized decision-making process. As a result flexibility becomes the dominant gene of the organization, in which goal achieving is more simplified.

Perhaps the most important, as well as the most difficult, change ahead for traditional companies is the mindset one. The way in which the new digital culture is impacting attitudes and working habits strongly depends by the new customer centricity. Therefore employees are focusing on providing clear and action oriented contents, ready to satisfy clients' demand. In modern companies, training and communication involve everyone, including departments, which are not directly impacted by digital. Leaders are developing the new "*test and learn*" approach, which works on a concept and keeps it testing with customers. Thanks to that iterative process they avoid to use a deterministic approach in delivering what market wants, trying until they get the right solution. For example, banks use a *test and learn* approach, with some asking employees to practice mobile Internet at work, to fully comprehend digital products and what is happening in digital. Furthermore, in order to solve business problems and operate productively, organizations need to spread knowledge across the organizational units using online integrated and intuitive collaboration tools, that enhance employees' ability to work together in teams. An organization, though, needs to perfectly integrate culture with the new communication tools, in order to exploit the maximum potential of being always connected. In the end, new digital culture provides mechanisms to challenge ideas, taking advantages of workforce curiosity and motivation, led by innovation and risk taking.

An example of pervasive digital culture is given by Google, from which a lot of companies learn. Even if it is a digital native company, its culture has continuously developed in the course of time. Today at Google they think themselves as a data-driven company, using analytics as a key for rendering decision making really successful. Being always inspired by the agile organizations, they have undergone substantial changes over the last 10 or 15 years that have brought them to be completely different than when they started. Building the company on the work of leaders and of employees, together with technology, they have been succeeding thanks to the test and learn approach, making the most of failures (McKinsey&Company, 2015).

2.4.4 Changes in Human Resource Management: new required skills and new functions

Digital disruption, bringing new market expectations has pushed into a revolution of organization designs, business practice, customers' interactions and habits, and employee behaviours. Organizations in particular are built around the work of management and employees, which continuously seek for new projects and innovations to succeed into complex environment. Digital age has affected Human Resource management in several

ways, creating new sectors as Electronic HR or Digital HR. Today, in fact, it is imperative to train a human resource base, which has to be capable to handle large amounts of information and subsequently transfer the same information, after processing and repackaging them, efficiently, rapidly and effectively (Sharma and Shukla, 2013).

Nowadays many employees are expected to be confortable with technologies, such as mobile devices that support the everyday work. Since the majority of basic tasks are automated, workers in order to obtain higher value roles have to demonstrate distinctive skills in field as data collection, analysis and problem solving. They have to be capable of using synergies between digital, negotiation and business acumen skills (Laurenceau and Sloman, 2015). As a result work passes from something that is physical to something that is about information, creation and exploitation.

Thereby digital age sets up a kind of work pivoted on collaboration and sharing capabilities that has to be integrated with the use of technologies. Under this perspective a crucial point becomes to select employees joining digital teams, who have to bring varied points of view, earned from experiences, to be confortable with uncertainty and who can act with agility (Hewitt, 2013).

Enterprises and workforces able to seize the opportunities offered by digital advances are likely to gain significantly. In fact, traditional employment models seems not to apply as winners company are those who understand the new capability they will need to operate in the digital world, now and into the future along a defined roadmap.

Even managers and leaders are required to develop new skills. In fact, during periods of high changes managers undergo intense pressure, as they have to understand how to navigate some forms of organization changes. Leaders, today, use digital as a helper tool for their goal achieving, not forgetting to stay human (McFarland, 2015). Technology advances, indeed, are giving the right instruments to employees and managers to contribute tohigh-impact talent processes—including recruiting, hiring, succession planning, learning and shaping career paths. All this happens thanks to an emerging class of social and market-based tools that let employees manage almost every aspect of their professional lives digitally.

Digital has infused every aspect of the talent management and work, transforming how HR operates and serves business. The way in which it disrupts HR can be gathered in three key points (Good et al, 2015).

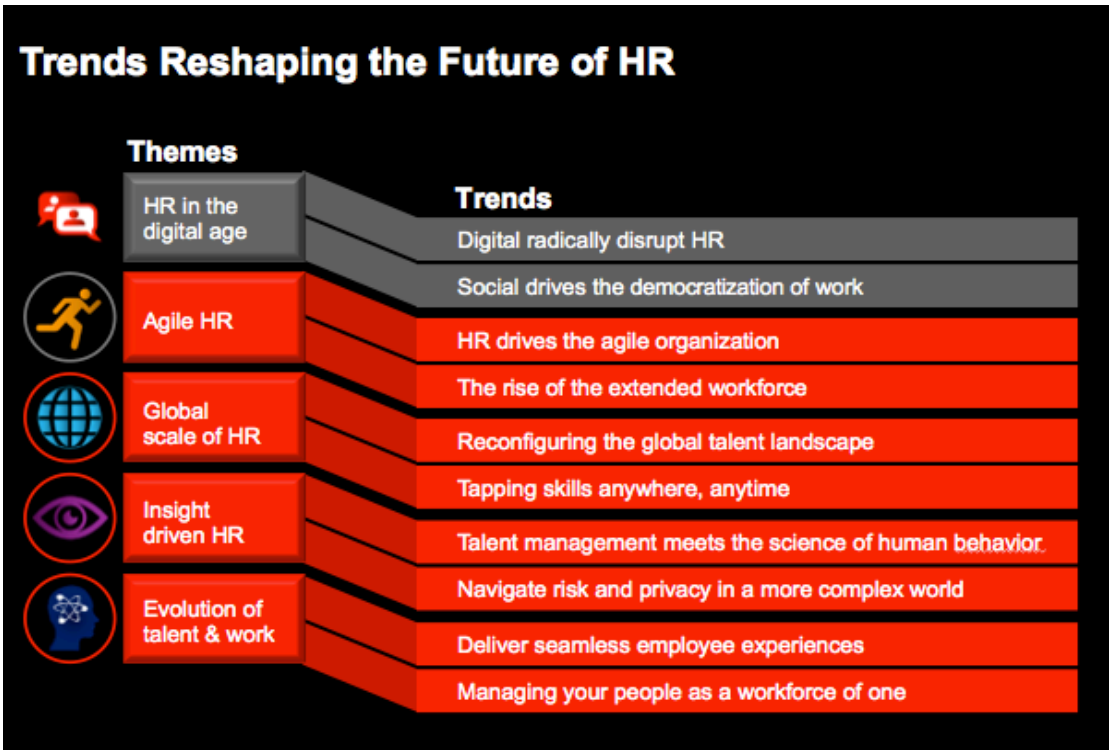
- *Structure and size of HR functions.* The HR function may be smaller in size, as digital enables transactional processes more efficiently and employees adopt consumer-like applications to handle HR processes. HR may become more project-oriented and

focused in improving organizational effectiveness. In the end new flat and interconnected organizational structures may arise to help HR professionals in collaborating closely with the business and other functions as IT.

- *Core activities of the HR functions.* HR may change the way it operates, starting acting like a marketing organization. In fact, it may analyse employee data to: extract its insights; educate employee about talent and HR processes; or create customized talent offerings. In a lot of leaders companies HR analytics groups have been established, whose task is to analyse data in order to determine drivers of workforce performance. HR professional, in addition, may take on more of a coaching role, increasing level of responsibility, aiding to design culture, incentive, educational and training programs to support employees as they engage in IT-enable talent processes.
- *HR new competencies & skills*. The role of HR information management and technology professionals could change. In fact, instead of implementing internal applications, information technologists specializing in HR and talent management may be more involved with evaluating external applications and building interfaces between them and an organization's own data and systems. In addition, new roles associated with constantly evaluating new cloud-based software and the impact the software may have on the business, may arise. And as software becomes increasingly user-friendly and intuitive, HR professionals may configure packaged software instead of IT experts. Eventually, software and the manipulation of data may become so user-friendly that employees themselves may even be able to manage their own data, with only limited involvement from the IT or HR function.

  The new HR is characterized by a series of competences and skills, which arises from the customers' disruption. Employees and executives, whose competencies have to be cross-functional, are invested of helping not only companies transformation for the digital age, overseeing the transition of operations, sales and marketing, systems, and production. They have the dual task of developing both an all-inclusive digital experience for customers and the internal capabilities needed to support that effort (Friedrich et al, 2015). Talent management landscape is completely overturned, passing to a global scale, tapping skills anytime and anywhere. This evolution of talent and work aims to deliver seamless experiences to the employees, who consequently have to manage customers' satisfaction (Exhibit 2.5).

Exhibit 2.5 Trends Reshaping the Future of HR



Source: *Digital HR Future, Accenture 2015.*

In conclusion, digital is disrupting the everyday aspect of working life, empowering employee and manager to take more responsibility for talent management activity. The latter better serves the business, because it is tailored to an organization changing needs and to the employees changing conditions of work. Talent management, in addition, is becoming more integrated with the organization business data. The locus of information and decision-making is shifting to the employees, away from a central group like HR or a small group of top leaders. As a result digital is knocking down silos and blurring lines, between HR and other functions, consumers and enterprise applications, and between layers of the organization hierarchy.

3 ING BANK CASE STUDY

ING BANK case study describes an organization that has showed unique ability in recognizing future market trends, moving towards innovative strategies and designs, making use of opportunity given by digital technologies. The choice of ING fits in the will to highlight what are organizational changes occurred in the new digital panorama. The analysis is based on primary data, coming from the interview to Giuseppe Marazzotta (ING Digital Transformation Manager, Davide De Silvestri (Digital Channels Analytics Supervisor and Stefania Contu (Operational control manager), whose track is attached at the end of the chapter, and on secondary data, coming from documents available online.

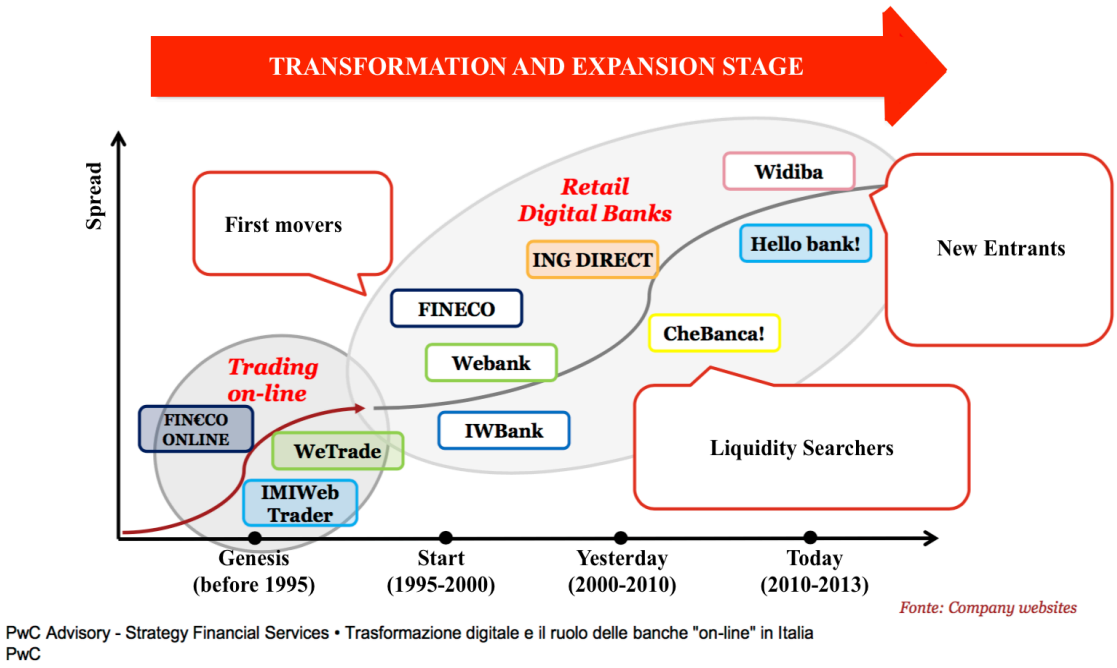
3.1. ING: a new way of banking.

"Digital disruption is forcing transformation across all industries, including and especially financial services. Banks and insurance companies' traditional business models are under pressure"(Accenture, 2016). In Europe all the countries are moving toward the digitalization of processes and services, although the pace of change for each one has turned out to be different in terms of intensity.

One of the companies that has best witnessed the digital revolution is ING BANK, a financial intermediary that has used digital as its main strength. Several players have followed ING journey, moving toward a business model mainly pivoted on digital. In fact, many competitors as FINECO, CHE BANCA! and HELLO BANK!, have been showing the same vision in understanding future market direction.

The following picture reports the strategic positioning of the main Italian on line banks that have rapidly widen their offers, leveraging on digital capabilities (Exhibit 3.1).

Exhibit 3.1 Strategic positioning of the main online italian banks



Source: *Pwc Advisory 2014.*

One of the first mover in the on-line arena was ING, one of the main Dutch financial institutions founded in 1991 by a merger between *Nationale-Nederlanden* and *NMB Postbank Group*.

The founding of ING as one company was started in 1990 when the legal restrictions on mergers between insurers and banks were lifted in the Netherlands. This prompted the insurance company Nationale-Nederlanden and the banking company NMB Postbank Groep to enter into negotiations. The merger into *Internationale Nederlanden Groep* took place in 1991. The market soon abbreviated the name to I-N-G. The company followed suit by changing the statutory name to ING Groep N.V. Since 1991, ING has developed from a Dutch company with some international business to a multinational with Dutch roots. This was achieved through a mixture of organic growth, such as the creation of ING Direct from scratch, as well as various large acquisitions. The first large acquisition took place in 1995, when ING took over *Barings Bank*. This acquisition increased the brand recognition of ING around the world and strengthened its wholesale banking presence in the emerging markets. And then there was *Life of Georgia*. This insurance company was acquired by Nationale-Nederlanden in 1979, resulting in a significant increase in activities in the US. Via Life of Georgia, the activities in Asia expanded considerably. However in 2004, ING as a group had become well-established in both regions and Life of Georgia was sold.

ING is also active in other parts of the world. In 2001 landed in the Italian market as a direct bank, launching INGDIRECT, a branch completely dedicated to individuals with a first very simple product: a deposit account, so called "*conto deposito arancio*", inspired by lean business model and organization structure, that allows cost reduction and service efficiency. Sooner in 2004 loan services joined the Bank products portfolio, thanks to an outsourcing development, that gave a great push for change, being considered as disruptors in the market. Lately funds and investments were added to ING supply and afterwards in 2008 the firmlaunched a current account, that caused the necessity to reconsider the whole bank structure and architecture, according to the enlargement of its offers and the processes complication, due to the launch of new systems and new features. Few years later, to fulfil customers' needs, ING started offering trading-online service, as an instrument easy to use, measured on customers' need and life insurance, going to fill its products variety.

In 2008 and 2009, as a consequence of the financial crisis, ING Group, like other major financial institutions in Europe, had to develop and submit a restructuring plan to the EC that included the divestment of ING Group's insurance and investment management businesses across the world. Obviously ING had to review the organizational design and to make a plan of cost-cutting, in order to remain competitive in the market. However going upstream, these were the years in which INGdecided to gain a territorial presence, thanks to the first personal touch-points as branches, Orange stores, and Orange Points.

Nowadays ING BANK is a global financial institution with a strong European base, supplying innovative banking services in 40 different countries to more than 34 million retail and corporate customers, thanks to the business self-management enabling and to the work of more than 52.000 employees. The Group has designated three distinct categories of markets and have developed its strategy accordingly. They are characterised as Market leaders, Challengers and Growth markets.

Market Leaders are the Benelux countries (Netherlands, Belgium and Luxembourg) where ING hasleading market positions in retail banking and wholesale banking.

Challenger markets are the following countries: Germany, Austria, Spain, Italy, France and Australia. In challenger markets they strive to strengthen their market position. INGbusiness units offer both retail and wholesale banking services.

In Growth markets, in the end, INGoffers a full range of retail and wholesale banking services in strongly expanding economies that provide good growth opportunities. Growth markets are Poland, Turkey, Romania and business units in Asia.

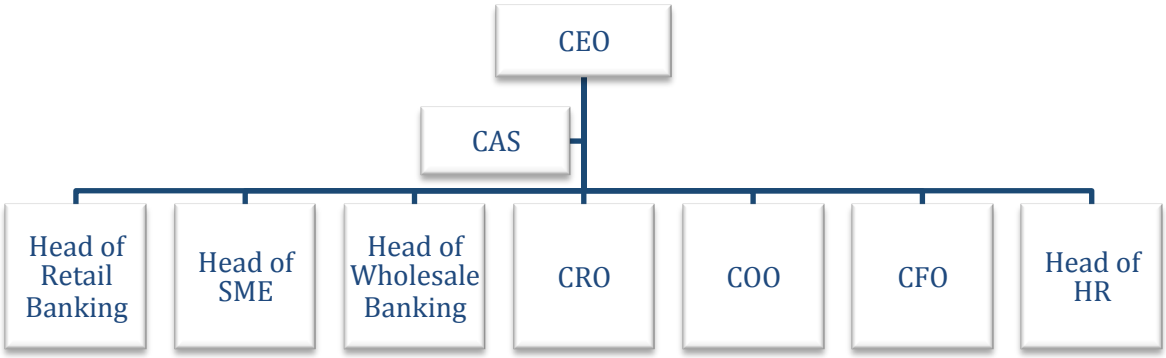
Italy belongs to the Challengers, as said above, countries in which ING implements strategies

seeking to strengthen its market position. In Italy ING is striving to reach this result making the most from its digital channel branching, in which it is now considered as the first online retail bank, in terms of customers' number and asset volume, and as a significant example of what digital disruptor means.

3.2 ING organization and the *agile* method of working.

Aiming at flexibility and responsiveness to perfectly fit the shifts of customers' requirements, ING bank has chosen not to follow a "one fits all" organizational model, but has adopted a mix of organizational choices for different vertical levels. That means that there is no a one way criterion to organize the different units and levels of the company, but on the contrary, there are different model standards to be adopted for every part of the organization chart. Anyway the main drivers of structure and strategy choices are represented by key words as: efficiency, effectiveness and lean vision.

Exhibit 3.2 ING organization chart.



Source: *personal elaboration, based on ING interview.*

ING approach is easily visible, analysing the Bank organization chart presented above, which shows the thrust for simplicity and leanness (Exhibit 3.2).

In fact, the organization chart is flat, without any burden of staff units (only Audit for obvious independence needs), and a set of units with clear goals and responsibilities.

- ***Chief Executive Officer (CEO):*** is responsible for the overall direction and administration of programs, products, and services provided by the Bank, including the Bank's financial performance, credit quality, business development, operations, regulatory compliance, and risk management. The position ensures that all aspects of

the Bank's activities operate in a safe and sound manner.

- ***Corporate Audit Staff (CAS):*** is staff unit whose activity is auditing. It refers to a systematic and independent examination of books, accounts, documents and vouchers of the organization to ascertain how far the financial statements present a true and fair view of the concern.
- ***Head of Retail Banking:*** who, plans, organizes, directs and controls retail banking activities and resources in order to meet retail banking objectives. He also assess market conditions, defines, recommends, implements and monitors retail banking strategy in order to gain and sustain the bank's competitive edge and results.
- ***Head of SME:*** who manages the entire SME sales team. He also provides professional advises to large corporate clients through joint meetings with Relationship Managers when required.
- ***Head of Wholesale Banking:*** who formulates a strategy and business plan for the wholesale banking department in line with the banks business plan. Furthermore, he designs and implements an Organisation structure for wholesale banking that supports the department's business plan, directs the development and oversees the implementation of policies, procedures and controls covering all wholesale banking areas in order to ensure that all procedural/legislative requirements are met while delivering a high quality, low cost service.
- ***Chief Risk Officer(CRO):*** who has primary responsibility for overseeing the development and implementation of the bank's risk management function. The CRO is responsible for supporting the board in its development of the bank's risk appetite and RAS and for translating the risk appetite into a risk limits structure. Together with management, he also should be actively engaged in the process of setting risk measures and limits for the various business lines and monitoring their performance relative to risk-taking and limit adherence.
- ***Chief Operations/Operating Officer (COO):*** He is responsible for planning, organizing, and controlling all the day-to-day operational activities of the Bank under the direction of the Chief Executive Officer. The position ensures that all operational aspects of the Bank's activities operate in a safe and sound manner in the best interest of shareholders, customers, employees, and the public. Supervises and works closely with management to ensure the operational effectiveness, sustainability and resiliency of the Bank, driving change and improvement by convening, informing, supporting, influencing and mentoring.

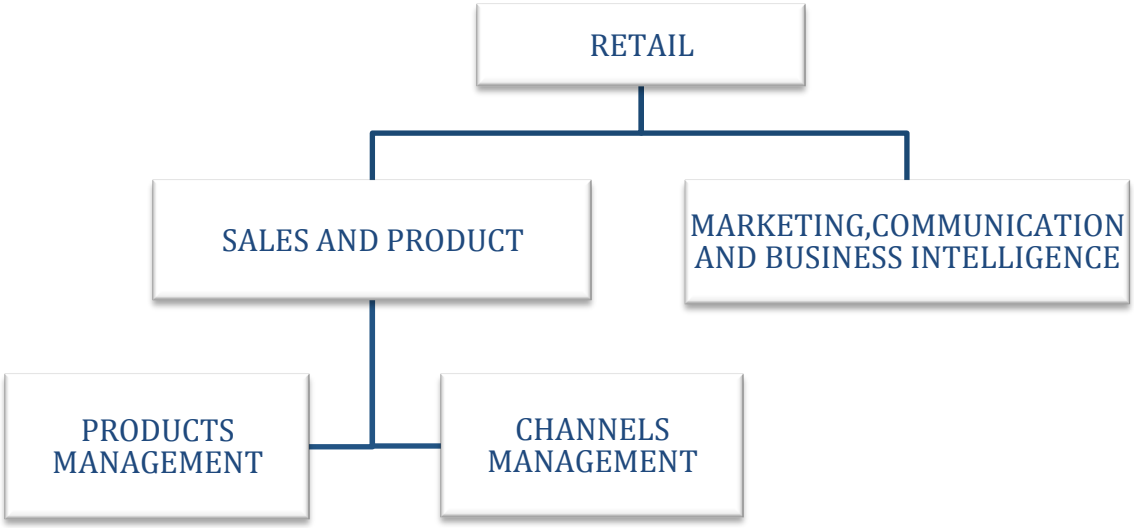
- ***Chief Financial Officer (CFO):*** He is responsible for serving as the Bank's lead financial executive overseeing and representing the Bank's Accounting Department and all financial and accounting operations of the Bank. The position is responsible for adhering to all related generally accepted accounting principles, tax and regulatory laws, rules and regulations to adequately and accurately reflect the financial position of the Bank at all times. He participates and assists the Bank in formulating and meeting its overall strategic business plans and goals, including the Bank's capital plan . He manages investments to meet liquidity and income producing objectives.
- ***Head of Human Resources:*** He is responsible for the administration and development of the human resources of the Bank and the coordination of human resources planning for all Units within the Bank. HRD provides the Bank with a framework to ensure it has the right person, in the right place, at the right time, and with the right incentives that lead to high-performance. As a strategic partner of the business, HRD is passionately committed to attracting, retaining and developing talent and to delivering high-quality, efficient, reliable services to the Bank and its staff.

Looking closely at each of the seven units and making a deeper and single analysis, it's easy to point out that they are organized variously, according to drivers as complexity and volume of businesses. But commonly, at the second organizational level, an extreme horizontal dimension prevails, encouraged by a distribution of human resources among different projects, led by the project manager's supervision. This is supported by repeated incentive, to all the employers, for a formal borders breakdown, empowering interpersonal and inter-unit relations and communication, in order to be as agile and efficient as the environment asks.

One of the most relevant key factor for the organization design analysis is that, ING has two souls, in Italy and in each Country it serves:

- ***Wholesale***, that is addressed to big corporates, where big deals and very complex contracts are treated.
- ***Retail***, that offers simple and clear products with competitive economic conditions, through a products portfolio that aims to catch families and savers' needs: not only deposit account, but also current account, loans, investments, online trading, insurances and personal loans. Its purpose is to contribute actively to a new way of banking growth, everyday more digital and modern, in line with a more mature and independent customer base (Exhibit 3.3).

Exhibit 3.3 ING retail division



Source: *personal elaboration, based on ING interview.*

From the organizational perspective 2 are the main areas where digital has impacted on the bank:

- ***The Retail Banking.***
- ***The COO area.***

The Retail Banking division is where the digital capabilities have been largely developed. The focus on ING Italian retail segment enables a zoomed vision on the main business characteristics and goals, together with the strategic options on digital. At first, ***Retail*** can be divided essentially into two units: the first one ***Sales and Products*** and the second one ***Marketing, Communication and Business Intelligence***. ***Sales and Products,*** is again split into two groups at a lower level: ***1-Products Management,*** (Exhibit 3.4) that is organized in different units, for each product supplied (as deposit account, current account, mortgages, investments, online-trading). Respective product teams lead the product units, setting prices and strategies to make them land on the market. ***2-Channels Management,*** (Exhibit 3.5) is involved in sales issues deciding about product distribution, sales monitoring, post-sale services, always working cooperatively with Products Management unit. It also branches off into:

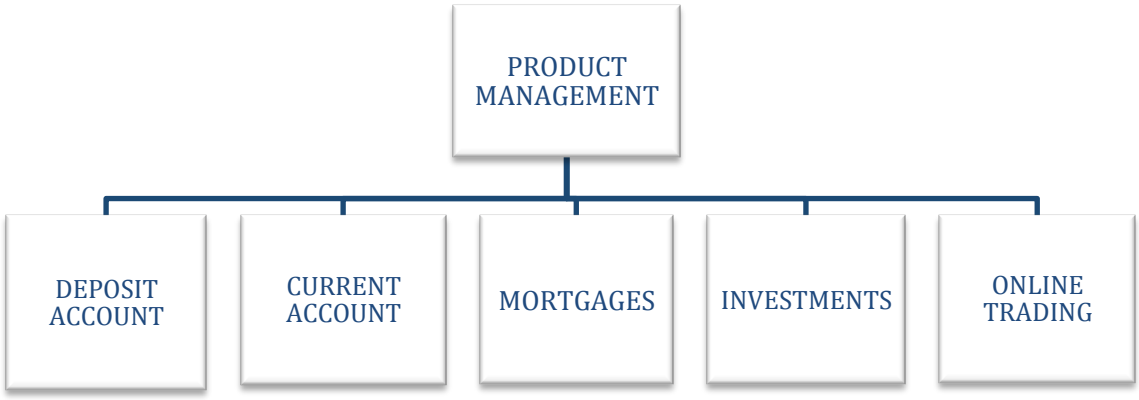
- ***Digital channel***. It is relevant in terms of sales activity for those products that don't require too high assistance. Therefore, it has a major weight on the bank servicing

activity (95%), in which it plays a key role and on which a big organization challenge is based, as maintaining low costs in order to allow to have products with a very competitive price, using means as web, app, mobile and social network.

Obviously the Digital Channel holds a crucial role in this years of the "internet of things" and this is the level at which the most revolutionary changes in the organization structure happened. In fact, today customer expect to do their banking the way they want, when they want and in a consistent, reliable, clear and easy way. In this environment, ING has been needing to continuously improve its digital services, creating a consistent customer experience by making a substantial investment to simplify and upgrade IT systems.

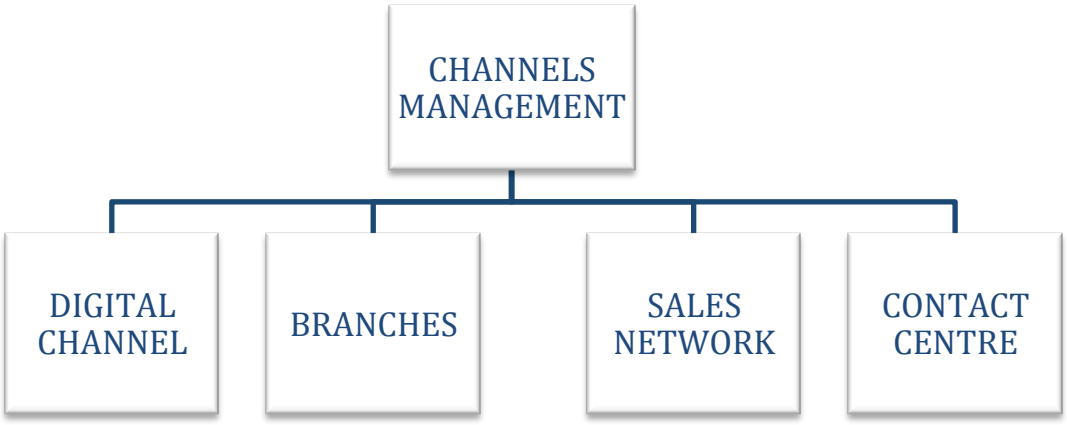
- ***Flagship branches***. Even if they are few in numbers, they are deeply relevant for ING, in fact it's not just a case that they are settled in the city centre. Their limited number, makes this channel not the first one in terms of importance because of a small territorial coverage.
- ***Sales network.*** One-firm agents, who work with ING, compose it. It was the fist form of ING physical distribution, often located in the shopping centres. By the way, sales network is reducing its catchment area, and with it, its effectiveness. The company is now starting to convert them into *light branches,* where few services are allowed in a self way, with a low grade of staff assistance.
- ***Contact centre***. It is a channel that mostly focuses on servicing activities, rather than sales one, and lend itself to be digitally disrupted.

Exhibit 3.4 Product management design



Source: *personal elaboration based on ING interview*

Exhibit 3.5. Channels management design



Source: *personal elaboration based on ING interview*

The COO area, is experiencing consistent changes in terms of operations and processes. The whole organization chart and consequently the formal reporting relationships, including the number of hierarchical levels and the span of control of managers and supervisors, together with the design of systems to ensure effective communication, coordination, and integration of efforts across departments, are being studied and planned in order to ensure the maximum speed in company's feedback. The Digitalization is contributing to reach this objective, not only bringing advantages from the customer supply services side, but also accelerating ING processes and communication systems, reinventing completely even the way of working, to be as much affective and efficient.

A remarkable innovation into ING organizational model, is the Agile method described below. ING is now moving towards an implementation, in each domestic bank, of a new model borrowed by Spotify (a Swedish digital music service), that affects all the organizational system, matching digital advantages with a lean organization design: the new ***Agile*** way of working together. The new Agile method calls for a quicker reaction to changing clients' needs, less inter-departmental passing of the baton, fewer coordination meetings, more room for initiative and higher level of responsibilities for teams and individuals. The fundamental unit in the ING future head-office organization is the ***squad***. Squads are self-steering, autonomous teams of up to nine people, responsible end to end for their own specific customer-related mission. They are built around different disciplines, from different area of expertise and different backgrounds. For example the squad "mortgage application", concerns itself with developing and implementing the most customer-friendly and most efficient way of moving from first mortgage submission to final approval, or the

squad “search engine” is devoted to develop the most customer-friendly and effective search engine for their various digital channels. In squads, members expect to find colleagues from marketing, product management, formula management, data analysis, user experience and IT, sometimes more of the one or more of the other, depending on the nature of squads’ mission. Within each of them, ***product ownership*** is assigned to one member, who is responsible for what a squad does, in charge of the backlog and the to-do list and determines priorities, not meaning that he is the boss. Coordination between members of the same discipline takes place inside ***chapters*** (for example a chapter data analytics, or customer journey mortgages or product management processes), determining how jobs should be tackled. The ***chapter lead*** is ultimately responsible for this and he also represents the hierarchy for squads’ members, taking responsibility for personal development, coaching and the performance management cycle of individual squad’s members. The chapter leads will perform these duties in addition to their regular daily job in their own squad. Furthermore the coordination between these self-steering and autonomous groups is ensured by ***tribes***, which are connections of squads with interconnected missions (e.g. tribe securities & private banking, tribe mortgage services etc.) As a rule, they contain fewer than a hundred and fifty people, again coordinated by a ***tribe lead***, who, although is not the traditional boss of all tribe members, ensures that knowledge and insights are shared, establishes priorities, allocates available budgets and also forms the interface with other tribes.

In the end, there is one more vital role that’s of ***agile coach***, a person who coaches individuals and squads and who helps them to grow and prosper as a team towards high performances.

That, in a nutshell, is how most of ING head office will function in the future, adding that the agile approach, involves flexibility in adapting to the needs of the moment. In fact, the forming of a tribe is a perfect tailor-made facet, depending on specific goals and circumstances. That is an approach that may not suit all business functions, so a degree of trial and error will help ING establishing what does and what does not work in the practice. The Agile work approach is in itself agile and extremely mouldable and that is what makes it such a valuable tool in achieving the company’s goals.

3.3. ING contribution to digital disruption.

Given the chaos and complexity of digital disruption, it can be difficult to discern patterns in this rapidly evolving competitive landscape or a prescription for what to

do. A fundamental understanding of how digital disruption works is vital, if companies are to devise effective strategies to exploit it.

ING embarked on a digital transformation in mature businesses years ago. It is now well positioned, with a clear customer value proposition, simple, transparent products and fair pricing: a leader in digital, with a low-cost model and low branch density. ING is still reinventing interaction with customers for a mobile environment, leveraging itsinternational footprint to speed up innovation across the bank.

One of the biggest advantages taken by ING, from the digital revolution, is the decorrelation between organization scale and the customer scale. In fact, even though the company has always been a clear example of an update organization that exploits external environment contingencies to maximum levels, it had processes that basically started with digital, but always produced a certain quantity of efforts in manual and contractual activities. For example in the process of a bank account opening, there was a series of activities held digitally, but at the same time also a series of actions managed manually from agents. It meant that a substantial increase of customers' number, brought to scale proportionally also the internal organization. By creating a 100% digital process, the company can now decorrelate these two dimensions; that implies an organization structures flattening, with an emphasized effect for originally bigger organizations, with a prevailing horizontal dimension.

Then digital disruption has brought, as already mentioned, a large diffusion of network enterprises. Building a wide and dense network is the enterprises' key point to amplify their influences area and their competitiveness. In fact spreading inter-organizational relations and using the specific knowledge of outside firms can help to succeed in the supply efficacy. ING strongly believes in the power of setting up reliable and transparent cooperation systems with FinTech: companies, which provide various technological innovations to be applied to the financial sector, including innovation and financial literacy and education, retail banking, investments and even crypto-currencies. A concrete example is given by "The ING FinTech Village", a recent initiative powered by ING Belgium in collaboration with the ING Group and other key partners ING BELGIUM SA/NV that provides a comprehensive range of financial products and services for its customers via an equally diverse range of distribution channels. For 2016, they set different challenges to be achieved as finding innovative online or mobile solution, let the banks become simple, easy and secure, personalize customer relationship management, empower customers and further improve internal operations.

But the "ING FinTech Village", is only a small glimpse of different choices moving towards the same direction. In addition, in October 2015, ING announced it was starting a strategic

partnership with Kabbage, a leading technology and data platform powering automated lending to small and medium enterprises (SMEs). The partnership fits the company's strategy to expand its lending capabilities to SMEs and helps them to get the capital they need to gro. Kabbage's automated loan application and approval process is both accelerated and simple for customers. It makes use of full credit scoring and real time risk monitoring and allows SMEs with an existing business account to get a loan within ten minutes, based on real-time business data.

Besides, ING has shown its disruptive capabilities in initiative as setting one target operating model to be rolled out across all countries and a "One Bank" experience with seamless client experience, standardised products, contracts, documentation. This has brought to a 700 client processes reengineering and to a reduction from 1.050 different systems to 100. Furthermore, it has been developing global technology platforms to support international business across products, such as: cash management, payments, lending services, trade finance, financial markets and extremely exploit online/mobile potential.

In addition, the world of Big Data, is having a huge impact on the development of financial services and it is crucial for the evolution of the sector. To deliver contextual solutions, there must be a deep analysis of the data, history, comparison with other users, the risk variables and market and other sources of information. There are already companies that base their analysis on algorithms, which came from digital information footprints we leave across our lives. Millions of customers choose to bank with ING, and therefore use their ING accounts to transfer money and make payments. It goes without saying that these transactions are meticulously recorded; after all, it is in clients' interest that transactions are processed correctly, and that they can be easily found in their transaction history, either through ING internet banking, the mobile banking app or their printed statements. Apart from the transactions, ING also records personal data and, if customers gave permission via cookies, browsing behaviour on the ING website. This means that it also makes it possible to give clients tailored information and special offers. For example, information about 'savings or making down payments on your mortgage' can be shared with customers who actually have a mortgage, and 15-year old customers will not receive offers regarding pensions.

In using Big Data, ING has formulated the following goals:

- Improving customer service.
- Countering fraud and cybercrime.
- Operational excellence.
- Diminishing risks (e.g. reducing payment arrears).

- Creating commercial opportunities.

ING is exploring new opportunities for each of the above goals and, in doing so, improving the quality of customer service, is the key priority.

The use of Big Data provides many opportunities, but also calls for caution, in fact INGfully recognises that privacy is a very sensitive issue, in order to protect customers' personal information. As the other companies working in the same sector, ING has to act in accordance with rules and regulations, as well as its business principles.

In the end, the Digital Disruption has contributed to ING internal development of a paperless approach. It is referred to the possibility, due to the new technologies spreading, to manage documents electronically, in each step of its lifecycle, from its creation, consultation and transmission, to its conservation al long as people want. This has brought to a completely reinvented way of working in ING, which had, as consequence, the abolition of baskets inside the head offices and the abolition of fixed desks positions. ING, in addition, in fact, was one of the first in launching its ***Electric Orange checking account***, considered as paperless tool with extremely competitive yields and low fees across the board.

3.4. The "Orange Way" as a vehicle for purpose and strategy achieving.

ING mission soaks into every level of the organization and extremely influences all the company choices. Its purpose, *to empower people to stay a step ahead in their life and business*, inserts itself into a wider viewpoint, which sees customers as a driverfor company's decisions in relation to the needof relevant and up-to-date information at their fingertips (Exhibit 3.6). ING promises to its customers to offer *easy and clear services available at anytime and anywhere*. In fact, ING consistent investments in IT have simplified and enhanced contacts with people that enable to precisely individuate every singular need and to make their experience extremely unique. Simplicity and clearness are translated also into ING products and services; that means that its supply, directed to a specific clients' segment (25-55 people), is made of few simple products that can be self-managed with accessible and easy to use structures.

It's also important for ING,in order to differentiatecustomers' experience, to establish a primary relationship with the customer with a great deal of interaction that focuses on people's feelings. Consequentially, a better interaction does not only require a digital channel

improvement and a high quality mobile acquisition; but also operation excellence, that could be reached with the new agile way of working.

Exhibit 3.6 ING cultural values

Source: Dorothy Hillenius, Director of Corporate Strategy, "ING BANK, Digital Revolution in Bank", London, 13 May 2015.

The "Orange Way", that is ING cultural driver, is the result of two different dimensions: values, the non-renegotiable promisesthe firm made to the world and behaviours, ING essential way of being. Adopting the orange code means putting people and their trust in the centre of the business and working with integrity and professionalism in order to maintain stakeholders' confidence and preserve company's reputation.

ING values are clear and explicit and assist organization members to act in certain ways, in line with:

- *Honesty*. ING staff carefully weighs the impact of actions and makes decisions in order to give honest, clear and frank advice to customers. Law and rules respect implies the expectation of the same behaviour fromcustomers and suppliers.
- *Prudence.* Dealing with other people's money and financial information, force ING staff to respect the trust customers' placed in their Bank, managing with competence assets, interests and information.
- *Responsibility*. ING managementis mindful that every aspect of the business has never a social and environmental negative impact, investing and supporting good causes and encouraging employers to act for the best.

It's true that enabling digital systems and channels, could bring difficulties in complying with ING values. In fact, digital could be a useful instrument not only for keeping the enterprises in touch with their customer, but, alsoto let a "more powerful and informed" customer check

of companies' promises. Anyway ING spread and shared value code, whose diffusion is empowered thanks to advanced digital technologies, helps ING to be respectful of the trust customers put in their bank.

One of the most successful things attributed to ING is its distinctive digital capability and identity development, which pave the way for the success in its activity and in its strategies. That is due by a shared digital culture within people, that move towards a same direction, without making a stand when consistent changes occur. This kind of major change will work only if there is a company culture in place that enables it: one that embraces, not just tolerates, digital media and probably that is what makes them extremely innovative and different from the others.

3.5. Human Resource approach and innovative ING positions: The Digital Transformation Manager and the Digital Channels Analytics Supervisor.

The key of the success for all the enterprises is surely represented by people. Cultural values in fact, are nothing without being shared by human resources. ING is – and intends to remain – one of the best employers around the world. The area of Human Resources is key to fulfill this ambition. In fact, HR specialists have helped ING to become what it is today: an organization where employees can excel and can achieve their full potential in order to provide customers with the best possible service and, hence, an organisation which appeals strongly to both employees and customers.

With a dynamic and agile structure, which is a consequence of processes speed up thanks to digitalization, ING is tirelessly questioning the traditions and is perpetually striving for better.

ING Human Resources (HR) policy is based on raising itsleaders from within ING Bank. ING is making substantial investments in personal development and leadership notions, strongly believing that leaders, who can unveil the potentials of ING team members and provide them with an efficient and productive environment, are the key to success. At the top of ING HR selection criteria stand inquiring profiles, who are open to learning. Handling all their HR processes in a performance-based system, they follow a fair, transparent and career-oriented path for all the employees to offer them equal opportunities. ING management is aware of the significance of the work model for a successful HR management and believes in the power of Collaborative Working Model, setting targets and strategies in collaboration with all the employees. Collaboration is implemented thanks to direct contacts and informal way of behaving, that is a vitally element to create a cooperative and familiar environment.

Furthermore, digitalization has raised the meticulous attention ING has given to theHR and the intensity of the collaboration and contacts between employees. In fact, ING has created online platforms open to everyone, regardless of their titles and position in the organizational hierarchy, letting ideas flow from the top to the bottom and from the bottom to the top. Here people can share, in an horizontal perspective, their options in real time, participate to ING projects, assume active roles and make valuable contribution to goals achievement.

However, digitalization has impacted ING HR, in renovating capabilities and roles in the organization. In fact, new capabilities, in particular IT ones, are required to cover new positions that belong especially to the digital channels, the most disruptive channels in ING organizations. These positions can be identified in the new Digital Transformation Manager and Digital Channels Analytics Supervisor.

The Digital Transformation Manager is involved in project activities of transformation linked with processes, channel, procedures, transiting from physical to digital ones. This roleassesses internal services suitability for digital transformation and rigorously prioritises involvement by customer or cost saving benefit, providing direction and support to those managing internal transformation projects.

The Digital Transformation Manager has a relentless aim to introduce digital capabilities within the organization, facilitating the collaboration among the different Bank units, to make the customer journey as seamless as possible.

He has to let the change happen, prioritizing the project initiatives and ensuring the timely execution of the planned activities, in line with the budget and the expected quality levels.

His competencies span from marketing, to technology and program management. While he possesses a broad range of technical acumen and Technology Development industry knowledge to drive business growth and profitability, he also has strong negotiation skills to solve potential conflicts within the organization, through the creation of a productive environment that:

- encourages teamworking;
- removes obstacles to the spreading of a digital culture;
- fosters the growth of employees' skills and knowledge.

His goal is to innovate and develop new solutions for a wide breadth of problems/opportunities, with a strong execution discipline. In line with the Bank culture, also the implementation of the Master Plan is like a promise with both external and internal customers that has to be maintained in order to overcome customer expectations and reach the bank productivity targets.

The Digital Channels Analytics Supervisor, on the other side, is a crucial role for ING digital channel, extremely linked with the concept of Big Data analysis. It is focused on customers' experience, based not only on declared information but, moreover, on direct observation of their behaviours. The D.C. Analytics Supervisor can measure errors in a specific process, starting from analytics instruments and moreover, can point out where different kind of anomalies (e.g. blocked online banking systems, online processes slowness etc.) are located. Thanks to this precious element, he is able to address, in a more effective way, the eventual solution, by improving touch-points effectiveness and by increasing the value of different processes, which used to be considered irrelevant for customers acquisition and satisfaction. In fact even if customers, doesn't experience directly the difference in speeding up processes, making them extremely lean and 100% digital, in the end, it's proved that they receive answers more quickly.

To understand the role of the Digital Channels Analytics Supervisor we have to oversee different areas he has to monitor.

- Website. ING.co is virtual location on WWW, containing several subjects or company related webpages and data files accessible through a browser.
- Public area. Provide entry points for customer acquisition and gives information available for everyone who asks for them.
- Secure Area. Gathers all services thanks to which clients manage their business.
- App. Can include even services that belongs to the secure area.
- Digital marketing. It is an umbrella term for the marketing of products or services using digital technologies, mainly on the internet, but also including mobile phones, display advertising, and any other digital tools

ING, by preserving itself digital channel property, has the possibility to optimize all the activities and contents, in order to better know customer needs and to have an effective, more efficient acquisition, with low costs. It allows to measure every customers' step, from the first contact, to the products operational performance and to identify also what are the initiatives that appear to be more effective, not only in terms of quantity of sold products and customer acquired, but also in terms of costs needed.

The Digital Channels Analytics Supervisor translates a huge quantity of information in different ways, not only using a big data approach, which provides a big quantity of data kept in a centralized repository, that lately are used to make insight with different automated systems. He also uses other methods, having the maximum attention to the quality measurement in every single step. Generically information requirement is made by analytics

instruments, as *Google Analytics, Webtrekk* or *Adobe analytics*, that is the one used by ING, allowing to track every web pages and information contained in the various pages. After collecting this Data, the Digital Channels Analytics Supervisor creates a series of indicators useful for the optimization. For example thanks to ***the search engine of the internal website effectiveness,*** measured on the basis of the call reclaim received by the telephone exchange, he can point out what is the effectiveness of a tool designed to improve the customer self-utilization. This kind of insight helps not only the customer satisfaction analysis, but improves the whole process quality, bringing, as consequence, a major efficiency in terms of costs. Analysing how a customer behaves, requires a multichannel data collection, starting from self-channels to assisted ones, or the simultaneous use of different platforms.

The principle added value of an employee that supervises information from the digital channel, despite of the other traditional ones, is represented by the customer acquisition and by the possibility to keep the know-how internally.

3.6. Conclusive remarks

ING represents a concrete example of a company, which answers to the environmental changes proactively, creating a new way of banking that is not built on a "one way" perspective, but tries to mutually adjust itself to different contingencies in an agile way. In ING they key of success is represented by the "Orange" culture, which establishes a set of values the staff complies with, soaking into every level of the organization.

As explained in the chapter, ING has made the digitalization as its strength, drawing the most from the new Big Data approach, which is an important occasion to use customers' insights as value deliver. In addition, ING has perfectly understood the impact of fintechs on the new financial services panorama, collaborating with an increasing number of partners for fostering their goals achieving.

Finally, in the same direction ING established innovative and ad hoc HR positions with IT deep skills to help the organization developing the digital channels potential, which is the most disruptive channels in ING organizations.

CONCLUSIONS

The analysis of the digital phenomenon has demonstrated how the digitalization, characterizing a new environment, has had substantial impacts on the organizations. Companies today, are forced to reinvent their business models, strategies and designs if they want to survive in a new competitive environment in which digital disruptors get ahead.

The organization environment has undergone many changes, due to the increasing information flows, which companies and customers exchange. If it is true that digitalization has brought privacy and competitive consequences, a special consideration has to be reserved to the new customers' role. In particular the latters, being always online and well connected, have increased their expectation not only in requested products but also in response time standards.

Organizations today, wanting to deliver value to customers, have to switch strategies in a digital perspective. In particular successful companies fix digital strategies, changing their vision, mission, goals, opportunities and linked activities in order to obtain maximum benefits from organizational digital initiatives. They shift the focus on customer centricity, finding opportunities and solution data-driven, delivering tailored experiences to clients' needs.

The only way to succeed in delivering new tailored products and services, is to let internal processes integrate digitalization in order to coordinate and check the work of various units, which are every day more connected and interdependent. In that way units borders and lines are disappearing promoting collaboration among organizational units and renovating employees skills and ways of interaction. Physical presence is increasingly no longer required thanks to new technologies.. The extreme velocity permeates the organizations with the help of the new selection of human resources who embody a digital culture. New employees, in fact, are required to work in digital teams, having basic digital capabilities, demonstrating a great attention in understanding different clients' needs and mutually adjusting to find solutions.

Everything mentioned translates in a trend to structure new horizontal and decentralized organizations extremely lean. Horizontal dimension is ensured by the collaborative culture among units, which blurred vertical hierarchy, and by new technologies that help a horizontal flow of information in real time. Decentralized organizations are developing because of the environmental complexity to which enterprises work, outsourcing many activities. In fact, as digitalization has improved also external communication, most companies exploit the

possibility to outsource or partner with others in order to achieve better results in delivering products and to lower competition. The examples of the paragraph 2.4.2 have showed concretely how companies have implemented new lean and agile organizations, having success in the new field.

The case study on ING helps to hold in our hands what does real digital disruptors mean. ING bank in fact, shows the way a company could draw advantage of the new digital opportunities. It has built a flexible system, which is pivoted on customer centricity, letting the digital culture flow in every aspect of the work and delivering data driven solution. Human resources distributed among different units and levels are continuously in touch, promoting a cooperative problem solving and the information flows.

This thesis shows how the digital disruption is happening outside organizations as well as inside, as managers are completely revaluating all the strategies and structures to surf the digital wave. Modern companies, because of the high level of uncertainty coming from a deeply connected world, have to be innovative, being able to infuse digitalization in every aspect of their organizations, in order to deliver tailored and innovative products and services, trying to find a dynamic equilibrium in a continuous changing environment.

ING INTERVIEW MATERIAL

Interviewed:

Giuseppe Marazzotta,ING Digital Transformation Manager.

Davide De Silvestri,ING Digital Channels Analytics Supervisor.

Stefania Contu, ING Operational Control Manager.

Questions for ING interview set in 26, April.

- How ING organization has evolved in the recent years? And how ING is actually structured?
- From an operational point of view, how do the different units work?
- In which way your strategy is contaminated with digital? Can you please explain what does “customer empowerment” mission mean?
- Do you think that digital is a trend or a market disruptive innovation? How does ING answer to a new disruptive environment?
- Which are the opportunities and threats coming from the Digital Channel? How do you make use of Big Data and Networks?
- Your culture is based on what you call “The Orange way”. Can you please describe what does it concern?
- Can you please explain which are your respective jobs, roles and positions?

BIBLIOGRAPHY

G. Morgan "*Images of Organization*" Sage Publications, USA, (2007).

Gary Hamel and C.K. Prahald, "Strategic Intent", Harvard Business Review, (2005).

Gregory G. Dess and Donald W. Beard, "*Dimensions of Organizational Task Environments," Administrative Science Quarterly 29* (1984).

H. Sharma and S.Shukla "Human resource managemen in digital age: Trends in Indian corporate HR practices", IRCjournals.org (Jul.-Sept 2013).

Henry Mintzberg, "*La progettazione dell'organizzazione aziendale",* Italian translator F. Isotta, Il Mulino (Strumenti), (1996).

Henry Mintzberg, "*Mintzberg on Management: Inside Our Strange World of Organizations"* (New York: The Free Press,1989).

Henry Mintzberg, "*Organization Design: Fashion or Fit?" Harvard Business Review* 59 (January–February 1981).

Henry Mintzberg, "*The Nature of Managerial Work"* (New York: Harper & Row, 1973).

Henry Mintzberg, "*The Structuring of Organizations: The Synthesis of the Research"* (Englewood Cliffs, N.J.: Prentice-Hall, 1979).

R.M.Henderson and K.B. Clark "*Architectural Innovation: The Reconfiguring of Existing Product Technologies and the Failure* of Established Firms", *Administrative Science Quarterly*, (1990).

Interview to Google's VP of US sales and operations "*Learning from Google's digital culture"* McKinsey&Company, (June 2015).

J. Bradley, J. Loucks, J. Macaulay, A. Noronha and M.Wafe "Digital Vortex: How Disruption is Redefining Inustries" Deloitte, (June 2015).

J. Garzia Advedillo, D. Begonha and A. Peyracchia "Two ways to modernize IT systems for the digital era" McKinsey&Company (Aug. 2015).

J. Manyika, S. Lund, J. Bughin, J. Woetzel, K. Stamenov, D. Dhingra*, "Digital Globalization: The new era of globflows*", Mc-Kinsey Global Institute, (Feb. 2016).

J. Manyika, S. Lund, J. Bughin, O. Nottebohm, D. Poulter, S. Jauch and S. Ramaswamy "*Global flows in the digital ag*e", Mc-Kinsey Global Institute (April, 2014).

James D. Thompson, *Organizations in Action,* McGraw-Hill, New York (1967).

Jay R. Galbraith, "*Designing Complex Organizations"* (Reading, Mass.: Addison-Wesley, 1973), and "*Organization Design"* (Reading, Mass.: Addison-Wesley, 1977).

Jay R. Galbraith, "*The Multi- Dimensional and Reconfigurable Organization*", Organizational Dynamics 39, no.2 (2010).

Jay W. Lorsch, "*Introduction to the Structural Design of Organizations*," in Gene W. Dalton, Paul R. Lawrence, and Jay W. Lorsch, eds., "*Organizational Structure and Design"* Homewood, Ill.: Irwin and Dorsey, (1970).

Jeffrey Pfeffer, "*New Directions for Organization Theory, Problems and Prospects",* Oxford University Press, USA (1997).

Jennifer A. Chatman and Sandra Eunyoung Cha, "*Leading by Leveraging Culture," California Management Review* 45, no. 4 (Summer 2003).

Joan Woodward, *Industrial Organization: Theory and Practice* (London: Oxford University Press, 1965).

Joan Woodward, *Management and Technology* (London: Her Majesty's Stationery Office, 1958).

John Child, "*Organization"* (New York: Harper & Row, 1984).

Jonathan Hughes and Jeff Weiss, "*Simple Rules for Making Alliances Work," Harvard Business Review* (November 2007).

Howard Muson, "*Friend? Foe? Both The Confusing World of Corporate Alliances," Across the Board* (March–April 2002).

Devi R. Gnyawali and Ravindranath Madhavan, "*Cooperative Networks and Competitive Dynamics: A Structural Embeddedness Perspective," Academy of Management Review* 26, no. 3 (2001).

K. Dorner and J. Meffert "Digital Culture based on: "Nine questions to help you get your digital transformation right", McKinsey&Company, (Oct. 2015).

Kates A, Galbraith JR *"Designing Your Organization: Using the Star Model to solve 5 critical Design Challenges",* (2010).

Lawton R. Burns, "*Matrix Management in Hospitals: Testing Theories of Matrix Structure and Developmen*t," *Administrative Science Quarterly* 34.

Linda Smircich, "*Concepts of Culture and Organizational Analysis," Administrative Science Quarterly* 28 (1983).

Lorsch*, "Introduction to the Structural Design of Organizations*".

M. Gregor and S. Medvecky "*Digital Factory: theory and practice*", University of Zilinia, Slovak Republic.

M. Hirt and P. Willmott "Strategic principles for competing in the digital age", McKinsey Quarterly (May 2014).

Mastrangelo, F. Salvador *"Big Data and Organization Design" Journal of Organization Design*, Vol. 3, No.1 (2014).

McKinsey Digital, "*Raising your Digital Quotient",* Mc-Kinsey&Company (December, 2015).

Michael E. Porter, "*Competitive Strategy: Techniques for Analysing Industries and Competitors*", Free Press, New York,(1980).

Michelle Cook, "*The Intelligentsia*," *Business 2.0*(July 1999).

O'Mahony and Barley, "Do Digital Telecommunications Affect Work and Organization?

Oracle, EFMA *"Digital Transformation. The challenges and opportunities facing banks",* (Feb.,2015).

P. Chandok, H. Cheeda and A. Edlich "*How share-services organizations can prepare for a digital future*", McKinsey&Company, (Feb. 2016).

P. Hewitt "How to build a high-performing digital team", Harvard Business Review, (August, 2013).

Paul Engle, "*You Can Outsource Strategic Processes," Industrial Management* (January–February 2002).

Paul S. Adler, "Managing Flexible Automation," *California Management Review* (Spring 1988).

Bela Gold, "*Computerization in Domestic and International Manufacturing," California Management Review* (Winter 1989).

Graham Dudley and John Hassard, "*Design Issues inthe Development of Computer Integrated Manufacturing (CIM*)," *Journal of General Management* 16 (1990).

Tom Massung, "*Manufacturing Efficiency," Microsoft Executive Circle* (Winter 2004).

Perrow, "*A Framework for the Comparative Analysis of Organizations"* and "*Organizational Analysis"* (1967).

R. Berger "*Digitalization of Back Office Activities*", Emfa 2015.

R. Friedrich, P. Péladeau and K. Mueller *"Adap, disrupt, transform, disappear: The 2015 Chief Digital Officer Study" ,* (Dec. 2015).

R. Wang, "*Disrupting the Digital Business: create an authentic experience in a peer-to-peer economy*", Harvard Business Review Press, (May, 2015).

R. Wegner and V. Sinha " The value of Big Data: How Analytics differentiates winners", Bain & Company.

R.E. Miles "*Designing Organization to meet 21st Century Opportunities and Challenges*

Ray Jurkovich, "*A Core Typology of Organizational Environments," Administrative Science Quarterly 19* (1974).

Raymond E. Miles and Charles C. Snow, *"Organizational Strategy, Structure, and Process"*, McGraw-Hill, New York, (1978).

Richard H.Hall, "*Organization: Structures, Processes and Outcomes*", Englewood Cliffs, N.J.: Prentice-Hall (1990).

Richard L. Daft, "*Bureaucratic versus Non-bureaucratic Structure in the Process of Innovation and Change,*" in Samuel B. Bacharach ed., "*Perspectives in Organizational Sociology: Theory and Research"* (Greenwich, Conn.: JAI Press, 1982).

Richard L. Daft, *"Organization Theory and Design"* Tenth edition, South-Western Cengage Learning, USA (2008).

Richard W. Woodman, John E. Sawyer, and Ricky W. Griffin, "*Toward a Theory of Organizational Creativity," Academy of Management Review 18"* (1993).

Robert B. Duncan, "*Characteristics of Organizational Environments and Perceived Environmental Uncertainty," Administrative Science Quarterly 17* (1972).

Robert C. Ford and W. Alan Randolph, "*Cross- Functional Structures: A Review and Integration of Matrix Organizations and Project Management,*" *Journal of Management* 18 (June 1992)

Robert J. Allio, " *Strategic Thinking: The Ten Big Ideas*," Strategy & Leadership 34, no. 4 (2006).

Robert Simons, "*Strategic Organizations and Top Management Attention to Control Systems," Strategic Management Journal 12* (1991)

S. Aronowitz, A. De Smet and D. McGinty "*Getting organizational redisign right*", McKinsey Quarterly (June 2015).

See Anand and Daft, "*What Is the Right Organization Design*?"; Pete Engardio, "*The Future of Outsourcing," BusinessWeek* (January 30, 2006).

Jane C. Linder, *"Transformational Outsourcing," MIT Sloan Management Review* (Winter 2004).

Denis Chamberland, "*Is It Core or Strategic? Outsourcing as a Strategic Management Tool," Ivey Business Journal* (July–August 2003).

Stanley M. Davis and Paul R. Lawrence, "*Matrix"* (Reading, Mass.: Addison-Wesley, 1977);

T. Good, C. Farly, H. Tambe and S. Cantrell "*Trends Reshaping the Future of HR. Digital Radically Disrupts HR",* Accenture strategy, (2015).

T. Sy, L.S. D'Annunzio*, "Challenges and Strategies of Organizations: Levels and Mid-Level Managers' Perspective.".*

Miles and Snow, "*The New Network Firm"*.

Gregory G. Dess, Abdul M. A. Rasheed, Kevin J. McLaughlin, and Richard L. Priem, "*The New Corporate Architecture*," *Academy of Management Executive* 9, no. 2 (1995).

Engle, "*You Can Outsource Strategic Processes"*.

Anand and Daft, "*What Is the Right Organization Structure?*".

Henry W. Chesbrough and David J. Teece, "*Organizing for Innovation: When Is Virtual Virtuous?" Harvard Business Review* (August 2002).

Tom Burns and G. M. Stalker, "*The Management of Innovation",* Tavistock, London, (1961).

W. Alan Randolph and Gregory G. Dess,"*The Congruence Perspective of Organization Design: A Conceptual Model and Multivariate Research Approach," Academy of Management Review 9 (*1984).

W. Jack Duncan, "*Organizational Culture: 'Getting a Fix' on an Elusive Concept," Academy of Management Executive 3 (1989)*.

W. McFarland "*Managers in the Digital Age, Need to Stay Human"*, Harvard Business Review (June, 2015).

Warren N. 2012. "*Organisation Design. Re-defining complex systems*", Pearson. Chapter 4 - *Designing multidimensional organisations,* (2012).

SITOGRAPHY

http://www.economist.com/node/13130340

https://hbr.org/2015/12/what-is-disruptive-innovation

www.oracle.com

https://hbr.org/2015/12/what-is-disruptive-innovation

www.edibasics.com

http://www.supplychaindigital.com/supplychainmanagement/2263/The-Top-10-Outsourcing-Companies-in-the-World

www.webopedia.com

https://www.accenture.com/us-en/digital-platform-ecosystems ;

http://www.forbes.com/sites/ciocentral/2015/03/09/the-rise-of-digital-ecosystems-in-the-we-economy/#53fa965d9403

https://www.pwc.com/it/it/industries/banking-capital-markets/assets/docs/digital-banking.pdf)

http://www.ing.com/About-us/Profile-Fast-facts/History-of-ING.htm

http://www.ing.com/About-us/Profile-Fast-facts/INGs-business-lines.htm

https://www.ing.jobs/Netherlands/Why-ING/What-we-offer/Agile-working.htm

https://www.ing.be/en/retail/fintech-village

http://www.ing.com/Newsroom/All-news/Press-releases/ING-to-start-strategic-partnership-and-launch-pilot-with-fintech-Kabbage.htm

http://www.ing.com/About-us/Purpose-Strategy.htm

http://www.inc.com/encyclopedia/shared-services.html

https://www.youtube.com/watch?v=vSKVcQSVzYU

https://www.youtube.com/watch?v=6V1dWH4X9U0

https://www.fintechweekly.com/fintech-definition