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Case study: Dynamic capabilities emerged with parcels exploration in CTT

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Department of Marketing, Operations and General Management

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Resumo

Desde a criação dos CTT, que esta empresa se tem vindo a adaptar de modo corresponder às mudanças do mercado, para corresponder de forma mais eficaz às exigências dos clientes.

A partir de 2010, com a introdução da internet e da digitalização, que se tem vindo a assistir a um declínio no serviço postal. Deste modo, a empresa teve de alterar a sua estratégia noutros segmentos de negócio, como o e-commerce e o serviço de encomendas.

O início da mudança começou em 2013, com o Plano de Transformação Operacional que assentava em 4 pilares fundamentais: (i) Ajustamento das políticas de Recursos Humanos (RH) e implementação de politicas para a redução de custos de Fornecimentos e Serviços Externos (FSE); (ii) Reforço do programa de otimização de Recursos Humanos e racionalização de ativos não core (imobiliário); (iii) Otimização da Rede de Retalho mantendo a proximidade com os cidadãos; (iv) Reengenharia da Rede de Distribuição para melhorar a eficiência operacional e a qualidade.

Para além disso, em 2016 iniciou a implementação de um novo modelo de produção nos Centros de Produção e Logística que permitiu processar mais de 120.000 encomendas por dia.

Com as medidas implementadas, os CTT pretendem adaptar a sua estrutura à realidade dinâmica dos negócios onde operam, o que se traduzirá numa redução de custos em todas as categorias de gastos como o Pessoal, FSE e Estrutura.

No entanto, os CTT para além de estarem focados em alcançar estabilidade financeira, também estão conscientes da importância dos pilares ambientais e sociais.

Palavras-chave: CTT; Capacidades Dinâmicas; Business Economics; e-Commerce; Postal and Delivery Services

Abstract

Ever since the creation of CTT, that this company has been adapting to correspond to constantly changing market to respond effectively to emerging demands by customers.

A decreasing in the postal service has been observed since 2010 with the introduction of internet and digitalization. As a result, this company had to change its strategy and pursue a new path on other business segments, like e-commerce and parcels service.

The beginning of the changes started in 2013, with the Operational Transformation Plan constructed for this context and was based on 4 fundamental pillars: (i) Adjustment of Human Resources (HR) policies and deepening of the External Supplies and Services (ES&S) cost reduction efforts; (ii) Reinforcement of the HR optimization program and rationalization of non-core assets (real estate); (iii) Optimization of the Retail Network maintaining proximity to citizens; (iv) Reengineering of the Distribution Network to improve operational efficiency and quality.

Furthermore, in 2016 it began the implementation of a new production model installed on the Production and Logistics Centres which allowed to process over 120.000 parcels a day.

With the implemented measures, CTT aims to adapt its structure to the dynamic reality of the businesses where it operates which will result in cost reduction on all cost categories (Staff, ES&S and Central structure).

Nevertheless, CTT besides being focused on pursing financial stability, it is also concerned in achieving sustainability at a social and environmental level.

Keywords: CTT; Dynamic capabilities; Business Economics; e-Commerce; Postal and Delivery Services

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1.Case Study Context

1. 1 Introduction: brief description of the theme

Dynamic Capabilities have been discussed for over 30 years, however, since the beginning of the last pandemic, that companies have been constantly tested by its capacity to adapt to new realities.

New challenges have emerged thanks to an unexpected increase of demand on e-commerce, such as supply chain constrains due to lockdown restrictions along with a lack of structure to support these events by the companies. Or on the other hand, a sudden decrease of demand could lead organisations to bankruptcy. So, by understanding the outcome of an adaptable structure during a crises, better solutions can rise within the companies in future threats.

Therefore, to survive, companies had to show that they have the ability to transform and adapt their structure, as a response to changes in customer needs by overcoming problems in their supply chain that can arise from pandemic restrictions, natural disasters, wars and eventually goods shortage (as the chip crisis, for example).

Nevertheless, nowadays, it is important not only to evaluate the economic result of the companies' changes but also to measure the impact on social and environmental dimensions as a response to this human and economic crisis.

As the pressure rises for organisations to change and adapt, as an attempt to rapidly answer to customer's needs is to launch their business or reinforce them through e-commerce, so that business develop in new markets, especially since the pandemic. Accordingly with the OECD, in EU-27 in April of 2020, retail sales via mail order houses or the Internet increased 30%, when compared with the same period in 2019.

By analysing the evolution of e-commerce retail sales worldwide from 2014 to 2026 it is notorious the evolution predicted in 10 years, in which the most relevant growth happened in 2017 and 2020, year on year. Even though the increase, in percentage, has not been increasing as much year on year, when compared 2019 with the 2026 forecast numbers, the retail e-commerce will increase 143%. (Statista, 2023)

In addition, it is also expected that e-commerce trend continuous to escalate since by 2025, its market-share will be 24,5% over the whole retail market. (Statista, 2022)

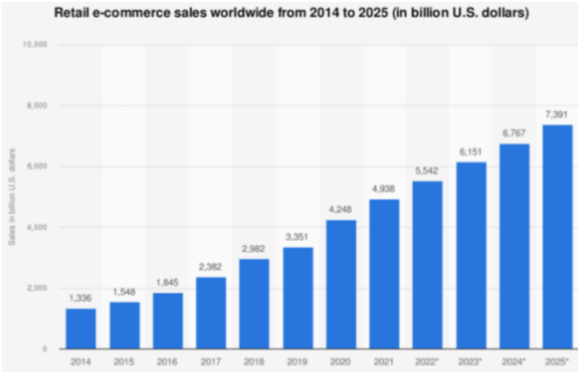


Figure 1.1 – Retail e-commerce sales worldwide from 2014 to 2025 (in billion U.S. dollars), Statistica 2022

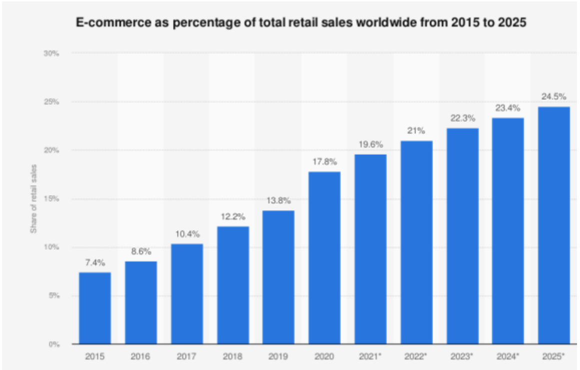


Figure 1.2 –E-commerce as percentage of total retail sales from 2015 to 2025 (in billion U.S. dollars), Statistica 2022

1.2 CTT: Brand Overview

CTT is a company with more than 500 years of history. It has developed itself along the time accordingly with the society needs. Nowadays, it has three main brands: Banco CTT, CTT Express and Payshop.

To begin with the birth of CTT, it is necessary to go back to 6th of November of 1520, when Portugal was at the centre of the world, so there was a need for all social levels and with other nations to have access to mail, plus it needed to be more efficient. D. Manuel I delivered the management of the service into one of its knights, Luís Homem, so that he could solve the biggest problem of the service, the lead time and the cost of the service.

However, the service did not improve, so in 1797, D. João VI incorporated it as a public service not only to control the information received and the revenues but also to improve the service. A year later the service started to develop with the beginning of a regular service, with the implementation of mail coach service and by 1821, it started to be delivered at home in the city of Lisbon.

In order to end with the three main issues of the service, black market, the postman might not receive money for its job and to decrease the number of lost mail, across the globe, Rowland Hill thought that uniformizing the service, decrease the prices and a prepaid service by the sender instead of the receiver would improve the overall experience, inventing in this way the beginning of the postal stamp, in 1837. However, this idea only arrived at Portugal in 1853, with the Postal Reform, which was when the service became more accessible for every social level. Until then, the mail was mostly used by royalty and businessmen. Nevertheless, it took more forty years for the mail to be accessible to the whole population. Furthermore, around 1950, CTT finally achieved total coverage in Portugal by acquiring buildings for postal services, betting on the development of a rail-road network and creating mobile stations in rural areas.

Between 1910 and 1960, the company had been consolidated its structure as it was adapting and following the progress that had been made in the transportation sector, for example by delivering mail by plane in Africa. After 1960, the company has finally started to captivate more users and by 1970, the administration of the company changed its statute to become a public company with its own administration. The company changed its name to *CTT – Correios e Telecomunicações de Portugal*.

The company started to hit it off, by 1972 with the creation of the Mail express train which was the beginning of a faster service. By the end of the 70s it was developed the postal code which facilitated the identification of the destination which contributed to diminishing errors in addresses.

In 1992, CTT. – *Correios e Telecomunicações de Portugal* split in two companies, CTT – Correios de Portugal, focused on mail, and Portugal Telecom regarding the telecommunication business. In the same decade, the CTT created three new types of postal: *azul*, *Post Log and Corfac*. Whereas, nowadays, the *Azul* mail (priority mail) along with express mail and parcels are the business segments that supports the increase of traffic on mail network and consequently a rise of revenues. Despite the overall decreasing of mail, priority and registered segments had an increase of 1,1% and 1,4% , respectively, when comparing with the previous year (CTT Annual Report, 2022).

In the beginning of the 20's century, the State conceded to CTT the concession of the universal postal service (which has defined that CTT has to provide mail service for the whole country), the company realised the necessity of evolving along with the technological progress otherwise the business would fall.

In order to extend the provided services in the debt collection, the company acquired Payshop, a specialist in electronic payments. To establish their position in the finishing business, mail preparation and manufacturing, CTT entered in Mailtec capital.
Even though that in 2005, the main service of the company was mail, it was evident that the parcels delivery was starting to increase due to technological developments, so to take advantage of this business opportunity, this company acquired Tourline Express, now called CTT Express, which distributed parcels all over Spain, beginning the internationalization of the company.

After the liberalization of the postal service in EU, in 2013, the government decided to sell 70% on the stock market and in 2014 the 30% remained.

One year later, CTT launched Banco CTT with the biggest opening that has ever happened in Portugal with the inaugural of 52 agencies.

After 500 later, the company is still looking for new aways for staying relevant in the market to captive the customer’s attention.

2. Literature Review

2.1 Resource Based View

In this emerging world of change, it has become vital to understand the sources of competitiveness. To do so, there were created models that allow companies to create and evaluate their resources and capabilities which can be developed into a sustainable competitive advantage.

One of the theories that tries to explain a firm's growth is the Resource Based View (RBV). The origins of this theory can be found in *The Theory of Growth of the Firm* (Penrose, 1959). However, it was with Jay Barney, in 1991 that this theory gained more attention.

The RBV assumes that for a company to have a sustainable competitive advantage, their resources are heterogenous among other companies in the industry. Secondly, it also assumes that the resources are not necessarily transferable across firms, meaning that heterogeneity can last long (Barney J. , 1991).

Due to these two conditions for a company to achieve a sustainable competitive advantage, the resources need to be simultaneously valuable, rare, inimitable and there cannot be substitutable products from competitors (VRIN resources), according with Barney in 1991.Through this evaluation firms can decide which competitive advantage should be pursued, for a sustainable success.

Regarding, the condition *Imperfectly imitable resources*, this can only be obtained if the company complies with one or a combination of three reasons:

(1) the resource is linked with the *unique history* of the firm;

(2) *casual ambiguity* is the reason behind the sustained competitive advantage; and/or

(3) *social complexity* is the source of the sustainable competitive advantage.

However, the VRIN analysis is only focused on the resources, whereas the VRIO matrix (value, rareness, inimitability, and organization) also analyses the capabilities of the firm. Through this matrix the company's functionality of the resources along with the capabilities are transformed in competitive advantage, either sustainable or temporary (Barney, 1995, 1997; Cardeal & António, 2012). To, be considered a sustainable competitive advantage, the resources and /or capabilities need to be simultaneously valuable, rare, inimitable and the organization is exploiting it. If it only is valuable, rare and/or costly to imitate, then it is only considered temporary competitive advantage (Barney & Hesterly, 2008).

2.2 Dynamic Capabilities

2.2.1 Origins and Definition

"Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external resources" (Teece et al., 1997).

Nowadays, the markets have been changing constantly, especially after 1990. Since the industries are rapidly shifting, it was become crucial for businesses to adapt and evolve accordingly with the change.

To take advantage of these market changes, companies need to have the ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments (Teece et al., 1997), also known as dynamic capabilities. Meaning that companies that have an adaptable structure can develop a new competitive advantage which can create a market position and trends.

Dynamic capabilities can be seen as an extend of the RBV theory, since these capabilities can also be found by a combination of resources and capabilities that allow the company to innovate accordingly with the market changes.

Even though, resources and capabilities are linked, they are not the same. A resource is an asset controlled by a company that might be hard to imitate or even impossible while a capability is way to develop a resource (Teece et al. 1997; Amit & Shoemaker, 1993). The resources can also be distinguished in internal and external. Whereas, internal are mainly the human or technological assets own by a company, while external resources are formed through alliances, collaborations, joint ventures, acquisitions or also outsourcing (Chiesa & Manzini, 1998; Bantham et al., 2003; Johnson and Sohi, 2003).

In addition, since resources are assets, they can be sold in the market and they are classified as tangible or intangible (Wernerfelt, 1984), whereas capabilities are intangible routines that are rooted in the culture of the company, therefore cannot be sold (Teece et al., 1997).

Accordingly, with Teece et al. (1997) the process of a company is the reason for a company to generate and maintain a competitive advantage. However, this process is dependent from the position and path of the company. A process consists in how things are prepared in the company, which might also be referred as routines or patterns of practice and learning. The position of the company is related with its intellectual property, technology, complementary assets, customer base, as well as with their relations with their suppliers. It is also linked with the resources hold in the company which can have several origins such as institutional, technological, financial. The path of the company can also influence the strategy as past decision can have impact on future results since it can improve or deteriorate the future of the company.

These factors can be a source of competitive advantage only if, the combination of their assets, competences and routines is practically impossible to imitate.

On the other hand, according with Eisenhardt & Martin (2000) Dynamic Capability is a process in a firm that accomplishes a new combination of resources through the firm's organizational and strategic routines so that it can emerge, collide, split, evolve, and die as the market defines or even create and innovate in markets.

Even if Teece et al. (1997) and Eisenhardt & Martin (2000) do not agree on the definition, these authors defend that competitiveness, and the velocity markets are the drivers for companies to develop their Dynamic Capabilities.

In moderately dynamic markets, stable industries structures in which market boundaries are well defined and change occurs frequently but predictably, the tasks of the development process are distributed between focal firms and suppliers allowing the overlaps of process steps without maintaining an extensive communication during the process. In this type of industries managers can take decisions based on past events and the players as well as the market boundaries are clear. Zollo & Winter (2002) defend that even in stable markets company tend to develop the capacity to integrate, build and reconfigure internal and external competences to obtain higher levels of efficiency.

As in high-velocity markets, where change occurs rapidly and unpredictably since market boundaries are unclear, effective dynamic capabilities are simple routines, experimental and iterative processes as opposite in moderately markets. In high-velocity, routines are simple because they maintain managers focus on the tasks instead of being worried about specific behaviours or the use of past experiences. In this type of market, to create dynamic capabilities it is essential to focus on the creation of new knowledge about the current situation where real-time communication allows the company to act and adapt their actions accordingly with problems since they are found in an early stage (Eisenhardt & Martin, 2000).

Due to the specificities of very dynamic markets (such as rapidly change and unpredictable outcomes) Eisenhardt & Martin (2000) believe that it is not possible to maintain a competitive advantage because there is no control of the length of time that the company would have the advantage. Rather the Dynamic Capability, in this market, are defined as alliances, product development, and strategic decision making, basically the company tries to create value for the company. Since it is possible to imitate dynamic capabilities, it can be found "best practices" or commonalities for specific dynamic capabilities among firms, meaning that companies are more homogenous than what the RBV theory suggests. Furthermore, identifying best practices in Dynamic Capabilities forms several interrogations such as:

(1) equifinal, despite the existence of good practices, each company develops its own path;

(2) the existence of commonalities on Dynamic Capabilities suggests that these capabilities are more likely of being substituted;

(3) similarities also mean that these capabilities cannot be a source of competitive advantage since they are imitable.

With the possibility of being replicated, the competitive advantage raised by the dynamic capability lies on the resource's configuration developed by them, therefore dynamic capabilities help create competitive advantage although they are not enough.

Although Eisenhardt & Martin (2000), defend that, in very dynamics capabilities, it is not possible to maintain a competitive advantage, Teece et al. (1997) believes that in these markets it is possible to maintain a competitive advantage because these companies develop unique ways of creating, building, reconfiguring internal and external competences that respond to market changes.

Even though Teece et al. (1997) and Eisenhardt & Martin (2000) were the authors who popularized more this concept and defined it, there were also more authors that developed this concept:

Winter (2003) outlined that dynamic capabilities are "those that operate to extend, modify or create ordinary (substantive) capabilities".

As for Zahra & George (2002) this concept is mainly change-oriented capabilities which help companies redeploy and reconfigure their resource to meet customer demands evolution and competitor strategies.

For Wang & Ahmed (2007) Dynamic Capabilities are defined as the development of a culture of change. A continuous search to maintain and create competitive advantage cultivates a behaviour, orientation to integrate, reconfigure, renovate, and build resources and capabilities so that a company can rebuild and improve its core competences.

2.2.2 Typologies of Dynamic Capabilities

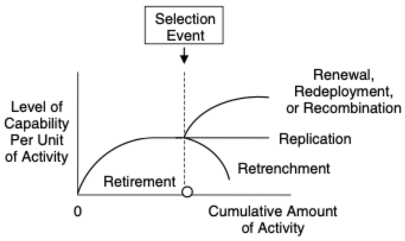
Collis (1994) suggests that companies might not be able to maintain a sustainable competitive advantage even if their resource are unique due to three factors:

(1) as the firm modifies according with the market changes it is natural a destruction of the capability;

(2) substituted by another capability;

(3) exceeded by a better capability.

Since these factors are linked with the market changes, they will follow a lifecycle as described by Helfat & Peteraf (2003). This cycle stages are mainly three, which are: founding stages, development stage and maturity stage. This last stage can evolve into one of six branches: retirement, renewal, retrenchment, replication, redeployment, and recombination.



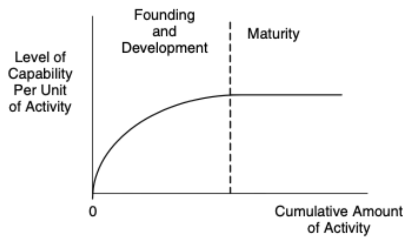


Figure 2.1 - Stages of the initial capability lifecycle

Figure 2.2 - Branches of the capability lifecycle

Source: Helfat & Peteraf, 2003

There are authors who identify a hierarchy for the capabilities with four levels. The resources that are VRIN (Valuable, Rare, Inimitable and Not substitutable) are a base for a competitive advantage. Being the first, a firm achieving its objectives through its resources, the ability to perform basic functional activities more efficiently than its competitors. To reach the "second order" or core competencies, the firm's resources and capabilities are configurated accordingly with the strategy of the company, which can become irrelevant with environment changes (Leonard-Barton, 1992). In the third category (and last for Wang & Ahmed, 2007) a company is continuously looking for the renewal, reconfiguration, and re-creation of their core capabilities to adapt to market changes (Collis, 1994; Wang & Ahmed, 2007). However, for Collis (1994), the last level is called meta-capabilities in which is the ultimate ability to develop the capability to develop the capability, and so on, that will continuously surpass its competitors.

2.2.3 Nature of Dynamic Capabilities

Dynamic capabilities represent a set of processes related to developing new products and improving product quality and play an important role in organizational development and growth (Camisón and Villar-López 2014). Similarly, O'Cass & Sok (2012) defined dynamic capabilities as a factor that facilitates an innovative organizational culture, the characteristics of internal promotion activities, and the ability to understand and respond appropriately to the external environment.

It should be noted that the COVID-19 pandemic was an environmental turbulence that affects the work environment and changes professional life (Ansell et al., 2020). Environmental turbulence is described as rapid, unpredictable, complex and dynamic changes that lead to uncertainty (Khouroh et al., 2020). The COVID-19 pandemic has affected and created uncertainty in almost every industry across the globe and generated a need for rapid digital transformation from conventional to new forms (Ratten, 2020).

In today's environment, leaders must recognize market changes and implement changes within their organization. Dynamic capacities play an important role in improving institutional flexibility at the strategic level to deal with external changes (Wang et al., 2015). A large part of the literature review in this area has revealed that several authors have investigated dynamic capabilities in the commercial and manufacturing context (Singh et al., 2013; Ratten, 2020).

Dynamic capacities play an important role in improving institutional flexibility at the strategic level to deal with external changes, and for this reason, serve as a basis for building the flexibility strategy (Brozovic, 2018). According to the author, dynamic capabilities are a facilitating factor of the flexibility strategy, and adaptability and agility are used in different studies when it comes to issues related to the organizational environment. Haarhaus and Liening (2020) noted that flexibility strategy is a dynamic ability to plan and survive effectively in the new competitive world because it helps to identify and respond quickly to change.
Nevertheless, environmental turbulence is related to the temporary disturbances that occur due to environmental changes and generally have negative consequences for the organization (Wang et al., 2020). In this sense, environmental turbulence is fast-paced, unpredictable and complex. COVID-19 is one of the external threats that have affected the work environment and challenged professional life, as it has had an impact on the work environment (Kirby, 2020).

However, this environmental turbulence is seen as an opportunity for organizations to respond quickly and dynamically to these changes.

2.2.4 Adaptative Capability

Nowadays, companies live in a hypercompetitive world whereas developing the ability to adapt to changes in its environment is the key to assure the existence and continuity of the businesses (D'Aveni, 1998).

Accordingly, with Chakravarthy (1982) there are three different types of company interaction with the external environment:

(1) Defenders, also defined as an unstable state, where companies are highly exposed to changes occurred in the environment. To protect themselves, they are constantly looking for maintaining stability in their business, therefore its operations are deliberately thought to reduce interactions with the external environment.

(2) Prospectors form or a stable state, where organizations counter-offer rapidly to external changes by usually using imitation strategies. These companies have an extensive market surveillance to spot the best opportunities in the industry, to quickly copy and adapt to the environment.

(3) Proactive form or a neutral state is achieved when a company anticipates changes in the environment and acts accordingly, which is only possible since the firm is constantly pursuing the next market opportunity, developing an adaptive capability.

Additionally, Parson(1964) defines this capability as the ability to survive, manage the uncertainty and with unpredictable modifications.

These are companies who are defined as being constantly looking for new market opportunities, being themselves sometimes responsible for introducing modifications in their business (Eisenhardt & Martin 2000; Miles & Snow 2003). Since they are able to reconfigure rapidly, this organization act in a proactive way by understanding the characteristics of the external environment and taking actions to adapt to changes. Meaning that, at the same time, they are inducing changes in their surrounding in a way that it better strengthens its adaptation process.

Wang & Ahmed (2007) defined adaptive capability as a knack that a company possesses to identify and pursue new opportunities on the market.

Adaptive capabilities are one of the elements of dynamic capabilities that seek to understand how organizations connect their internal advantages and resources with the advantages present in the market (Wang & Ahmed, 2007). In this sense, the organization that adapts to capacity, responds and reacts to internal or external changes highlights that dynamic capabilities are reflected through a capacity for adaptation, and considers the strategic flexibility of the resources it has, the internal alignment of resources, its form of organization and the needs of strategic action (D'avila and Silveira-Martins, 2017).

In this regard, some studies have already been developed to validate the scales, constructs or tools to measure or evaluate organizational dynamic capacities, the study by Silveira-Martins and Zonatto (2015) demonstrated the development of dynamic tourism capacities and, Schilke et al. (2018) provided some studies on the theme of dynamic capacities, particularly the need to formulate scales to validate the propositions of this theory in the organizational context.

Kump, Engelmann, Kessler and Schweiger (2019) identified in their study the capacities of perception, apprehension and transformation, and Garrido et al. (2020) structured a relationship of the elements of dynamic capacities, involving the orientation and collection of opportunities and at the same time, managing risks and reconfiguration as elements that influence organizational performance.

Initially, Teece, Pisano and Schuen (1997) and Zhou and Li (2010) highlighted an important and more dynamic view of organizational adaptation that consists of the habituation capacity to cope with changes in environmental conditions. Similarly, Stabler and Sydow (2002) observed that organizations with adaptive capacity can learn more quickly in changing conditions that require reconfiguring old routines, experimenting with new projects, and identifying and capitalizing on market opportunities. In this sense, adaptive capacity is understood as a dynamic process of continuous learning that allows for an increase in innovation capacity.

Adaptive capacity is generally used as a basis for understanding the organization's different forms of capital and understanding the processes that allow them to live with change, reducing negative impacts, and seizing opportunities that arise (Eshima & Anderson, 2017; Zhu, Su & Shou, 2017). The study by Zalusk et al. (2021) aimed to propose and evaluate a scale to measure adaptive capacity in organizations, through the model of Stabler and Sydow (2002) that determines the indicators for each dimension. The results of the study demonstrated the articulation of the indicators of a Flexible Organizational Organization, Innovative Structure and Management, Plurality and Multifunctionality of Teams and Information Systems and Market Analysis, which result in a scale of analysis of the development of adaptive capabilities. The scale helps to equip managers, allowing the identification of weaknesses, pertinent to dimensions and indicators, so that managers can guide their efforts. According to Ali et al. (2016) adaptive capacity is a kind of important systematic capacity to harvest, configure and reconfigure all the resources that can provide competitive advantages.

Adaptive capacity is the essential element of a company's growth, as it integrates the different tangible and intangible resources, and can guide how the company interacts with external entities, customers, competitors, and technology (Eshima & Andersen, 2017). Similarly, resource reconfiguration is centered through adaptive capacities, which allow processes to respond to peripheral changes (Paliokaite & Pačėsa, 2015). According to this perspective, dynamic management capability plays a vital role, as management seeks to reconfigure and modify the organizational capabilities present in a company where limited and time-bound information is available about the organization's capabilities and the nature of environmental changes (Whittaker, 2016).

2.2.5 Absorptive capability

To develop an adaptive capability and a process of adaptation in the company, it is fundamental to understand the condition of the environment where the company is established. Furthermore, to maintain its competitive advantage, the company needs to acknowledge the value of an external information, comprehend and use it in its favor to distinguish among its industry (Cohen & Levintbal, 1990).

The absorptive capability is essentially exploring the external data acquired in its business. Therefore, this capability depends not only of the level of openness of the company to the external environment (industry, partnerships, centers of investigation, …) in acquiring information but also the level diffusion among the structure of the company, to incorporate the acquired knowledge on the output (Cohen & Levintbal, 1990).

The term "absorptive capacities" was established by Cohen and Levinthal (1990) in their article entitled "Absorptive capacity: a new perspective on learning and innovation", in which the author identified it as the absorption capacity that can promote innovation and innovative performance in organizations. A decade later, Zahra and George (2002) proposed a new model in which they portray absorptive capacity as a dynamic capacity and assumed that it helps organizations sustain competitive advantages over competitors, increasing flexibility, innovation, and company performance. According to Zou et al. (2018), absorptive capacities represent the basis of innovation theories, and are a strong predictor of knowledge transfer within companies.

The theory of absorptive capacities presents a theoretical multidimensionality which promotes its diffusion through the integration with other theories, such as network theory, knowledge-based theory and dynamic capacity theory (Apriliyanti and Alon, 2017). Thus, the existence of several models of absorptive capacity contributes to the provision of theoretical studies.

It was precisely from the 2000s onwards that the number of studies using the concept of absorptive capacities increased. As an example, the study by Lane, Koka and Pathak (2006) highlighted that since the introduction of the concept, around 900 peer-reviewed academic articles have been published. Over the years, researchers on absorptive capacities have identified the main theoretical perspectives of absorptive capacities, construction approaches, and research flows (Volberda et al., 2010). In this regard, Rossetto et al. (2017) addressed the flow of research on absorptive capacities and innovation, but their study focused mainly on the bibliometric aspects of the academic literature and not on the influence of absorptive capacities on innovation.

According to Ali & Park (2016), some theoretical studies have assumed that forces as mechanisms of social integration, regimes of appropriation and past experiences act as moderators of absorptive capacities and innovation relations. Some forces that affect the influence of absorptive capabilities on innovation are learning, organizational, technological turbulence, and innovative culture (Lau and Lo, 2015).

Markets that are highly dynamic increase the pressure on companies to constantly innovate (Nilsson & Ritzén, 2014). It is essential that companies recognize their environment as a source of new ideas, and the absorptive capabilities of companies contribute to the transformation of absorptive knowledge into novelties that lead to innovative performance (Apriliyanti and Alon, 2017).

2.2.6 Innovation Capability

Accordingly with Lawson & Samson (2001), innovation capability consists in gathering new ideas and knowledge to create new products, processes and systems for the gain of the stakeholders and the company. Furthermore, this capability is used as an instrument to find new sources of competitive advantage for the long term, since the products that generate profit on the short term might not continue to be profitable. Therefore, it is crucial to focus on efficiency on the short term and on innovation on the long term.

Thus, Wang & Ahmed (2007) refers to it as an orientational innovative strategical alignment between the ability to create new products and/or markets with innovative processes and behaviours. Through this capability, it is possible to explain the connection between resources and capabilities to its markets since it connects the innovation of the company with the competitive advantage acquired in the market.

Currently, improving the ability to innovate is a prerequisite for the organization to achieve a high level of competitiveness and sustainability. There is a body of literature on the view that motivation is closely related to the sustainability of the company and the sustainability of the business environment (Derevianko, 2019).

Innovation can be defined as the application of new ideas to products, processes, or other aspects of a company's activities that lead to increased value. This value is broadly defined and includes the highest added value for the product, and benefits consumers or businesses.

The expression *Innovation* originates from the Latin *innovatione* which means renewal and, according to the dictionary of the Portuguese language, innovate means to introduce any novelty in management or in the way of doing something, or creating something new. Therefore, innovation represents an important strategy for economic development and growth, as well as for improving the quality of life of populations. Schumpter and Drucker, on the other hand, when addressing innovation, associated it with entrepreneurship. It was Shumpter who referred to the different forms that innovation can take, namely, as a new product, a method of production, a market, materials and a company (Swedeberg, 2009). And, Drucker pointed out that innovation is an important tool for entrepreneurs (Drucker, 1993 cit in Sakar, 2009, p.28).

The ability to generate streams of new products or services over time is therefore vital for many organizations. Equally, organizational design plays a significant role in this skill, so understanding how to organize for innovation is a central problem in innovation management (Galbraith, 1995; Tushman and O'Reilly 1997; Dougherty 2001).

The association between theoretical innovation and the competitiveness of firms, based on a long-term perspective, can be contextualized through strategic adaptation. According to this line of research, the strategic process is considered to be a dynamic process, being the necessary key to achieving competitive advantage (Shan et al., 2018).

According to the resource-based view of the enterprise, all organizations differ in their resources and capabilities in important and durable ways that affect their competitive advantages (Swiadek, 2018). In recent decades, it has been recognised that under conditions of strong competition, many organisations are not able to remain self-sufficient in the area of building their resource bases, particularly in relation to knowledge assets.

Changes in the environment force today's companies to focus on modifying their resources if they wish to maintain their competitiveness in the hyper-competitive world by permanently monitoring and changing their resources (Glinska et al., 2017). For this reason, innovation is often referred to as the specific set of activities that offers competitive advantages to the company. As such, an increase in interest on the part of researchers has been placed in understanding which practices most substantially affect the innovation and capacity of the company. Innovation can be directly identified with the concept of strategic adaptation. Thus, the same literature on innovation practices gives details on how to integrate specific innovation practices or capabilities into each dimension of strategic adaptation (Ruffoni et al., 2018).

Dynamic Capabilities can be divided into the capacity of sensing, seizing and transforming intangible and tangible assets (dynamic capabilities framework).

Sensing

Teece (2007) states that the first capacity is to sense and shape opportunities and threats consists in investing in research and development (R&D) and mostly examining, learning, creation, and interpretative activities. The detection of opportunities emerges from two factors: companies might have privileged access to existing information or acknowledges some disequilibrium to take advantage (Kirzner, 1973) and new knowledge might develop opportunities. To support the development of this capacity Teece (2007) suggests the implementation of four types of processes: processes to direct internal R&D and select new technologies, processes to control suppliers and complementor innovations; processes to tap developments in exogeneous science and technologies and processes to identify target market segments, changing customer needs, and customer innovation.

Sensing capabilities involve the recognition and monitoring of opportunities and threats from the external and internal environment. Harnessing Capabilities is the learning of the company, reflected by the ability to create internal knowledge, acquire external knowledge and assimilate internal and external knowledge through the sharing of knowledge that is very important for the creation of capacities (Cepeda & Vera, 2007; Osisioma et al, 2016).
Teece (2018) described the development of the concept of sensing, learning and transforming associated with business model innovation. Thus, the sensing stage is filled by the technological possibilities, identification of opportunities, and production of technological development, while in the phase of taking advantage of the presence of strategies necessary to anticipate the reaction of competitors and one's own efforts to maintain intellectual property (Chao & Kang, 2022).

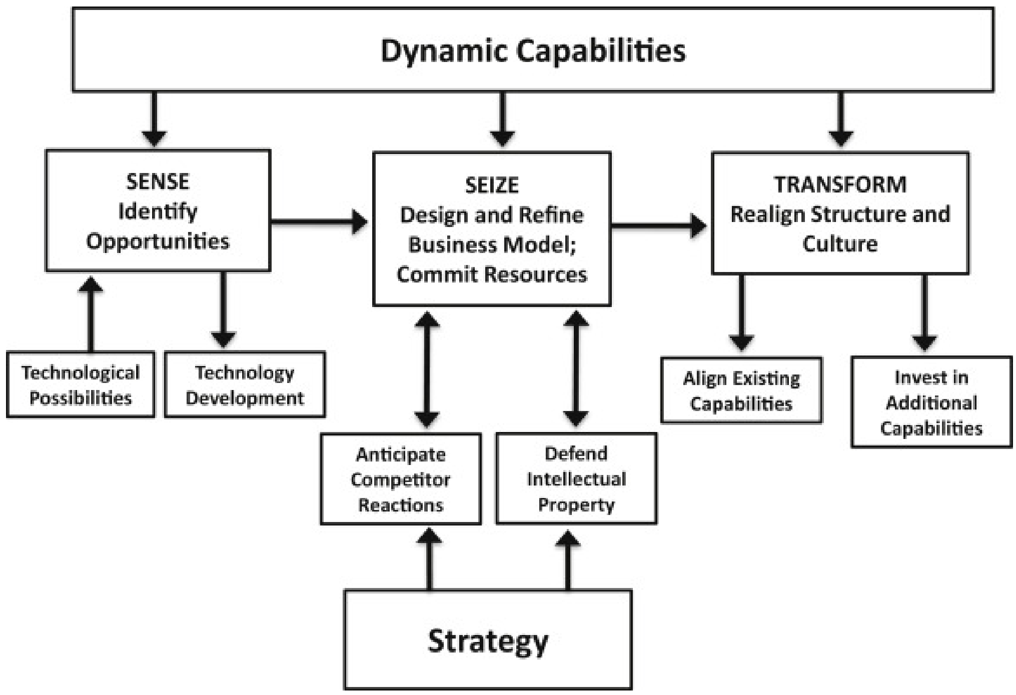


Figure 2.3 - Conceptualization of Teece's dynamic capabilities

It should be noted that the most important dynamic capabilities are in the birth phase, and it is at this stage that the environment detects to identify and create acceptable and new ideas for the market, the formulation of competitive business models and the ability to direct resources becomes the focus in the company's activities (Canovas-Saiz et al., 2021; Saiz et al., 2018).

Seizing

Once identified the opportunity, seizing it is the next step, it needs to be exploited through new products, processes, or services that will answer to customer needs or even create them. To take advantage of this opportunity in the market, it is not enough to decide when and how much to invest but also adapt the business model so that it is according with the commercialization strategy and investment priorities. Teece (2018), added that strong dynamic capabilities assist the creation and implementation of effective business models.

Transformation

The final capacity for the company's success is managing threats and reconfiguration. To do so it is important that the firm is able change its routines and recombine assets and organizational structures as market and technologies change.

Furthermore, Eisenhardt & Martin (2000) suggested that dynamic capabilities can be decomposed in four processes: integration, reconfiguration, gaining, and the releasing of the resources.

Additionally, Wu (2007) described those dynamic capabilities can be divided into perspectives of resource integration capability, resource reconfiguration capability, learning capability.

2.3 Triple Bottom Line

Usually, companies are more focus on measuring profit than also evaluate on their performance on people and planet.

Elkington (1997) introduced the term Triple Bottom Line (TBL), in which the author considers it expresses the expansion of the environmental agenda in a way that integrates the economic and social lines. The TBL offers a framework that allows an organization to measure its performance and success in three lines (economic, social, and environmental) where all of them have the same level of importance bringing more balance and coherence into the analysis.

Globally, sustainability represents an increasingly important topic and, in this context, TBL is commonly adopted as a framework that indicates to companies what strategies are needed to become sustainable (Yun et al., 2019). The positive impact of TBL on firms' competitiveness has increased managers' support in this framework (He et al., 2019). In this context, TBL's sustainable practices can promote economic growth and improve the competitiveness of companies.

Planning is another way to improve the efficiency and increase the success of organizations' initiatives, and represents corporate decision-making directed toward the goal of maximizing profits (Maroun et al., 2022).

2.3.1 Economic Line

The economic dimension of the TBL consists in the company's impact on the economic systems (Elkington, 1997). This dimension bonds the organization growth with the economic growth and its contribution for the future of the economy (Spangenber, 2005).

2.3.2 Social Line

Regarding the social line, it means the company's contribution of benefits and fair business practices to labour, human capital, and to the community (Elkington, 1997). In other words, this dimension focuses on measuring the value provided, the "give back", for the community such as fair wages and providing health care coverage.

2.3.3 Environmental Line

The last dimension is the environmental, which refers to company's practices that do not harm the environmental resources for the future of the population. Such practices intend to minimize the organization's ecological footprint. These practices can be the use of energy resources, reducing greenhouse gas emissions, electricity, and fossil fuel consumption.

2.4. CTT – Correios de Portugal

2.4.1 Price and Service

The postal market in Portugal has been fully open to competition, since 2012. However, there are still some services under the universal postal service reserved for the CTT national and international scope:

- Postal service for letter mail (excluding direct mail), books, catalogues, newspapers, other periodicals up to 2kg and postal parcels until 10kg, aside from the delivery in the country of parcels received from the European Union up to 20kg;
- Delivery service for registered items and a service for insurance items;

Besides the universal postal service, the concession agreement signed between CTT, and the Portuguese Government includes:

- Placing letter boxes on public streets for the acceptance of postal items;

- Provision of special payment orders which, allows the transfer of funds electronically and physically, on a national and international level, named as postal money order service; and
- Electronic mailbox service, on a non-exclusive basis.

The new concession agreement entered on the 8th of February of 2022 until 31st of December of 2028. This main new amendments are mainly with the price, the quality of the service and the density of the postal network.

Concerning, the price, it will be defined by agreement between CTT, ANACOM and the consumer Director-General. In case where no agreement is reached, the criteria will be the sustainability and economic and financial viability of the Universal Postal Service. It has to consider the variation in volume, the change in relevant costs, the quality of the service and the incentive to an efficient provision of the universal service.

In 2022, the defined agreement stated that the maximum annual average variation is 6.8%. Which represents the decline in volume of the first nine months of 2021 and the variation of the consumer Price Index for the Transport expense category.

ANACOM provides a proposal, that needs to be approved by the Government in which indicators and procedures are established to ensure high levels of quality of service following the best practices in European Union. (CTT annual report, 2022)

3. The Case

3.1. Presentation of the Case

3.1.1 CTT Business Model

Besides understanding the foundation of this company, it is also important to consider the CTT's business model and its strategy. The company is focused on being the bridge between companies and the companies' clients. To do so, CTT provides commerce and business services, promotes e-commerce and efficiency by simplifying the businesses' physical and digital presence. For general customers, CTT sees themselves as the closest way for physical communication and financial services.

The business of the company is divided in 5 strategic business units: mail, express & parcels, business solutions, financial services & retail, and CTT Bank. Regarding mail, the company is focused on ensure sustainability of the mail segment either physical or digital, however, CTT is also seeking to diversify their portfolio by growing in business units such as Express & Parcels, CTT Bank, Financial Services and Retail to reduce the dependence of the mail segment.

As a way of assuring long-term sustainability, CTT has been implementing several initiatives in 3 key areas: economic, social, and environmental.

Regarding the economic sustainability, the company has been consolidating its turnaround strategy by increasing its market share, scale and operating efficiency, reaching the break-even, as a response to the growth of volume in parcels. To assure the economic growth of the Bank CTT, a partnership with Sonae Financial Services was signed, making the Bank CTT managing the entity's portfolio of the financial products and services under the brand Universo. To strength CTT offer in the business solution, it has acquired a reference organization on the Business Process Outsourcing (BPO) and contact centre sectors, NewSpring Services.

Furthermore, another partnership was made with Worten, Zomato and NOS to provide their customers a 2-hour delivery service.

Concerning the social pilar, the company has reopened 33 post offices in municipal offices (in remote places with short public transportation access). To support children with educational risk of underachievement, it was relaunched a program with EPIS that gathers volunteers and mentors to help these kids. Additionally, the company has enabled municipalities to manage the supply of meals at a central level and implement an integrated payment system at a municipal level, a prepaid School account (school wallet). Additionally, since road accidents are one of the principal causes of death, CTT has continue to implement its prevention programme which was internationally distinguished. Lastly, CTT has extended local trade solution by creating online stores, driving e-commerce and supporting the process of digital transformation of small and medium-sized businesses.

About the environmental sustainability, the company has invested in increasing its ecological fleet, installation of photovoltaic energy units for their own consumption, promoting its campaign “A tree for the forest” with Quercus award winner. In 2022, CTT planted around 110.000 trees under this program. Furthermore, CTT is focused on developing disruptive sustainable solutions and boosting the circular economy by creating products like reusable packaging for e-commerce for seller and buyers, whereas in 2022, CTT incorporated 55% of recycled and/or reused material in its products (CTT, Annual report, 2022).

3.1.2 Competitive Advantage and Strategy

The Postal Sector, in 2021, still represented more than 50% of CTT revenues. With the acceleration of digitalization, globalization and e-commerce growth, CTT had to be proactive and diversify its business to compensate the decrease on the mail segment. To do so, it had to take advantage of its resources and capabilities.

3.1.2.1 Competitive Advantage

Concerning the competitive advantage, CTT has an unique position on the market that has been built for over 500 years. In particularly CTT has the following competitive advantage:

- Postal network (i.e., distribution and retail network) with a high level of capillarity and national coverage;
- Brand with high trust and strong reputation among consumers;
- Top Management team with long experience in this sector; and
- Creation of economies of scale in mail and express & parcels.

3.1.2.1.1 Unique Postal Network and a strong brand in Portugal (Accessibility for customers)

The company has a postal network (distribution and retail) with a high level of capillarity and national coverage. The postal network is composed by over 4000 points of sales: post offices, CTT access points, lockers and Payshop agencies. Thanks to its network, the company can offer its services (mail, express and parcels, payment solutions and financial services) to a national level, including a distribution network that reaches the houses of the whole population.

The prime quality levels of the services and the national coverage has been contributing to consolidate the identity of the brand. The customer satisfaction survey, in 2021, showed that 83,5% (+0.6% more than in 2020) consider the overall quality of CTT good or very good. Looking only for the quality of the service, 92.7% of the answers (+ 0,7% than the previous year) showed that customers are satisfied with the service delivered by CTT.

The national retail network has a greater density in rural areas than any banking brand in Portugal, combined with its trust, make CTT's retail network a strong platform for high-value services for its customers.

3.1.2.1.2 Mail business with attractive profitability and leader in Portugal (Network Synergy)

When comparing with its European competitors, the mail business has an attractive profitability, because of the efficiency of its operations and the capacity of adapting its cost structure. CTT improved its mail EBITDA margins due to continuous restructuring initiatives and other cost reduction programs, as well as through the development of financial services and a bigger integration of express & parcels distribution.

Even though the mail segment has been losing its position in the market, the prices are still below the European average and the companies does not receive any subsidies from the government, as mentioned before, CTT continues to have steady results and profitability, in the mail segment, because it has continuously been improving its operational efficiency.

By taking advantage of its distribution network and retail, CTT has been able to reinforce its presence on express & parcels, especially since 2015, when the company started to embrace the e-commerce.

3.1.2.1.3 Continuous operational efficiency management

By considering that the mail segment has been losing its importance, the company has been implementing a transformation plan that has the objective of improving efficiency and profitability levels and reinforcing quality of the service. While, at the same time, to assure the future the sustainability, the company is focused on innovate, modernise, and remain diversifying the business so became less dependent of the mail segment and keep growing its revenues (CTT Management Report, 2017). To became more efficient and lower the cost, CTT had to reduce employee costs (through offering early retirements, since 33% of staff had more than 50 years) in 2013 and restructure its distribution and treatment centres.

The operation of treatment, distribution and transport were reorganized, plus, the retail network was simplified and resized, through getting more post offices, optimizing, and reducing the distributions centres and including several activities in their value chain that used to be outsourced.

CTT continues to implement cost reduction programs focused on the development of new technologies and in the greater integration of the Postal Network with the express and parcels network.

Postmen started to delivery parcels along with mail whereas the customer service was externalised. Regarding the treatment process in the treatment centres like Perafita or Palmela, the company invested in robotizing and mechanising it for the segment of express and parcels. Regarding the fulfilment process, three centres were created, one for each niche of customers: one for small and medium enterprises, one for big companies and one just for e-commerce parcels, which allows a better organization and optimisation. To improve efficient by postmen, mail is prepared and sequential to reduce time in delivery.

As a result, the fix costs were reduced, plus the company became more flexible maintaining its national network and quality services.

3.1.2.1.4 Iberic Platform of express & parcels

Since CTT is also present in Spain, it offers a wide range of services and products of express & parcels, including, collection, treatment, transport and distribution (either national or international) as well as complementary solutions of logistics and cargo in and between Portugal, Spain and Mozambique, as well as international.

Since the rising of express & parcels along with the e-commerce, that the company has been implementing measures to respond to the increasing of volume. These measures include merge and improve important components of their networks of distribution, renegotiate its outsourcing contracts and centralize and improve its processing operations. CTT had also signed new agreements with international providers of postal services and with an Iberian retail network, to expand its PuDo services (pick up|drop-off). In Portugal and Spain, CTT also centralized its activities commercial and operational, to centrally coordinate their operations and reduce costs.

In Portugal, CTT explores the express & parcels through its subsidiary CTT express, which operates through its own network and operational centres, even though it also uses the postal network. Regarding the case of Spain, the group CTT operates in this business through the subsidiary CTT express. As it happens in Portugal, B2C (business to consumer) is the segment with the highest expected growth.

3.1.2.1.5 The people

The staff of CTT has a long trace of experience in the market. The company is specially involved and active in the principle international associations of the sector such as *International Post Corporation*, *PostEurope* and at the Universal Postal Union to create operational efficiency.

The objective of *International Post Corporation* is precisely operational efficiency. CTT is presented in on the Board, being part of the Business Council, IT Council, Operation Upgrading Committee and integrates the group that manages the remuneration system. Since environmental sustainability is also a focal point for the group, it is also involved in the Sustainability Measurement and Management System which measures the CO2 emissions.

The *PostEurope* association is focused on giving support to the European Commission regarding the European regulation. CTT co-presides the directive and environmental Group and it is the president of the Innovation Forum.

The Universal Postal Union is an intergovernmental ONU agency which regulates internationally the postal activity. As one of the 193 members, CTT is an observant at the Postal Operation Council where follows matters related to parcels and mail, postal security, road safety, international accounting and quality services, among others.

Additionally, to maintain all the employees involved, the company provides training action and staff rotation so that all the staff have a general view of the business to create excellence in all the market segments.

The competitive advantage of this company allowed it to become leader in Portugal with a big dimension in terms of operational scale and lastly its extended network distribution.

Furthermore, the trends of this market are based on postal liberalisation, technological replacement, e-commerce, economic context, and privatisations in the sector.

Regarding postal liberalisation, since 2012 that CTT started to operate in competitive markets, which increased the necessity for improvement the service in all business segments to ensure permanent optimisation.

In the case of technological replacement, digitalization and internet has brought a new way of communication and an opportunity to improve the traditional mail business. Along with it, e-commerce boomed and created a new opportunity, since logistics to customer service to attract new clients.

Considering, that internal consumption has influence on mail volumes, CTT is dependent of the macroeconomic context of Portugal, Spain and Mozambique.

Lastly, there has been a tendency of privatizing the postal sector, which accelerates the need of differentiation from competitors and creates an obligation for separating the universal/ public service obligation and the holders capital, asking for a new sector governance.

CTT's People management strategy aims to improve the worker's experience, their level of satisfaction, their involvement in the organization, their sense of belonging and pride in the Brand, in order to increase the commitment of everyone, making each worker a ambassador of the CTT Brand, consequently improving the customer experience. In order to improve the worker experience, two major projects stand out, with high impact on the Organization and People: the commitment to obtain Entity certification Family Responsible (referred to as “efr”); and the new CTT employee portal.

3.1.3 Business Segments: Mail and Express & Parcels

Ever since the creation of CTT that mail has been the core business, however, with the spreading of digitalization and internet, it has been losing its position in postal operators (government, business and individual customers). The trend shows that nowadays, more than half of the population has access to internet and around 75% of households access to smartphones (CTT Annual Report, 2021), which indicates that the solution for mail is through either digitalization or via internet. Therefore, express & parcels has been conquering its place on the market.

Furthermore, the macroeconomic situation where CTT is, also affects its financial performance. As an example, in 2007, Portugal and the countries where CTT has a relationship were affected by an economic crisis. Due to this crisis, the Portuguese economy contracted because of a reduction in public and private expenses, more restrictions in access to bank loans and an increase of unemployment. Bank of Portugal disclosure in 2013 that in June of the same year, the Gross Domestic Product (GDP) had a reduction of 2,1%, when compared with the previous year and the annual unemployment rate of 2012 reached 16,4%. Plus, the Portuguese public debt, in 2013, increased to 131,4% of the GDP.

Therefore, for the case of CTT, this crisis had a negative influence on the consumption of its clients due to a decrease of their salaries, causing a reduction of expenses in postal services and other products and services, which for CTT meant a reduction in all business segment, between 2010 and 2012. As a result, the annual revenue, in the same period, had a reduction of 10% which caused a drop of around 40% of the net profit, even though the company had reduced its expenses, it was not enough to compensate the decreasing in revenue.

However, the growth of the GDP, in particularly, the internal consumption might have the following effects: the appearance of new competitors on mail and parcels segment, companies that have existed in the market might distribute higher volumes of this segments and the Portuguese government will increase their volume of sent mail and parcels, whereas a crisis emerging have an opposite effect, as mentioned above.

Additionally, this business is under a lot of risks, such as, the dependence of the Portuguese economy development and the other countries which has a relation, the communication trend evolution resulting in a diminishing in the mail business, as discussed previously, and consequently the expected growth for the parcels segment not being achieved. The growing of the parcels segment might imply that more competitors will appear, and the fact that CTT is depends its profit on small group of clients, among others which can lead to lower results.

3.1.3.1 Mail

As one door closes, another one opens, as they use to say, the same situation happens in the mail sector, these two inventions brought new opportunities for the sector, such as linking both methods, the physical and the digital channels and improvement on hybrid solutions due to the convenience in channels for sending and receiving email (preparing digitally, transform to physically and delivery it to the recipient). The acquisition of New Spring Service is responsible for linking both methods which allowed in 2022 a revenue of 38.2 millions of euros (CTT Annual Report, 2022)

Meaning that companies hire CTT services to transform digital information into physical, for example companies send for treatment invoices in a digital form so that CTT prints it and delivery it physically to the companies' clients or on the contrary, the information is sent physically to CTT to be digitalised and sent. Another way of mixing both methods together happens when CTT is requested to digitalise information and incorporates it in the workflow of its to client. These types of services are what distinguishes CTT from their competitors, since it is the only company offering these services.

Furthermore, internet has also allow adding more information on mail items like their shipping status and delivery which promotes a sense of proximity to customers.

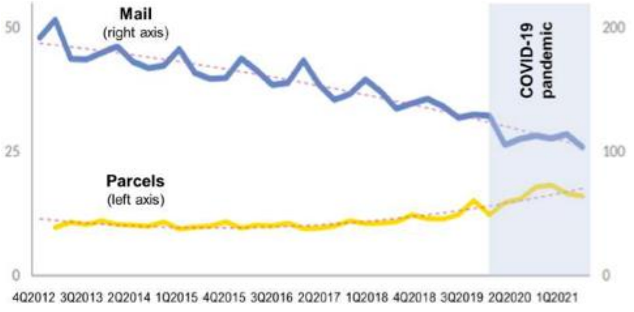


Figure 3.1 - Evolution of Mail market volumes in Portugal (2013 – 2020) in millions, ANACOM

The mail business has been declining since 2005, around 8% per year since 2010. Meaning a decrease in this segment of 123%, reaching in 2020 its highest decrease, when comparing with the previous year. Therefore, the company passed from distributing 535.132 units, in 2019, to distribute 446.403 units, representing a reduction of 20%, which can be explained by an acceleration of digitalization, due to Covid-19. Although internet and digitalization are responsible for around 90% of the decrease of this segment, the GDP and prices are also other reasons for this decline.

The total volume of postal services, in 2020, decreased 12%, when compared to 2019. This trend continues in 2022 with a fall of 5.6% when compared to the previous year (CTT Annual Report, 2022)

Even though, the acquisition of New Spring services helped the overall revenue result of operational mail to reach 460,9 millions of euros representing an increase of 16,5 millions, in 2022, the transactional mail segment decreased 19,6 millions as the rest of the mail segment (such as the register, international, priority mail,…) when comparing with 2021.

As form of avoiding some unsustainability in the postal service business, member states have been developing postal service flexibility or compensation methods.

On the hand of service flexibility, the mechanisms developed includes delivery speed, delivery frequency, the scope of the universal service and the price.

As on the other hand, the compensation mechanisms that half of the European Union governments did to support the financial efforts made by the operators were, for example, direct funding of the universal service, aids for activities such as the Service of General Economic Interest (SGEI) or through tax benefits.

Additionally, since in most postal operators, is notorious a percentual decrease of revenues attributed to Universal Service, a reduction in costs has been put in operation by operators to mitigate the decline in volumes. Furthermore, an increase in tariffs is an essential factor for maintaining, if not growing, revenues of the postal service, especially on the priority mail.

Regarding, the Portuguese case, it is funded only by its users without any subsidy or any help mechanism from the government. Therefore, in order to guarantee the sustainability of the business, in 2021 it was necessary to rise prices in 1,35% (ANACOM, 2021), which was below the European average. Despite, CTT efforts, this segment registered an EBIT (Earnings Before Interests and Taxes) margin - 3,6%.

3.1.3.2 Express & Parcels

Since mail has been consistently losing its place, that CTT has been investing more on the express and parcels segment. In 2015, in Spain, the company restructured its network and initiated the network integration project in Portugal to maximise operating resulting.

As predicted this market has boomed along with the e-commerce. In 2021 there was an increase of 22%, on the first nine month, when compared with the previous year. Especially, after, considering that in 2020, this segment had already grown 27,6% (International Post Corporation, Global Postal Industry Report 2021).

This trend is mainly caused by the increase in B2C parcels, which was supported by the develop of e-commerce, in Portugal, only in 2020 there were 4.4 million Portuguese e-buyers and 20% more was estimated in 2021.

Accordingly, with the CTT e-commerce Report of 2020 and 2021, the e-buyer profile in 2021, on average was 20,4 purchase per year, which represents an annual grow of 9%, year on year. The annual evolution is even bigger regarding the average number of products per purchase, which was almost 4,9 products, resulting in a rise of 14% comparing with 2020. Even though the e-commerce expenses have increased 8% more, in 2021, than the previous year, the average purchase price has decreased 1%.

However, in 2022, with the abandoning of covid restrictions, the beginning of the war between Russia and Ukraine along with the increasing of inflation, that the number of parcels dropped in the first 6 months, when comparing with 2021, on average 8.5% each quarter. And only, on the third quarter the number of parcels increased 20,9%, in Portugal (CTT Annual Report, 2022).

For this reasons the e-buyer profile slighty changed in 2022. The number of purchases per year decrease to 19.4 as well as the average e-commerce expense which dropped to 1,065 euros, 5% less when comparing with the 2021 figures. However, the average purchase price reached 55 euros, an rise of almost 5%.

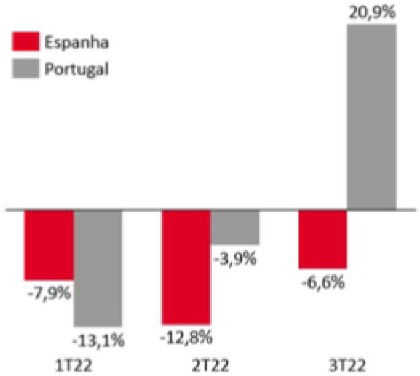


Figure 3.2 - Change in e-commerce sales in 2022 versus 2021, Eurostat

Furthermore, associated with the growth of e-commerce it is also worth mentioning that parcels with 2 days delivery represents 45,6% of online purchases. Additionally, same-day delivery rose 5%, in 2021.

Due to the trend of increasing levels of cross – border trade brought by the e-commerce growth, 24,1% of e-sellers expects to internationalize their activity, after the end of the pandemic. At this rhythm, it is expected in 2024 that the turnover of foreign online stores exceeds 400 billion euros and represents 12% of all e-commerce (Euromonitor, 2020).

Concerning the Portuguese case, the value of expenditure associated with online purchase was estimated to reached 4.4 billion euros with 4.41 million Portuguese e-buyers.

In Portugal, cross-boarder online shopping represents around 45%, one of the highest in Europe, where the products origin comes mainly from Spain bit also from China, even though this last one has been loosing its importance.

The e-commerce has begun to be the chosen shopping method due to its convenience (when comparing to physical shops), schedule (since it is possible to purchase at any time) but more importantly the fact that online buyers can find better deals than on physical shops.

3.1.3.3 The E-commerce influence

Since the beginning of the declining in the mail business, that has been crucial for CTT to look for other opportunities that could compensate the revenue losses in this business. Therefore, to follow the world trend of online shopping, CTT has invested in the business segment of parcels & express along with the e-commerce.

To do so, concerning, mostly e-commerce, this company has been following the 4 drivers of e-commerce: fast (delivery), flexible (drop of points), free (zero cost) and green (reusable packaging), which allows a more efficient delivery process and green, up to 17% when compared to the process of buying in physical shops (CTT, 2019).

As mentioned above, e-commerce has been partly responsible for the growth in the express & parcels, but the company does not want to just to be the bridge between companies and their customers but to be involved in all the e-commerce supply chain. It should be noted that addressed mail traffic, excluding incoming international mail, registered in the first semester of 2022, a drop of just 2.2% compared to the first semester of 2021, which had never occurred in the last 5 years even though, the general revenue grew 1.0%. This situation resulted from the good performance of the business channel, which made it possible to mitigate the reduction in activity on the retail channel due to lower demand on the e-commerce postcards, which resulted in pressure on the average price due to the mix effect between the business channel and the retail channel, with a higher unit value.

Between 2012 and 2016, e-commerce grows around 8% per year among European operators. In the CTT case, in 2017, the volume delivered in Portugal and Spain risen more than 20%.

Recently statistics showed that between in 2022, around 90% of internet users, in Norway and Netherlands had ordered online goods or services whereas in Portugal this number reaches approximately 60%, meaning that there is still margin to grow, since the parcels delivered per capita in the markets where CTT operates are still much lower than those of other countries.

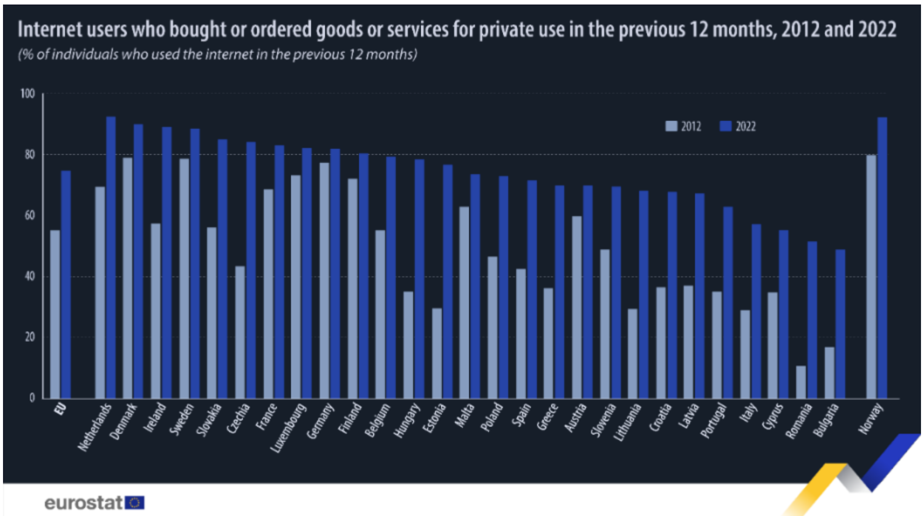


Figure 3.3 - Internet users who bought or orders goods or services for private use in the previous 12 months, 2012 and 2022 , Source: Eurostat

In order to, be an agent of transformation in Portugal, CTT has been developing several initiatives to develop this type of commerce:

- creation of e-commerce ecosystem solutions;
- providing online course to small companies;
- marketing digital solution through email and sms;
- payment solutions – payshop;
- e-fullfilment solutions – warehousing, picking, packing, delivery;

A way of demonstrating the ability of transforming accordingly with the needs of its customers, CTT created a marketplace, called Dott, for online fairs, as substitute of physical due to health restrictions imposed by the government. By doing so, not only gave the opportunity for small business to sell their products to the audience, who usually frequented these types of events, but also to everyone else who used this platform, allowing small business to reach other areas.

To improve the delivery system for customers, CTT has developed deliveries in two hours, as mentioned earlier, CTT Now, and in places where their distribution channels are not that developed, the company made a partnership with Uber. Furthermore, knowing that people are not always at home, the company offers others drop out of points, such as lockers spread over the country and other local shops were customers have theirs purchases waiting for them, instead of the opposite, customers waiting for their orders.

Regarding, returning shopping solutions, CTT is presented, in the whole logistics process, from the moment where it picks up the orders until it drops to the company. Moreover, this enterprise has also developed a software for retailers that allows companies to sell in second hand, the products that their customers no longer want, give them a second opportunity, and contribute to reduce waste. To do so, CTT handles once again, with partnerships with Portuguese start-ups, the whole process, since picking the product until its delivery, including the reparation, if needed, of the products.

Through, these initiatives, CTT becomes responsible for 40% of the e-commerce in Portugal.

Therefore, the research aim of this case study is to understand the impact of having dynamic capabilities (as response to the increase of parcels business) on the companies' success taking in consideration the TBL and sustainable development goal (SDG).

3.2 – Strategic Analysis

3.2.1 – Porter's five forces

As any other company, CTT does not have the monopoly of the postal sector. Therefore, it is sensitive to market changes. To demonstrate theses sensitivity, the Porter's five forces will be useful model. This model evaluates the strategic relationship between CTT and its competitors and within its sector (Porter, 1979).

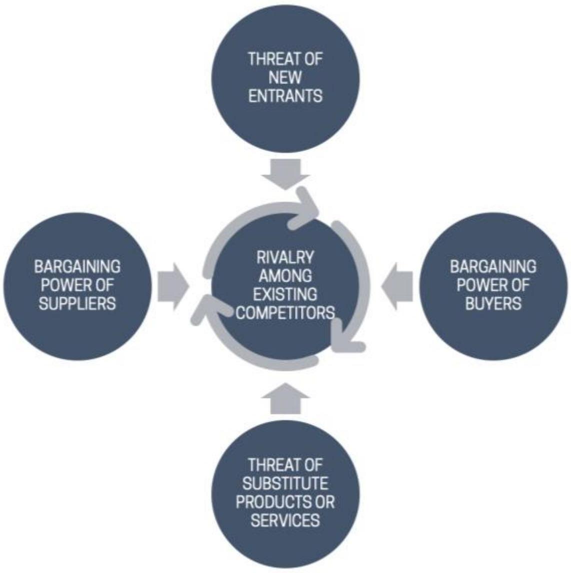


Figure 3.4 - The Five Competitive Forces, MBA Management Models 2021

3.2.1.1 - Competitive Rivalry

The postal sector, in Portugal, is a low competitive market since CTT group has a market share of 85,1%, however, there are still a couple of players in the market. Even though, this business segment is losing its importance due to advance in technology, it still represents the main source of revenue for CTT. Since CTT has the concession of the universal postal service and brand loyalty from customers, it is difficult for other player to establish themselves in the market.

Regarding, the parcel sector competitiveness is higher than it is in mail sector with a lot of competitors. But since CTT still owns the highest market share, 47,6%, the competition among other players is still moderate.

Companies:	Postal traffic share			Parcel traffic share		
	2021	2022	Variation (YoY)*	2021	2022	Variation (YoY)
CTT Group:	85,2	85,1	-0,1%	49,4	47,6	-1,8%
CTT	79,4	79,2	-0,2%	-	-	-
CTT Express	5,8	5,9	0,1%	-	-	-
CTT Contact	0,0	0,0	0,0%	-	-	-
Premium Green Mail	6,1	5,5	-0,6%	-	-	-
GEOPOST / DPD Group	2,9	3,1	0,2%	24,7	24,8	0,1%
Vasp Premium	1,4	1,4	0,0%	5,5	5,0	-0,5%
Nacex Group	0,9	0,9	0,0%	6,6	6,6	0,0%
MRW Group	0,6	0,7	0,1%	5,2	5,6	0,4%
CEP Group	-	-	-	2,6	3,2	0,6%
TNT Express	-	-	-	3,8	3,0	-0,8%
Mondial Relay				-	2,2	-
Delnext, Ltd				0,9	1,1	0,2%
Noticias Direct	0,5	0,6	0,1%	-	-	-
Other operators	2,3	2,7	0,4%	1,3	0,9	-0,4%

Table 3.1 - Total Postal and parcels services traffic share (Source: Anacom, 2022)

3.2.1.2 - Threat of new entrants

The threat of new entrants in case of the mail can be considered low because it is necessary to invest a lot (in licences, retail, and distribution network) in a business that is losing its presence in the market.

On the other hand, in the parcels sector the threat of new entrants in the market can be moderate to high due to the fact that this business is growing fast with the help of e-commerce and digitalisation.

3.2.1.3 - Bargaining Power of Suppliers

Since CTT Group is an intermediary in delivery either mail or parcels, it has a vast variety of suppliers for simplistic products (for example, paper packages) in industries where competitiveness is strong, and the options are many. So, there is a very low suppliers power over this company.

Furthermore, CTT is a big company with resources (distribution centres, transportation means, stores) and history which has allowed it to develop a relationship with suppliers and yet have power over them.

* The variations shown may not correspond exactly to the values in the table due to rounding.

3.2.1.4 - Bargaining Power of Buyers

CTT has two types of customers companies and individuals with different bargaining power on postal and parcels sectors.

Depending on the dimensions of the companies, the higher will be its power to negotiate prices. Therefore, the threat of bargain can be considered as moderate since these clients can be big institutions and the other players in the market that offer the same type of services, plus the switching costs are high.

Individual clients have a lower bargaining power because the company developed a sense of loyalty, especially in the Portuguese market, as proved with the market share of the group. However, the power on individual clients is higher on the parcels segments since there are more players with a more relevant market share than on the mail sector.

3.2.1.5 - Threat of substitution

As mentioned above, the mail business has been decreasing its importance due to advances in technology. Therefore, the threat of substitution is very high, consequently CTT is also investing in the express & parcels segment even more to stop depending financially on this business. Nowadays, there is no threat of substitution for parcels and there is still room for CTT to improve its service and to be innovative in this field.

3.2.2 – SWOT I

The SWOT analysis allows an easy and clear overview of the strengths, opportunities, weaknesses and threats divided in favourable and unfavourable factors being a decision-making tool. Starting by deliberate which strengths can uplevel opportunities and how weaknesses can aggravate threats or even stop progress, can be overcome (Valentin, 2001).

Nowadays, profit maximization should not be the only focus of a company since sustainability and environmental awareness are gaining more and more importance on markets, so it should be rather making efforts to practice sustainable management.

Taking that in consideration, it was created a new adaptation to this analysis called SWOT I. This new version starts by defining the strategical pillars of the businesses and adds the sustainability perspective, which must be taken in consideration when strengths, opportunities, weaknesses and threats are defined (Pereira, Pinto, Lopes da Costa, Dias, & Gonçalves, 2021).

Strengths	Opportunities
• CTT core network and retail network • Brand trust • Know-how • Circular Economy • Green fleet	• E-commerce • Digitalization
Weaknesses	**Threats**
• Mail substitution • Postal Service Regulation	• European Economy • Ukrainian War; Israel conflict

Table 2 – CTT - SWOTi

3.3 Case study questions and objectives

Q1: At what extend was the change with dynamic capabilities successful (such as in technology improvement / replacement, recombine processes, human resources…)? Why was it successful?

Q2: What factors did influence the changes? What did rise and fall as consequence of these changes or lack of it?

Q3: What difficulties did the company face?

Q4: How were the dynamic capabilities built?

For this problem to be solved it is important to define objectives to reach the solution. The defined objectives are:

1. Understand the concept of dynamic capabilities;
2. Gain knowledge about the mail business;
3. Analyse the evolution of online shopping;
4. Understand how CTT use and transformed/ adapted their facilities to the new customer needs;
5. Analyse the impact of changing the facilities on the Tripple Bottom Line;
6. Analysing the resources and capabilities through the VRIO Matrix.

4. Methodology

Ever since the creation of CTT – Correios de Portugal, S.A. that this company has been constantly evolving accordingly with the changes in the market and with the customer needs.

Before 2016, the production model installed in CTT was adapted to an older reality, built to deliver standard mail (small letters and magazines) through fixed routes, only optimized every 2.5 years. This model had the following characteristics: reduce capacity, low productivity due to excess of manual labour, low control and hard to achieve economies of scale.

However, as it has been written, this trend changed, and the parcels have been substituting standard mail.

Taking that into consideration, its dynamic capabilities will be described using David Teece method for dynamic capabilities which is divided into three capacities: sensing, seizing and reconfiguration. Over the years the main changes in CTT organisation were its structure, human resources and technological evolution.

4.1 – Sensing

Since 2005, that mail has been facing a loss, over the development of the parcels market. This changed was observed through the growth of small parcels from the Asian market. Therefore, it was not prepared to answer the new reality of a competitive, dynamic environment and in constant transformation.

Firstly, to answer to this small increase, the parcels continued to be separated manually. However, this process became inefficient, due to high costs and the logistic necessary to answer to the fast growing of the parcels market.

So, it was necessary to develop a new model with the capacity to answer to :

- A very competitive environment due to multinational and local companies with a high weight of inbound products;
- An international market growth from e-sellers such as Amazon, E-Bay, Temu,…
- peaks in demand with significant increases compared to the annual average (Christmas, Black Friday,…);
- pressure from the clients, among all of the supply chain, to have low delivery prices and faster deliveries; and
- political visibility, impact of regulators and influence of syndicates.

Therefore, it was imperative to increase the production and logistics capacity through the supply chain, adopting new organization tools and systems to accelerate the reaction to new demand in volume, information and level of the service brought by e-commerce. Without increasing the internal logistical performance, the evolution in capacity will not be enough to ensure that the needs of the customer are fulfilled. To evolve the performance, it is necessary that the internal flow handling, transport and parcels preparation becomes more flexible and efficient.

4.2 – Seizing

Until 2016, the network of production and logistics of CTT was composed by centres connected though routes. These centres were organised in a hierarchical structure:

- Primary centres P1 (Production and Logistics centres): connected to activities related with production and logistics;
- Secondary centres P2 (Logistics and Distribution centres): connected to activities related with logistics;
- Tertiary centres P3 (Distribution centres): connected to activities related with distribution

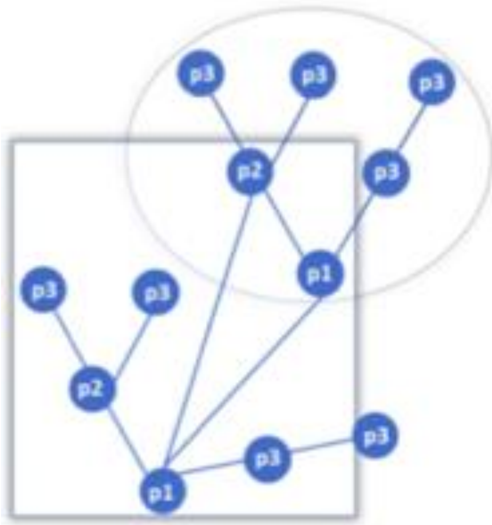


Figure 3.5 - Structure of the Production and Logistics network (CTT, Order Now - Automação no Processo de Logística como resposta ao e-commerce, 2019)

Since the parcels are typically processed in two Production and Logistics centres (Lisbon and Porto), the biggest challenge is to design an efficient process not only for processing (separation and aggregation by destination) but also the expedition for the next operational centre on the supply chain. Additionally, the majority of the international parcels arrive in Porto or Lisbon, which creates an unbalance on the occupation of the routes between centres, due to Lisbon and Porto send containers full of parcels but receives empty containers, increasing costs on reverse logistics.

The adopted projected has a more holistic vision than just developing new solutions, searching for process and operation optimization with the objective to increase the results. This new program was built with a global view of all developments, with special focus on optimizing logistics (like material flow, interactions between operators, adaption to the transport of units, production pf information for the internal control of the flow).

4.3 – Transformation

In order to create a global optimized and not just solutions for specific and punctual problems (that usually already emerge in multiple centres and with several suppliers), it was crucial to gather the expertise of the teams of processes and engineering. As a result, the restructure of the network was improved in four critical factors of evolution; process, logistics, cultural organization and business information.

– *Process*

Regarding the process, the following measures were implemented:

- dividing parcels started to be done automatically by machines instead of manually;
- Increasing of the installed capacity over the several phases;
- Presentation of machine learning to help identifying the address of the parcels and application of an algorithm of optical character recognition (OCR);
- Automatic division in just one manipulation of for the 246 operational distribution centres on the network of CTT;

Lastly, the introduction of video codification decentralized online allowed the share of operational resources in other production/ distribution centres over the whole network. Through this implementation an operator can correct or complete a decision made by the automatic recognition. The operator consults online the video configuration with pictures (captured by the division machine) of the parcel and inserts only the missing information not recognized automatically but needed for the parcel to be delivered at its address.

– *Logistics*

Regarding logistics, the measures implemented were:

- Containers with heels and boxes used to have several sizes not adapted to mail, so there was a change to boxes and rolling pallets with standard sizes adjusted properly for the transport of parcels and mail;
- Optimization of reverse logistics through using standard transport units and with stacking capacity;
- 0.6 km of internal flow of transport was created on the Logistics and Production Centre;
- Automation of the system that organises the parcels by distribution centre;

– Organizational culture

Regarding the culture organization the below changes were made:

- Introduction of automation and robotization to substitute the previous exclusively manual. Now there are cooperative teams that oversees the automatized process;
- Technical education and individual qualification for the employees;
- Communication program;
- Creation of an evaluation system based on operational objectives supported by individual and team productivity indicators.

– Business Information

Lastly, the following measures were taken to improve the business information:

- Centralized data bases with multiple data sources and information for all processed parcels;
- Unique identification and parcel tracking through the whole supply chain;
- Data bases were integrated on the Big Data CTT;
- All of the events occurred with machines, transporters and robots is archived as a support for future maintenance;
- To help with decision making it was implemented with real team information a SCADA (Supervisory Control and Data Acquisition) control panel.

This project started in 2016 with the objective to automatize the process of the received parcels along CTT network.

As a result of the measures taken, it became possible to process objects with different sizes and assure its division for 246 distinct destinations. Furthermore, the initial capacity installed could process 6.000 parcels per hour but since it was observed a boom in the business, there was a need to upgrade the capacity of the machines resulting in an increased capacity to 9.000 in 2018.

Through, the equipment associated to this new operational and logistics model, the objects are delivered on time and at its destination in a fraction of the previous costs. In order to facilitate the handling of the parcels, a cross belt was designed, which consists of a mobile trays disposed along an automatic mat and also allows the transportation of parcels with bigger dimension. Along with 2 modules adjusted to the weight of the objects (*light & slower, heavy*

& faster). Basically, it is the same as it used the same as it is used in airports to handle all the baggage.

In addition, the automatization of the process, allowed that in just one step the parcels and aggregated objects (boxes, pallets and containers) could be divided directly to the correspondent distribution centre, decreasing the necessity of transports, waiting time and double handling, since the parcels are already organized by each distributor route, also allowing reduction of indoor work and maximizing the time of distribution.

Even though the introduction of cross belts made a big impact on decreasing the cost and time, the implementation of robotic harms and small autonomous robots (Automated Guided Vehicles, also known as AGV) also contributed. The robots work aside with employees who oversee the project and perform some manual work. These machines were mainly designed to execute chores such as repetitive, hardworking and time-consuming tasks but with a simple configuration, without the necessity of big, isolated spaces neither a big investments in infrastructures. Through this measure the process became more efficient: improvement of FIFO method (First-in- First-Out), 24/7 operation and continuous supply of materials for the next task in the cycle. The system created is composed of:

- 3 small autonomous robots that transport pallets from the preparation zone to the next step in an autonomous and cooperative way;
- The automatic system on the next step is synchronized and centrally managed, capable of handling over 2.400 boxes and 400 pallets per day;
- The operator just needs to choose the working plan online which sequence of lines each robot needs go to transport the pallets to the robotic harm. This framework was programmed to include mapping and obstacle detection to assure that robots achieve continuously its tasks:
- Additionally, there is also an industrial robot that stacks all the empty pallets and after the pile reaches its maximum, the industrial robot calls one of the autonomous robots to collect the pilled pallets to the storage of empty pallets.

The new designed boxes needed to have standard dimensions to have the capacity of handling dividing the thousands of parcels with different shapes that arrive every day at the Production and Logistics centres.This boxes can now be fitted together when full and when they are empty, they can be disassembled and stacked all together. Pallets were also improved to increase the logistics of reverse logistics and to adapt better to the new boxes.

Figure 3.6 - Old model vs New model, CTT 2019

The volume of data provided by the suppliers of information that are part of the solution (process equipment like the cross-belt, AGV, robotic harms and transporters) they not only compliment themselves but also allow to help supporting decision taking regarding operations management, maintenance, transports and distribution.

The competitive advantage of logistic market relies on the velocity and reliability of the generated information and consequently the capacity to optimize every step of the chain along with foreseeing any risk.

Therefore, the information of each processed parcel needs to be provided in real time. This information is composed with delivery matrices by product, data by distribution centre and temporary archive of images for performance evaluation of complains and revenue protection.

Furthermore, all the produced data is sent to a data lake of CTT and then shared with the business department or to assess continuous improvements by controlling service levels, performance evaluation, transport optimization, planning of loading and delivery.

The next step of the project is to automatize the process for dispatch parcels to improve the next steps of the supply chain and the service levels. Therefore, with the help of simulation programs it was installed a new process combination between manual and automatized labour that allows parcels and mail to be treated at the same time. This new system has thought to be fully adaptable to the actual process equipment and it will have the ability to receive, process and forward more than 900 boxes per hour, meaning, that it will be possible to transport more than 35.000 parcels per hour and transport the parcels to their next destination without human intervention. It is also a plan to install a second equipment that will also be fully integrated in the existent operational and logistics platform so that it is possible to keep up with the e-commerce growth, allowing in this way the presence of CTT in more competitive markets.

Lastly, the increasing of routes using electric vehicles along the supply chain, that also support the transportation of parcels, not only reduce costs in fuel but also maximizes route efficient while reduces the CTT ecological footprint.

4.4 – Results

These measures allowed CTT to answer to the expected growth of the e-commerce, a market with a lot of competitors that operates and have logistics chains organized across the globe and local companies that operates in niche.

The automation of the logistics process was developed as an answer to this demanding market of e-commerce, as described previously. Its main objective was to reinforce CTT capability of competitiveness adding also space for diversifying its strategy on the postal market by betting on reinforcing the distribution of parcels to compensate the decrease in mail.

4.4.1 – Efficiency of the Transformation of the Operational and Logistics Centre

Nowadays, the expectation of customers is based on fast deliveries at minimum cost or even free as is a practice offered by e-sellers. Explaining the importance of an efficient process across the whole chain in order to satisfy the standards imposed by the customers.

Therefore, having a manual process and a logistic process full of barriers it was not possible to meet efficiency. As a results of the changes on the Operational and Logistics centers to a more flexible process it was possible to:

- Reduce by 70% the cost of tasks reacted with the process of a parcel supported by the increase in productivity that was possible due to the substitution of manual tasks by robots and economies of scale achieved by using the extra capacity available.

  This investment of 5 million euros was crucial for CTT to establish itself as a competitive player in the market and assure CTT financial sustainability.
- Increase of 295% of productivity by operator, which was only possible due to improvements in the support of logistics that allowed a sustained growth in the productivity of processing postal products;

- Keep up with levels of the present flow, in 2019, with the previous model, it would have been necessary to hire 65 new operators to ensure the same level of the service provided. This implemented flexible process is also a success since it also allows CTT to quickly answer to picks in demand and to the high rate of growth observed over the last decade;
- Meet the exponential gross of the e-commerce, specially the Asian market;
- Process over 120.000 parcels in this more efficient process that has high level of automatization and reduce costs across the chain as its characteristics.

4.4.2 – Improvement of logistical conditions

One of the best outcomes of this change was the possibility of keeping the centre in the same strategic location without compromise its functionality. Without the implementation of automatization and the help of supporting structures (like robots) , it would have not been possible to process so many parcels in the same space and meet the high standards required by customers.

Therefore, it would be necessary to move and adapt the whole supply chain to a new location probably outside of Lisbon given the requirements of the space and supporting all of the costs of moving. Additionally, there would also be an increasing of costs associated to the handling and transport of boxes, pallets and containers of the previous process. Meaning that this moving would increase exponentially the costs across the chain resulting in a increasing of prices which would be against the trend of decreasing prices also followed by the major competitors forced by the customers' expectations.

The accomplishment of using the new aggregated boxes and pallets with standard measures in several departments like the transport of parcels, assembling and disassembling, reverse logistics and a better fit for the cargo boxes of the transport trucks. This also resulted in a better flow for the mail since it allowed both products to be processed at the same time.

4.4.3 – Main obstacles overcome

In order to implement these measures, it was necessary to prepare the teams for the change among the organization, taking in consideration its complexity.

Even though, it was common to use robotic harms, CTT innovated by complementing it with autonomous robots making its implementation even more complex. On top of that the process equipment was done in approximately 4 months including the adaptation to the rules of process small parcels and providing real time information.

Another challenge faced by CTT was adapting the whole logistics network to the new load units specially optimizing the inverse logistics routes and developing and implementing the transaction plans.

Besides, it was necessary to transform the culture of the company, since the operational teams were used to their work methods and evaluation mechanisms along with changing the completely manual process into an nearly complete automatic process.

Overcoming the below difficulties and implementing the described changes, it allowed CTT to become the main player on the market, increasing the quality of the service, better work conditions, a growth in the efficiency of the operational and logistics chain leading to an overall development.

5. Conclusion

Some organizations are more successful than others in dealing with dynamic environments, operating at lower costs, and delivering superior value to their customers. According to Marín-Idárraga et al. (2016), an organization possesses dynamic capabilities when it performs more successfully than its competitors, leading to superior performance. In this sense, dynamic capabilities and performance are related concepts, but different in their fundamentals, therefore, it is assumed that competitiveness can contribute to the performance of the organization.

Since 2005, that the main business of CTT started to decrease so CTT to maintain its competitiveness needed to adapt. As this company already delivered parcels, a booming business segment since the massification of internet use, it switched its strategy by invested in improving the express & parcels segment as a replacement.

As the process was too manual and not developed for the increase in demand, in 2016, CTT developed a plan to update the Logistics and Production Centre by taking also in consideration the capabilities that had, to become more efficient and effective to guarantee a quality service and remaining the principal player in Portugal.

CTT had to look inside of its organization to understand what resource and capabilities already owned and what need to acquire to create its unique dynamic capability in order to have a sustainability competitive advantage to face the change in customer demand. To analyse the value of the resources and capabilities owned by CTT, the VRIO Matrix will be used as follow:

Resources and Capabilities	Reduce Cost	Create Value	Value	Rare	Inimitable	Organization	Result
Brand and History		✓	✓	✓	✓	✓	SCA[1]
People			✓	✓	✓	✓	SCA
Postal Network / Iberic Platform		✓	✓	✓	X	-	TCA[2]
Operational efficiency (in logistic operation centres)	✓	✓	✓	✓	✓	✓	SCA
Universal postal service	X		X	✓	X	X	TCA

Table 3 – VRIO Matrix – CTT

[1] Sustainable Competitive Advantage
[2] Temporary Competitive Advantage

The combination of the above resources and capabilities creates the dynamic capabilities for CTT which assure its sustainability at an economic, social and environmental level.
This brand established itself more than 500 year in the market and has suffer major changes to continue to keep earning its trust from its clients, which is key to captive clients and avoid them changing over to its competitors. As the e-commerce along with the parcels distribution boomed not only it was crucial to already have people experienced in that area (plus investing in training) as well as the network created over the years, to keep up with the demand. However, as explained the logistic centre was adapted and restructured exclusively to fit CTT needs to increase the number of processed object in a more efficient way, which was accomplished. These changes were just finished on time to support booming felt with the appearance of Covid-19, showing, in this way, the importance of anticipating changes and adapt rapidly to changes in the market.

Nevertheless, any competitor can copy CTT postal network, but it is the combination of the brand, the people, the postal network, the operational efficiency that creates the unique dynamic capability for CTT.

Lastly, having the concession of the universal postal service will only give a competitive advantage to CTT until 2028, which is when the concession period ends and it might not be renovated, so it can only be considered as temporary competitive. On the other hand, even though the mail business still represents the big majority of the CTT revenue and having the concession of the postal service contributes to that, it also means that the organization have strict guidelines to follow which also contributes to increase of costs forcing once again CTT to reorganize its structure to became more efficient and reduce costs. This service also contributes to spread reinforce the image of CTT.

Nowadays, measuring the sustainability of a company also implies using not only economic indicators but also social and environmental indicators. Accordingly, with the CTT – 2023 Annual Report, since 2014 more than 118 thousand trees have been planted, 82% of mail and express & parcels business products already incorporate recycled or reused materials. Besides having an electric fleet, it should also be mentioned that the electricity used by this company comes 100% from renewable sources, promoting in this way 3 sustainable development goal , *affordable and clean energy*, *responsible consumption and production* and *climate action* (ONU, 2015).

Regarding the social pilar, CTT promotes volunteering initiatives among their employees, 3 days a year fully supported by the company, where employees are encouraged to help kids with educational risk, contributing to an increase of *quality education* (one of ONU's SDG). Furthermore, CTT uses its extensive postal network to send letters on Christmas written by volunteers and delivery it to less fortunate children along with toy distribution donated, contributing to *reduce inequalities* (one of ONU's SDG).

In this dissertation is described the evolution of CTT mail and express & parcels business segments specially on the Production and Logistics centres, this study can be extended to the Logistics and Distribution centres and also analysing future developments made at social and environmental levels, as for example, if the goal of using only recycled or reuse products on mail and express & parcels is achieved. Additionally, the changes implemented should also be analysed and implemented on other market to improve efficiency and productivity.

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