

How to Implement Knowledge Management in Financial Institutions? A Flowchart for Practice (FIGCIF)

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Abstract: We developed a framework for implementing knowledge management in financial institutions using a positivist and exploratory approach through qualitative research with 27 professionals in the field. The proposal is innovative due to the lack of structures that combine performance measures, KM pillars, KM processes, critical factors in the implementation and the suggestion of each of the factors according to the maturity level of KM Implementation. A flowchart is proposed for the practical application of the knowledge constructed. FIGCIF supports improvement: in acquiring knowledge resulting from academic work, in increasing tacit knowledge, in formulating instructions and normative manuals to improve understanding and use, in selecting information systems to have the ability to deliver information by through its set of rules and interaction between processes and in the defense of financial investments, aiming to generate confidence in the adoption of KM in banking institutions.

Keywords: Knowledge Management, Knowledge Implementation, Framework, Banking

1. Introduction

Knowledge is currently positioned as a basis of economy, utilizing technology as a tool to make different types of actions viable (De Borba *et al.*, 2020). Therefore, the organizations that seek to find the best strategies to create, deliver and capture value for business recognize knowledge as one of the main sources of innovation and differentiation (Oztemel and Arslankaya, 2012). This relevance means that Knowledge Management (KM) has begun to occupy a central position in business models with a focus on value creation (Al-Debei and Avison, 2010). KM is recognized as a discipline which, through its own processes, serves the purpose of increasing knowledge and generating value for stakeholders (Ragab and Arisha, 2013). These stakeholders can belong to various sectors of society, especially, the banking sector.

Academic interest in banking business models has been maintained over time. Such aspects as digital transformation, increase in bad payers and image crisis have created unprecedented managerial challenges in the banking sector (Esteban-Sanchez, de la Cuesta-Gonzalez and Paredes-Gazquez, 2017). Armed with the recognized aggressivity of the sector, which seeks to reach and maintain the levels of profit that characterize them, banks invest in knowledge as an asset with the potential to furnish solid competitiveness (Tan *et al.*, 2010).

Research into KM in recent years is divided into two significant stages. In the first, the focus is the definition of KM scope and understanding of the processes. This is where we find Nonaka's (1994) contributions which, among other things, propose the cycle of knowledge encompassing actions of socialization, externalization, combination and internalization. In the second, more recent stage, knowledge is understood as an asset (Chen, Liang and Lin, 2010). Research along this line utilizes a view based on knowledge (KBV - *Knowledge Based View*), investigating the effects of KM on performance and organizational capacities.

The implementation of KM appears with different challenges, especially in the banking segment, where, compared to other sectors, the gaps in KM are even bigger (Hung, Chou and Tzeng, 2011). The literature brings together frameworks and models that promise to help in the solution for problems related to the implementation of KM. However, as frameworks tend to suffer influence from the sector to which they are destined, alternatives adapted to the implementation of KM in the banking segment are missing, those which consider its financial, technological, regulatory characteristics and, above all, the speed at which the banking sector is modified (Ferhan, Onur and Gozlu, 2010; Hung, Chou and Tzeng, 2011; Liao *et al.*, 2012; Abbas *et al.*, 2013; De Borba, Chaves and Oliveira, 2022).

One of the main points in this gap comes precisely from the lack of plans for practical implementation, given that the prevalent characteristic of frameworks is the high degree of theoretical abstraction. Faced with the importance of KM for the generation of value and the scarcity of artifacts specifically developed for financial

institutions, the objective of this article is to propose a framework for the implementation of KM in financial institutions.

2. Theoretical reference

2.1 Knowledge management processes

The change in thinking caused by the increase in importance of knowledge implies a new approach to innovation in the organizational environment, as there is no longer space for the paradigm of the organization as a system for the processing of information or the solving of problems (Al Ahababi *et al.*, 2019). New challenges demand the acceptance of the role of creator, which companies need to assume in the face of a knowledge society. This role basically passes through four processes, (Nonaka, 1994): 1) creation, 2) storage, 3) sharing and 4) application of knowledge.

The dimensions relative to the creation of knowledge accept the role of the individual and, more precisely, their commitment to the process of knowledge creation. Consequently, this creation of knowledge can be understood as a continuous dialogue between tacit and explicit knowledge (Nonaka, 1994). Explicit knowledge is that which can be codified and stored in various formats, in manuals for example, and therefore the assumption is that it can be transferred without losses (Stevens, 2010). On the other hand, tacit knowledge is more related to the experiences of an individual and their opinions, so storing it can be difficult. (Grant, 2007).

The storing of knowledge is the process that will form organizational memory, whose recording will be done through physical systems formally and informally retained as values, norms and beliefs, which are associated with the organizational culture and structure (Alavi and Dorothy, 2001). Gonzalez and Martins (2017) relate five forms of knowledge storage: 1) individuals who make up the organization, 2) the culture defines the path for thinking and feeling, 3) the process of transformation of work methods, 4) the set of rules, hierarchies and attributions and 5) the environment that promotes the process of sharing. Information technology (IT) appears as a key tool, offering support and conditions for codification, creation of directories and the creation of knowledge networks (Alavi and Leidner, 1999).

Knowledge sharing encompasses knowledge transfer or dissemination activities from one person, group or organization to another; including the tacit and explicit dimensions (Al Ahababi *et al.*, 2019). Knowledge sharing is sometimes identified in KM models as a process of the distribution of knowledge. In this article the option was to utilize the term “sharing” on account of its being used more frequently and to be better able to identify the set of actions that comprise it.

The process of applying knowledge has the role of applying knowledge in the sense of generating value for an organization. It is the process that will direct the knowledge captured and stored for some purpose. The application of knowledge becomes more evident when associated with decision-making processes, whether they are at operational, tactical or strategic levels (Al Ahababi *et al.*, 2019). The process is identified at times in the models as utilization of knowledge, but our option was to use the term ‘application’ as we understood that it has wider coverage and more frequent use.

2.2 Knowledge management implementation frameworks

There are several KM frameworks that were developed over time by individuals and organizations. Frameworks can be classified as prescriptive or descriptive (Rubenstein-Montano *et al.*, 2001). Those classified as prescriptive will furnish a view on the types of KM procedures, without lingering on specific details of the procedures that should be put into practice. On the other hand, the structures classified as descriptive identify relevant KM attributes because of their influence in the success or failure of KM initiatives. After a systematic literature review, we located (Chen, Liang and Lin, 2010; Lee and Lan, 2011; Wu *et al.*, 2012; Oztemel and Arslankaya, 2012; Tsai *et al.*, 2012; Moradi, Aghaie and Hosseini, 2013; Singh and Gupta, 2014; Martínez-Martínez, Cegarra-Navarro and García-Pérez, 2015; Allal-Chérif, Bidan and Makhoulouf, 2016; An *et al.*, 2017; De Borba and Chaves, 2021).

Faced with these findings, this article seeks to bring together the main frameworks published in the past ten years according to the parameters presented at the beginning of the chapter. The main objective is to contemplate the support offered by the frameworks created so that, on being integrated with the data and

analyses obtained in the research that will be carried out, it will be possible to prescribe a model for the implementation of KM in banks in the light of the literature and the best practices already utilized.

2.3 Maturity models in KM

In previous sections it was explained that the implementation of KM is generally guided by an implementation structure. The set of guiding principles that seek to represent the orientations and directions on how to operate KM in companies was named as implementation framework (Wong and Aspinwall, 2004). This structure is guided by stages that can be extracted from maturity models. The models presented in this section were suggested by revisers of scientific magazines to whom the articles that preceded and collaborated with this research were submitted.

Oliveira, Caldeira and Romão (2012) conducted research with 11 Portuguese companies in order to apply a structure to classify the level of KM maturity based on the factors identified. In their article, the authors suggest that KM is an evolutionary process. The initial motivation for these sample companies was to prevent the loss of knowledge by a worker leaving or protect the knowledge in some way. However, other motivating factors were mapped: increase in efficiency, creation of unique image for clients and innovation.

It is worth highlighting here that the factors present in each of the four phases are cumulative, that is, they continue to be present and are necessary in the phases that follow. Organizations cannot manage to focus on all factors simultaneously, and empirical evidence suggests the relevance of these factors associated with the beginning of each stage, since the implementation of KM is seen as an evolutionary process (Oliveira, Caldeira and Batista Romão, 2012).

3. Method

The research adopted a positivist paradigm, in which the phenomenon investigated is considered independent of its observation. Faced with the general and specific objectives set out, this work was conducted by means of qualitative research. In the first phase, 27 semi-structured interviews were held with different professionals involved in the KM area or in KM activities in four different banks in the country. The interviewees were selected on a non-probabilistic, intentional basis, according to the definitions in Lancaster *et al.*, (2005). Data collection was carried out through individual interviews, for which the selected participants occupied the following groups: professionals from support areas, agencies and the knowledge area or equivalent. The interviews were held during a period of 45 days, remotely, using Cisco Webex® software. In the second phase, the interviews were transcribed and analyzed by means of content analysis. Bardin's (2006) perspective was utilized for the content analysis, by bringing together a set of techniques for communications analysis. This perspective was utilized at this stage of the research in an exploratory way. Nvivo®. Software was used in order to operationalize the content analysis.

3.1 Interviewee characteristics

The interviewees were selected from domestic banks operating in at least three Brazilian states which had adopted some type of KM initiative. Five companies from the Brazilian banking sector were then invited to participate, four of which accepted the invitation. In all, 27 professionals from different areas were interviewed. The selection of professionals was the free choice of the participating companies, with guidelines that the person chosen should work in the unit that centralized KM activities or develop some activity correlated to the object of study. The average length of time for the interviews was 57 minutes. The longest interview was 1h 22m and the shortest was 45 minutes.

In relation to their time in the company, three interviewees had been there for five years, 12 for more than 5 years and up to 10, eight more than 10 years up to 20 and four had more than 20 years service in the company. The interviewees worked in four Brazilian states. Their level in the company was as follows: managerial (10), technical (16) and operational (1). As for their area of operation and function, it was possible to obtain perspectives from different sectors and functions, which contributed to a wider approach to the theme.

The consolidation presented served as a basis for the structuring of the framework presented and of the research instruments in such a way as to supplement and expand the existing studies. The framework was validated by a PhD professor specializing in Strategic Knowledge Management and two master's post-graduates. The validations were sent by e-mail, and the public for validation was selected on account of their intimacy with the field of research. Their suggestions were appropriated directly in the final version.

4. Results analysis

To extract information about the process of knowledge creation from the interviews four questions were dealt with, which covered 1) acquisition of external knowledge 2) identification and treatment of gaps in knowledge 3) incentive for knowledge creation and 4) appropriation of knowledge generated from academic works.

In relation to incentives for knowledge creation, two specific standards were identified: incentive understood as support by the institution for participation in events and on courses, and openings for the participation of users in the demand for or co-creation of knowledge solutions (E11 and E13). As for incentive understood as user participation, open channels of communication with internal units and Wiki, with the mediation of specialists were mentioned (E4 and E5).

To extract knowledge from the interviewees regarding knowledge practices and storage, four structures were dealt with, according to the interview script: practices for an increase in tacit knowledge, knowledge conversion practices, storage routines by user initiative and the existence of storage standards and knowledge updating.

Tacit knowledge is more related to the experiences of an individual and their opinions (Grant, 2007), thus external storage is more difficult. However, it is possible to increase tacit knowledge in the individual. There was some evidence of such practices as mentoring and coaching for managerial and strategic levels, and for technical and operational levels the actions are limited to meetings and workshops (E2, E6, E10, E11, E22, E23 and E37).

The application of knowledge presented just one standard, which is mediation by a unit or group of specialists. This mediation takes place formally, when solutions are submitted to different committees, or also organically through the business schools that appropriate the knowledge generated by the practice for the application of solutions (E1, E2 and E17).

The adoption of KM is a strategy to guarantee the control of knowledge on the part of the company and everything begins with implementation. As interviewee 1 described “(...) *the knowledge was in the hands of third parties and we needed to unify it*”. The minimum conditions, difficulties and facilities found presented three standards: technological solutions, company culture and support from people.

The performance measures topic was included in the script to give benefits to the framework that will be proposed, seeing that in the frameworks used as the basis of this research, there was no mention of the ways to measure KM performance. The performance measures presented three standards: financial measures, process measures and development measures. Interviewee 1 mentions that they usually use cost reduction to evaluate using the financial perspective and they measure the use of the knowledge repository as a process measure. On the question of people development, capacities and competencies are measured on the basis of behavioral change. Reflections on people's results can also be measured from a comparison of performance before and after the application of the knowledge. Similarly, interviewees mentioned that the worker's own perception of development serves as a measure. The presence of knowledge in internal evaluations tends to function as a measure of development, and is adopted as a basis for internal promotions and behavioral evaluations (E5, E6 and E10).

5. Discussion and contributions

The study of KM implementation framework characterization aimed to bring together the main publications in relevant journals with a view to evaluating the direction that research has taken in the different sectors (De Borba and Chaves, 2021). In addition to the ten frameworks studied, field research was conducted in banking institutions to map the KM practices that could contribute to the structure of a descriptive framework for the sector. This field research contributed with thirty additions or alterations in the framework initially proposed.

The empirical research brought learning to the field of study and after reflection and analysis, a framework was structured, now prescriptive, for the implementation of KM in banks. The structure was named Framework for the Implementation of Knowledge Management in Financial Institutions (FIGCIF), as a result of the construction of these elements: KM pillars, processes, implementation, performance and maturity.

5.1 Academic contributions

As for the originality dimension, the research can be classified as incremental, and regarding utility, it can be classified as scientific and practical (Corley and Gioia, 2011). The FIGCIF allows the orientation of new studies in the KM domain in financial institutions and structures it according to a maturity model, thus permitting analysis of the implementation proposal throughout time. The FIGCIF could serve as a basis for quantitative empirical approaches that aim to assess the relevance of the factors listed in the framework and also help in research on maturity models from the perspective of the banking segment. This sector has some specificities, such as: the diversity of areas of knowledge, the intensity of knowledge, the intensity of technologies and an environment of adverse activity and constant change. The elements listed in the FIGCIF were structured according to the KM maturity model proposed by Oliveira, Caldeira and Batista Romão (2012) which, besides presenting a simplified structure, thereby making it easy to apply, concentrated its sample on service organizations. Table 1 structures the elements that compose the FIGCIF throughout the maturity stages proposed by the authors. The framework was validated by two academic specialists in the KM area.

Table 1: The FIGCIF structuring in the maturity model

		Stages in the implementation of KM (Oliveira, et al., 2012, p.13) ¹			
		1) Planning	2) Initiation	3) Development	4) Integration
		(*)	+ 1	+1+2	+1+2+3
3. Implementation		3.1 Alignment of objectives 3.2 Approximation	3.3 Awareness raising 3.4 Project team	3.5 Language	3.6 Maturity
1. KM Pillars	1.1 People	1.1.5 Participation	1.1.2 Culture 1.1.4 Leaders	1.1.1 Competition 1.1.3 Incentives	
	1.2 Processes	1.2.3 Demands 1.2.8 Planning 1.2.9 Routines	1.2.2 Capacities 1.2.4 Strategies 1.2.5 Structure	1.2.1 Evaluation 1.2.7 Standardization	1.2.6 Legality
	1.3 Technology	1.3.4 Technological solution	1.3.1 Access	1.3.2 Controls	1.3.3 IT Infrastructure
2. KM Processes	2.1 Application	2.1.5 Intensity 2.1.6 Prevention	2.1.1 Use	2.1.3 Feedback 2.1.4 Flow	2.1.2 Evolution 2.1.7 Validation
	2.2 Storage	2.2.7 Curation 2.2.8 Academic works	2.2.1 Filing 2.2.5 Conversion	2.2.2 Updating 2.2.4 Tacit knowledge 2.2.6 Content creation	2.2.3 Autonomy
	2.3 Sharing	2.3.1 Collection and donation 2.3.2 Diffusion	2.3.4 Groups	2.3.3 Diversity	2.3.5 Integration 2.3.6 Protection
	2.4 Creation	2.4.1 Acquisition 2.4.5 Research	2.4.4 Gaps	2.4.3 Schools	2.4.6 Production 2.4.2 Scenarios
4. Performance measures		4.2 Human capital 4.1 Information capital 4.8 Process metrics	4.3 Intellectual capital 4.5 Costs	4.4 Organizational capital 4.6 Innovation 4.9 Result metrics	4.7 Matrix

Source: the author.

***Note:** the stages of maturity are cumulative, therefore the related components in the initial phases continue to be important throughout the process of implementation. In the table the ideal moment for the process to be initiated or better worked on is represented.

Besides contributing to new variables and structures to compose models of academic research, such as business schools and the suitability of language, the FIGCIF innovates in suggesting performance measures applicable to different maturity levels of KM implementation.

5.2 Managerial contributions

Using the reports collected in the environment of empirical research, it is possible to suppose that financial investment and confidence in the adoption of KM in banking institutions encounters managers and professionals who are unaware of formats of performance mediation. Consequently, this article presents some suggestions for forms of mediation that can be used by banks: 1) measuring the reduced cost using a knowledge solution can be more logical than measuring the generation of revenues; 2) comparing commercial performance before and after the application of KM activities; 3) quantifying the new products and solutions developed; 4) using

process metrics that can reflect improvements using KM solutions and 5) measuring staff turnover by sector as a way of justifying implementations of KM solutions individually. The research findings, which were shown in table 1, were organized in a flowchart to facilitate practical implementation, see figure 1.

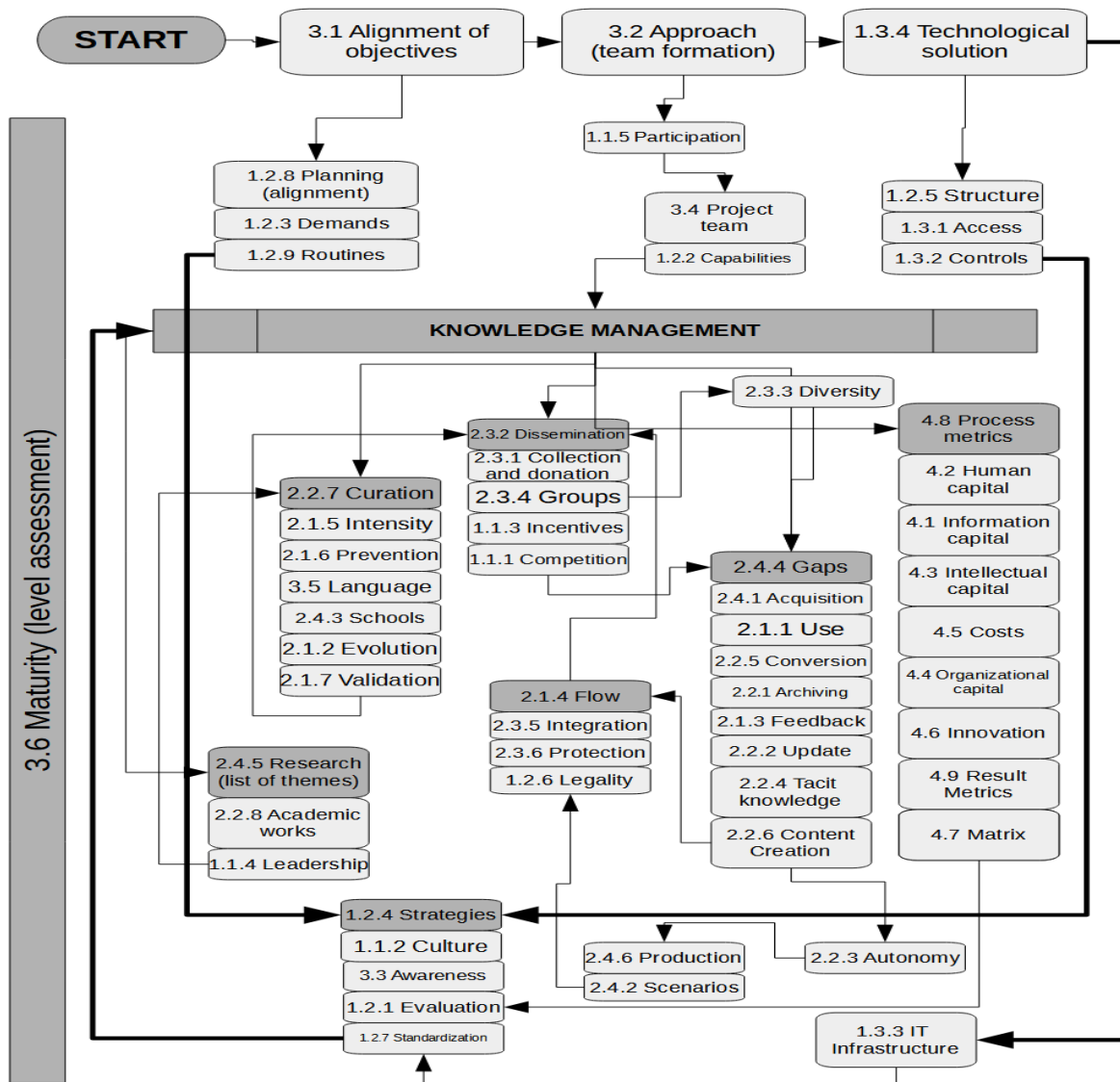


Figure 1: Flowchart for practice (FIGCIF)

Source: the author.

6. Conclusions

From the perspective of the prescriptive and descriptive frameworks studied and the empirical research, it was possible to formulate a framework for the implementation of KM in banks (FIGCIF). This article also presented some limitations: 1) The words utilized for the search for articles that composed the systematic literature review can be limited to the range of articles that are related to the field studied; 2) The criteria for selecting the sample articles that focused on high-impact magazines may have excluded relevant articles; and 3) the transversal sample utilized: considering that the implementation of KM is closely related to the models of maturity in KM, it would perhaps be interesting to research the same companies at different stages of maturity. Future research could investigate structures of KM implementation in wider or more diversely utilized samples of articles and apply the FIGCIF using interventionist approaches such as research-action or Design Science Research.

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