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COMPETITIVE INTELLIGENCE IN THE INNOVATION OF OPEN BANKING

INTELIGÊNCIA COMPETITIVA NO PROCESSO DE INOVAÇÃO DO OPEN BANKING

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ABSTRACT

Purpose: Verify how the Competitive Intelligence Cycle (CIC) can be used to generate inputs for managing the innovation process of open banking.

Design/methodology/approach: To reach the purpose goal, a qualitative, descriptive, and exploratory approach was chosen. The sector chosen was the financial industry in Brazil, with the participation of six national banks. Data analysis was conducted using content analysis.

Findings: The CIC is integrated into the innovation processes in banks as a starting point for unleashing innovation.

Research limitations/implications: The results described here are typical of the sample studied within the financial market and cannot be generalized.

Practical implications: The results show important insights for CIC and innovation process researchers that can allow new research about its applications.

Social implications: Banks, fintechs, and digital retail companies will have the opportunity to develop within their planning and product areas, and exchange knowledge with university researchers.

Originality/value: At the end of the research, a scheme of interrelationships between the identified categories is presented, suggesting that the CIC develops through the search for information, generating useful results to promote the development and improvement of products and services related to open banking innovation.

KEYWORKS

Competitive intelligence. Innovation. Open banking. Competitive Intelligence Cycle.

RESUMO

Finalidade: Verificar como o ciclo da inteligência competitiva (CIC) pode ser utilizado com a finalidade de gerar insumos para a gestão da inovação do *open banking*.

Metodologia: Para alcançar o objetivo proposto, optou-se por uma abordagem qualitativa, de caráter descritivo e exploratório. O setor escolhido foi a indústria financeira do Brasil, com a participação de seis bancos nacionais. A análise dos dados foi feita com a análise de conteúdo.

Resultados: O ciclo da inteligência competitiva está integrado aos processos de inovação nos bancos, como um ponto de partida para experimentar uma inovação.

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Limitações/implicações da pesquisa: Os resultados aqui sentidos são típicos da amostra estudada dentro do setor financeiro e não podem ser generalizados.

Implicações práticas: Os resultados apresentam importantes *insights* para os pesquisadores do CIC e do processo de inovação que podem permitir novas pesquisas sobre suas aplicações, refletindo conjuntamente sobre aspectos relevantes para o avanço deste campo de pesquisa.

Implicações sociais: Os bancos, as fintechs e as empresas de varejo digital têm oportunidade de desenvolver dentro de suas áreas de planejamento e de produtos, um intercâmbio de conhecimento com pesquisadores universitários.

Originalidade/valor: Ao final da pesquisa é apresentado um esquema de inter-relações entre as categorias identificadas, sugerindo que o CIC se desenvolva com a busca de informações, gerando resultados úteis para promover o desenvolvimento e aprimoramento de produtos e serviços relacionados com a inovação do *open banking*.

PALAVRAS-CHAVE

Inteligência competitiva. Inovação. *Open banking*. Ciclo da Inteligência Competitiva (CIC).

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INTRODUCTION

In the economic and business context of current days, in which globalization amplifies competitive between companies in all areas, the capacity of innovation is in the core of success or failure. In the wake of this scenario, the banking sector lives a moment of transformation stimulated by the new digital technologies. Those solutions brought a bigger efficiency to the existing practices, introducing new models and ways to create products and services (Scardovi, 2017), with direct consequences to the financial sector.

In the midst of this moment of transformation, the profitability of the Brazilian banking system lies between the biggest of the world, taking in consideration that in the last years, the return over equity in the industry oscillates between 14% and 18%, overcoming most of the developed countries such as United States, United Kingdom, and Japan, that present equity below 8%.

In contrast, a set of factors put the maintenance of those results at risk, raising suspicion regarding the capability of banks to maintain its performance in the medium and long term.

Among these factors, the global sanitary crisis caused by Covid-19 can be highlighted, with social and economic consequences in all sectors, the financial among them. At the same time, it is witnessed the emergence of new competitors, the fintechs, focused on the supply of products and services on fully digital platforms, with a flexible business model, fully turned to the needs of its clients.

In addition, there is the entry of digital retail companies, which, in the same model as fintechs, include credit and investment solutions in their digital platforms. Finally, as an additional factor, the monetary authorities that regulate the world banking market have reached a consensus that the potential and innovative opportunities of digital technologies are not being captured to a satisfactory level and that competition among banks remains low (Larsson & Frändberg, 2019).

In order to stimulate the competition, the world monetary authorities started the implantation of open banking. The open banking assumes that data belongs to the clients, and not the financial institutions, and aims to facilitate fintechs and banks to

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create innovative products and services, offering the customers more options and more control over their money and financial information. The future of the banks depends on their ability to react in face of regulatory innovation on open banking.

With this scenario, the objective of this study was to analyze, within the scope of national Financial Institutions (FI), to what extent the competitive intelligence cycle can be used to provide inputs for the management of the open banking innovation process, in the sense of causing changes in the behavior of an FI. To achieve the proposed objective, a qualitative approach was opted, having as a means of investigation, field research using interviews with key professionals in management positions, linked to six national FI.

For the treatment of data from the interviews, the technique of content analysis (CA) was used, based on the work of Bardin (2016), a technique that includes the collection of information and its due verification in order to prove assumptions.

The structure of the article is organized with the aim of presenting the main concepts that referenced the work, the description of the methodological procedures, the context, analysis, and interpretations of results.

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THEORETICAL BACKGROUND

In line with the objective of the research, a theoretical-conceptual contribution was sought in the specialized literature, to support the analyzes and interpretations. Thus, the theoretical framework composed of three sections was built. In the first, concepts related to competitive intelligence and the phases of its cycles are presented. The second addresses concepts and reflections regarding innovation as a process and source of regulatory innovation. The last section presents open banking, its origins and its strategy. For the treatment of data from the interviews, the technique of content analysis (CA) was used, based on the work of Bardin (2016), a technique that includes the collection of information and its due verification in order to prove assumptions.

Competitive intelligence as a process and its cycle stages

The accelerated increase in innovations and the technological evolution of products, processes and methodologies, as well as the excess of information, are factors that demand from companies in different segments, including finance, an intelligence process to sustain innovations that ensure competitive advantage before its competitors. The structure of the article is organized to present the main concepts that referenced the work, the description of the methodological procedures, the context, the analysis and interpretations of results.

This process of competitive intelligence aims to obtain and process information, originated from an uninterruptedly available systematic flow of identification, collection, processing, analysis and dissemination of strategic information to the company, enabling its use in the decision-making process (Gomes & Braga, 2017).

Therefore, this intelligence process, integrated with the recommendations in search of assertiveness in the decision to obtain competitive advantage, results from what is proposed as the CIC. The CIC is a systemic, cyclical, and dynamic process that leads to better decision making (CIA, 2023).

This process, made up by stages, is presented by Amaral, Garcia & Aliprandini (2008) in a six stages cycle: (1) identification of the information needs; (2) planning;

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(3) gathering of information; (4) analysis; (5) dissemination; and (6) evaluation. It is important to highlight that there are divergences in the literature regarding the number of stages that compose the CIC (Gomes & Braga, 2017; Bernhardt, 2004; Miller, 2002), however, the stages of gathering, analysis, and dissemination are common to most authors.

The first stage of the CIC involves identifying which will be the critical decisions that the company needs to make, considering the external environment (Gomes & Braga, 2017). In sequence, we have the planning stage, which is characterized by three factors that Herring (1999) defines as defensive, passive, and offensive. The defensive factor, of obtainment of information to prevent surprises; the passive, of understanding and evaluating the organizational performance; and, lastly, the offensive, of identification of business opportunities.

The third stage of the CIC is represented by data collection, whose efficiency depends on the knowledge on the available sources. A challenge in this stage is the crescent volume of information, mitigated with the use of the technological set of Big Data, associated to the growth and use of structured and non-structured data on high performance and availability (Franks, 2013).

Regarding the fourth stage of the cycle, the information analysis, the collected data is transformed in intelligence. This complex process can adopt characteristics of the scientific research to formulate hypothesis and validating them (Miller, 2002). This is a subprocess in which collected information must be analyzed or synthetized, presenting brief conclusions to help in the decision (Gomes & Braga, 2017).

On the fifth stage, which involves the dissemination of the products of intelligence, the most suited channel to deliver the CI product to the client in coherent, clear, objective and convincing channel is identified (Gomes & Braga, 2017). This product of CI is the information of intelligence, which, in turn, is exposed with the communication of the results found for decision making, generating specific strategic actions (Miller, 2002).

Lastly, the sixth stage corresponds to the evaluation of the CI process regarding its efficiency (Gomes & Braga, 2017). Kahaner (1996) defends that at this stage, the process of competitive intelligence is observed under two aspects: the first one concerns the performance of each stage that compose the system, which is, identifying if the best method

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of analysis was chosen. The second one concerns the choices of the sources of information, identifying if they could have been more well directed or if the research format attended the proposed objective.

Thus, when providing the conception of information profiles, that further can be used as a comparison mean, the CIC helps to identify patterns of strong or weak points, strategies, objectives, market positioning and probable reaction of the competitors (Bose, 2008), contributing to the development of new products, services and process, in other words, to innovation.

The innovation process and the regulation as an innovating source

The concept of innovation has evolved significantly since the first proposition made by Schumpeter in 1926, when the economist associated innovation to the economic development, defining it as a combination of productive resources. The innovation is more conceived as a specific result of individual actions or, as presented by Govindarajan and Trimble (2009, p. 4), like the model "innovation = ideas", as the result of a process that transforms ideas in reality and captures its value, represented by the researches as the equation "innovation = ideas + execution".

The dynamic of the conceptualization of the term innovation is directly related to what it represents in certain temporal and social moment. On his studies, Mañas (1993) suggests innovation as product of a complex work that involves many phases, since the discovering, going through planning and analysis, which allows decision-making and provokes consequences, quite predictable.

This vision of fragmentation of the innovation process persists until this day, shared by Bessant and Tidd (2019), that present four stages to the process. The first stage suggested by the researchers, involves the search for innovative ideas, aligned with the discovering phase presented by Mañas (1993), ideas that can emerge from areas of Product Development, market indicators, regulations or the behaving of competitors.

The second phase involves choosing the strategic of everything that can be develop with the variety of ideas that come up. Afterwards, there is the stage of implementing

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everything that has come up and carefully chosen. This stage of the process, according to Tidd and Bessant (2015), demands managing a representative and costing volume of resources, such as time, attitude, money, and mostly knowledge mobilization.

Lastly, we have the last phase, when it must be considered the challenge of capturing value with the efforts of innovation. This stage demands ability to ensure that the efforts are justified, secure that the competitors do not appropriate the winnings, and identify how the learning with this experience will be (Bessant & Tidd, 2019).

The comprehension of innovation a process by companies goes far beyond flashes of inspiration or brilliant ideas, even though they represent great starting points (Bessant & Tidd, 2019), it is fundamental to seek de desired advantage.

In the search for that advantage, the company must have ability and competency to detect the need of changes and create new and improved products (Aaker, 2008). The brilliant ideas are not enough by themselves, since they can disregard a real or perceived need, as well as the people may not be motivated to change (Tidd & Bessant, 2015). The innovation requires some form of demand or exigency to establish roots, such as the combination of occasional progress followed by extended periods of elaboration (Bessant & Tidd, 2019).

A source of opportunity for innovation is regulation. It is an important source, arising from the chances on rules and regulations that define the diverse policies in business and society (Bessant & Tidd, 2019). The innovation of regulation acts on the inversely proportional, considering that on one hand, it can close paths that the innovation was following, but it can also open others along which changes need to occur (Tidd & Bessant, 2015).

The implantation of open banking by all world monetary authorities emerges as a new source of innovation of regulation, provoking the creation of new and enhanced financial products and services.

The origin and challenges of open banking

Open banking innovation is not something recent, neither came up in an independent and isolated way, it is the result of a lot of little achievements, whose beginning refers to

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the year of 1980. On that year, the Bundespost, German postal bank, launched a field test with 300 suppliers and around 2,000 clients, in which all had the opportunity to teste the new online banking service (Nicholls, 2019), that service allowed online text transfers by dialing a dedicated number: 0300.

According to Botta et al. (2018), this precursor movement was followed by the creation, in 1998, of Home Banking Computer Interface (HBCI). The HBCI was a standardized interface developed in Germany to online banking services. In 2002, emerged the Financial Transaction Services (FinTS), a derivative of the HBCI. As a foundation for the multi-banking platform, the FinTS was created to unify the connection between client and bank.

In 2000, amidst the monitoring of the preparations to avoid the millennium, the European Comission identified a transaction infrastructure fragmented in Europe and started to act to decentralize and standardize the payment services (Botta et al., 2018). As a result, the Payment Services Directive 1, or PSD, was signed in 2007. It was implemented in European countries with the ambition to harmonize financial system, stablishing standards on how the transaction systems need to interact between themselves (Botta et al., 2018).

However, with the development of the financial sector, new types of business that were out of the scope of the regulation emerged (Nicholls, 2019). The companies that emerged are called fintechs, operating in processes of payment and information of the account between consumers and merchants, working with a bank as a processing service provider, which remains passive in the transaction.

In 2013, the European Comission published a project to the second version of the PSD and in January 2018, the PSD was finally substituted by PSD2. With this new regulation, the European Comission decided to officially open banking data to third parties, imposing an explicit demand to banks to practice the so-called open banking. The authorities that regulate the world banking market agreed that the potential and the innovative opportunities of digital technologies are not captured in a satisfying level and that the competition remains low (Larsson & Frändberg, 2019).

The open banking innovation aims to facilitate the creation of products and services on fintechs and banks, offering consumers more options and more control over

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their money and financial information (Dietz, Lamerle, Mehta & Sengupta 2017). In another approach, the open banking is about the disclosure of data that you wish to share. If not, it becomes a technological partnership (Littlejohn, 2019).

In Brazil, the implantation of open banking follows a schedule that begins at the end of 2019 and ends at the end of 2022. Brazil's Banco Central main goal with implementing open banking is to increase the efficiency in the market of credit and payments, promoting a more inclusive and competitive business environment, preserving the safety of the financial system and the protection of the consumers.

The change provoked by the entry of open banking and its future improvements will bring an embracing transformation, being necessary to be adapted to a digital and CI oriented world, which includes capture, systemizing, and evaluation of data and information regarding the competitors, that when used efficiently, provide that companies anticipate their answers to competitors' strategy (Trigo, Soares & Quoniam, 2014).

METHODOLOGICAL PROCEDURES

In this research, a qualitative methodology was used, in line with the view of Creswell (2014), who shows that in this method the researcher describes a research problem that can be better understood when exploring a concept or phenomenon. The research is also descriptive (Gil, 2019) in terms of its purposes, showing the characteristic of using the CIC in the management of the open banking innovation process, and exploratory, as there are few previous studies in the literature on such research issues (Collis & Hussey, 2005).

With regard to the means of investigation, as suggested by Creswell (2014), this is field research with a sample composed of six key professionals in management positions, linked to six national banks. The sample size is in line with Gil (2019) view, that in the case of qualitative research, the researcher should not be concerned with the sample size, but with the research subject.

In the field research, a structured script was used to conduct the interview, as proposed by Marconi and Lakatos (2017), since the script was previously stablished, and the

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questions were pre-determined. In turn, to elaborate the script, a mooring matrix was used, in which was sought to elaborate questions predominantly open, that allowed to obtain answers to the research question whilst reaching the specific objectives proposed.

The interviews were conducted between the months of July and September 2020, respecting the situation imposed by the sanitary authorities at the time, involving the Covid-19 pandemic. Therefore, the interview used Gil (2019) safeguard, which says the researcher can use interactive media, which count with existent technology, promoting online and on time video conferences and with quality provided by software such as Skype, Google Hangouts and Zoom.

The data analysis took place with the help of the content analysis technique following recommendations of Bardin (2016). To Neundorf (2017), the most valuable way to structure content is by snipping it in themes or fragments that represent a specific idea, which can be a concept or a relation between concepts. Bardin (2016), however, suggest in her work the fragmentation of CA in stages to be conducted.

The first stage, named pre-analysis, consists in organizing and exploring the material with deep readings of the result of the interviews. When finishing the pre-analysis, the second stage has been reached, where it is worked on the preparation of the material with the objective of encoding and characterizing the fragments. This encoding stage is subdivided in identifying the units of registry (UR), formatting units of meaning (UM) and developing categories (C).

The third and last stage constitutes in the interpretation the results by inference, which according to Bardin (2016, p. 166) is the "logical operation, through which is admitted a proposition due to its connection with other propositions already accepted as true". On this stage, the domain of the theoretical reference is used to confront the research hypothesis in face of what has been found. In the next sections, a detailed account of the route to reach the study objective is presented.

RESULT ANALYSIS AND DISCUSSION

In this topic, relevant information to the research context is presented, with interviewed description, pre-analysis and identification of the units of registry, formation of the units

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of meaning and formation of categories, as a foundation to understand the use of CIC in managing the innovation process of open banking.

Interviewed descriptions

The six interviewed chosen are all from national financial institutions, with operation or operation history in areas of technology, products and planning. Regarding the interviewed profile, they can be characterized as a group restrict and heterogeneous, considering the age range with elastic variation between 30 and 65 years; the training was varied, as well as the time in the company diversified. Respondents occupy management positions in their companies, all of which are private. The characterization of the interviewees is presented in Table 1.

Table 1 – *Interviewees Description*

Description	Interview					
	1	2	3	4	5	6
Role	Director	Executive Director	Director	Director	Superintendent	Director
Education	Physics and MBA	Production Engineering	Mathematics and MBA	Mechanics Engineering	Economics and MBA	Business
Gender	Male	Male	Female	Male	Female	Male
Age	61-70	51-60	41-50	41-50	41-50	51-60
Company years	11-20	21-30	11-20	5-11	5-11	5-11
Operational model	Physical and digital	Physical and digital	Physical and digital	Exclusively digital	Exclusively digital	Exclusively digital
Number of employees	5,000-10,000	10,000-50,000	10,000-50,000	101-500	101-500	101-500

Source: Authors, 2024.

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Pre-analysis and identification of units of registry, formation of units of meaning and formation of categories

To identify the registration units, a pre-analysis was conducted by a thorough reading of the texts, resulting from the transcripts of the interviews. Then, the 199 Registration Units were determined from the individual analysis of the interviews, highlighting the key words, expressions or contexts in the transcriptions themselves (Bardin, 2016).

With the registration units identified and organized, 32 Units of Meaning were formed, comprising the grouping of 199 Registration Units (RU). The criterion used for grouping the RUs was the similarity of meaning of the registration units, taking into account their context. At the end of the creation of the Units of Meaning, it was possible to proceed to a new grouping, adopting the same similarity criterion (Bardin, 2016), giving rise to eight categories.

The eight categories of content analysis are presented in Table 2, representing the elements of the findings of the interviews conducted with professionals from financial institutions.

Table 2 – *Identified Categories*

CT	Category	UM	Units of Meaning
C01	Definition of initial information needs	UM1	Decision authority for strategic decision information
		UM8	Decision authority for tactical decision information
		UM3	Identification of needs
		UM23	Information value
C02	The process of information collection	UM7	Internal demand and performance analysis process
		UM2	External process of monitoring the competition and opportunities
		UM4	Bank internal sources
		UM5	Specific external sources
		UM6	Non located external sources

(*to be continued*)

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Tabela 2 – Funções e atividades da Controladoria no processo de gestão

CT	Category	UM	Units of Meaning
C03	Processing and information analysis	UM10	The obstacles of processing information
		UM22	Data security
		UM28	Information processing
		UM14	Information analysis
C04	Information dissemination	UM15	Definition of the dissemination channel
		UM12	Channels for the internal public and clients
C05	Use of information in the innovation process	UM17	Internal sources of customers and indicators for innovation
		UM18	Regulatory and Competitive Sources for Innovation
		UM24	Ideas focused on customer demand and needs
		UM25	Ideas disregarding the customer view
C06	The decision process for innovation	UM11	Decision process for innovation agents
		UM29	Risks and opportunities of innovation
		UM9	The information applied in the process of innovation
C07	Ensuring the value of implementing the innovation	UM32	Conventional innovation implementation process
		UM30	Innovation implementation methodologies
		UM20	Risks of an innovation
		UM19	Prolonging the result of innovation
		UM31	Avoiding appropriation of innovation by third parties
C08	The innovation of open banking	UM13	Risks of the open banking for banks
		UM16	Open banking differentials
		UM21	Obstacles to adopting the open banking
		UM26	Opportunities of the open banking to banks and fintechs
		UM27	Opportunity of the open banking to the consumer

Source: Authors, 2024.

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Analysis of the categories identified in the research

The Category C1 – Definition of initial information needs, comprises the units of meaning as shown in Table 2, and its formation rule is the way in which national FI define the focus of information activities. The relevance of this stage in the IF emerges from the interviews, revealing a decision-making centered on the highest level of executives within the institution, as observed in the interviewees' speeches:

> "[...] this committee is responsible for digesting what arrives from the outside world, from the headquarters or from the internal areas, for the Executive Committee to propose. This forum determines what should be prioritized when collecting information"
> "[...] two partners have this characteristic of defining critical decisions in relation to what is captured from market information"
> "[...] proposals for what to capture information are taken to the Products Committee after being discussed with the internal areas and go up to the Executive Committee"

This centralized decision seeks to avoid wasting internal, human and economic resources. As shown by Gomes and Braga (2017), companies, especially banks, have been facing a problem of excess information. Banks moved from a decentralized data treatment model, where each area worked its information needs, to central units, whose policy is defined by the highest level within the company. In the study, it is observed that this organizational design arises with the growth in the volume of data that, on the one hand, improve access to information, on the other hand, are impacting the cost of financial institutions.

> "What the bank will research requires a central decision, imagine what it was like when each area defined its agenda, you had people working on information in all areas of the bank without any criteria, without conciliation."
> "[...] the challenge is to be able to process this data with quality, seeking to optimize demands, avoiding waste due to processing costs"

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> "[...] if obtaining data is expensive, managing and modeling it costs even more, so we centralized the processing of information in a single area [...] data is the gold of the digital age"

In category C2 – The information collection process, the information collection sources for national FI are used as a rule for training. Information is a fundamental raw material for FI, which increasingly depend on data to improve and innovate their processes and products. Banks capture data on their customers on digital platforms, on the performance of their managers and employees on internal platforms, on their suppliers, partners and competitors, and supplement this information with external data available from large information processing bureaus. Asked, for example, about the internal and external sources of data, the following emerged:

> "[...] set of internet crawlers that have been available from Company A and B, they capture everything that is available, social network, public documents, then we enrich our databases with this data"
>
> "[...] captures information, both internal from customer operations and external bureaus"

Category C3 – Information processing and analysis, considers the processing and analysis of information in the CIC, with its obstacles and risks, and how to avoid them. Regarding the processing of this information, observations emerge from the interviews about the high and growing volume of available data and the processing cost, pointed out as obstacles to the treatment of information in the FI.

At the same time, concerns about the security of processing this information emerge from the registration units. To mitigate these risks, banks work with strong governance over the processing and analysis of information, as seen in the speeches of the interviewees:

> "[...] obtain and process a massive quantity of information and, even so, we are far to extract all possible value of information"
>
> "[...] of the exposition of sensitive data and the fear of the clients, the personal financial data were kept on seven keys"
>
> "[...] information security is expensive and combining it with usability is even more"

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Lodi (2005) highlights that CI deals with the competitive environment as a whole, which demands economic, technical and human resources. Regarding human resources Miller (2002) and Amaral et al. (2008), present that to be efficient, a CI process does not necessarily require a full-time team to analyze and process information. Contrary to the view of these authors, information emerges from the interviews that banks work with centralized areas to analyze the results of data processing:

> [...] *chief data officer, with people specialized in organizing the information, cataloging, controlling access to this information*
>
> [...] centralization as if it were an information library area
>
> [...] the area responsible is for Planning [...] one of the main and oldest of the bank
>
> [...] an area of data intelligence specialized in this data processing

In category C4 – Dissemination of information, the process of distributing the results of the CIC within the FI was considered. With the modern technologies, banks migrated in a few years from physical reports to the dissemination of data on their intranets, on fixed and mobile platforms, both for distributing information to their employees and their customers. These routines for disseminating information from banks corroborate the proposal by Marcial and Costa (2001) of the CIC as an activity whose objective is to maintain or increase the capacity of organizations.

Today, banks work with real-time capture of the interest of their customers, using data captured in the journeys of their digital environments, converting this information into offers of products and services. Likewise, the evaluation of the performance of its teams, went from monthly to online and real time measurement. For each new product or new service, the most suitable channel is determined. The lines below indicate the information dissemination channel:

> [...] definition of the channel were a report will be published, were the result of the compilation of data will be presented is defined along the specification and approval of the product

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> [...] until a few years ago everything was made in a physical map with monthly canvass, with a month delay... and to think now everything is online via app
>
> [...] the data analyzed and formatted is delivered to the managers, always with added value and meaning by the data intelligence area

Category C5 – Use of information in the innovation process, considered the use of information in the innovation process within the FI. Banks use the information in their activities to develop and adapt their products as a tool to help the company to reach the desired objective before others (Sharp, 2009).

The IC is integrated into the innovation processes of products and services in Brazilian banks, in line with the Arboniés (2009) model, which highlights IC as an essential starting point to trigger product and service innovation, based on the search for opportunities, which are the essence of new projects. In the interviewees' speeches, it is observed:

> [...] information work as foundation to our creative process, to our development and implantation
>
> [...] thanks to the information, the banks have innovated a lot in their processes and products, allowing a significative reduction of costs over transactions
>
> The Competitive Intelligence is the essential tool to your institution to monitor clients and competitors and, thus develop adequate products and strategies
>
> [...] the clients perceive how some banks know what they need, those are the banks that surprise with news and innovation, by the simple fact that they seek to be ahead of the competition

In category C6 – The decision process for innovation, its training rule includes the risks involved in innovation and the practical use of information in innovation was considered responsible for the decision to innovate in the FI. As presented by Govindarajan and Trimbel (2013), innovating is a high-risk task.

In line with the authors, just like the decision regarding the CI cycle, the decision to innovate follows the same centralizing pattern. The executive committees of these

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institutions that determine where banks should innovate and which projects should or should not receive investments, as shown in the following excerpts:

> You elaborate the product...you see the commercial characteristics, see if it will have results or not...from there, you take it to the product committee, to see if they approve or not...if approved, it goes to the executive committee, and they deliberate
> [...] Product Committee...they study the information of diferente sources, analyze its technical and financial viability, its return

FI managers, in line with Tidd and Bessant (2015) statement that innovation demands management of a representative cost and volume of resources, seek to mitigate the risks of innovations by deciding based on the projected result of the proposed innovation, showing that if risk aversion, opting for the guaranteed and immediate result, to the detriment of the uncertain and long-term gain. And this centralized decision-making occurs based on CI, as observed in the interviewees' speeches:

> [...] rational of how much this product will bring me back, then often an idea you believe
> [...] opt for something with a guaranteed result, something that you have to innovate to risk a greater result
> [...] it has to use information more and more and move towards innovation that can solve the new problems imposed by the market, customers and regulators
> [...] product units work with the result of processing data analytics information that reflects the customer's desire

The category C7 – Guarantee of the value of implementing innovation, considers the implementation of innovation, the risks of this innovation and its maintenance in front of competitors. The implementation of innovation in banks occurs as presented by Nelson and Winter (2015) with the work routine.

When relating innovation to the work routine, it is evident that it is not something that arises from chance, but rather comes from systematic and continuous processes as

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stated by Tidd and Bessant (2015). This process is undergoing a transition within banks. From a model of development and implementation of innovation called traditional, which fragments the specification, construction, approval and implementation activities into different areas, to a modern design where all these steps are conducted within the same area, in the same team. The lines below present this transition process:

> It is changing, getting out of the traditional form that products specify, IT builds and the user homologs, to an agile method where a squad does all those stages
> […] digital channel normally is made by agile methodology. The area of products, systems and sometimes the own user work together
> […] it is in transition, today is a hybrid between the traditional and agile, according to the product

The risk of innovating is mitigated by the banks with a recurrent following of the regulatory decisions, the customer needs and the evolution of the competition. In the interviews it is evident that the banks do not work with radical innovations, that in the vision of Verganti (2012), although risky, it is one of the biggest sources of competitive advantage on long term. The national FI work with incremental innovation, holder of a continuous character, being arising of the internal learning process and the accumulated knowledge in the companies (Tigre, 2019). In the interviewee's speeches, it is observed:

> [...] products that you already have on the market, you hardly are uncertain about, the risks are smaller because someone already made a mistake before you
> […] following the regulation, so we don't take any fiscal or tax risk
> […] you can't create something in a technical lab and shove it down the client's throat, with social network the negative or positive response time of any implantation is immediate

In order to prolong the time of innovation and prevent the competition from appropriating their gains, banks make use of the choice of innovations whose period of adaptation to the competition is longer. The speed in the implementation of innovations and

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the technological limitations of competitors are evident in the speeches as an opportunity to guarantee the longevity of innovation to the precursor bank:

> [...] we kept and attentive look to the market players and seek to act in an initiative-taking way using a wide approach in our strategic actions based on the information we obtain
> […] their technology is older, harder to move, thus harder to change"
> […] whoever is quicker and more efficient, whether in product, solution of service, for sure can attract the client before

Category C8 – Open banking innovation considered all aspects of open banking in the interviews. The statement by Dietz et al. (2017) that the innovation of open banking aims to make it easier for fintechs and banks to create products and services, offering consumers more options and more control, is still surrounded by uncertainties within national banks. Likewise, with regard to consumers, it is observed in the speeches of respondents, little knowledge of innovation on the part of these customers:

> [...] open banking is still surrounded by uncertainties, and building a new technological model takes time
> […] general concept of banks disclosing data integrated with other banks on its platforms would be great, but the client still hasn't realized that
> The construction of a flexible architecture, open and safe, based on APIs and with massive use of data analytics and machine learning are some of the main pillars on the development of open banking
> The open banking changes the modus operandi of one of the most profitable and old segments of the world…the banks

According to Littlejohn (2019), the potential to motivate the creation of new fintechs, as well as awaken in banks the development of new opportunities for products and services, transforms the implementation of open banking into the biggest innovation in the financial market in recent decades. Despite the uncertainties surrounding

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innovation, respondents perceive open banking opportunities for banks, fintechs, and digital retail companies, as the following speech suggests:

> […] the banks can enjoy this data and information opening to integrate to new chains of services and offer new products, generating new sources of income from information that they didn't have before
> The banks and fintechs capable of positioning with more solidity and credibility in this question will smooth their barriers to adopt open banking
> […] in open banking, we still don't know what the cases of success in the nation market and the monetization triggers will be

In the speeches is presented, inclusive, indications that some banks already work with open platforms, ready to advance with the implantation of open banking, as it is observed in the interviews:

> [...] some competitors already work in open platforms, mostly to investment solutions offering third party funds
> […] we already have something rolling similar to open banking… what we call "open platform" to captured products

One concern is the involvement of the consumer in the implantation of open banking. The lines below bring that for the interviewed, the open banking innovation is still little disclosed, making it hard to perceive and understand the benefits by the consumer.

> [...] who wins with this fight is the clients, who will have more and better services with lower costs
> […] the customers are not seeing how this will benefit them […] a lot is said about PIX today, but little about open banking

At the end of the analysis and the interpretation of the results, and from the eight categories identified, the proposal of a scheme was elaborated.

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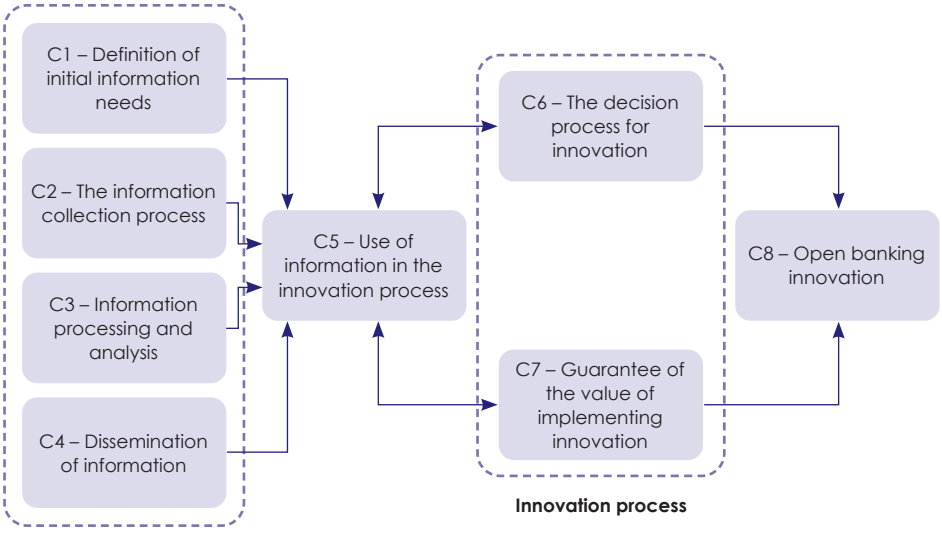
Practical scheme of integration between the competitive intelligence cycle and the process of innovation

The Figure 1 represents a proposal of a practical scheme of integration between the cycle of competitive intelligence and the process of innovation. It suits to highlight that the proposed scheme can be improved, changed, evaluated, and contested in future studies.

Figure 1 – Proposed scheme of relation between the categories found



Source: Authors, 2024.

The Figure 1 indicates that the engagement of banks in adoption of the innovation of open banking makes financial institutions to plan, capture, process, analyze, and disseminate data to integrate the process of such innovation.

The banks define the initial information needs (C1) in a form centralized in the highest hierarchical levels and approve the process of capture of information (C2) from internal and external sources in big volumes. The banks process and analyze such information (C3) with special attention to the excessive cost of processing and the safety with

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data security. Lastly, the innovative technologies and solutions of mobility of dissemination of information (C4) is being more used. Therefore, the CIC does not depend on other categories, while other categories depend on the CIC.

The information is used by the banks in the innovation process (C5), being that this category is connected to the process of decision of innovation (C6) and the category of assurance of the value of the implantation of innovation (C7). Those categories are connected, and in banks they feedback from new information, guaranteeing the improvement of the innovation process. Lastly, the category of innovation of open banking takes advantage of all of the other categories, since it depends on the innovation process, thus, depends on the CIC.

FINAL CONSIDERATIONS

Regarding the research objective, the CIC as a process composed of stages represents an adherence relationship with the data collected in the research. Banks take advantage of the stages of the CIC, from the identification of critical decisions to be taken, planned centrally at the top of their hierarchy, through the planning stage and collection of data captured internally and externally, moving on to the stage processing and analysis carried out in centralized and specialized areas, culminating in the stage of dissemination of the product of this intelligence.

The researched banks dispose of an innovation process for development of products and services connected to open banking. On the FI, the decision to innovate is centralized, considering that innovation demands management of a representative volume of financial resources and innovating is a risk activity, mitigated by the banks thanks to a recurring monitoring of the regulatory decision, the customers' needs and the competition.

In order to prolong the time of innovation and avoid that the competition appropriates their earnings, the banks search for innovations which the competitors' adaptation term is longer. The speed in the implantation and the technological limitation of the competition emerge in the data of this research as an opportunity to guarantee long term innovation.

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In national banks, the CIC is integrated into the product and service innovation processes, as an essential starting point to trigger product and service innovation, based on the search for opportunities, which are the essence of new projects. Finally, it was possible to propose a practical integration scheme between the CIC and the innovation process, using the analysis and interpretation of results from the eight identified categories.

Another important finding of this study is the awareness process of banks and their customers regarding the arrival of open banking. On the one hand, the arrival of open banking is still surrounded by uncertainties within FI, and still little known by its clients. On the other hand, respondents perceive the open banking opportunities for banks, for fintechs, for digital retail companies, and consequently for the customers of these companies.

An opportunity that emerges from this research is related to the relationship between financial institutions and universities, especially their researchers. Banks, fintechs, and digital retail companies have the opportunity to develop, within their planning and product areas, an exchange of knowledge with university researchers. This opportunity to bring together academic research and practice within the financial sector allows for the production of knowledge with application to society. To produce something innovative and with impact, that changes reality in a sustainable way, consistent theory and knowledge are needed.

Regarding the limitations of the research, the following are pointed out: the results described here are typical of the sample studied within the financial sector and cannot be generalized or extended to other sectors; the period of data collection, carried out during the period of social seclusion caused by the Covid-19 pandemic, eliminating the possibility of face-to-face interviews, which allow analyzing the environment where the interviewee is, contributing with new information.

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