IRIS MATURITY MANAGER AS A SUPPORT FOR STRATEGIC PLANNING DECISION-MAKING IN A PUBLIC INSTITUTION

Marcos Lins de Oliveira - marcoslins.prof@gmail.com
Mestrando em Administração pelo Centro Federal de Educação Tecnológica de Minas Gerais - CEFET-MG

Abstract— The implementation of an Integrated Management System (SIG) at Centro Federal de Educação Tecnológica do Estado de Minas Gerais (CEFET-MG), a federal public institution in Brazil, is steered by the principles of Business Process Management (BPM). As part of the adoption of BPM, determining the level of maturity in processes precedes performance measurement. On the other hand, measures of performance are established from the strategic objectives, as defined by the organization in its Institutional Development Plan (PDI). From this perspective, this research proposes the implementation and validation of Iris - Manager of Organizational Process Maturity, which articulates the methods 8 OMEGA ORCA and Balanced Scorecard (BSC), to support CEFET-MG managers' decision-making, concerning its strategic objectives. The research makes use of mixed-methods approach and exploratory objective. The study method is action research and the participants are the top management, key processes managers and employees within selected departments in the organization. As data collection techniques, documents, questionnaires and interviews are used. The results could imply in a major innovation step towards the alignment of organizational processes management with the strategic objectives of a public education institution.
Keywords— 8 OMEGA ORCA, Balanced Scorecard, Business Process Management, Process Maturity, Public Administration, Iris Maturity Manager.

1 INTRODUCTION

The adoption of the BPM in CEFET-MG, within the broader perspective of public governance, has as main inductors the Decree No. 9203 of November 22, 2017 (BRAZIL, 2017), which provides on the governance policy of the direct federal public administration. The basic framework of governance applicable to organs and entities of public administration, prepared by the Court of Auditors of the Union (BRAZIL, 2014) and the Institutional Development Plan (PDI) 2016 to 2020 of CEFET-MG, understood as the strategic planning of the institution (CEFET-MG, 2016b; 2018a).

As a part of its business processes transformation, organizations adopting process management need to establish goals that, to be met, require measures, metrics and performance indicators monitored by the policymakers' decision. On the other hand, to have a vision of performance managing processes and to understand "what to measure" and "how to measure", it is mandatory to determine the maturity level of organizational processes.

The maturity assessment acts as a driver for the construction of a process transformation plan, showing what the organization needs to do to achieve its strategic objectives towards maturity, involving the four core elements of the organization: strategy, people, processes and technology.

In order to evaluate the maturity stage in processes and to build the panel of indicators and performance measures in an education institution, this work proposes the adaptation of the Iris Maturity Manager, a tool developed in 2013 from two formal methodologies of international recognition (OLIVEIRA, 2013). The first one, 8 OMEGA ORCA, focused on measuring the maturity of the organizational processes. The second is the Balanced Scorecard (BSC), focused on the long-term strategic management of organizational critical processes. The first and only application of the Iris tool has not encompassed the whole potential of the tool. The present research could represent the first integral application of the tool aiming at aligning business process transformation and long-term strategic planning.

2 THEORIES

2.1 TENDENCIES IN PUBLIC MANAGEMENT

The historical evolution of public administration can be seen through four main models: patrimonial, bureaucratic, managerial (or by results, also called New Public Management - NPM) and societal (or participatory). The first two were strongly influenced by Max Weber's sociology of domination (SILVA E OLIVEIRA, 2013). NPM and societal models are more recent constructs, resulted from the gradual critique to the bureaucratic model, systematically woven by auditors, business people, politicians and sectors of civil society, mainly in the 1970's (CHANLAT, 2002; CAVALCANTE, 2017).

Margetts and Dunleavy (2013), developing the understanding that post-NPM movements unfold in generations, establish the NPM sphere of domain between 1985 and 2002. They point to three macro themes that have been immensely influential for more than two decades: *disaggregation*, *competition* and *incentivization*: (i) *Disaggregation* promotes the splitting up of large bureaucracies into smaller units, through processes such as agencification of central government functions; (ii) *Competitio* disrupts the bureaucratic monopoly of suppliers through the expansion of supply alternatives, due to the mandatory bidding, outsourcing resources, deregulation, among other mechanisms; (iii) *Incentivization* emphasizes the need to provide pecuniary incentives to actors and organizations that optimize their assets, resources and time.

From 2002, Margetts and Dunleavy (2013) understand that the first wave of "Digital Governance" era (the term these authors use referring to public governance) occurs, with the introduction of three new themes: *reintegration*, *Needs-based Holism* and *Digitalization* (or *Digital Change*): (a) *Reintegration* reverts NPM fragmentation and public sector process silos. It is related to partnerships and the elimination of duplication of services and processes; (b) *Needs-based Holism* relates to the creation of structures with a focus on the client. It seeks to redesign end-to-end services, from the client's perspective, creating agile and resilient government structures that can respond to problems in real time, rather than always running behind; (c) *Digitalization or Digital Change* radicalizes electronic delivery of services by the Government, in the largest number of possible instances, eliminating the intermediation of layers of redundant processes that do not add value. It implies digitalizing the interaction between citizens and business and new forms of automation using *Zero Touch* technologies that dispense with human intervention. The idea is to develop the Isocratic administration, the do-it-yourself government (MARGETTS; DUNLEAVY, 2013).

From 2010 on, the second wave of Digital Governance is marked by the advent of the Social Media. Reintegration, Holism and Digital Change deepen in their tendencies. Citizens and businesses can innovate much faster than before, and certainly quicker than the State can answer. We can observe disruptions in previously stable segments. Opportunities multiply, since governments of developed countries, who have always been at the forefront of innovations, will no longer necessarily be protagonists in this scenario of extreme instability. There are pressures on governments from all over the world towards innovation in dealing with citizens (MARGETTS; DUNLEAVY, 2013).

2.2 BUSINESS PROCESSES AND MATURITY MANAGEMENT

The emergence of Business Process Management (BPM) connects with the evolution of three distinct although related phenomena: (a) Process Thinking, (b) Quality Thinking and (c) Automation (JESTON; NELIS, 2014). It starts

Process Thinking dates back to Frederick Winston Taylor at the turn of the nineteenth to twentieth century and even before him, throughout the second Industrial Revolution, and the growing need to improve production processes in the factories. In the early 1920's, the Hawthorne studies demonstrated the importance of the social and psychological environment at work (MARTÍNEZ-LORENTE et al., 1998) and left a legacy of contributions to the applied social sciences and organizational thinking, especially with regard to Total Quality.

In the same period arose Walter Shewhart, William Edwards Deming and Joseph Moses Juran, who

incorporate statistical process control to Taylor's processes improvement theories. The process management version of these thinkers involved measurement and limitation of process variation, continuous improvement rather than episodic and empowerment of workers aiming to improve their own processes (JESTON; NELIS, 2014).

Japanese companies developed their own version of Total Quality Control (TQC), based on the teachings of Deming and Juran, who visited the country for the first time in 1950 and 1954, respectively. Japanese executives adapted these teachings to their own culture and operational environment that were integrated into a new apparatus tooling, techniques and operating systems (MARTÍNEZ-LORENTE et al., 1998). For these authors, Kaoru Ishikawa was primarily responsible for shaping the Japanese-style TQC.

In addition to the writings of Deming and Juran, other pioneers of quality management in the United States were Philip Crosby, who first introduced the idea of the maturity scale in processes (OLIVEIRA, 2013), and Armand Feigenbaum, the first author to use the term TQC, in 1961 (MARTÍNEZ-LORENTE et al., 1998). Another important pro-BPM turn took place in the years 1990, in the prolongation of the long crisis already mentioned, potentialized by competition (with emphasis on Japanese products) and the economic recession on a global level. Business process reengineering, introduced by Michael Hammer and James Champy, with contributions from Thomas H. Davenport, brought new nuances to process management. More recently, Six Sigma has emerged as a return to statistical process Control (Shewart and Deming), focusing on small work processes and incremental improvement rather than radical.

When organizations choose to adopt BPM, their capabilities need to be re-evaluated from the perspective of the new paradigm. Existing capacities are at different levels of maturation. When organizations transit from a functional model to an integrated process focus, it is likely that some capabilities have to be created, others eliminated, raised or reduced. In the analysis of the processes associated with capacities, it is important to identify the maturity of the Organization in relation to these same processes, before thinking about measuring processes performance.

Organizational maturity configures "essential information for the elaboration of a roadmap for the execution of future transformation initiatives, such as large investments in technology or corporate process planning" (BPM CBOK, 2013, p. 136, *my translation*).

2.3 THE 8 OMEGA ORCA FRAMEWORK

The 8 Omega ORCA was launched by the Business Process Transformation Group (BTPG) in 2005 as a support tool for realistic evaluation of maturity, especially in organizations that opted to be managed by processes (8 OMEGA ORCA GUIDE, 2007). The 8 OMEGA ORCA framework "enables companies to assess in what stages they are at the time of implantation, the level they want to achieve and what the existing gap between these two is" (OLIVEIRA, 2013, p. 46, *my translation*). The template for process maturity is formed by an array of nine categories and eight maturity levels, which constitute the basis of the 8 OMEGA ORCA. The evaluation of maturity in the processes starts at level "0" (no performance measures) up to level 8 (highest level of performance) (8 OMEGA ORCA GUIDE, 2007; OLIVEIRA, 2013)

The original model elements, listed below, do not need to be included in their entirety in the application. New elements can also be incorporated, from the evaluation made by the senior managers. The original elements are:(a) commitment by top managers; (b) Organization and Structure; (c) Improvement Training; (d) Performance Objectives; (e) Functioning of Improvement Teams; (f) Tools and Techniques; (g) Stakeholder Specifications; (h) Information System Integration; (i) Accreditation (8 OMEGA ORCA GUIDE, 2007; OLIVEIRA, 2013).

For the idealizers of the 8 OMEGA ORCA the evaluation should cover and align with what they define as the four organizational pillars: strategy, people, processes and technology (8 OMEGA ORCA GUIDE, 2007, p. 12-13). On the other hand, each of the matrix eight levels of maturity is related to a characteristic that synthesizes it. Thus, we have the phases of discovery, analysis, design, integration, implementation, management, control and improvement, towards maturity. The resulting matrix then allows

32 "action nodes", corresponding to the intersection of the four pillars with each of the maturity levels.

2.4 BALANCED SCORECARD (BSC) AS STRATEGIC MANAGING MODEL

BSC was developed in 1992 by Professor Robert Kaplan, from Harvard Business School, and consultant David Norton, as a performance measurement system (NIVEN, 2005). The *Balanced Scorecard* consists of a set of carefully selected indicators based on a company's strategy used to communicate to stakeholders the results and motivators of performance, through which the mission and the Strategic objectives will be achieved. The measures were defined in four dimensions or perspectives of the Organization: (1) customer (2) internal (now referred to as internal processes or business processes); (3) Innovation and learning (now referred to as learning and growth) and the (4) Financial perspective. Why Balanced? Because the methodology sought the "balance" between financial and non-financial measures, between the short, medium and long term, between indicators of trends (leading) and occurrences (lagging) and between external vision and internal vision (KAPLAN; NORTON, 1997; NIVEN, 2005).

Niven (2005) recognizes the need for a large amount of effort in the development of the BSC for the public sector, but highlights two benefits that performance measurement brings to public policy managers and public servants in general. For the first group, the implementation of performance measurement technologies, such as BSC, allows the real value of its programs to be demonstrated for legislators and citizens. For the second group, it allows the effort of its work to be focused in the strategic activities that bring results to the programs, avoiding waste and expense of energy and resources in activities that do not add value.

3 METHODOLOGY

### 3.1 THE APPROACH AND NATURE OF METHODOLOGICAL OBJECTIVES

The present research makes use of mixed methods in its approach. The name of this form of investigation has aroused discussions in academic circles (CRESWELL; CLARK PLAN, 2013). During the last 50 years, the idea of uniting two data forms has been identified as "integrated" or "combined" research, "hybrid" research, "methodological triangulation", "quantitative and qualitative methods" and "mixed methodology" (CRESWELL; PLAN CLARK, 2013, p. 35).

All these labels recognize this is a combination of methods making use of quantitative and qualitative data which associates method and philosophical worldview (CRESWELL CLARK PLAN, 2013). Marconi and Lakatos (2009a) affirm that among the four types of triangulation presented by scholars, namely: (a) sources, (b) methods, (c) investigators and (d) theories, the first two are the most employed.

Under the focus of the nature of the methodological objectives, the research is exploratory (GIL, 2009), also known as formulative, systematic or exploratory studies (Selltiz et alii *apud* MARCONI; LUKATOS, 2009b), which has as its main objective the enhancement of ideas and the discovery of intuitions or discernments (GIL, 2009; MARCONI LUKATOS, 2009b).

Among the six main projects of the mixed methods recommended by Creswell and Plano Clark (2013, p. 75, *my translation*), this research aligns with the type referred to as exploratory sequential project, which "begins with – and prioritizes – the collection of qualitative data analysis in the first place. From the exploratory results, the researcher conducts a second, quantitative phase, to test or generalize the initial findings. The researcher then interprets how the quantitative results were built on the initial qualitative results".

Figure 1. The exploratory sequential project
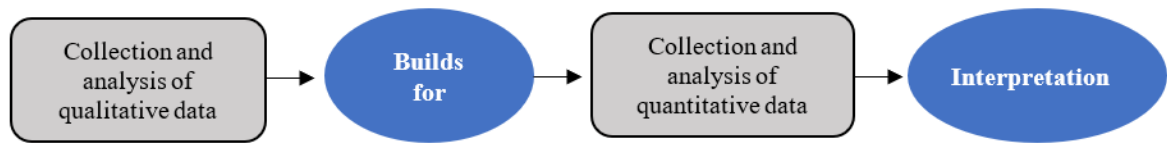
Source: adapted from Creswell and Plano Clark (2013, p.73)

3.2 THE RESEARCH METHOD

The method adopted for the research is action research in its technical modality, as defined by Tripp (2005). Among several possible definitions, Thiollent (2005, p. 16, *my translation*) maintains that "Action Research is a type of empirical-based social research that is conceived and performed in close association with an action or with the resolution of a collective problem in which researchers and participants representing the situation or problem are involved in a cooperative or participatory manner."

Tripp (2005, p. 463), on the other hand, surrenders to a stricter definition: " Action research is a form of action inquiry that employs recognised research techniques to inform the action taken to improve practice" (p. 447), but in his conclusion, he confesses that "definitions are an instrument of power, and in arguing for a particular meaning to be attached to the method, I recognise the danger of appearing to be making an attempt to override the current 'multi-paradigmaticism' with a new dominant ideology that would create another hierarchy of quality in action research" (TRIPP, 2005, p.463).

Thiollent also recognizes the technical modality, by identifying the use of action research for "(...) solving seemingly more technical problems, for example, introducing a new technology "(THIOLLENT, 2005, p. 17, *my translation*).

Another relevant aspect of this particular project is that it is an insider action research, which Coghlan (2019, p. x-xi) defines as an approach to research "in and on one's own organization [meaning] that a member of an organization undertakes an explicit research role in addition to the normal functional role that they hold in the organization [aiming at] both taking action and creating knowledge or theory about the action as the action unfolds. The outcomes are both an action and a knowledge outcome, unlike traditional research approaches which aim at creating knowledge only".

3.3 DATA COLLECTING AND ANALYSIS TECHNIQUES

The procedures for data collection and analysis are interchangeable in all phases. Each step within the phases cycle determines the subsequent action. Gil (2009, p. 143, *my translation*) states that "in action research there is a constant shuttle between phases, which is determined by the dynamics of the group of researchers in their relationship with the research situation".

The successful use of the method can break down barriers of classical science theory, by allowing this sharing of responsibilities between researchers and social actors involved in the investigated problem, from the beginning to the end of the investigation. (LIMA,2005). Lima (2005, p. 150, *my translation*) observes that "in organizational researches, the results achieved represent knowledge capable of supporting decision-making processes with reduced margin of error and high acceptance of employees."

Satisfactory results in action research relate to changes, and are important elements of validation of this research method. In action research, it is not possible to determine in advance what knowledge will be generated or what practical results will be achieved (TRIPP, 2005). This is an acknowledged qualitative epistemological assumption in the methodology.

3.4 SAMPLING METHOD

In action research, Gil (2009, p. 145, *my translation*), recommends "the use of non-probability sampling, chosen on the basis of researcher's knowledge and judgement". Judgmental sampling, also called purposive sampling or authoritative sampling relates more to the qualitative criterion rather than quantitative representativeness of the groups investigated in the action research.

The purposive technique is the non-probability sampling most commonly used and the chosen one for the qualitative phases one to three of this research. By opting for this sampling technique, the researchers expresses their interest in the opinions, actions and intentions of certain elements not necessarily representative of the population (MARCONI; LUKATOS, 2009a). Gil (2009, p. 145, *my translation*) adds that "a purposive sample, in which individuals are chosen based on certain qualities considered relevant by the researchers and participants, is more suitable for obtaining data of a qualitative nature, which is the case within action research".

As it will be detailed in the participants' characterization section, the broader view of senior managers, who hold the whole perspective of the area and its core business processes, offers more consistence to the selection of areas and processes for maturity analysis in the implementation of the Iris tool. Similarly, facilitators in process management, who are the employees that establish the dialogical link between the top management and the entire mass of professionals of the institution develop themselves part of the tasks associated with the processes under evaluation, along with other employees.

In this respect, as Gil states (2009, p. 145, *my translation*), although the information is not generalizable for the totality of the population, "they can provide the necessary elements for the identification of the dynamics of the movement". Creswell and Plano Clark (2013, p. 159, *my translation*) agree with this understanding, noting that "the qualitative idea is not to generalize from the sample itself (as in quantitative research), but to develop some people's deep understanding of the phenomena".

3.5 PARTICIPANTS CHARACTERIZATION

CEFET-MG is an autarchy of special regime (meaning organs that are an integral part of indirect public administration) linked to the Ministry of Education (MEC) and, as such, holds administrative, financial, patrimonial, disciplinary and didactic autonomy (CEFET-MG, 2016b). As Federal Institution of Education, it offers courses in three levels: middle level technical education (EPTNM), graduate and lato and stricto sensu postgraduate (Professional and academic), including distance learning (EaD/technical level) and Professional Training (FIC/extension). CEFET-MG's headquarters are in Belo Horizonte, where it operates on three campuses (I, II and VI). Another eight campuses are located in the various regions of the state of MinasGerais. In 2017, there were more than 17000 students enrolled in the eleven campuses on the three levels of education (CEFET-MG, 2018b).

The implementation of SIG is the first system integration initiative undertaken by the institution to reach the implementation phase. According to the initial planning, SIG will be implemented with three basic systems: integrated system of academic activities management (SIGAA), integrated system of asset administration and contracts management, (SIPAC) and integrated system of human resource management (SIGRH). 28 system modules were initially planned to be implanted from May 2017 to February 2019 (CEFET-MG, 2016a), but this planning is behind schedule.

The research participants are: (1) The manager of the EGP-I (Office of Governance and innovation in processes, services and management technologies); (2) some of the 62 facilitators in process management within the organization; (3) The managers of the management units (UG) selected for the implementation of the tool.

The EGP-I is the UG subordinated to the Dean's Office (GDG) responsible for the implementation of process management in the organization. According to the best practice experts in BPM, the process office "is the owner of the Business Processes Management" (BPM Cbok, 2013, p. 321, *my translation*) and "play a key role in defining priorities and allocating Resources for process transformation efforts and are fundamental in efforts to increase maturity in processes through the standardization of the use of methodologies and technologies. " The EGP-I team is the central link between senior management and UGs in relation to process management in all its dimensions.

Facilitators are servants employees of the directorships, superintendences and secretariats of CEFET-MG, indicated by their managers (CEFET-MG, 2018c, p. 1), "to assist functional managers in mapping work processes and other actions related to process management, as well as to act as a link of

INTERNATIONAL
SYMPOSIUM ON
TECHNOLOGICAL
INNOVATION

ISTI 10 YEARS

SEPTEMBER 25TH TO 27TH, 2019
ARACAJU, SERGIPE, BRAZIL

interaction and interlocution between the organizational unit and the team of the EGP-I (Office of Governance and innovation in processes, services and management technologies)".

The managers of the directorships, superintendences and secretariats of the business processes selected for evaluation and implementation of the tool exert the function of choosing the critical processes for mapping and decision-making, with the help of their designated facilitators. In addition, these managers comprise the specialized collegiate bodies with deliberative, consultative, normative and supervisory competence regarding public governance, digital governance, and top management of CEFET-MG, namely: (a) Director Council (b) Governance Committee and (c) Digital Governance Committee (CEFET-MG, 2003; 2017; 2018d).

4 DISCUSSION AND RESULTS

The Iris Organizational Process Maturity Manager tool was conceived from the model for Process Maturity Assessment 8 OMEGA ORCA and the Balanced Scorecard, designed by Kaplan and Norton (1997) (OLIVEIRA, 2013). The Iris tool aims to allow companies that adopt process management to develop continuous improvement actions, from the assessment of their maturity level. The generation of information about the internal processes for senior management, which the tool proposes, can contribute to the decision-making process of the company, in alignment with its strategic planning (OLIVEIRA, 2013).

On the other hand, the BSC methodology was incorporated into the Iris manager as a tool for generating financial and non-financial organizational performance indicators, for strategic objectives that are distributed in four perspectives (financial, customer, Internal processes, and learning and growth). The BSC communicates the institution's strategy to all its organizational levels.

Figure 2. General View of Iris Framework
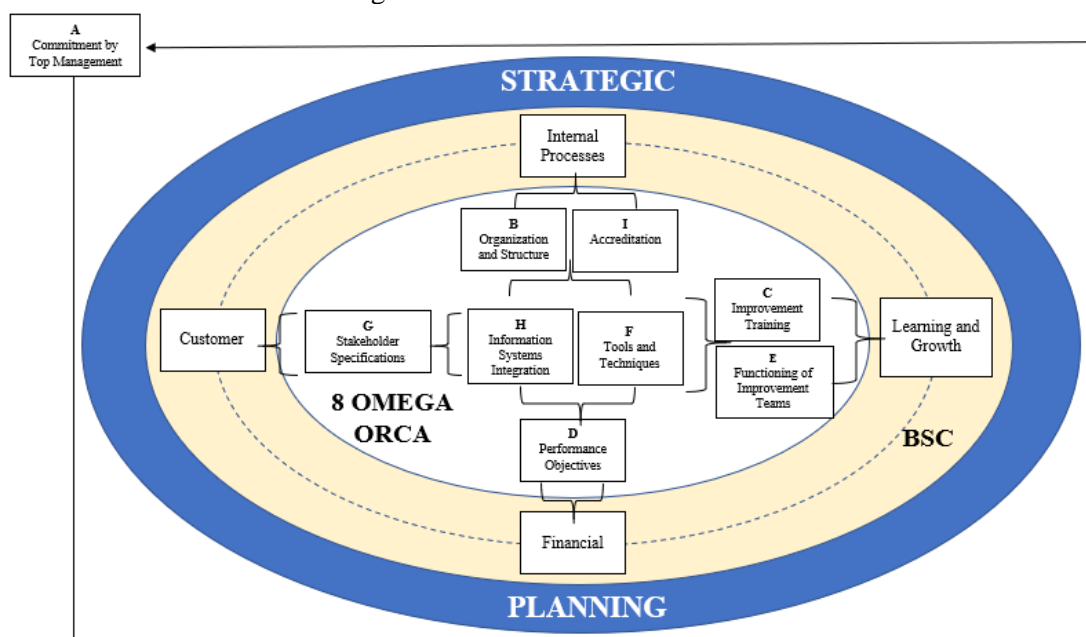
Source: adapted from Oliveira (2013, p.82)

As seen above, the tool is structured in layers, with three ellipses that overlap. In the innermost ellipse, there are eight of the nine evaluation categories of the 8 OMEGA ORCA, which "are at the center because they believe that the processes form the structure of the company, or even the heart of the organization, and that they are the ones that make the company exist" (OLIVEIRA, 2013, p. 83, *my translation*).

The categories "Information Systems Integration" and "Tools and Techniques" are positioned at the center of the ellipse due to its integrative and instrumental character, as a board panel of the senior management for decision making. The ninth category, "Commitment by Top Management", is strategically positioned involving the three layers because the strength of leadership is decisive in the organizational transformation and the creation of a successful environment.

In the intermediate ellipse, the BSC is found, represented in its four original perspectives. It is noted that each perspective is associated with one or two elements of the 8 OMEGA ORCA Framework, which should be sought in the construction of the specific model to be developed for the target organization.

The strategic planning is the outermost ellipse, which translates the strategy into measurement systems and, also, reads the levels of maturity and performance measures, refeeding the dynamics of transformation of processes.

The research develops in four phases, as shown in Chart 1.

Chart 1. The four phases of Iris framework

	PHASE ❶	PHASE ❷	PHASE ❸	PHASE ❹
PHASE DESCRIPTION	Information gathering and definition of assessment scope	Implementation of the first part of the tool (assessment of business processes maturity level)	Result analysis	Implementation of the second part of the tool (performance indicators)

Source: adapted from Oliveira (2013)

The research is in its initial phase. The Maturity assessment instrument is being built and the option was already made to use the entire original scope of the 8 OMEGA ORCA categories in the evaluation of institutional maturity. The EPGi manager expects that the construction of a consistent instrument contributes to the elaboration of the five-year Institutional Development Plan (PDI) 2021-2025. This is a major innovation step towards the alignment of organizational processes management with the strategic objectives of the institution.

The collaborative nature of the action research allows the engagement of a significant number of relevant institutional actors in the process of solving a problem and building knowledge. It intends to unfold the institutional goals, build a pilot *scorecard* for one of the management units of the institution, based on the current PDI 2016-2020.

5 CONCLUSION

This study aims to propose, implement and validate Iris - organizational process maturity management tool to help decision making of CEFET-MG managers in relation to the strategic objectives of the Organization. To achieve the general objective, the following specific objectives were proposed:(a) adapting Iris framework to the assumptions of a public education institution; (b) defining strategic criteria for the application of the Iris tool to the institutional processes management of the organization; (c) defining implementation and validation methodology of the Iris tool; (d) Identifying the benefits and restrictions of using the iris tool for an educational institution in the public sector.

Eden and Huxham (1996) assume that the results of the research should meet the specific demands of the client, but also provide a theoretical generalization from the characterization and conceptualization of the specific experience, so that the results can become meaningful to others. The intervention proposed in this objective research, based on the results obtained, provides a tool for other educational institutions and public administration agencies to evaluate their maturity stages in processes and measure their continuous performance.

6 REFERENCES

8 OMEGA ORCA GUIDE. Organization Readiness & Competence Assessment. **BPT Group**, 2007. [personal message]. Message received by <emaildoautor> em 16 jan. 2019.

BPM CBOK – **Guia para o Gerenciamento de Processos de Negócio**. Corpo Comum do Conhecimento – ABPMP BPM CBOK V3.0, Association of Business Process Management Professionals, 2013.

BRASIL. Decreto nº 9203, de 22 de novembro de 2017. Dispõe sobre a política de governança da administração pública federal direta, autárquica e fundacional. **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 23 nov. 2017. Disponível em: < http://www.planalto.gov.br/CCIVil_03/_Ato2015-2018/2017/Decreto/D9203.htm>. Acesso em: 08 ago 2018.

BRASIL. Referencial básico de governança aplicável a órgãos e entidades da administração pública / Tribunal de Contas da União, Versão 2. **Tribunal de Contas da União**. Brasília: TCU, Secretaria de Planejamento, Governança e Gestão, 2014. Disponível em https://portal.tcu.gov.br. Acesso em 08 ago 2018.

CAVALCANTE, P. Gestão pública contemporânea: do movimento gerencialista ao pós-NPM. Texto para discussão n. 2319. Instituto de Pesquisa Econômica Aplicada - IPEA, Brasília, ago. 2017. ISSN 1415-4765.

CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS (CEFET-MG). **Regulamento do Conselho Diretor**. RESOLUÇÃO CD-033/03, de 18 de junho de 2003. 2003. Disponível em: <http://www.conselhodiretor.cefetmg.br/galerias/Arquivos_ConDir/Resolucoes/Resolucoes_2003/RES_CD_033_03.htm>. Acesso em: 21 jun. 2019.

CEFET-MG - CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS. **Plano de Desenvolvimento Institucional – PDI 2016-2020**, v.1 e 2, 2016b. Disponível em: < http://www.cefetmg.br/galeria/indicadores/PDI-2016-2020>. Acesso em: 08 ago. 2018.

CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS (CEFET-MG). **Regulamento do Comitê de Governança Digital**. ANEXO À RESOLUÇÃO CD-035/17, de 30 de agosto de 2017. 2017. Disponível em: <http://www.conselhodiretor.cefetmg.br/galerias/Arquivos_ConDir/Resolucoes/Resolucoes_2017/RES_CD_035_17.htm>. Acesso em: 20 jun. 2019.

CEFET-MG - CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS. **Mapeamento de Processos de Trabalho: evento de lançamento**, 2018a. Disponível em: < http://www.mapa.cefetmg.br/wp-content/uploads/sites/20/2018/06/2018-06-13-MaPA-Evento-de-Lan%C3%A7amento-v10.pdf>. Acesso em: 25 nov. 2018.

CEFET-MG - CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS. **CEFET-MG em números**, 2018b. Disponível em: <http://cefetmg.br/textoGeral/Indicadores/cefet_em_numeros.html>. Acesso em: 28 dez. 2018.

CEFET-MG - CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS. **Descritivo do papel Facilitador em Gestão por Processos**, versão 2.0, 2018c. [mensagem pessoal]. Message received by < emaildoautor > em 04 jul. 2018.

CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE MINAS GERAIS (CEFET-MG). **Regulamento do Comitê de Governança**. ANEXO À RESOLUÇÃO CD-030/18, de 15 de maio de 2018. 2018d. Disponível em: <http://www.conselhodiretor.cefetmg.br/galerias/Arquivos_ConDir/Resolucoes/Resolucoes_2018/RES_CD_030_18.htm>. Acesso em: 20 jun. 2019.

CHANLAT, J.F. O Gerencialismo e a ética do bem comum: a questão da motivação para o trabalho nos serviços públicos. In: CONGRESO INTERNACIONAL DEL CLAD SOBRE LA REFORMA DEL ESTADO Y DE LA ADMINISTRACIÓN PÚBLICA - **CLAD, 7**., 2002, Lisboa. Anais..., Lisboa: CLAD, 2002.

COGHLAN, D. **Doing action research in your own organization**. 5 ed. London: SAGE, 2019.

CRESWELL, J. W. PLANO CLARK, V. L. **Pesquisa de Métodos Mistos**. Tradução de Magda França Lopes. 2.ed. Porto Alegre: Penso, 2013.

EDEN, C.; HUXHAM, C. Action Research for management research. **British Journal of Management**, v.7, n.1, p. 75-86, 1996.

GIL, A. C. **Como elaborar projetos de pesquisa**. 4.ed. São Paulo: ATLAS, 2009.

JESTON, J. NELIS, J. **Business Process Management**: Practical Guidelines to Successful Implementations. 3 ed. London; New York: Routledge, 2014.

KAPLAN, R. S.; NORTON, D. P. **A estratégia em ação**: Balanced Scorecard. Tradução de Luiz Euclydes Trindade Frazão Filho. Rio de Janeiro: Elsevier, 1997.

LIMA, M. C. O método de Pesquisa-Ação nas organizações: do horizonte político à dimensão formal. **Gestão.Org**, v.3, n.1, jan./abr. 2005.

MARCONI, M.A.; LAKATOS, E. M. **Metodologia Científica**. 5.ed. São Paulo: Atlas, 2009a.

MARCONI, M.A.; LAKATOS, E. M. **Técnicas de Pesquisa**: planejamento e execução de pesquisas, amostragens e técnicas de pesquisa, elaboração, análise e interpretação de dados. 7.ed. São Paulo: Atlas, 2009b.

MARGETTS, H.; DUNLEAVY, P. The second wave of digital-era governance: a quase-paradigm for government on the Web. Royal Society, 2013. Disponível em: < https://royalsocietypublishing.org/doi/full/10.1098/rsta.2012.0382>. Acesso em: 09 out. 2017.

MARTÍNEZ-LORENTE, A.R.; DEWHURST, F.; DALE, B.G. Total quality management: origins and "evolution of the term". In: The TQM Magazine, v. 10, n. 5, p. 378-386. 1998

NIVEN, P. R. **Balanced Scorecard passo -a-passo**: elevando o desempenho e mantendo resultados. Tradução de Nilza Freire. Rio de Janeiro: Qualitymark, 2005.

OLIVEIRA, T. P. Proposta de uma ferramenta para gerenciamento da melhoria contínua de processos. 2013. **Dissertação** (Mestrado Profissional em Gestão e Estratégia) – Instituto de Ciências Humanas e Sociais, Universidade Federal Rural do Rio de Janeiro, Rio de Janeiro.

SILVA E OLIVEIRA, V. C. Modelos de Administração Pública, In: SANABIO, M. T.; SANTOS, G. J.; DAVID, M. V. (Org.) Administração Pública Contemporânea: Política, Democracia e Gestão. Juiz de Fora: editora UFJF, 2013. p.13-31.

THIOLLENT, M. **Metodologia da Pesquisa-ação**. 17ed. São Paulo: Cortez, 2005.

TRIPP, D. Pesquisa-Ação: uma introdução metodológica. Tradução de Lólio Lourenço de Oliveira. **Educação e Pesquisa**, São Paulo. v.31, n.3, p.443-466, set./dez. 2005.