



Economia Aziendale Online

Economia Aziendale Online

Business and Management Sciences
International Quarterly Review

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Pavia, March 31, 2022
Volume 13 - N. 1/2022

DOI: 10.13132/2038-5498/13.1.1-17

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How to Develop an Effective Knowledge Management Strategy?

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Cite as:

Riva, A., & Pilotti L. (2022). How to Develop an Effective Knowledge Management Strategy? *Economia Aziendale Online*, 13(1), 1-17.

Section: *Refereed Paper*

Received: December 2021

Published: 31/03/2022

ABSTRACT

This study aims to understand the strategy and process of managing intellectual capital and knowledge management in the financial service sector. The methodology uses both primary and secondary data. The importance of intellectual capital and organization and knowledge management system is based on a long-term strategy of identification of knowledge needs, storage, and identification of knowledges in the main areas. This study gives a new practical framework for the development of a strategy of knowledge management.

Questo studio mira a comprendere la strategia e il processo di gestione del capitale intellettuale e della gestione della conoscenza nel settore dei servizi finanziari. La metodologia utilizza sia i dati primari che quelli secondari. L'importanza del capitale intellettuale e del sistema di organizzazione e gestione della conoscenza si basa su una strategia a lungo termine di identificazione dei bisogni di conoscenza, conservazione e identificazione delle conoscenze. Questo studio fornisce un nuovo quadro pratico per lo sviluppo di una strategia di gestione della conoscenza.

Keywords: knowledge management, innovation, learning organization, process improvement.

1 – Introduction

This paper analyses UniCredit's experience and the strategy of managing intellectual capital and knowledge management in the contest of the financial and service sector. While there is a range of literature on knowledge management and strategy (Nonaka *et al.* 2000; Bootz *et al.* 2018; Cui *et al.* 2018; Demirbag 2021; Gavina. Marin 2018; Latif *et al.* 2021; Grant 1997; Mella 2012, 2014a,b, 2018, 2021a,b; Allee 1997; Blesio and Molignani 2000; Buckman 1998; Santoro *et al.* 2017; Vaccaro *et al.* 2010; Gazzola and Mella 2003, 2006, 2017; Dorasamy *et al.* 2017; Coulet 2018; Ardito *et al.* 2018; Hines *et al.* 2004, Hitt and Wilmott 2014; Lerro *et al.* 2014) only few papers are written on financial sectors (De Koning *et al.* 2008; George 2003; De Korning 2008; Osservatorio Processi Bancari, 2010).

The key questions of the paper are:

Q1: *What is the importance of intellectual capital and organization of knowledge management systems in the experience of UniCredit?*

Q2: *What are the critical success in strategy on intellectual capital and knowledge creation in service and financial institutions?*

To answer the *first question*, we analyze the methodology and philosophy applied by UniCredit in knowledge management. For what concerns the *second question*, we describe the critical success factors for a good knowledge management strategy based on the case. Given these premises, this paper reports the interesting case UniCredit (Maiorana and Morelli, 2011, Penna Geuenzi 2014, UniCredit Reports and Accounts, 2020; Crespi 2006; Riva and Pilotti 2019; Chiaramonte, 2008; Itami 1987).

The outline of the paper is as follows: the second section describes the theoretical review and the methodological aspects; the third section reports the making of the financial sector; the fourth section sum up the relevance of the cases with the discussion of the critical factors that could have led to success and the fifth one concludes.

2 – Theoretical background

In this part are analyzed some important contributions on the topic of knowledge management with a special focus on services and financial institutions and the evolution of the paradigm of knowledge management (Paoloni *et al.* 2020; Vrontis *et al.* 2021, Balkovskaya and Fineva 2016; Mella 2012, 2014a,b; Kovacs and Zsofia 2016; For Duhon 1998; Nonaka *et. al* 2002; Pilotti 2005,2011,2017, 2019; Gazzola and Colombo 2014; Gazzola *et al.*. 2020; Riva 2006; 2007a,b; Masoud 2014) (see Table 1).

Tab. 1 – The evolution of intellectual capital strategy and knowledge management process (Source: our elaboration from Grant 1997 and Nonaka *et al.* 2002)

INNOVATIVE VIEW OF INTELLECTUAL CAPITAL STRATEGY AND KNOWLEDGE MANAGEMENT	PAST PARADIGM OF INTELLECTUAL CAPITAL STRATEGY KNOWLEDGE MANAGEMENT
Work in group	Lack of collaboration
Collaborative work is the aim collaboration and coordination	the person works by himself
Expert lead to content and content lead to expert	Expert not important
Focus on customers feedback	Limited focus
Focus on a framework for innovation management of projects and Participation	Target
The dynamic profile reflects the activity	Content protected
Frequently communication with test and data	Lack of Communication
Focus on social media: knowledge sharing, externalization of knowledge,	Limited importance of social media

Bouthillier, F. and Shearer, K. (2002) describe the procedure of planning of knowledge management system in some steps: a) definition of goals and objectives; b) types of knowledge being managed; c) sources and the consumers of knowledge; d) knowledge processes involved; e) methodologies employed and the technology used.

Ali Muhamad H. *et al.* (2006) describe the case of Knowledge management and the main tools in Malaysian banks underline the importance of integrating knowledge management systems.

Delgado *et al.* (2010) study analyze the critical success factors (CSF) of the lean and six-sigma implementation project. There is an analysis of the specific case study of *GE Consumer Finance a unit of General Electric Company* a leading provider of credit services to consumers, retailers, and auto dealers in 51 countries around the world. The data are collected from interviews.

Kovacs (2016) describes the key drivers of process improvement in banking activities based on the case of *K&H Bank*, part of the Belgian KBC, group, the second-largest bank in Hungary, with over 4000 employees. The new lean strategy of the bank (started in 2005) is focused on the client and the process and the cultural principle for all employees to "be the reference" (using the "best practice" in the bank sector), "serve the customer" and "simplify".

Balkovskaya and Fineva (2016) study the application of an integrated set of KPI to measure the performance of *the regional bank*. The use of KPI with a balanced scorecard permits the evaluation of the degree of strategy implementation. Lagging indicators allow an organization's business units to improve daily activities and improve the financial result. There is some difference in quality characteristics in service and non-service management organization (see Table 2).

Tab. 2 – Comparison: Strategy in service and no service sector (Source: our elaboration from Liker, 2004)

QUALITY CHARACTERISTICS	SERVICE MANAGEMENT		NO SERVICE MANAGEMENT
	<i>BANK LOAN (information transformation process)</i>	<i>AIR JOURNEY (customer transformation process)</i>	<i>AUTOMOBILE (material transformer process)</i>
FUNCTIONALITY	Interest rate, terms, and conditions	Safety and duration of the journey	Speed, acceleration, fuel consumption, ride quality
APPEARANCE	Aesthetics of information, website, etc.	Decor and cleanliness of aircraft, lounges, and crew	Aesthetics, shape finish door gaps, etc.
RELIABILITY	Keeping promise (implicit and explicit)	Keeping to the published flight times	Meantime to failure
DURABILITY	Stability of terms and conditions	Keeping up with the trend in the industry	Useful life (with repair)
RECOVERY	Resolution of service failures	Resolution of service failures	Ease of repair
CONTACT	Knowledge and courtesy of branch and call center staff	Knowledge, and courtesy, and sensitivity of airline	Knowledge and courtesy of sales staff

Xavier dos Santos and Cabrita (2016) study a project to simplify and improve the operational performance of a front office banking process. The case company is one of the largest Portuguese

banks, which has more than 2 million customers. The findings of this study show the great potential of lean management to maximize banking processes and how lean practices must be adjusted and become intrinsic to the firms' culture.

Paolini *et al.* (2020) analyze the process of knowledge management based on a structured literature review. The importance of knowledge and intellectual capital is very important for the competition of the company and the long-range strategy of the company. The importance of analyzing the process of knowledge creation has a strategic impact on the process of managing intangible capital. The methodology of the research is based on analyzing the Scopus database during the period 2000-2019.

3 – Methodology

The empirical method of this analysis follows the logic of grounded theory (Glaser and Strauss, 1967) developing a case study methodology (Eisenhardt, 1989; Itami 1987; Bouthillier and Shearer 2002). For this research on UniCredit, we use primary and secondary data. We have decided to choose this company for its importance (34th largest bank in the world) in European Market (Ali 2000).

3.1 – The phase of the methodology of research

We analyze the case based (Yin 2017) on the previous literature using primary and secondary data following some steps (see Table 3). About primary data, we collect data and information of the company performance by contact and discussion with experts. About secondary data, we study also the public balance sheet of the company (UniCredit Integrated Report, 2020).

Tab. 3 – Phases of research steps (Source: our elaboration from Yin 2017; Glaser and Strauss, 1967; Eisenhardt, 1989).

(1) LITERATURE REVIEWS	(2) ANALYSE SYNTHESIS	(3) COLLECT DATA	(4) DATA ANALYSIS	(5) SYNTHESIS
LITERARY REVIEW OF RESEARCH QUESTIONS (RQ1 AND RQ2) <i>1) What is the importance of intellectual capital and organization of knowledge management systems in the experience of UniCredit?</i> <i>2) What are the critical success in strategy on intellectual capital and knowledge creation in service and financial institutions?</i>	develop first version research model	deep analysis	discussion and interpret and analyze the data	develop a second version of the model
IDENTIFICATION OF MAIN RELEVANT RESOURCE AND CONCEPTS	develop basic general framework and interview guide	understand the secondary data	create a general framework	theorize prepositions and concepts

3.2 – The sources of the data

The method of case study is used because it permits to underline the main innovations and the strategy during the time. About secondary data, we study also the public balance sheet and others documents (see Table 4).

Tab. 4 – Secondary data used in this research (Source: our elaboration)

MAIN SECONDARY DATA	FOCUS
ANNUAL REPORTS 2015-2020 UNICREDIT (UNICREDIT 2015-2020)	FOCUS ON STRATEGY AND ECONOMY
SUSTAINABILITY STRATEGY (UNICREDIT 2020B AND WWW.UNICREDIT GROUP.EU)	FOCUS ON A SUSTAINABLE STRATEGY
INTEGRATE REPORT 2020 (UNICREDIT 2020))	FOCUS ON INTEGRATED STRATEGY
INVESTOR RELATIONS UNICREDIT (UNICREDI 2020)	FOCUS FINANCIAL STRATEGY

About primary data, we collect data and information by contact and interviewees with the experts (see Table 5) about the areas of research (see Table 6). The experts have almost five years of experience in the sectors.

Tab. 5 – Primary data (Source: our elaboration)

Expert about sector	9 interviews
Economic journalist	1 interview

Tab. 6 – Main issues covered during the interviews (Source: our elaboration from Unicredit 2020)

FOCUS	TOPICS
1) What is the importance of intellectual capital and organization of knowledge management systems in the experience of UniCredit?	- Knowledge management organization - Database structure - Information technology - Knowledge transfer and repository
2) What are the critical success in strategy on intellectual capital and knowledge creation in service and financial institutions?	- Best practices - History and innovation - Framework for knowledge management

4 – The company analyzed

4.1 – *The international dimension of the company*

UniCredit Group is an Italian global banking and financial service company with a strong position in Western and Eastern Europe, based on the merger of several Italian and banks (Comana *et al.* 2016; Campobasso and Dagnino 2014; Cosma 2003; De Antonio 2008). Its head headquarters is in Porta Nuova in Milan it was founded in 1998 by the merger of many groups in particular Unicredito and Credito Italiano. During the time there is an evolution of strategy of the company based on the liberalization of the financial market in 1992 (see Table 7)

Tab. 7 – The evolution of the strategy of UniCredit during the time (Source: our elaboration from Unicredit 2020a.b.c.d; Papini 2010; Campobasso and Dagnino; 2014 Comana *et al.* 2016; Cosma 2003; De Antonio 2008)

PHASE	TIME	ENVIRONMENTAL CONDITION	CHANGE IN STRATEGY AND PRIORITIES
1	1933–1970	OLIGOPOLY IN THE FINANCIAL INDUSTRY	Limited need for entrepreneurial strategies
2	1970–1992	START THE DEREGULATION OF THE ITALIAN FINANCIAL INDUSTRY ITALIAN	Market orientation in management policies
3	1993–2009	LIBERALIZATION OF THE EUROPEAN MARKET IN 1992 RADICALLY	Strategic management control and competitive strategy
4	2009–2015	INTERNATIONALIZATION OF THE FINANCIAL SECTOR	Focus on quality management and quality
5	2016–2022	GLOBALIZATION AND DIGITALIZATION OF THE FINANCIAL MARKET	<ul style="list-style-type: none"> - Focus on Knowledge management - Sustainability strategy - Best Practice sharing - Lean Sigma Six

4.2 – *The mission of the company*

The mission is a long-term partnership with clients across all sectors, its relationship managers and product specialists create tailor-made solutions in a strategic dialogue with clients in the field: a) corporate banking and transaction services in capital markets, b) structured finance and investment products, c) access to Western, Central and Eastern Europe. The Group is present in 50 markets in 17 countries with more than 8500 branches and about 147000 employees (UniCredit Annual Report 2020; Crespi 2006; Chiaramonte, 2008). UniCredit is a European commercial bank, with a strong presence in Italy, Germany, Austria, and Poland, and in other high-growth CEE countries. It has almost 10,000 branches and more than 35 million customers.

5 – Discussion and managerial implication

By integration, the data of primary and secondary data the review of the literature we have discovered some interesting process

5.1 – Intellectual capital and Knowledge Management

The organizational model of UniCredit stresses the importance of managing the intellectual capital (see Table 8) and knowledge creation based (Itami 1987) on the divisional and international organizational structure of the bank. It aims to discover, assess and manage the risk using a procedure.

Tab. 8 – The intellectual capital and knowledge management process in UniCredit (Source: our elaboration from Unicredit 2020a.b.c.d; Papini 2010; Campobasso and Dagnino 2014)

	MAIN PHASE	FOCUS	PRINCIPLES	TOOLS
1	MAPPING	Business intelligence and perception	INNOVATION	BENCHMARKING
2	ACQUIRE AND CAPTURE	Research and creation		BUSINESS INTELLIGENT
3	PACKAGE	Codification and representations		DATAWAREHOUSE
4	STORE	Database, memory	SYNERGIES	VIRTUAL LEARNING
5	APPLY FOR SHARE TRANSFER	Competence, teamworking	CREATIVITY	COMMUNITY OF PRACTICES
6	REUSE	Cross border sharing		GROUPWARE
7	INNOVATE EVOLVE TRASFROM	Leverage, intellectual asset, and innovation		LEARNING AND COMPETENCIES DEVELOPMENT

The Decision Protocols organization and management model of UniCredit s.p.a. is based on some areas to control:

- a) subsidized loans and soft loans;
- b) education and training business relations with private entities,
- c) strategic planning and proprietary portfolio external communications and relations, d) cash management.

The general structure of the Decision Support System is based on: a) data management, b) model management, c) user interface management.

Data mining is an operation strategy for identifying and extracting information, such as relationships, associations between the data in the database. The main techniques that use data mining are clustering algorithms and genetic algorithms, neural networks. It is an essential process where based on some methods is applied to understand the relation in the data.

5.2 – Marketing management, customer relationship management

The aim of customer relationship management are : a) deliver a personal experience, b) keep all aspects of the customer lifecycle in one place, c) promote relationship-building by personalizing customer experiences, d) define email and social media campaigns based upon groupings of customer profiles, e) know about your customers and prospects, f) provide rapid responses to inquiries and issues of the customer. UniCredit stresses the importance of the cultural aspects of strategy: I) put the customer first; II) improve the process of the organization; III) cooperate and connect with supplier and partners IV) manage the risk; V) focus on execution (UniCredit 2020 Integrated balance) (see Table 9).

Tab. 9 – The principles of management in UniCredit (Source: our elaboration from Unicredit 2020a.b.c.d; Papini 2010; Campobasso and Dagnino 2014)

	PRINCIPLE	FOCUS
1	<i>Put the customer first</i>	Marketing
2	<i>Improve the process of the organization</i>	Production
3	<i>Cooperate and connect with suppliers and partners</i>	Network
4	<i>Manage the risk</i>	Finance
5	<i>Focus on execution</i>	Operation

5.3 – Performance measurement and process management

In UniCredit the main model to control the performance is the balanced scorecard (Kaplan and Norton 1996, 2001, 2004 a,b, 2007) is based on some phases:1) strategic check; 2) definition and linkage of strategic objective (finance, customer, processes, potential); 3) definition of strategic measures; 4) definition of target value; 5) definition of strategic initiatives 6) budgeting of strategic initiatives. The analysis of data and data mining is a strategic priority for UniCredit bank. The process management involves a series of phases and definition of relative KPI tree (Wu and Hung-Yi 2005): 1) *process mapping*: there is a description of the process; 2) *process diagnosis*: the problem in the process are identified; 3) *process design*: develop an alternative to the process; 4) *process implementation*: validation of the process and the control; 5) *process maintenance*: monitoring of the process and try to improve.

UniCredit analyzes the processing time and tries of avoiding the source of waste as well as dissatisfaction with the customer. Lean banking in UniCredit refers to improvement projects that redesign the internal processes of the bank, focusing on customer satisfaction and reducing waste. The focus is to improve both the upper part of the income statement (revenues) by increasing customer retention rate and in the lower (costs) through the containment and reduction of unnecessary costs and wastes.

In conclusion, at the base of the lean in UniCredit, there are two fundamental and complementary concepts: a) the ability to do things well, with constant attention to cost, time, and quality, and is the aspect that usually companies understand and pursue; b) ability to grow and shape the company's people.

6 – Discussion and management implication

For UniCredit improvement should not focus solely on overhead cost reduction (elimination of the wastes and the not value-added activities) but also to improve the revenues (focus on critical to quality factors).

6.1 – The strategy of intellectual and knowledge management

The knowledge management system in UniCredit is based on some goals (see Table 10). The aim is also to improve and facilitate the ability of clients to access financial advice and solutions in a set of areas.

The bank has the peculiarity for which the customer does not purchase products already stored but services. It is not as easy to identify as the waste in the manufacturing world where the good product is tangible and visible.

Tab. 10 – Some aspects of intellectual capital and knowledge management system in UniCredit (Source: our elaboration from Unicredit 2020a.b.c.d; Papini 2010; Campobasso and Dagnino 2014)

GOALS OF KNOWLEDGE MANAGMENT	TOOLS
<ul style="list-style-type: none"> • CREATE a global strategy for the intellectual capital • FACILITATE access to best global thinking and expertise on development 	<ul style="list-style-type: none"> ▪ communities of practice management learning center links partners ▪ SAS software
<ul style="list-style-type: none"> • SUPPORT organization’s strategic business plan • INCREASE ability to utilize knowledge bases capitalize upon knowledge assets to develop core business processes 	<ul style="list-style-type: none"> ▪ creation of knowledge ▪ communities knowledge map. ▪ knowledge audit:
<ul style="list-style-type: none"> • USE the knowledge that resides in the organization to fulfill our mission which is to help people to maintain and improve • USE knowledge for analysis and evidence-based decision making 	<ul style="list-style-type: none"> ▪ database ▪ best academy ▪ learning center
<ul style="list-style-type: none"> • SUPPORT the personal development by leadership program • support flexibility and lifelong learning 	<ul style="list-style-type: none"> ▪ e-learning ▪ positive working environment

6.2 – The tools for knowledge management implementation

Unicredit uses a set of tools for knowledge management implementation (see Table 11)

Tab. 11 – Main tools in the process of knowledge management and innovation in UniCredit (Source: our elaboration Unicredit 2020)

	TOOLS	IMPORTANCE
1	MEASURING AND CONTROLLING THE INTELLECTUAL CAPITAL	*****
2	SHARING OF BEST PRACTICE REPOSITORY	*****
3	VIRTUAL DISCUSSION ROOM	***
4	INTRANET	***
5	DATA COLLECTION EDMS	**
6	COMMUNICATION AND MANAGEMENT TOOLS	***
7	INTERNET ACCESS AND SOCIAL MEDIA	*
8	EMAILS	***
9	COMMERCIAL DATABASE	*****
10	DECISION SUPPORT SYSTEM	****
	*low ; ***** high	

Processes and operational efficiency lead to reduced costs and released capacity, meaning lean banking process improvement contributes significantly to improving the performance. Making a parallel with the manufacturing world and adapting it to reality as the bank emerge seven main categories of waste:

a) over processing: add more value for a service that costs more than what the customer is willing to pay;

b) transport: send paper and disclosure documents from one office to another;

c) handling: moving from one office to another (or from one division) by staff;

d) shares: practical storage waiting to be screened;

e) expectations: time during which the service must be delivered to the customer waits until the resource that it must occupy proves free;

f) defects and reworking: any wrong operation that needs to be carried out a second time to be compliant;

g) overproduction: document production/practices in greater numbers to the requests coming from the customer.

UniCredit desires to improve in the digital transformation (see Table 12): a) mobile payment, b) digital currencies, c) regulatory environment, d) data privacy, f) mobile payment, g) e-commerce.

Tab. 12 – Digital transformation and tools in Unicredit (Source: our elaboration from Unicredit 2020)

PHASE	AREA	TOOLS	FOCUS	NO WASTE
1	DEFINE KM Strategies for intellectual capital of the company	<ul style="list-style-type: none"> • e-commerce • mobile payment • digital currencies • regulatory environment • data privacy • mobile payment 	Road Map	<ul style="list-style-type: none"> <i>a) over processing</i> <i>b) transport</i> <i>c) handling</i> <i>d) shares</i> <i>e) expectations</i> <i>f) defects and reworking</i> <i>g) overproduction</i>
2	KM-PROCESS IMPLEMENTATION		Define the type of Knowledge	
3	KM IMPLEMENTATION		Knowledge transfer	
4	MEASURE AND EVALUATION		Review of KM and avoid wastes	

The innovation and improvement of the process can be important for the future of the bank. A process can be defined as a series of actions that transform. The flowchart use symbol connected by arrows to describe processes. In some projects on *Cost management and allocation*, UniCredit uses the specific technique of data mining based on Sas Software; there are based on the integration of techniques of statistics, artificial intelligence, and machine learning.

7. Conclusion

In this paper, we investigate the cases of UniCredit to analyze its strategy of knowledge management.

7.1 – *The integration of the different systems for intellectual and knowledge management*

Concerning the **FIRST QUESTION**: “*What is the importance of intellectual capital and organization of knowledge management systems in the experience of UniCredit*”, we find that:

a -First, the importance of intellectual capital and organization of knowledge management system is based on a long-term strategy of identification of knowledge needs, storage, and identification of knowledge and also use and application of this knowledge in the main area: risk management, marketing management, corporate culture; process performance and innovation of process and Decision support system, Data Warehouses and Data Mining (see Table 13).

b-Second, UniCredit follows an integrated model of intellectual capital and knowledge management based on the main concept of organizational knowledge, organizational learning.; the main strategic objectives of knowledge management in UniCredit are: a) increased organizational productivity and efficiency, b) internal and external customer satisfaction, c) knowledge sharing and skill development, d) competitive advantage, e) consistency in the work

and results across, f) total quality management, g) faster and cost-saving delivery, h) client collaboration.

c -The results of the first question are in part consistent with past studies focus the importance of an integrated model of Knowledge management (Gallego *et al.* 2020; Campobasso and Dagnino 2014; Nonaka *et al.* 2000; Lerro *et al.* 2014; Nonaka and Takeuchi, 1995; Majorana and Morelli, 2011; Mella 2014a,b, 2018; Vrontis *et al.* 2021, Skinner 2015; Riva and Pilotti 2019,2020; Itami 1987; Camuffo 2017; Collis, 2016; Santoro *et al.* 2017; Vaccaro *et al.* 2010; Dorasamy *et al.* 2017; Coulet 2018; Ardito *et al.* 2018).

Tab. 13 – Manager intellectual capital and knowledge management system in UniCredit

(Source: our elaboration from Unicredit 2020 Campobasso and Dagnino 2014)

STRATEGIC TOOLS TO MANAGE INTELLECTUAL CAPITAL AND KNOWLEDGE MANAGEMENT		
1	RISK MANAGEMENT	It aims to discover, assess and manage the risk using a procedure
2	MARKETING MANAGEMENT AND CUSTOMER RELATIONSHIP MANAGEMENT.	Customer relationship management aims to control the satisfaction of the customers
3	CORPORATE CULTURE	1) put the customer first; 2) improve the process of the organization; 3) cooperate and connect with suppliers and partners; 4) manage the risk; 5) focus on execution (UniCredit 2020 Integrated balance).
	PERFORMANCE MEASUREMENT.	the main model to control the performance is the balanced scorecard
4	PROCESS MANAGEMENT	1) <i>process mapping</i> : there is a description of the process; 2) <i>process diagnosis</i> : the problem in the process are identified; 3) <i>process design</i> : develop an alternative to the process 4) <i>process implementation</i> : validation of the process and the control; 5) <i>process maintenance</i> : monitoring of the process and trying to improve
5	DSS -DECISION SUPPORT SYSTEMS	Area “sensitive” areas to control: a) subsidized loans and soft loans, b) education and training business relations with private entities, c) strategic planning and proprietary portfolio external communications and relations, d) cash management. The general structure of the Decision Support System is based on: a) data management, b) model management, c) user interface management
6	DATA WAREHOUSES AND DATA MINING	Data mining is an operation strategy for identifying and extracting information (clustering algorithms and genetic algorithms, neural networks, methods are applied to understand the relation in the data.

7.2 – The strategy priority for knowledge creation

For what concerns the **SECOND QUESTION**: “What is the critical success in strategy on intellectual capital and knowledge creation in service and financial institutions?”, we discover that:

a-First, the case of UniCredit shows the importance to build and integrating the system for managing the intellectual capital based on knowledge management based on a *global framework of knowledge management strategy* (OSA: objectives, strategies, and actions): risk management, CRM. Balance scorecard, KPI, benchmarking, and application of clear knowledge management strategy and leadership strategy.

b-Second, UniCredit uses a business integrated solution model to establish strategic priority (see Table 14) and quality standard for intellectual capital with application in some project a general structure of the Decision Support System based on: a) data management, b) model management, c) user interface management. The model of UniCredit Business Integrated Solutions permits to development of knowledge management and data mining strategy these permit identification and to extract information as relationships in the database of the company.

c- The result is in part consistent with past studies for the importance of planning a strategic priority for changing during the time (Nonaka *et al.* 2000; Bootz *et al.* 2018; Cui *et al.* 2018; Demirbag 2021; Gavina.Marin 2018 Issahaka and Lines, 2021; Nonaka and Takeuchi 1995, Comana, Modina, Previtali 2016; Mella 2012; 2018 ;Riva and Pilotti 2020; Yang 2005; Vrontis *et al.* 2021; Papini 2010; Campobasso and Dagnino 2014Majorana and Morelli 2011, De Koning *et al.* 2008 a,b; Mella and Gazzola 2006, 2007; Itami 1987).

Tab. 14 – Strategic priority in intellectual capital and knowledge management system in UniCredit (Source: our elaboration from Unicredit 2020)

STRATEGIC PRIORITY ON INTELLECTUAL CAPITAL AND KNOWLEDGE MANAGEMENT	MAIN PROCESS	ORGANIZATIONAL FRAMEWORK	PERFORMANCE
1. BEST PRACTICE SHARING	Acquisition	Data management	Better products and service
2. KNOWLEDGE AND LEARNING ARE THE CAPITAL OF THE FUTURE	Storage	Model management	Improve relationship with the customer
3. FOCUS ON TEAM LEARNING	Sharing	User interface management	Improve relationship with suppliers
4. BUDLING A KNOWLEDGE VISION	Transfer	User interface management	Improve relationship with partners
5. IMPROVE THE MENTAL MODEL	Catalog	Individual learning	Improve motivation and ability to solve problems
6. FOCUS ON SYSTEMIC THINKING	Expert decision	Organizational learning	Improve personal and organizational knowledge
7. INTERNAL AND EXTERNAL OPEN COLLABORATION	Collaboration	Problem-solving model	Understanding evolving customer needs

7.3 – Original contribution, limits, and future research

The original contribution of this paper and the production of new knowledge in the field are:

I) the original description and analysis of the strategy of knowledge management in an international company;

II) to give a new practical framework for the development of a strategy of knowledge management and analyze several tools that, although with some limitations, can be used by other companies.

The limit of this study is to analyze only a case of a single bank. Future research can analyze the impact of artificial intelligence and data mining on knowledge management. The case of UniCredit in Italy shows how is important to combine many methodologies for the innovation and knowledge management strategy.

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