


The Impact of Customer Relationship Management Systems on Dynamic Capabilities at Firms: An Application to the Banking Industry

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ABSTRACT

The banking industry has been forced to restructure its processes to get adapted to a more technological environment as a consequence of the changes experienced in the market. Academic literature has paid special attention to the most critical relationship at firms, customers. Customer relationship management (CRM) offers good opportunities to increase efficiencies in this relationship. For this reason, this research analyses to what extent the implementation of CRM systems in the banking industry has offered good results in terms of dynamic capabilities. For that, some dynamic capabilities have been identified after CRMs implementation process has taken place. A theoretical model has been built and empirically validated by means of a representative sample of banking firms applying structural equation model analysis (SEM). Results show how firms, by properly implementing CRM systems, can reach dynamic capabilities. As main practical implications for firms, it is interesting to orient CRMs implementation to reach dynamic capabilities.

KEYWORDS

Absorption, Banking, CRM, Detection, Dynamic Capabilities, Innovation, Integration, SEM

INTRODUCTION

Nowadays, the consumption habits are continuously changing. It has not just to be with personal desires and new customer needs, but with some other factors such as customer services. The way customers are informed on products and services is being reinvented and adapted to new technological possibilities in a globalized society (Castells, 2014; Cambra-Fierro *et al.*, 2014; Haddad & Hornuf, 2019).

The Spanish banking system is immersed in this international digital revolution and it is doing great efforts to promote the required changes in processes (Forcadell, Aracil, & Ubeda, 2019).

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Additionally, banks face a context that demands structured information systems aimed to be closer to customers. Banks need to be transparent and efficient in processes as a consequence of the economic crisis, where they lost trust from customers (Maiya, 2017). For this reason, this research starting point is the need to know to what extent it is possible to create new capabilities in a context of business model redesign and the current image of the banking system (Bernardino & Martín, 2014, Rubiño & Molina, 2018).

Additionally, it seems interesting to establish this association as the evolution and development of CRM systems take part in the financial industry (Paas & Kuijlen, 2001).

Big size banks have defined their own strategy in terms of implementation and use of information technologies facing customer expectations. They have also developed alliances with technological companies and built innovation centres (IEB, 2015). On searching higher levels of competitiveness and effectiveness in the economic environment, strategies based in offering an integrated experience must be implemented to avoid duplicity of efforts, lack of coordination and customers' disinformation. Worldwide CRM software revenue amounted to \$39.5 billion in 2017. According to Julian Poulter (Gartner, 2018), research director at Gartner in 2018, CRM software revenue will continue to take the lead of all software markets and be the fastest growing software market with a growth rate of 16%", and CRM became the largest software market in 2017 and was the fastest growing software market in 2018. The demand for Customer Relationship Management Systems (CRM) grew last year a 13.7 per cent at a global level generating returns close to 20.400 million dollars according to Gartner (2018) that emphasizes the increase in the firm's investments oriented to marketing initiatives to final users. By 2020, 30% of all B2B companies will employ artificial intelligence to augment at least one of their primary sales processes (Gartner, 2018). Organizations try each time more to make the best from this technology as they invest highly on it.

From the Business Organization perspective, the Resource Based View (Barney, 2001) can be applied to analyse the optimization of CRM systems. On the one hand it allows describing the working of a firm in terms of its essential resources and capabilities and, on the other hand, it allows identifying, understanding and locating the sources of appropriable and sustainable competitive advantages where the creation of value is located (García-Muiña, González, & Medina, 2014).

To offer a wider view, this theory can be combined with the theory of Dynamic Capabilities (Teece, Pisano, & Shuen, 1997), (Teece, 2018), since it supports the recombination of the resources that have already been identified at firms to foster new strategies for value creation oriented to generate new distinct capabilities (Hamel & Prahalad, 1990), or exploit distinct capabilities that already exist. Teece, Pisano, & Shuen (1997) advocate the increase and recombination of resources as a model for change.

Bearing into mind this reality, this research presents as main objective to analyse, from the Dynamic Capabilities approach, the role of CRMs over firm's results. The research question is: Do firms generate dynamic capabilities as a consequence of the use of CRM systems?

The study is therefore aimed to analyse the contribution of CRM systems as sources of innovation that enable a more efficient banking model.

THEORETICAL FRAMEWORK

Customer Relationship Management (CRM) is a firm's orientation that presents, as main objective to enable customer service in terms of performing better long-term relationships oriented to increase the managerial quality and the value of the product or service. Kim, Sun, & Hwang (2003) summarize the potential benefits derived from CRM systems' use: they increase the retention and loyalty of customers, offer more returns and create value for the customer, allow the mass customization of products and services, decrease the time for processing and increase the quality of products and services.

CRM is not a new concept, Drucker (1954) wrote: "*the true business in any company is creating and maintaining customers*" (Valcárcel, 2001). However, the origins sustain that the concept of CRM system comes from the relationship with relational marketing (Duarte & Pita, 2018). From

this perspective, Paas & Kuijlen (2001) refer to the evolution and development of the concept in the financial industry as a consequence of applying strategies based in customers that allow maximizing the required benefits to consolidate the organizations.

Although different authors have offered a definition (Reinartz, Krafft, & Hoyer, 2004; Payne & Frow, 2005; Richards & Jones, 2008) there is not a universal definition globally recognized yet (Urbanskienė, Žostautienė & Chreptavičienė, 2015). However, the system has reached its maturity level at firms (Khodakarami & Chan, 2014). CRMs enable getting and analysing data that may have an impact on sales. They provide the customer-centred knowledge and experience to generate changes in the firm's strategies (Gallego-Gómez & De-Pablos-Heredero, 2017).

CRM AND ENRICHMENT OF FIRM'S RESOURCES AND CAPABILITIES

Literature demonstrates how the general economic theory has paid little attention to the role that resources play in the creation of value oriented to the customer (Flores & Barroso, 2009). The customer is the main asset for any company and has to be satisfied (Udo, Bagchi, & Kirs, 2010). This implies that firms must manage in an efficient way resources and bet for new innovations in terms of products and services. This is possible as far as firms maintain an organizational learning system (Levitt & March, 1988). This means, they count on with the knowledge that allows them recombining their own resources (Galunic & Rodan, 1988) to offer new solutions that provide value for the customer.

All the organizations develop routines that imply internal ways to operate their processes. Whenever the proper resources are applied, efficiency will be reached in those processes. However, when the need to change exists as a consequence of any internal or external factor, organizations need developing new capabilities.

The Resource Based View (RBV) (Wernerfelt, 1984) explains how organizations reach competitive advantages in dynamic environments, where, the changes take place in a continuous way. This situation has driven firms to deploy resource combinations that adapt, integrate and reconfigure the organizational abilities and the functional competences to face the requirements in a competitive environment (Teece, Pisano, & Shuen, 1997; Linden, G., & Teece, 2018).

From this perspective it can be explained how the firms that have reached success in competitive environments are the ones that have shown the development of dynamic capabilities that allow them to provide higher levels of instant response times (De Pablos-Heredero, Montes-Botella, & García-Martínez, 2018). They are also flexible enough to create new products and enrich those that agree their customer's expectations (De-Pablos-Heredero, Fernandez-Valero, & Blanco-Callejo, 2017; Blanco-Callejo & De Pablos Heredero, 2019).

Teece, Pisano, & Shuen (1997) explain the existence of a competence inherent to the management of the firm, and it consists in creating new distinctive capabilities, in the sense Hamel & Prahalad (1990) refer to, or exploit distinctive competences that already exist. Teece, Pisano, & Shuen (1997) support the increase and recombination of resources as a model of change. Therefore, firms must be oriented to reach new configurations of resources in which, new opportunities arise, confront, are divided, evolve and die.

From the RBV, the dynamic context is reinforced as far as the firm wants to maintain its competitive advantage. Based on it, firms must be able to alter, adequate, evolve, renew, adapt, and reconfigure its base of resources and capabilities in such a way that they allow them to compete in new environments (Cruz, López & Martín, 2009). The development of a technology in the framework of a certain technological trajectory, generates new knowledge by means of a group of feedback mechanisms that contribute to improve returns (Nieto, 2003), that is to say, the distinct capabilities developed. Therefore, the dynamic capabilities theory refers to a dynamic environment where the degree of success of capabilities can be measured and evaluated.

The capabilities that each organization develops are different according to their needs and the knowledge that they are able to generate and materialize. CRMs are just tools and practices that allow spreading dynamic capabilities at firms (Gallego-Gómez and De-Pablos-Heredero, 2017).

The most common capabilities applied and repeated in the literature review (De Pablos & López, 2012; Gallego & De Pablos, 2013) are the following ones:

Detection Capability (DECT): It is aimed to understand customer's needs better than the rest of competitors (Amit & Schoemaker, 1993). This capability allows an organization to develop the ability to generate a diagnosis of the environment and understand the needs and market dynamics oriented to formulate a strategy or action plan that allows pursuing firm's objectives aligned with market demands.

Absorption capability (ABS): It consists in acquiring and interiorizing the external information, integrating it according to the firm's existent knowledge, with the main objective to improve processes and strategies applied to firms. It develops the ability to recognize the value of the new, assimilate the information and apply it to marketing issues (Cohen & Levinthal, 1990; Zahra & George, 2002). As Filgueiras, Castro, & Rafull (2013) note, this capability allows performing strategic changes in the organization and provides the flexibility required as a consequence of its relationship with the organizational design and the organizational structures adopted where the coordination and socialization capabilities condition the dynamic of a process that allows articulating and generating other organizational capabilities based on knowledge. If a firm acquires external knowledge or technology but it lacks of the required absorption capability it will not get innovative results or these ones will be much more irrelevant (Vicente-Oliva et al., 2015).

Integration capability (INTR): It refers to the integration of the knowledge required to generate a joint solution by means of an iterative process (Guthrie & Wigfield, 1997; Postrel, 2002). Okhuysen & Eisenhardt (2002) refer to this capability as the combination of a group of interaction patterns through different elements. Kenney & Gudergan (2006) research how firms find the different kinds of knowledge, since their diversity requires a study that allows recognising how knowledge is organised, how it is made efficient within the organizations. De Pablos & López (2012) describe how to promote the integration capability of human and technical resources by means of coordination mechanisms that permit a higher ability to integrate interactions of resources.

Innovation capability (INNO): It has to do with organizational processes aimed to exploit the generated information and knowledge in the firm and translate them in new products, mechanisms, and/or innovative processes (Kogut & Zander, 1992; Hurley & Hult, 1998; Wang & Ahmed, 2007; Monferrer, Blesa, & Ripollés, 2013). The capability of innovation explains the links amongst the firm's resources and capabilities according to the portfolio of products and markets when the firm operates in environments of fast change (Cruz, López, & Martín, 2009; Garzón, 2015).

RESEARCH APPROACH: HYPOTHESES

The generation of capabilities as a consequence of the use of CRMs at firms is intended to be explained from the dynamic capabilities' theory.

CRM is a technological tool that organizations can use to generate abilities to develop dynamic capabilities (Gallego-Gómez & De-Pablos-Heredero, 2017). As Teece, Pisano, & Shuen (1997) indicate: "*dynamic capabilities present the ability of an organization to reach new and innovative ways to generate competitive advantage*".

Therefore, and based on the literature, hypotheses oriented to validate these assumptions are explained.

Measuring dynamic capabilities is complex and it is based in observing difficult things that depend on the internal specific firm's procedures and routines and the existent organizational know-how (De-Pablos-Heredero, Fernández-Valero, & Blanco-Callejo, 2017).

Listening to the consumer and involving him/her in the building of the products will drive to the success and doing the opposite will drive to failure (Kotler, 2011; González, 2015). Rodríguez, Peterson, & Ajjan (2015) explain that when the firm takes care of the customer's orientation, it increases its selling capability. Blanco-Callejo & De-Pablos-Heredero (2019) validates the impact of customer attention on final sales. The search of a better customer's positioning increases firm's results (Bastanchury-López, De-Pablos-Heredero, García-Martínez & Romo-Romero, 2019). Previous arguments allow us posit hypothesis 1:

H1: Higher orientation to customer provides higher levels of sales.

As Alcaide (2015) states the information collected by a CRM system is used to reinforce the culture oriented to customer as a consequence of its spread in the firm. A customer bases its purchasing decision on a product that has already been bought and not just on the buying intention. It is therefore important to consider the real experience to innovate through users (Von Hippel, 1986). According to Oliveira & Von Hippel (2011) service users, expect benefit from its use. However, Alcaide (2015) maintains that satisfaction cannot be measured via CRM system, although it enables obtaining new practices from experiences that help to support loyalty processes. It is extremely important to assure that in a context of banking product, this orientation is also relevant facing services driven to very specialized persons or persons with low levels of knowledge in banking products (Loureiro & Sarmento, 2018).

Previous arguments allow us posit hypothesis 2:

H2: Having into account the user's experience leads to a high level in levels of satisfaction.

Cambra-Fierro *et al.*, (2014) affirm that the basic objective of CRM systems is maximizing the profitability through two main variables, customer's satisfaction and loyalty. Taking this into account, in this study it is proposed that both have a direct impact on the increase in sales and it is affirmed that the customer's loyalty has a direct impact in the sales force and in the firm's competitive advantage. Under the same overview, and by considering the degree of satisfaction, it is intended to understand the customer according to the needs diagnosed by competitors by adapting the internal processes of the organization (Bermejo, De Pablos & López, 2011). Andreassen, Lervik-Olsen, Snyder, Van Riel, Sweeney & Van Vaerenbergh (2018) evidence how business model innovation allows firms to innovate in the way they create, capture and deliver products and services to customers. YuSheng & Ibrahim (2019) validate the impact of service innovation and customer's loyalty in the banking industry. Previous arguments allow us posit hypothesis 3:

H3: There is a direct relationship between the external innovation and the degree of customer's loyalty.

By considering Cruz, López, & Martín (2009), whenever an organization builds innovation capabilities, it effectively obtains better results. Garzón (2015) explains that the innovation capability presents a direct effect over the rest of capabilities. In fact, innovation is related in a direct way with knowledge, so it is assumed that higher levels of knowledge would result in a better integration of firm's resources. Fernández-Valero, De-Pablos-Heredero & Blanco-Callejo (2017) and Blanco-Callejo & De-Pablos-Heredero (2019) describe how establishing organizational mechanisms to integrate knowledge increases the capability of integration at firms. Previous arguments allow us posit hypothesis 4:

H4: High levels of internal innovation lead to higher levels of resources integration in the firm.

As far as innovation is applied to optimize internal processes at firms (Teece, Pisano, & Shuen, 1997), it must result in an increase of efficiency due to the integration of all the information systems as the unique access points to a source of knowledge (Okhuysen & Eisenhardt, 2002). The innovation in the integration of resources impacts on the resource strategy of firms and decides the effective use of innovative resources, and ultimately affects the competitive advantage of enterprises (Pan, Zhang, Song, & Ai, 2018). Feizabadi, Gligor & Motlagh (2019) reinforce the relevance of managerial decisions on resource acquisition and deployment and the effective integration of resources to create a competitive advantage.

Previous arguments allow us posit hypothesis 5:

H5: The integration of resources leads to an increase of the competitive advantage.

This is mainly due to the fact that a greater integration of all the available information systems can contribute to segment in a more efficient way (Omil, Lorenzo, & Paniagua, 2007), which implies a more precise identification of business opportunities oriented to customers. This means an advantage for the firm facing other firms that do not exploit the information to perform commercial use of it (Medina, 2013). Leckie, Nyadzayo, & Johnson (2018) explain how firms design resource integration mechanisms with other actors by investing their specific resources into brand which increases service innovation, and promotes customer engagement and brand loyalty. Moretta Tartaglione, Cavacece, Russo, & Granata, (2019) describe how co-creation explained by Service-Dominant logic as the application of competences and the integration of resources increases customer's loyalty.

Previous arguments allow us posit hypothesis 6:

H6: The integration of resources leads to a greater loyalty degree of customers.

Previous research has been focused on how greater levels of customer's knowledge impacts on their loyalty levels (Oliver, 1999; Persson & Ryals, 2014). Firms deploy coordination mechanisms aimed to detect, absorb and integrate information to better innovate (Fernández-Valero, De-Pablos-Heredero & Blanco-Callejo, 2017). New product development projects influence the firm's ability to innovate new products (Hsiao & Hsu, 2018). Blanco-Callejo and De-Pablos-Heredero (2019) illustrate how innovation capability appears as a consequence of the spread of detection, absorption and integration capabilities in the process of prescription of products.

Previous arguments allow us posit hypothesis 7:

H7: Innovation capability impacts on the rest of capabilities.

Internal and external innovation is going to define the way of working and the way firms approach to customers (Gonzalez, 2015). It is then thought that in the case this capability exists in the firm, it has a positive impact on the rest of capabilities (Ibarra, Rueda, & Arenas, 2015).

Table 1 collects different studies that associate CRMs use with the considered factors for each of the capabilities:

Once that the hypotheses have been explained, different factors that comprehend the capabilities have been considered. Following, in figure 1 the different elements considered for each of the capabilities are shown.

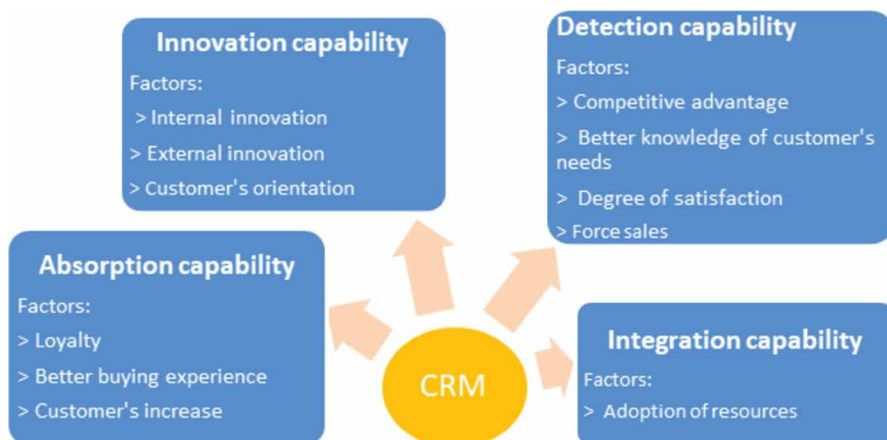
The criteria to select these factors have mainly been inspired in the study of the variables that determine if the dynamic capabilities selected can be measured through the proposed factors. Capabilities have been selected by considering previous references on dynamic capabilities.

Following, the variables that allow establishing relationships in this research are described:

Table 1. Literature approaches on CRM and indexes that measure capabilities

Factor	Authors
Internal innovation	Cruz <i>et al.</i> (2009); Garzón (2015); Vicente-Oliva <i>et al.</i> (2015); Fernández-Valero, De-Pablos-Heredero & Blanco-Callejo (2017) and Blanco-Callejo & De-Pablos-Heredero (2019)
External innovation	Bermejo <i>et al.</i> (2013); Ibarra <i>et al.</i> (2015); Andreassen, Lervik-Olsen, Snyder, Van Riel, Sweeney & Van Vaerenbergh (2018); YuSheng & Ibrahim (2019)
Customer's orientation	Cambra-Fierro <i>et al.</i> (2014); Leckie, Nyadzayo, & Johnson (2018); Moretta Tartaglione, Cavacece, Russo, & Granata, (2019)
Competitive advantage	Porter (1980); Valenzuela & Villegas (2013); Medina (2013); Cambra-Fierro <i>et al.</i> (2014), Pan, Zhang, Song, & Ai, (2018). Feizabadi, Gligor & Motlagh (2019)
Customer's needs	Bermejo <i>et al.</i> (2013); Von Hippel (1986); Gonzalez (2015); Fernández-Valero, De-Pablos-Heredero & Blanco-Callejo (2017) and Blanco-Callejo & De-Pablos-Heredero (2019)
Satisfaction	Cambra-Fierro <i>et al.</i> (2014); Persson & Ryals (2014); Loureiro & Sarmento, 2018
Sales force	Rodríguez <i>et al.</i> (2015); Loureiro & Sarmento, 2018
Loyalty	Alcaide (2015); Pàmies (2003); Baptista & León (2013); Moretta Tartaglione, Cavacece, Russo & Granata, (2019)
User's experience	Von Hippel (1986); Oliveira & Von Hippel (2011); Pan, Zhang, Song, & Ai, 2018
Increase of customers	Rodríguez <i>et al.</i> (2015); Blanco-Callejo & De-Pablos-Heredero (2019)
Adoption of resources	Valcarcel (2001); Greenberg (2010); Hsiao & Hsu (2018)

Figure 1. Dynamic capabilities and factors for the establishing of model



- **Resources Adoption (Adop_Intr1):** Firms to provide efficient responses need incorporating in an internal way new tools that often imply new business models. This is the case of adopting a traditional CRM in the firm or evolving the existent one, by implementing social CRM. This implies an environmental adaption since the integration of traditional CRM technologies with social networks are often used (Greenberg, 2010).
- **Competitive Advantage (VCom_Dect1):** The management in marketing and sales is key to develop competitive advantages and improve organizational results, since the main source of returns at firms come from customer's portfolio (Porter, 1980; Valenzuela & Villegas, 2013). The generation of competitive advantage from the internal elements is mainly determined by the environment and it presents a direct relationship with the design of strategies at firms (Medina, 2013). Inside the organizational environment, the systems based in the management of relationships with customers have become a key strategy as competitive advantage for firms (Cambra-Fierro *et al.*, 2014; Blanco-Callejo & De-Pablos-Heredero, 2019).
- **Customer's Needs (Ncli_Dect2):** Technologies have changed the way firms interact with customers (González, 2015; Duarte & Pita, 2018) in the way their voice keeps closer through the use of social platforms, which allows a better understanding of their needs. By making customers share their worries/improvements with the firm, it will be in a better disposition to create a value proposal for them (Bermejo & De Pablos, 2013; Blanco-Callejo & De-Pablos-Heredero, 2019).
- **Degree of Customer's Satisfaction (Satis_Dect3):** According to Cambra-Fierro *et al.* (2014), one of the factors to measure the success in CRMs systems keeps in customer's satisfaction. Therefore, people in charge of the customer's service must show an adequate knowledge that can be transmitted through motivation, and it will be of help to establish a trust worthy relationship with the customer. For that, Persson & Ryals (2014), affirm that the main objective of this kind of systems mainly resides in the creation and maintaining of positive relationships with customers, with the main objective of maximizing its Customer Lifetime Value (CLV).
- **Sales Force (Venta_Dect4):** The use of CRMs systems is oriented to maximize sales by offering different kinds of information. For this, the different factors such as satisfaction, loyalty, customer's orientation, amongst others (Rodríguez, Peterson, & Ajjan, 2015; Haddad & Hornuf, 2019), are indicators that allow knowing if customers are willing to invest in the brand and/or product that the firm commercializes. The marketing and selling actions that integrate and exploit in a proper way these factors could obtain an increase in the global returns on sales.
- **Internal Innovation (Int_Inno1):** "The term "innovation" includes activities that are not objectively new, but they are new activities that have not been previously performed in the firm" (Vicente-Oliva, Martínez & Berges, 2015). Abilities and internal materials are required so that the proposals will turn into reality. This often implies the putting into practice of organizational changes at high levels and it requires therefore of an investment. As it has been previously analysed, the innovation capability that considers internal and external innovations is an important competitive source (Cruz, López, & Martín, 2009; Forcadell, Aracil & Úbeda, 2019). When the organization develops this capability, it gets much better results (Garzón, 2015; Feizabadi, J., Gligor, D., & Motlagh, 2019).
- **External Innovation (Ext_Inno2):** Firms, due to the high demands from market need to survive, must add real value. They need to orient their organization towards an ecosystem that enables external collaboration and this way; they have to interchange ideas with external sources of knowledge such as customers, providers, and even competitors to create new products and or services through the interchange of information (Bermejo & De Pablos, 2013; Ibarra, Rueda, & Arenas, 2015; Blanco-Callejo & De-Pablos-Heredero, 2019).
- **Customer's Orientation (Ori_Inno3):** From a cultural perspective, the orientation to the customer is relevant to be considered as one indicator of success for CRMs. Cambra-Fierro *et al.* (2013) explain that the literature supports customer's orientation as the most complete approach to define business objectives.

- **Loyalty (Fid_Abs1):** According to Pàmies (2003), marketing literature suggests that loyalty can be defined through behaviour, attitude or cognitive option. In fact, Baptista & León (2013), refers to loyalty as “the most advanced step that is present in the sequence of the development of the relationship with customers” taking it as loyalty synonym. Oliver (1999:34) understands it as “*A deep compromise to rebuy a product/service that will be preferred in the future, by promoting this way repeated buying of the same brand or group of brands, hardly situational influences and the marketing efforts have the potential to generate a behavioural change*”.
- **Better Experience in the Use (Exp_Abs2):** This is possible, by making the customer take part in the definition process (Von Hippel, 1986; Oliveira & Von Hippel, 2011). However, Sánchez-Montesinos (2013) explains as a main challenge for firms the need they have to adapt their information systems, not only to answer satisfactorily to customers, but to be able to forecast customer’s needs too. This way, they will be able to materialize the demand coming from customers that each time play a more active role in the market since they have needs that they know how to cover and organizations must respond to them. This same author stresses the experience as a capability linked to knowledge and inherent to the absorption capability since it allows increasing the human capital at the firm, and therefore it enables the organizational development.
- **Customer’s Increase (Clie_Abs3):** Since the main source for the generation of returns come from the customer’s portfolio (Valenzuela & Villegas, 2013), the increase of personalized experiences and the user’s involvement in this process, would proportionate an approach to their real needs that would make it possible consume products that they have proposed or demanded on their own.

METHODOLOGY

To validate these hypotheses a representative sample of the population is statistically processed by following analysis of structural equations with latent variables (SEM). This is a statistic technique mainly used in the marketing and market research areas, appropriate to deal with intangible assets (Caballero, 2006). Structural equation models allow describing the multiple relationships amongst variables that appear in social sciences, and this way the hypotheses can be empirically validated.

Sample

A sample of 44 (32% of the whole sample) firms has been considered from 135 application forms sent to banks to obtain the degree of agreement / disagreement with the hypotheses provided. The respondents are managerial profiles that work in a banking environment mainly as managers of CRM departments, or from Business Intelligence (BI) areas, or analysis of customers.

With the main objective of contextualize the sample characteristics, the following table presents relevant aspects to consider in the specification sheet.

All the persons surveyed own higher education degrees and count on with an experience over three years in the industry. There has been a significant difference in the responses depending on the company. Most surveyed people belong to Santander Bank (BSCH), BBVA, and Bankia. These three companies mean a 50% of the obtained responses and the rest 50% is provided by other fifteen banking firms. This sample is highly representative, due to the high volume of business that it implies BSCH and BBVA. Both mean a 76.4% of the whole returns of the Spanish banking industry at the end of 2015. Their figures implied a 53% of the whole (BSCH) followed by BBVA, that implied a 23.4%; Bankia, however represents a 9.2%, and presents the best returns in Spain.

The diagnosed motives have mainly been oriented to obtain a participation of the firms. It mainly refers to the development of CRMs departments and degree of adoption: On the one hand, there are firms where managers of CRM systems have been identified at a national and international level and they depend on the customer’s segmentation according to business areas. On the other hand, there are firms where the CRM area is integrated in the division of intelligence (BI) and there are less people

Table 2. Technical fiche

Population	Mainly CRM department managers and/or Business Intelligence, and active technical specialists in CRM in the banking industry. 135 people.
Geographical area	International
Methodology	Structured questionnaire
Way of fulfilling the questionnaire	Mail sent to managers and department coordinators in the banking industry
Sample size	44 people surveyed
Response rate	44/135 = 0,325
Sample error	12%
Procedure	Simple random sampling
Deadlines	30-09-2015 - 24-11-2015

dedicated to it. In small size banks, the marketing departments count on with technical specialists in their customer's services, although at a lesser extent than big size banks, that count on with areas and complete departments. This situation impacts when identifying managerial profiles and the number of participants, and it is related with the response index.

Results

In order to test the relationships between indicators and latent constructs as well as the hypothesized structural relationships between the latent constructs (Figure 2), a structural equation model (SEM) has been developed. The model was estimated applying the Partial Least Squares (PLS) procedure using the Smart PLS 3 software (Ringle, Wende, & Becker, 2015). The PLS algorithm was chosen according to the following criteria: The phenomenon investigated is relatively new, its modelling is at an emergent stage, PLS minimal recommendations concerning sample size, prediction accuracy and comparatively low demands on data multinormality requirements are accomplished (Joreskog & Wold, 1982; Henseler, Ringle, & Sinkovics, 2009).

To validate the model, we proceeded in two phases (Gerbing & Anderson, 1988): First, we assessed the measurement model; then, we evaluated the structural model. Each construct was assessed for validity and reliability. All the constructs presented in the model (absorption, detection, Integration, innovation) are reflective (Figure 2). A quality criteria overview for the model is presented in Table 3, and total effects (directs and indirect) are presented in table 4. All the path values are in a 0-1 normalized scale.

Considering the external (measurement) model (Figure 1), the unidimensionality of the factors using an exploratory factor analysis (EFA) has been carried out. The loadings for the factors observed, vary from 0.835 to 0.960. All of them above the 0.600 threshold are accepted as high (Chin, 1998).

Convergent validity is measured by the average variance explained (AVE). The resultant values (Table 3) are above the admitted 0.500 threshold value (Ringle, 2004). As for the criterion for discriminant validity, the cross-loadings (Table 5) have been calculated by correlating the component scores of each latent variable with all other items. The loadings of each indicator are higher for its own construct than for any of the other construct, which permits to infer that the model constructs differ sufficiently from one another (Chin, 1998).

As the final step in the validation process for the external model, we want to confirm the assessment of its discriminant validity following the Fornell-Larcker criterion (Fornell and Larcker, 1981). This criterion requires a latent variable to share more variance with its assigned indicators than with any other latent variable. Consequently, the AVE square root of each latent variable should

Figure 2. Structural Equations model. Path values, loads and p values (parenthesis).

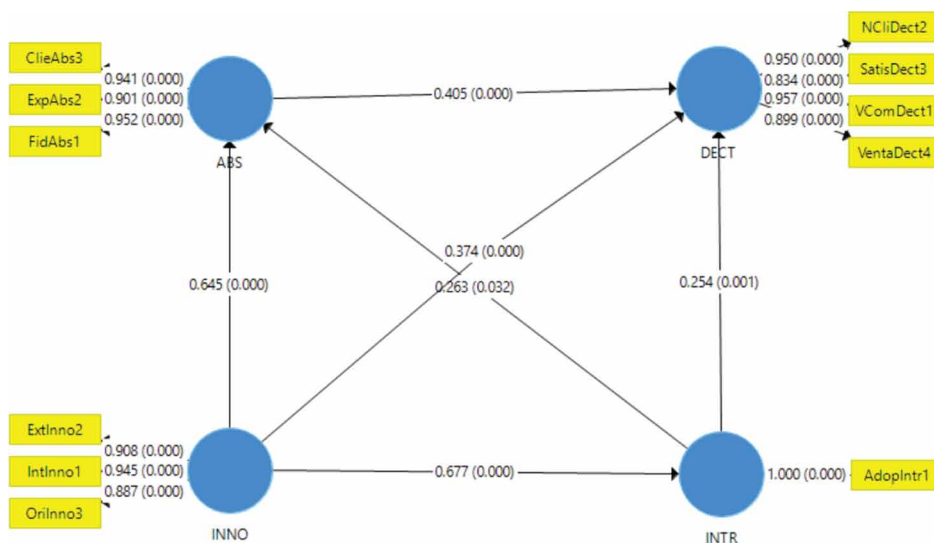


Table 3. Model quality criteria overview

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality	Redundancy
ABS	0.868006	0.951717	0.489873	0.923555	0.868006	0.425106
DECT	0.830562	0.951338	0.628953	0.930951	0.830562	0.519316
INNO	0.833707	0.937620	0.461969	0.901829	0.833707	0.365637
INTR	1.000000	1.000000		1.000000	1.000000	

Table 4. Model total effects (direct and indirect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ABS -> DECT	0.405	0.397	0.073	5.546	0.000
INNO -> ABS	0.823	0.813	0.056	14.774	0.000
INNO -> DECT	0.879	0.875	0.043	20.301	0.000
INNO -> INTR	0.677	0.669	0.085	7.991	0.000

Table 5. Cross loadings

	ABS	DECT	INNO	INTR
AdopIntr1	0.699909	0.793065	0.679683	1.000000
ExpAbs2	0.892792	0.837190	0.829596	0.617669
ExtInno2	0.642269	0.681496	0.903484	0.486427
IntInno1	0.707356	0.780764	0.944473	0.614319
NCliDect2	0.856631	0.949053	0.853958	0.742690
SatisDect3	0.714041	0.835320	0.765515	0.653687
VComDect1	0.826745	0.959641	0.829745	0.818577
ClieAbs3	0.946099	0.808207	0.713048	0.672081
FidAbs1	0.954901	0.837548	0.757038	0.665034
OriInno3	0.855725	0.908431	0.890398	0.715666
VentaDect4	0.837008	0.896033	0.763119	0.659118

be greater than its squared correlation with any other latent variable. This condition was satisfied in all the cases (Table 6).

Concerning reliability: Indicator reliability requirements are also satisfied being all the indicators loadings higher than 0.708. Internal consistency reliability was assessed using Cronbach's alpha coefficient and composite reliability. Both measurements exceeded the 0.7 threshold (Cronbach, 1951; Werts, Linn, & Jöreskog, 1974; Nunally & Bernstein, 1994).

Considering the structural model, its coefficients of determination R² take values above the lower weak threshold limit of 0.190 (Chin, 1998; Ringle, 2004; Hair, 2006).

Statistical significance was assessed using 500 resampling bootstrapping. Each bootstrap resampling size was fixed, as the literature recommends (Efron, 1993), equal to the sample size (n= 44).

All the latent variable's path coefficients are significant- (Figure 2). Besides the model presents good explanatory power measured by f² taking values higher than 0 (Ringle, 2004).

Effect Size (f²). Measures if an independent LV has a substantial impact on a dependent LV. Values of 0.020, 0.150, 0.350 indicate (table 7) the predictor variable's low, medium or large effect in the structural model (Chin, 1998).

CRM DEGREE OF ADOPTION IN THE BANKING INDUSTRY

Once the model has been estimated and evaluated, the real degree of adoption is analysed. Figure 3 shows the acceptance of each one of the capabilities in the firm. A diagram of the model is shown containing the degree of adoption. In order to provide information on the relative importance of

Table 6. Discriminant Validity. Fornell-Larcker Criterion (Fornell-Lacker, 1981). AVE square root on diagonal.

	ABS	DECT	INNO	INTR
ABS	0.931668			
DECT	0.887473	0.911352		
INNO	0.820424	0.881922	0.913076	
INTR	0.699909	0.793065	0.679683	1.000000

Table 7. f square

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (IO/STDEV)	P Values
INTR -> ABS	0.960	1.058	0.512	1.874	0.061
INTR -> DECT	1.695	1.834	0.717	2.364	0.018
INTR -> INNO	0.859	0.936	0.422	2.037	0.042

capitals in explaining other capitals in the structural model, an importance-performance matrix analysis (IPMA) has been built to extend the previous results, by also taking the performance of each capital into account.

The IPMA procedure rescales the original 5 point Likert data to provide performance scores on a scale from 0 to 100 (figure 3).

Therefore, the innovation capability (87%) is the highest materialized at organizations. The detection capability is also materialized (70%) through innovation. CRM is considered a service for opportunity detection and it greatly improves the customers' expectations.

Absorption capability (66%) is the next most materialized and, lastly, the capability of resource integration (63%).

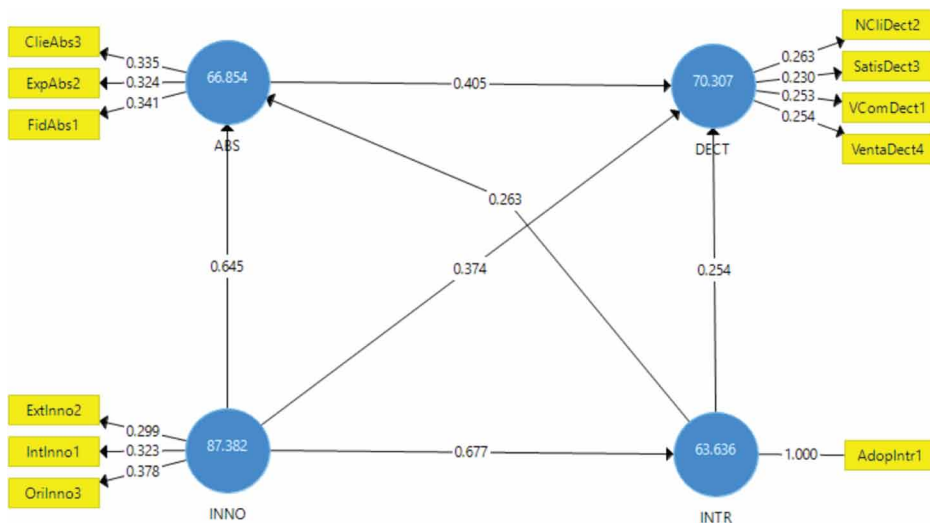
DISCUSSION

Through this research a contribution on the relationship between CRM systems implementation and dynamic capabilities has been done. Firms by properly implementing CRM systems can reach dynamic capabilities.

From the empirical perspective, the model presented is aligned with previous literature review and the hypotheses are validated. Results show that all the hypotheses presented have been validated at a high significance level ($p < 0.001$).

The innovation capability impacts in a positive way in the rest of capabilities as Garzón (2015) indicates. This way, the impact of innovation (INNO) over the increase of sales is validated. The

Figure 3. Importance Performance Matrix Analysis (IPMA)



increase in the innovation capability (INNO) is materialized in a higher degree of customer's orientation (Ori_Inno3) and it is equally translated in an increase of the detection capability that, at the same time, offers higher levels of sales (Venta_Dect4. All this proofs what Cruz, López, & Martín (2009) have previously supported, that the innovation implies higher degrees of competence since it impacts in a positive way on other factors and as Garzón (2015), Fernández-Valero, De-Pablos-Heredero & Blanco-Callejo (2017), Hsiao & Hsu (2018) and Blanco-Callejo & De-Pablos-Heredero (2019) explain, the capability of innovation impacts over the rest of capabilities.

The impact of innovation (INN) over detection capability (DECT) is 0.374, and the innovation capability (INNO) impacts on absorption capability (ABS) with a coefficient of 0.645. In the same way, the increase in the innovation capability is translated into the increase of external innovation (Ext_Inno2) and the detection capability and, through it, the degree of customer's satisfaction (Satis_Dect3). Satisfaction has been measured in this research as proposed by Cambra-Fierro *et al.* (2014). However Alcaide (2015) maintains that satisfaction cannot be measured via CRM, although it enables obtaining good practices from the experiences since it helps establishing loyalty that has also been considered in this research. The research also puts into relation the innovation capability (INNO) with the integration capability (INTR). A high degree of innovation capability implies an increase of the internal innovation (Int_Inno1) and higher degrees of integration capability are translated into a greater integration of firm's resources (Adop_Intr1). The coefficient of impact of innovation capability over integration capability is 0.677. These results agree with the ones obtained by Oliveira & Von Hippel (2011) and Loureiro & Sarmento, (2018).

The relationship between the absorption capability (ABS) and the detection capability (DECT) that presents a coefficient of impact of 0.405, allows verifying the impact of the absorption capability in the detection capability (H2). The increase of the absorption capability is translated into an increase of use experience (Exp_Abs2) and through its impact on detection capability. CRMs contribute to the increase of the level of satisfaction (Satis_Dect3), as Cambra-Fierro *et al.* (2014) describe in their analysis on the factors that imply success in the application of CRMs in the banking industry and this is aligned with Von Hippel (1986), who defends that users, as the main agents for innovation in products and services, expect benefiting from its use and this way increase the satisfaction of the consumed products/services. These results are in agreement with Andreassen, Lervik-Olsen, Snyder, Van Riel, Sweeney & Van Vaerenbergh (2018) and YuSheng & Ibrahim (2019).

The relationship that presents a lower coefficient (0.254) is the relationship between the integration over detection capability. The integration of resources implies an increase of opportunities.

Therefore, an in agreement with Wang & Yang, 2019, the banking industry must improve these capabilities, and above all, it must improve the integration of its sources of information that allow them working in a centralized way to increase efficiency.

As a consequence of this analysis, the research question is answered: "Do firms by means of the use of CRM systems generate dynamic capabilities?" The answer is yes. So it is validated according to the data collected in this analysis that dynamic capabilities are materialized through an intensive use of CRMs systems inside the firms.

Implications and Future Research

From a practical perspective results are significant as they evidence that all the hypotheses have been validated at a level of trust over 95% ($p < 0.05$). Coefficients, showing the intensity of the relationship appear in a normalized scale from -1 to 1.

Theoretical implications are that the use of CRMs is increasing in the strategies oriented to customers in the banking industry. Dynamic capabilities show that at this moment for the Spanish banking industry, this kind of strategies are interesting as tools oriented to generate trust amongst the relationships between firms and customers. Apart from this, the banking industry needs a greater sales force to consolidate again in the face of a future economic crisis (Pampurini & Quaranta, 2018). CRMs provide of segmented information that allows performing driven strategies.

Besides, the degree of adoption of CRMs systems through the degree of adoption of each of the proposed capabilities has also been validated.

This research offers information of value on the degree of materialisation of CRMs systems from the dynamic capabilities theory in the banking industry. However, the research presents a group of limitations that must be considered when contextualizing the work performed. The most relevant one has been the difficulty to obtain a representative sample. As the analysis is driven to top/intermediate managers in a concrete industry, there are not a great number of persons that present this profile.

Additionally, there are other factors, as the methodological ones, since there is no a validated model that allows measuring the dynamic capabilities arisen as a consequence of the use of CRMs systems. They are complex technologies to be measured in terms of the tangible results that they proportionate.

As future lines of research, it would be interesting to extrapolate this study to other industries. There are also estimations that point out how CRMs will be useful for data exploitation that allow establishing connections with “things” and evaluate the level of advance between CRMs systems and the Internet of things. Additionally, main firms providing this kind of technology are evolving towards artificial intelligence, incorporating it as packages oriented to commercial solutions. Therefore, this study could serve as an antecedent to evidence the adoption of these new packages as more personalized sales force.

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