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**INDICATORS AND  
METRICS FOR  
INTELLECTUAL CAPITAL  
MANAGEMENT IN  
GENERATIONS Y AND  
Z IN IT OUTSOURCING  
COMPANIES: A  
SUMMARY OF A  
SCIENTIFIC RESEARCH  
APPLIED TO  
COMPANIES IN BRAZIL**

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**Abstract:** In recent years, IT outsourcing has been the solution adopted by companies as a strategy to reduce operating costs, in addition to maintaining the technology park, improving processes, among other benefits. The service desk is the first and most common, with teams composed mostly of Millennials and Centennials, with flexible, versatile and adaptable profiles. These characteristics linked to the organizational culture and the Brazilian market contribute to the turnover, low performance and drop in service provision. One of the facts that explains this situation is the poor management/retention and measurement of intellectual capital, which in practice means a poor management of knowledge or a poor generation of conditions for its circulation, capture and measurement of the value it generates. This article summarizes research carried out on companies that provide this type of service in Brazil and employees of their respective teams. A quantitative study with data collected through the application of simple surveys aimed at these target audiences, based on the theories of IMA, Skandia, Navigator and BSC, with the objective of proposing indicators that, in addition to those currently practiced, are considered as new ways measurement by organizations and confirm that the retention of intellectual capital in service desk teams, specifically in these generations, contributes to improving the quality of the knowledge base and operational processes. From the results collected, with analyzes in the light of the questions inherent to the indicators in the literature, added to those proposed in this investigation, it can be proven that there is a gap to be filled in the metrics whose focus is primarily on knowledge management. KM in support centers has brought benefits to all involved, and its measurement needs to be considered as a strategy for retaining the intellectual capital of these generations,

differentials in the business structures of the new times.

**Keywords:** Intellectual capital. Knowledge management. *Millennials. Centennials. Outsourcing* de TI.

## INTRODUCTION

For many years, companies invested in the time and experience of their employees in order to produce goods and services that, when sold, would guarantee them profits. Revolutions happened, they changed the workflow, the market agreements and the relationships between employer and employee, and they concluded that knowledge establishes an intangible and guiding value in the establishment of these active, competitive and productive organizations. The research object of this article has in the value of this knowledge and understanding the intellectual capital, the proposal of the application of indicators already practiced by the organizations and the inclusion of other metrics specifically focused on knowledge management.

The world has lived through ages and continues to research formats and tools to mobilize people to share their expertise, their experience, their know-how, and the great ally is the use of technology in the remodeling of the economic, social, cultural and cultural context. human being with the promotion of new molds that lead to changes in the mode of production and consumption. Once founded, the emerging management models introduce and disseminate the organizational knowledge management that implies success when, systematically, a culture of continuous learning is developed in a collaborative work environment. Corporate culture needs to be cultivated and must provide knowledge, favoring organizational learning that is nurtured and encouraged from an infrastructure and culture of support, rather

than imposed by the organization.

Generations Y and Z, proactive in this new job market, set a different pace and environment. Questions are raised about recognition, flexibility, innovation and personal satisfaction combined with professional satisfaction. They dictate relationship rules and provide large turnovers when they are not satisfied in their workplace. They take with them organizational intelligence and knowledge absorbed during the time they were immersed in the company. They easily capture business rules and promote significant changes in the workflows and processes of the groups they comprise. However, difficulties are observed when it comes to retaining this capital within the organization.

But how to measure and maintain the intellectual capital of these generations in view of the turnover of professionals in the face of the peculiarity of their profiles. This is the great challenge facing a volatile, unstable and demanding market. As well as answering the controversial question of how far the knowledge management metric evaluates the result with a focus on continuous improvement or the definition of a best service practice. Or how is this measure determined and interpreted and, when KM is effectively incorporated, to what extent does it bring value?

Even though presented in different taxonomies by various authors, the IC is based on the tripod: human capital, structural capital and relational capital, which brings in its basic construction the knowledge, skills and attitudes of the people who make up the organization. It is important, however, to emphasize that the support of senior management is also a relevant condition when it provides a system of motivation and rewards to encourage employees to share their knowledge and lessons learned in a single and centralized repository, in addition to

providing tools that facilitate the search and collection of this information when necessary.

Thus, knowledge management is now imperative and strategic for the company's business. Indicators, metrics and management tools are highlighted in the new models that analyze internal and external scenarios to define their guidelines. And to add the benefits arising from the management of this knowledge, metrics models are studied and practiced by companies, eager for the market and determined to remain competitive, innovative and productive.

And to ensure the expected innovation, companies have used an outsourcing strategy. An alternative that directs know-how to the business activity and hires specialized labor for the means and support activities for its operation. A variety of services ranging from call center assistance, face-to-face support for users or software development to maintenance and operation services for NOCs (Network Operations Center) and safe rooms.

Taking into account the presented framework, the research proposed to select IC and GC investigation methodologies put in the literature and applied them in some organizations, added to other proposed metrics with an exclusive focus on knowledge, since the attempt is to propose indicators and metrics to measure the levels of intellectual capital retention of Millennials and Centennials in IT outsourcing companies that provide this service in the Brazilian market (Novaes, 2021).

## LITERATURE REVISION

### GENERATIONAL PROFILES

Generation<sup>1</sup> (from the Latin term *generatio*), also known as procreation in biological sciences, is the act of producing offspring. They make up the same age group to share and experience cultural and social

1 Novo dicionário da língua portuguesa. 2ª edição. Rio de Janeiro. Nova Fronteira. 1986. p. 847.

experiences from the same historical period that can change their worldview (Barros, 2006, as quoted by Stefano & Formenton, 2017, p.2).

The profiles of this research covered Generations Y and Z and that will be highlighted to contextualize their behaviors, attitudes and personal and professional relationships. The former, also known as Millennials, Echo Boomers, Net Generation, N-Gen or even Digital Generation (Coimbra & Schikmann, 2001), were born and developed in the era of the technological turn. They are individualistic, more easily adaptable and flexible, competitive and their admiration emerges from competence and not from hierarchies. They do not accept to perform subordinate functions and therefore go in search of ambitious salaries from an early age. They are able to read, write and develop strategies virtually. They combine collaboration, interdependence and a network that enables teamwork, benefiting companies that seek a collaborative environment, without imposing barriers to professional freedom.

Generation Z, in turn, is the generation of digital natives or Born Digitals who were born in the mid-90s along with the idealization and emergence of the WWW - World Wide Web. Also named Centennials, Next, iGeneration or Plurals, their great nuance is zapping. It is a more tolerant generation, with understanding and openness to technologies, a tendency towards multitasking skills, attentive to multiple stimuli and present in cyber politics. They publicly share their social life, but they do not renounce their freedom. Due to their digital skills and as an integral and active part of a globalized world, they are affected by the same events and trends, so they are actively concerned with human and planet development and, therefore, their desire to create collaborative cultures.

## TI OUTSOURCING

“In the business world, outsourcing is a process used by a company in which another organization is hired to develop a certain area of the company.<sup>2</sup>” They become more flexible and this model becomes strategic, and must be carefully evaluated to achieve the expected success.

Information technology outsourcing or information technology outsourcing (ITO) has become increasingly common in companies whose core business does not provide IT services (Faria, 2008). Whether to increase its performance, the quality of the products/services offered or to minimize the time spent in its operations, outsourcing becomes a commodity and keeps the technology up to date with cutting-edge, disruptive services and with better results for the organization's continuity in the market. The trend is for it to be the solution and increasingly encompass services within organizations, advocating structural changes both in the team, as well as in its environment and culture.

Technological advances contribute to this new dimension and provide a range of alternatives for the provision of outsourced services, which can cover local, state or anywhere in the world. Remote services come to break geographical barriers, provide the hiring of specialized professionals who interact in any location on the globe. The research specifically explored IT outsourcing in companies that have a service desk in Brazil in their service portfolio.

## LABOR MARKET

According to Stefano & Formenton (2017) the work environment is currently formed by four generations and the difference between them creates substantial challenges in relationships within the workplace that can bring benefits to organizations, with a

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<sup>2</sup> <https://www.significados.com.br/outsourcing/>

mixture of culture, knowledge and experience. Therefore, it is important that managers pay attention to this diversity and its specificities in relation to skills, attitudes and personal relationships.

With the arrival of technology and the inclusion of Millennials in the job market, organizations needed to rethink their management models once again, and, with that, another challenge for companies to maintain their intellectual capital.

Next generation, in turn, enters the market with a promise of multitasking, agile and easily absorbing new technologies, demanding a new review of management models, in order to better absorb them and accommodate their needs and profile.

Despite, however, the restlessness of the new generations, the offers for this group of service desk workers, remain heated in Brazil as a first job, acquisition of knowledge, skills and know-how. Companies have centralized in the Brazilian market and in other countries where labor is cheaper, their service and remote support teams.

Knowledge will definitely be the recognized value that will mobilize the relationships and management models applied in active and competitive organizations in the market and, for that, it is essential to know how to manage it.

## **KNOWLEDGE MANAGEMENT**

Humanity has gone through three waves. The third one, called by (Toffler, 1999) as the Age of Knowledge, stated that whoever owned and controlled it would dominate the market. In the 90's, organizational environments changed radically and demanded more speed in the treatment and processing of information. Knowledge management becomes a competitive variable responsible for generating value, with flexible working relationships and generations of individuals

with new behaviors and expectations (Batista et al., 2017).

Polanyi (2015) defines tacit knowledge as the knowledge that is not easy to record, the basis of the world, since every individual knows more than he can express. It is difficult to communicate and share, and encompasses subjective information, intuitions and hunches.

Explicit knowledge, in turn, gathers everything that is possible to formalize, explain and store. It is easily processed by a computer or computer system, transmitted electronically or stored in databases.

Another type, called embedded knowledge, deals with knowledge embedded in products and prototypes, in processes, organizational culture and routine, structures and even in documents that are used to transfer knowledge in business environments (Hajric, 2018; Horvath, 2000),

“Knowledge Management assumes that all the knowledge existing in the company, in the intellect of people, in the processes created and in the existing departments, is an integral part of the organization” Moura (2011 as cited by Chagas & Busse, 2015, p. 6). These processes are linked to the way knowledge is captured, structured, reused and modified, requiring tools, adaptation and collaboration between users and technology, so that this same entity is recognized as a knowledge organization, which considers human, structural values and relational, the core of intellectual capital.

## **INTELLECTUAL CAPITAL**

Intellectual capital is the recognized asset that produces results when put into practice from data, information and stored methods. Organizational intelligence, made up of intelligent people working intelligently, ceases to be a supporting role and assumes the main role.

It is difficult to measure, but it is known

that it adds value either through the products developed, through innovation or through the relationship with customers. It is essentially composed of the set of skills of its individuals (human capital), its internal structure as a guiding thread of knowledge (structural capital) and its external structure that integrates it with customers and suppliers (relationship capital) (Sveiby, 1997),

Human capital constitutes the accumulated knowledge, the experiences of employees, as well as their creations and resolutions, in addition to the values, culture and philosophy of the company.

Structural capital, on the other hand, comprises the entire framework that the company has and that supports human capital in the development of its activities. Its physical and digital systems, databases, documentation and all the necessary infrastructure for the administration and management of knowledge in an effective and adequate way. It is owned by the organization and can be traded.

The transformations provided by the industrial revolutions were triggers for changes in information and knowledge management over time. The worker passes from the generalist profile to a capable and innovative specialist. Its creativity and expertise generate value as it increases organizational knowledge by sharing its learning and adds to the intellectual capital the variables that make it possible to measure and value companies.

## **INDICATORS AND METRICS FOR INTELLECTUAL CAPITAL**

According to Sveiby (2010) the slogan "You can only manage what you measure" is totally wrong, and therefore suggests a paradigm shift that proposes to measure to learn and not to control. The main objective of determining indicators for the purpose of estimating intangible assets is not to convert the workforce and the knowledge of the team

of workers into profit or what was left to gain, but to use variables that have sufficient incidence to measure values for taking of decision.

However, companies are still focusing on implementing measurement systems and indicators as a way of collecting and controlling teams. It is not observed that this model tends to alienate and limit creative capacity and, consequently, its productivity, impacting the generation of value and profit. Thus, it is not observed that the return obtained from knowledge management is incorporated into the organization's intangible assets and adds socialization, commitment and greater effectiveness in the implementation of changes.

The approaches suggested in the scientific research presented here are based on four theoretical models: IMA, proposed by Sveiby (1997); BSC – Balanced Scorecard; the Skandia Navigator; and the Intellectual Capital Navigator or Navigator, proposed by Stewart (1998).

It is observed that the essence of all the proposed models hovers in a tripod structure based on the individual, the organization and the client. These three actors, their shares and their expectations, however, determine, whatever the defined methodology, the decision making, with a focus on profits and the financial return that their applications may offer.

## **RESEARCH METHOD AND MATERIALS**

The predicted population was formed by individuals of generations Y and Z in four IT outsourcing companies that had in their portfolio the provision of service desk in Brazil, as well as their respective teams, and who answered the questions voluntarily and anonymously, in a quantitative investigation, with the intention of testing the following

hypotheses:

a) the retention of intellectual capital in the service desk teams, specifically in generations Y and Z, contribute to improving the quality of the knowledge base and operational processes, at the same time providing greater knowledge of the business and greater team integration;

b) the improvement of knowledge management increases the autonomy of the business and guarantees the quality of service and customer loyalty;

c) the existence of a gap in current KM measurement models that do not include knowledge-focused metrics for retaining intellectual capital specifically for service desk teams;

d) the optimization of technology and management tools enhances the efficient use of these resources, ensuring shorter resolution times and customer self-service.

The analyzes were different for the two surveys, starting from the general to the particular in both groups, according to the operations according to Quivy & Campenhoudt (2013): description and preparation of information; analysis of the relationships between variables; and comparison of observed and expected results.

## **PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS**

Data collection followed the methodological procedures defined in the research, analyzing the relationships between the variables and comparing the results observed with those expected (Quivy & Campenhoudt, 2013).

In analyzing the collected samples, consistency was observed in the age group indicator that stratifies the service desk team according to the generational profiles for the two target audiences under study. For companies, 100% of their team is made up of Millennials and Centennials, while for

employees, in a greater assertiveness about their age group, the predominance is also of Generations Y and Z (83.6%), appearing in this compilation a percentage of Generation X individuals.

For Structural Capital, for example, the age of the company was evaluated, which, according to Sveiby (1997a), the older, the greater stability and more stable structures. Analysis questioned by the research, given the massive presence of Y and Z professionals in their service desk teams, especially when considering indicators such as turnover and specific characteristics of their profiles.

The indicators of investment value in the structure of the company or in processing systems per year are considered by theorists as an investment in new methods and which indicate an increase in the structure, which must be monitored (Sveiby, 1997a). An important indicator to assess this pillar of intellectual capital is the performance evaluation of employees, practiced by the four methodologies. Satisfied employees are more productive and have better relationships with customers and peers.

When considering the Customer Capital analyses, the research applied questions related to volume, as well as the number of new customers served by the service desk, metrics also pointed out by the four theorists and that were necessary in the development of the investigation.

As for the metrics assigned to the questions referring to Human Capital, the degree of qualification that influences the performance of the organization was measured, as well as the level of education, the average time of experience and service in the service desk, and the age group of these employees. Measures that portray, according to Sveiby (1997), not only the stability of the company, but individual competence and the ability to achieve success. Investment in training as a personal

initiative is also an important requirement in collaborative environments. It was also added to the Employee Questionnaire, indicators of evaluation of values and attitudes said by Sveiby (1997), such as support for teammates, the degree of satisfaction in the current role and what makes the employee continue in the service desk of this company.,

From the theoretical review, it was observed that some important indicators were necessary and, therefore, questions were added to the company and employee surveys in order to assess the level of responses and propose their addition in the models applied in organizations. Employee training is important, however the number of employees trained in the service desk was suggested as an additional metric to those practiced. Complementary to the employee satisfaction indicator, it was deemed necessary to evaluate the registration and practice of their suggestions in the knowledge base, with the objective of evaluating the degree of importance that the organization gave to them and how it represented in actions that proved the recognition of the value generated in the performance of their work activities.

Regarding the assessment of knowledge management and as metrics proposed to complement the theoretical indicators, the questions that indicate the practice of KM in the service desk and the employee's participation in its implementation were applied. Receipt of bonuses and degree of autonomy were also indicators considered by the research. These questions bring to the discussion the format printed by companies in the implementation of the knowledge base and the management of this intangible in the business. Including the employee in the implementation and delegating to him activities that range from the capture of knowledge during the first service to the publication of content for the customer's self-service, favors a closer relationship with

the company and the results are faster, more effective and reliable.

In the proposed study, customer satisfaction would indicate a higher level of commitment to the consumption of content for self-service, in addition to their co-responsibility in the authorship of the knowledge recorded in the base when they participate with the vision of the business, the environment and the demands for service. In a collaborative environment, the integration and partnership with the client makes the difference in the maturity and quality of the knowledge base and, consequently, in the best service provision.

Although Generations Y and Z have, in essence, a high turnover rate, whether due to the search for new opportunities and challenges, that is, for professional growth, it was observed that in environments where there is KM, turnover, for example, did not coincide with what was indicated in the theory.

Regarding the salary indicator, Stewart (1998) states that organizations pay their employees less than what they actually produce, as the aggregate values achieved by the sum of team efforts in addition to the individual effort of each employee are not considered. For the companies in this research, which practice KM, the remuneration does not reflect the value that the group deserves and guarantees the continuity of services based on its stable and collaborative environment, as demonstrated in the qualitative answers to the question what makes you continue in the service desk of this company, applied in the Employee Questionnaire.

## CONCLUSIONS

Knowledge is the main factor of production in the third wave. He is fast and actively participates in the new globalized and hypercompetitive context of organizations,



where the strategic focus needs to be supported by a management based on intellectual capital. A collaborative environment is the essence of the new culture of companies that understand that this is the key to retaining their intellectual capital and, therefore, their organizational knowledge.

The research summarized here<sup>3</sup>, accessible in its entirety directly on the website of the Faculty of Engineering of the University of Porto (Novaes, 2021), was based on theoretical models applied in organizations, based on a real sample of Brazilian companies and their solving groups, formed mainly by Generations Y and Z, bringing the perception of a gap in these models that did not include metrics focused on knowledge to retain the intellectual capital of these teams.

Application of the metrics that currently underlie the object of this investigation evaluate the organization from the perspective of knowledge management linked to financial capital while the proposal presented intended to enable the retention of intellectual capital from the aspect of participation, value generation, autonomy and motivation of the work team for a service composed basically by *Millennials e Centennials*.

According to Mark L. Alch (2000, as cited by Coimbra & Schikmann, 2001), “those who do not understand the profile of the new workforce that is arriving will have problems keeping their employees. They want to use their knowledge and skills, participating in decision making, collaborating and connecting with others”.

Theorists bring important indicators in their models of intangible assets, but they do not include equally relevant metrics that deal, for example, with the level of autonomy that the employee has in the construction of content or measures of employee satisfaction, essential to recognize the degree of satisfaction that this same worker has when he feels responsible for

the environment where he shares and records his knowledge, as well as reuses and improves what has already been created by his peers. The research showed that there is a space that can be resolved with the inclusion of questions that focus exclusively on knowledge management and on worker participation and empowerment, and add to the indicators provided in the literature, enriching the existing list of metrics and allowing greater robustness in the result analyses.

It is necessary to think of models of metrics and indicators of intellectual capital management that go beyond activities with the purpose of profits and results. The values generated by the individual and, above all, by the group, which is not measured and revealed, can break the continuity of sharing this powerful intangible that is knowledge. The organizational culture is made like this, preponderant. And so, the gap found in this investigation could be filled by increasing the metrics and indicators tested and presented, and motivating organizations to apply a new model of measurement and retention of their intellectual capital. Obviously, new measures need to be equally tested and incorporated so that knowledge management of these generations with different profiles in the conduct and execution of tasks becomes natural, and who no longer accept work environments that limit ideas, challenges and horizons.

<sup>3</sup> Available at: [https://sigarra.up.pt/feup/pt/pub\\_geral.pub\\_view?pi\\_pub\\_base\\_id=488243](https://sigarra.up.pt/feup/pt/pub_geral.pub_view?pi_pub_base_id=488243). Accessed on: August 09, 2021

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