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CONTENTS

A study on market intelligence: the professional, the applicability of information technologies to innovate and gain competitive advantage

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Abstract. With the evolving market of various industries, business management specialists are creating a demand for information technology to gain competitive advantage. Within this context, technology management specialists seek to innovate by creating systems that offer results with differentials. In this paper, we seek to present the connection between the study of Business Administration and Information Systems, addressing a brief history of Market Intelligence, its evolution and the importance it has for most business sectors. We have strengthened the argument why information technology is an essential investment for the success and survival of any organization today. We intend to contribute with theoretical material for future research on the subject.

Keywords: Market Intelligence, Information Technology, Innovation, Advantage, Data Science.

1. Introduction

Running a business requires that a leader prepare with professional qualification of personal nature and invest in his team. Choosing highly qualified professionals to meet quality requirements is essential for your organization to achieve the desired success.

Although technology dominates most of today's businesses, intellectual capital is in line with [1] "the most important resource of an organization, because it is the bearer of knowledge". To manage an organization and its team, you need to apply this knowledge to drive technologies toward the goals to be achieved. This role of the leader makes it necessary to elaborate a planning, which [2] states is "vital for the other administrative functions, because without planning, organization, direction and control they lose all their effect".

This management step relies on reliable data and information collection to be accurately crafted. Having [3] presented the planning at the strategic, functional and operational levels, we follow his reasoning with the steps of analyzing the current situation, defining objectives and elaborating the strategies to achieve the desired results, covering the areas of marketing, operational, human resources and information technology (IT).

Following the needs of companies, [4] says that marketing has key factors for a good market orientation, pointing out among them the surveillance of technological, social and political environments. In addition, so arise the concepts and practices of intelligences, which involves data collection, analysis and applicability.

One of these is Market Intelligence (MI), which has gained a fundamental place within organizations, especially in IT. For [5] what Customer Relationship Management (CRM) involves, it is IT that makes it possible to generate, store and

analyze data at a speed that meets the needs of companies, allowing them to elaborate competitive strategies and, consequently, generating advantages.

This paper provides information about IM, the professional responsible for applying its features, advantages of implementation in a company, exemplifying with some well-known and easily accessible systems. We want to present our analysis on the subject with the purpose of generating theoretical material and contributing to future research, presenting the following structure.

Market Intelligence:
- What is Market Intelligence (MI)?
- When did it come about and how did it evolve?
- Importance and advantages.

Market Intelligence Professional:
- What does a Market Intelligence analyst do?
- Appreciation and future prospects in the labor market.

Technologies for data extraction, storage and analysis;
Strategic Management Systems for Market Intelligence:
- How they work;
- How to put it into practice;
- Defining the key performance indicators (KPIs);
The concept of Business Intelligence and Examples of some systems:
- Business Intelligence; Google Analytics; Big Data; CRM.

Innovate for competitive advantage.

Conclusion.

2. Market Intelligence

2.1. What is Market Intelligence?

Market Intelligence (MI) began many years ago, but in the last decade has gained its place within organizations in such a way that it has become essential to the outstanding success of the global market. In 1974, [6] argued about MI, presenting it as an organized way to collect data and analyze information, using everything relevant to the company.

Guiding decisions that affect many areas, such as marketing, sales, innovation and others, depending on each company. It involves knowing the internal market, the external market, what drives customers, analyzing competitor data and providing information for enterprise management systems, which we'll talk about later.

In a study, published in 2013, [7] says that by manipulating a set of techniques, methods and mechanisms, MI records, analyzes and works the action of disseminating information, transforming it into strategies to achieve certain goals. It uses this strategic information to make appropriate decisions in each competency, so that data analysis allows for a thorough understanding of market needs and the application of that knowledge to their advantage.

Today, these MI positions continue to prevail. If we are going to define IM now, we would just add some information that involves technological evolution. Given the value of globalization and the need to keep up with market developments in any business sector, Information Technology (IT) has become essential to the role of a Market Intelligence analyst.

2.2. When did it come about and how did it evolve

When we start looking for information about IM, one of the first questions is "when did it come up?". So, we have a brief history of the context that includes this concept, also known as 'Competitive Intelligence'.

Several scholars have approached this topic differently, but what made the most sense for our study is the approach of [8], which says that military activities gave rise to what we now call MI. In analyzing the book "The Art of War" written by Chinese General Sun Tzu, [8] he says that his activities are described in detail, where he presents his military beliefs, making this the milestone where it all began, dating from the fourth century BC From this milestone, we have had several developments in military techniques until business applications arrived.

During the Cold War, which took place from 1945 to 1989, to address the need for concern for the enemy, they consolidated strategic military intelligence. They characterized their structures in analyzing the peculiarities of the current situation, personality traits of the enemy, using methods and techniques available at the time to survey the enemy's possible intentions, thereby obtaining some prestigious position that favored his army.

Only from the 1960s to the 1970s, that to meet an economic need, economists and managers began a new conception of intelligence to gain competitive advantage. With this they intended to anticipate the uncertainties, ambiguity and opportunities of national and international markets. The result of this was that from the implementation of Competitive Intelligence (CI), new perspectives emerged in relation to the old intelligence practices, which were adapted with methodologies appropriate to the business environment and technological evolution.

2.3. Importance and advantages

When the company masters' tools that allow predictive analysis to be performed, it attributes its competences with a better understanding of its business, involving internal procedures within the reach of the foreign market. This is possible because the volume of data available helps in the analysis and elaboration of assertive actions. This way you can have a clear view of brand positioning, consumer behavior and other information that enable you to leverage your results with marketing, sales and customer relationship strategies.

The German Development Institute [9] conducted a study showing that the company analyzes competitiveness on four economic and social levels, namely:

- Micro level: involves companies and networks focused on improving production processes, which to be executed involve innovation and IT variables;
- Meso level: It is about the state and social factors, which involves employment policy and collaboration in favor of social learning structures. It is a level that encompasses innovation;
- Macro level: encompasses external factors that involve the company, having IT as a variable to achieve good performance and productivity;
- Goal level: It is about organizational patrons, it involves the legal and political economic scope. This level involves company decision marketing, aiming at social responsibility and strategic integration.

With proper data collection, it is possible to have a real and enlightening market analysis to achieve one of the goals of IM, which is CI, resulting in advantages for the organization. Implementing this concept provides several advantages, highlighting the following:

- enables a better understanding of the consumer profile;
- identifies possible current and future problems;
- provides solutions for future issues;
- encompasses knowledge of follow-up;
- allows you to follow your market trends and possible product coverage;
- brings information about the perception that the consumer has of the brand;
- identify possible and potential external influences;
- allows for a competitive analysis;
- assists in developing strategies focused on business opportunities.

But it's not just about having systems to gather information, it takes someone who is an IM expert to manage that content and make the tools work for the business, otherwise it becomes just data, no application. The responsible for the operation of this concept, MI that conquered the business world is the Market Intelligence Analyst.

3. Market Intelligence Professional

3.1. What is a Market Intelligence Analyst?

The professional analyst may have several professions, all requiring theoretical and practical knowledge in certain areas. This is still a professional said as new in the Brazilian scenario, and is gaining his space and value, both personal, professional and compensation. The most common training for the position of Market Intelligence Analyst in Brazil is in Business Administration. This professional must be able to objectively and quickly monitor, investigate and analyze the market, customers, technologies on their business environment to assist in the accurate decision-making process. It is necessary to deepen the data collection and the results, to think in a wide scenario, to unify the data, to expose the failures and to know how to reproduce the information for all the sectors that depend on its work. In addition to identifying opportunities and anticipating trends.

In an article about the challenges of this professional, [10] presents a research that exposes the information that the position of MI Manager was one of the most valued in 2016, in Brazil, reaching remuneration ranging from $ 10,000 to $ 15,000. But to reach this position there is a long way to go and it requires experience that the MI analyst acquires over time. No need for mastery of information technology such as advanced programming and cutting-edge software handling, but for an analyst, mastery of mathematics and advanced knowledge in Excel is essential.

Having other knowledge is a differential, because Administrators, Advertisers, Sociologists, Journalists, Designers, can form even a team among other professionals, IT is involved in all areas and abroad knowing programming is something basic for most professionals. Having this vision, a professional who wants to reach this position, should be self-taught and invest in himself, with study and practice of IT, research and other content that covers the work of MI, as this position involves multiple sources of knowledge to obtain information and result in competitive advantage.

3.2. Appreciation and future prospects in the labor market

The Robert Half Recruitment Specialist, founded in 1948 in the United States, respected worldwide in the human resources field, released the 12th 2020 Payroll Guide [11]. This material presents an annual recruitment and selection study, showing the highlighted professions for next year and with appreciation visibility. Among them, in the sales and marketing area, is the Market Intelligence Analyst (see Table 1).

Table 1. List of prominent professions in the market and sales area

Featured Positions	Most demanded skills
Market intelligence analyst.	Familiarization with technological trends.
Head of Growth.	Focus on results.
Account Executive.	Analytical Profile.
Sales manager.	Multitasking.
Digital Marketing Analyst.	Hunter Profile ("hunter" of new customers)
Marketing manager	

Source: Table adapted from [11].

In its website [11], it presents the professions highlighted in the areas we mentioned in this paper, as shown in Table 1. It argues that the sales and marketing areas followed the technological evolution and were transformed, as a function of

optimizing and achieving always better results, thus dictating the direction of the market and future trends.

Table 2. List of prominent professions in the market and sales area

	CARGO (JOB TITLE)	Tamanho da Companhia*	25°	50°	75°	95°
Marketing Marketing	Diretor de Marketing Marketing Director	P/M	17.100	21.000	24.550	33.600
		G	24.200	35.000	43.000	58.900
	Head of Growth	P/M	13.000	16.000	19.650	21.600
		G	17.250	25.000	30.700	33.800
	Gerente de Marketing Marketing Manager	P/M	10.350	15.000	18.450	20.300
		G	15.200	22.000	27.000	29.700
	Analista de Inteligência de Mercado Business Intelligence Analyst	P/M	3.450	5.000	6.150	6.800
		G	6.200	9.000	11.000	12.100
	Gerente de Trade Marketing Trade Marketing Manager	P/M	9.000	13.000	16.000	17.600
		G	12.450	18.000	22.100	24.300
	Gerente de Produto Product Manager	P/M	8.300	12.000	14.750	16.250
		G	10.350	15.000	18.400	20.250
	Coordenador de Categoria Category Coordinator	P/M	5.550	8.000	9.850	10.900
		G	8.300	12.000	14.750	16.250
	Analista de Marketing/ Marketing Digital Marketing/Digital Marketing Analyst	P/M	3.450	5.000	6.150	6.800
		G	5.550	8.000	9.800	10.800

Source: Table adapted from [11].

According to Table 2, of remuneration analysis, noting that we are talking about the positions of analysts, aiming at valuation and remuneration, among the listed professions the Market Intelligence Analyst, has positioning and future perspective considered positive.

4. Technologies for Data Extraction

To optimize the work of a marketing manager, there are several technological tools that constantly evolve according to market demand. Marketing Information Systems (SIM), defined by [12], depend on several factors, including information technology, which is essential in the quality of data collection, storage and analysis, so as to minimize the possibility of errors, helping so in decision making. [13] analyzes Sandhusem's SIM model, (see fig. 1) and points out that the marketing manager must have access to all information about the company, the foreign market, and the business environment. In this context, data storage is linked to all information, input and output sources, being at the center of the SIM model.
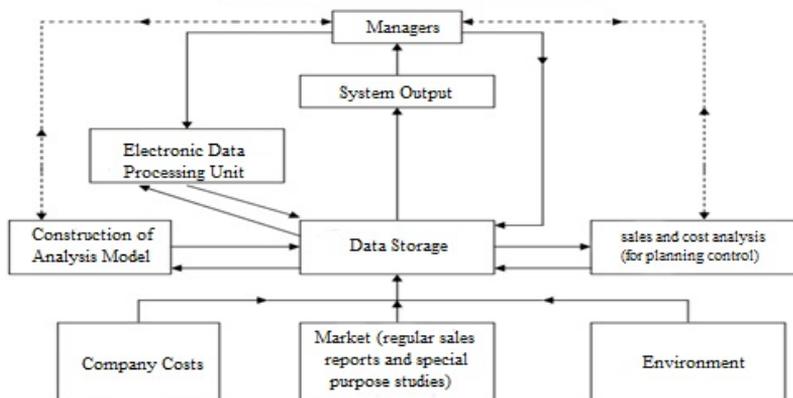

Fig. 1. Exemplifies the marketing information system
Source: [13] adaptation.

In the SIM scenario, as shown in Fig. 1, are Customer Relationship Management (CRM) systems, which rely on IT for proper and quality operation.

Following the evolution and market demand, technologies described in Table 3 were developed for data extraction, storage and analysis, as shown in the table below, exemplified by [13]:

Table 3. Evolution and market demand

| Step Evolution	Business Matter	Enabling Technology	Features
Data collection	What is my total income over the last 5 years?	Computers, tapes, disks	Delivery of retrospective and static data.
Data Acess	What is the total sales in stores in the state of São Paulo last March?	Relational Databases, SQL, ODBC	Dynamic retrospective record-level data delivery.
Data Warehousing & Decision Support System	What is the total sales in stores in the state of sao paulo last March? Specify the city of Sao Paulo.	Online analytic processing(OLAP), multidimensional databases, Data Warehouses	Dynamic multi-level retrospective data delivery at
Data Mining	What will happen to sales of units in the city of São Paulo next month?	Advanced algorithms, computers, microprocessors, massive databases.	Delivery of prospective and proactive information.

Source: [13] adapted from Thearling (2004).

Table 3 shows the evolution of some technologies used for data extraction, which we will show below how they are used in management systems.

4.1. Strategic Management Systems for Market Intelligence

For [14] "Business Intelligence (BI) is a process that involves methods, techniques, technologies, people, information, information sources, metrics, tools, and Business Analytics (BA) systems, are predictive models for trying to predict events. or predict values for attributes. This type of support includes systems known as decision support systems (DSS). What-if predictions and analysis are made with BA and SAD systems. "

In his work [15], he presents the BI architecture and its functionalities by subsystems, as follows:
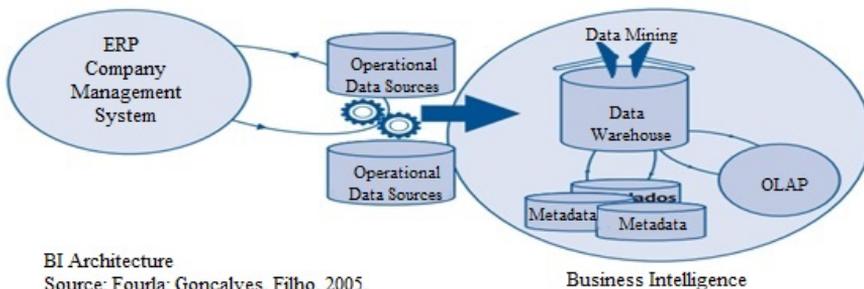
BI Architecture
Source: Fourla: Gonçalves, Filho, 2005.

Business Intelligence

Fig. 2. Exemplifies the BI Architecture
Source: Figure adapted from [15]

And [15] complements the argument that subsystems play an essential role for SADs, and those that use Data Warehouse repositories use dimensional modeling from operational data and organize them into dimensions and facts to facilitate analysis. The subsystems of classical architecture are served by data mining, Data Mining, whose function is to make explicit the information that until then is implicit in the organization's databases. And goes on talking about the interface subsystem, which is represented in the BI architecture by the OLAP tool, perform the presentation and crossover of information to support the decision process steps.

4.1.1. SIM Operation. How to put it into practice

To make the process truly efficient, a company must follow some necessary procedures, such as defining its performance indicators, which tools will be used to gather information, and how its data will be manipulated.

To complete these steps, you need to review the available information and get accurate conclusions about the business problem in order to maintain, update, or modify the strategy you analyze. This study should be conducted periodically, updating the quality of processes allowing to stay ahead of the competition

4.1.2. Key Performance Indicators (KPIs):

The first step is to define your key performance indicators (KPIs). They exist to measure the effectiveness of your actions and the progress of projects and processes of the organization.

There are a number of performance indicators, [16] all of which are relevant and useful, but there are some that are global trends where each KPI integrates with a specific type of feedback and its respective functions that can be applied in a number of cases and will be important in many cases any operation. Being them:

Turnover: Measured as a percentage (%), it serves to measure employee turnover over a set timeframe, and can measure employee satisfaction or dissatisfaction with the organization, for example.

Gondola Share: This is a performance indicator that compares execution in practice to what was previously planned by BackOffice. Being able to measure the size and presence of products on shelves. Your rating may be fair by separating the area by regions, categories, or networks, depending on which plan the company decides to follow.

Rupture: Controls the supply of products in retail chains compared to the virtual inventory index.

Sell out: Measures transaction volume and product introduction. This KPI is not always feasible as it depends on the need for your retail network.

Sell in: Can be focused on the business process, generating information on sales promotions and retail replacements, until optimizing manufacturer costs, focusing on product registration and inventory inventories.

Profitability: Can provide information on final billing based on previously planned.

Average Ticket: This KPI would return the average unit sales value, affecting product and service promotion initiatives.

LTV: Lifetime value, or LTV: is a KPI that measures company billing information according to a customer's length of stay.

CAC: Customer Acquisition Cost (CAC): is a KPI that tells you the success or failure of an operation. Also showing the amount invested to maintain and win new consumers.

4.2. The Business Intelligence Concept and Examples of Some Systems
4.2.1. Business Intelligence (BI)

Second business intelligence [17] is knowing how to collect, organize and analyze data to make decisions and know the results obtained through their investments. Unlike what it seems to be, BI is not a tool. BI relies on robust software to deliver everything that is expected, but it goes beyond that, it is a set of processes that aims to deliver the right information to the right recipient at the right time, following three pillars:

Data Collection: Collect data about everything that happens in the business to determine key aspects such as productivity, seizing opportunities, bottlenecks, market reputation, etc.

Organization and analysis: Organize previously capitalized information to be presented visually to facilitate decision making.

Action and monitoring: When processing organized data, decision makers make their decisions and monitor their results and whether they match what expected.

As a practical example of BI software, we have Power BI, which is one of the leaders in the BI market and since its inception is a complete software, not only showing information visualization, but also with the creation of DW and ETL process. and the OLAP cube.

Compared to its competitors, Power BI is the most cost-effective, with a paid value of approximately $ 9.99, winning over its competitors' market, where its prices exceed $ 1,000.

Another attraction of this system is the ability to access your data through mobile operating systems, such as Android, IOS and Windows Mobile.


Fig. 3. Exemplifies the BI System
Source: Figure adapted from [17]

Another BI platform is SPAGOBI, it keeps competing because it is considered the best open source tool, has only one version, where it is completely free. This tool is not fully complete, but it is not a significant limitation as its developers suggest another open source tool to "complete" its functionality called Talend Open Studio.

SPAGOBI delivers the key functionality you need for your organization, providing all the analytics, which include reporting, the data mining process, and OLAP

analysis.

4.2.2. Google Analytics

Google analytics is not only a free tool, it is an extremely complete tool and can be applied to online stores, physical sales and service companies. Showing beyond the number of hits to your store, it returns you with detailed profile and user behavior analysis. Allowing the company to adapt to better serve its customers.   Compared to its competitors, Power BI is the most cost-effective, with a paid value of approximately $ 9.99, winning over its competitors' market, where its prices exceed $ 1,000.

Another attraction of this system is the ability to access your data through mobile operating systems, such as Android, IOS and Windows Mobile.
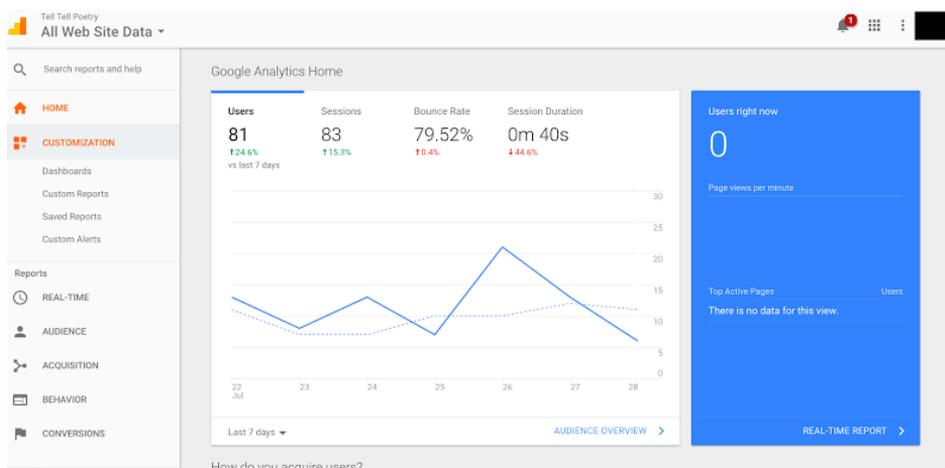
Fig. 4. Exemplifies the Google Analytics
Source: screenshot adapted from [18]

4.2.3. Big Data

As the name implies, big data is a concept that describes large structured and unstructured databases, essential for large companies that process large amounts of data. They are usually programmed in Python, as this language enables more assertive analysis.

4.2.4. Customer Relationship Management (CRM)

The Customer Relationship Management (CRM) system is software that has the ability to manage sales industry information and its means of communication with customers. It presents possible sales strategies that can be better applied to favor the current situation of the company.

The tools offered by this system allow access to data important for market intelligence, detect events in the sales sector, making an analysis of activities such as number of emails triggered, messages read, number of calls made, among other information.

5. Innovate for Competitive Advantage

A study by [19] shows that Brazilian companies can leverage their productivity

by investing in Research, Development and Innovation (RD&I), using simple tools already known, others that involve more technology and are used more frequently today. Points out that prior to performing Strategic Planning (PE), you must apply Technology Watch to monitor IT advances and trends, presenting the following figure, which you refer to as a mind map to aid this thinking.
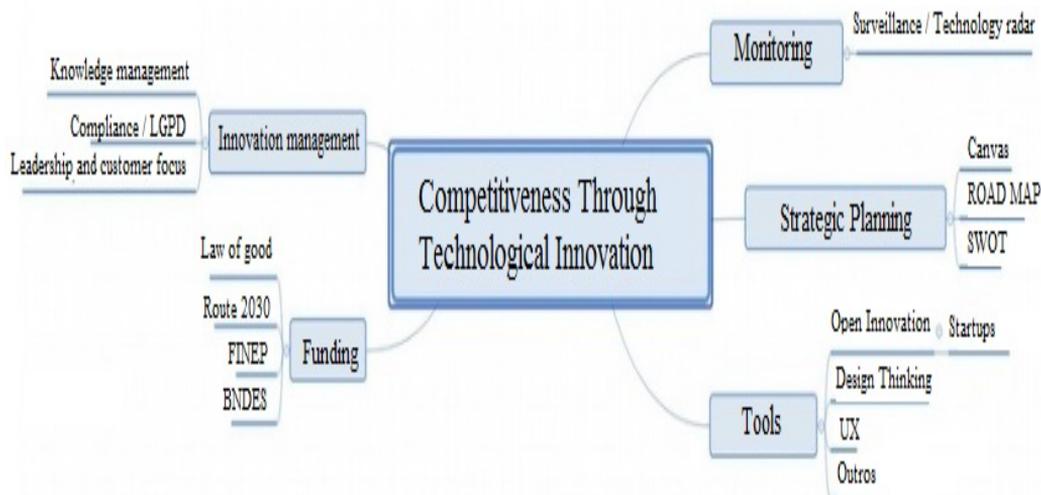

Fig. 5. Model of Mental Map
Source: Figure adapted from [19]

One of the strategic management tools presented by the author is Canvas, already known in the business environment, of simple execution and that helps in the creation of new projects and businesses. But here we highlight the new technological tools that have been gaining more space in companies, which are:

- UX Design: focused on analyzing and defining the problems that need to be solved and dictating which way to go. Focusing on the product, whether it is a service, website, machine or others, UX works to make usability easy, reducing users' difficulties. It relies on principles of psychology to manipulate the user to be able to perform tasks, motivating and encouraging in some way. This tool aims to achieve greater customer satisfaction and allows to have the image that has the brand, because it evaluates human behavior and proposes designer improvements.

- Open Innovation: aims at seeking knowledge for R&D processes, allows internal ideas, which would be eliminated in the closed model, have room to find place in other business models, with the participation of the company that generated the idea through licensing, royalties or spin out. The open innovation model figure exemplifies one way to create and profit from technology (Fig. 6).
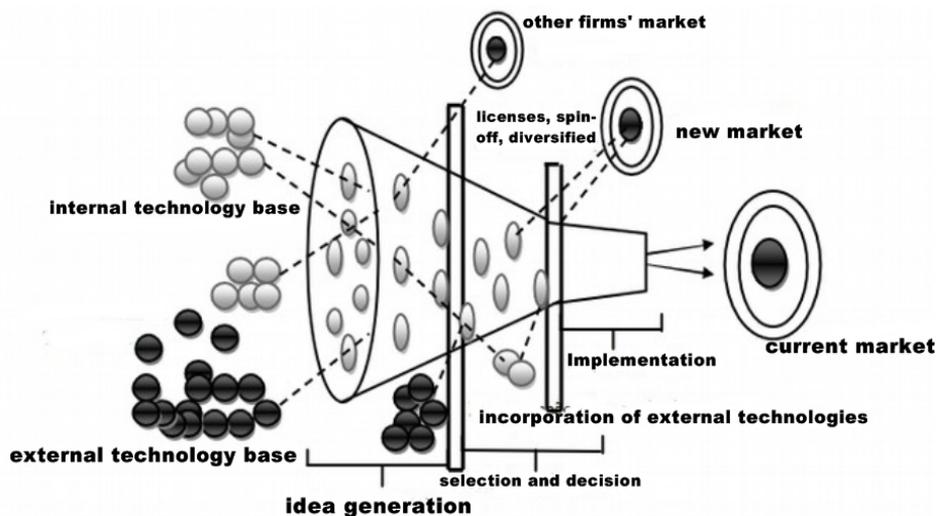
Fig. 6. Open innovation model
Source: adapted from [19]

- Designer Thinking: Considered an approach to inspire creativity as the name suggests, so that it is applied to solve problems, instigating innovation always focused on the user. It uses designer tools to integrate the needs and possibilities that technology can provide. It is divided into three phases which are inspiration, ideation and implementation.

These tools are used to generate inspiration in the team, so as to facilitate the creation of solutions to the problems proposed by the market intelligence analyst.

6. Conclusion

Market Intelligence has become essential to organizational success, as all the benefits that this department can add to the company are truly differential for those seeking not just market survival but especially growth. Investing in intellectual capital, software and technological innovation leverage competitive advantage over the competition.

Faced with the technological growth that companies face every day and can use so many tool options to their advantage to gain competitive advantage, the professional, market intelligence analyst needs to know how to deal with the team in order to apply everything available to them. achieve the goals.

We know that innovation makes any product or service more attractive, so when investing in IM, a company also needs to be prepared, with capital set aside for investing in innovation, as solutions and opportunities created by intelligence can cease to be innovative in no time since the competition is also possibly investing in that intelligence.

Companies based in Brazil, today live a scenario of opportunities, but still need to invest in technological maturity, management and strategies, such as marketing. Therefore, we emphasize the importance of a team prepared to face the challenges that market intelligence can face on a daily basis.

As described earlier, being smart for a particular industry is not just about dealing with statistical data, it is tactful to turn that data into challenges for human capital to leverage IT tools and create solutions, opportunities, and predict market trends. This attitude coupled with investment in IT puts the organization ahead of its

competitors, so that it gains advantage by investing in innovation, which today is one of the main factors considered differential by the public and the general consumer market.

Thus, we conclude with a sentence from [19] that summarizes the current scenario and future prospects for the companies in Brazil: "Without the management of technological innovation there will be no future for companies."

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Aims and Objectives

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