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How to improve the sustainable strategy by lean management and a set of innovative methodologies?

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ABSTRACT

The study analyses how an integrated set of methodologies and a strategic control system permits the improvement the performance. This study uses both primary and secondary data. The finding shows how a set of methodologies (ACE methodology, customer and value satisfaction strategy, a set of problem-solving tools and projects for improvement, process management) and the system of control (use of a set of KPIs). are successfully applied and identify the reasons.

Lo studio analizza come un insieme integrato di metodologie e un sistema di controllo strategico permetta il miglioramento delle performance. Questo studio utilizza dati primari e secondari. Il risultato mostra come un insieme di metodologie (metodologia ACE, analisi di soddisfazione del cliente e del valore, strumenti di risoluzione dei problemi e progetti di miglioramento, gestione dei processi) e il sistema di controllo (utilizzo di un set di KPI) sia applicato con successo e ne identifica le ragioni.

Keywords: lean management, strategy, service, lean transformation

1 – Introduction

Lean practices and techniques can improve the results by reducing the time spent performing specific activities, reducing the total cost of doing business by eliminating wasted time and effort, and increasing customer satisfaction by delivering faster and better-quality services (Thomas & Saleeshya, 2019, Dixon *et al*., 1994; Koning *et al*., 2008; Mbarchyan, 2013; Mella, 1997, 2012, 2015a,b, Fiorillo *et al*., 2021; Vijaya Sunder, 2013; Dieste *et al*., 2021; Riva & Pilotti, 2019b; Das *et al*. 2017; Gupta *et al*. 2016; Holweg, 2007).

Several studies have shown how the methodology of lean manufacturing (see Figure 1), (Womack & Jones, 1990,1996; Collis, 2016; Riva & Pilotti 2018, 2019a; Riva, 2007, 2008, 2012; Hines *et al*. 2004), learning organization and knowledge

creation (Rossini *et al*., 2021, Nonaka, 1988, Nonaka & Takeuchi, 1995 Nonaka *et al*., 2000; Qintas *et al*., 1997; Stack *et al*., 1992; Grant, 1997), service management (Grönroos & Ravald, 2011), reengineering (Hammer, 1990; Hall *et al*., 1993), change management (Senge, 1999; Lewin, 1951), permit to improve the results of a firm (Pilotti, 2017; Goldratt & Cox, 1984; Stater, 1999. Cordesse, 2012; Courtright, 2004; Hines *et al*., 2004; Holloway *et al*., 1999; Mella, 2021b).

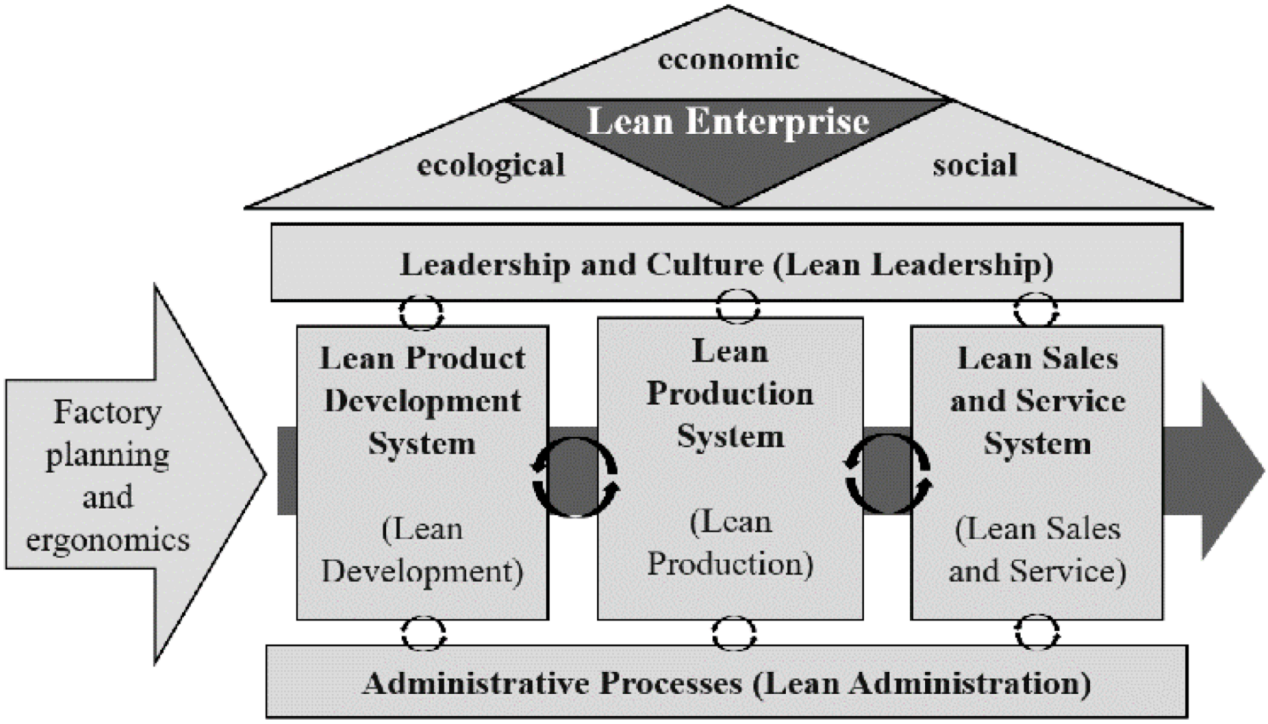

Fig. 1 – The lean strategy (source: elaboration from Dombrowski *et al*. 2019, p. 67)

The objective of lean management is not only to reduce costs and increase profits but also to improve the quality of the services and value creation for the stakeholders (Pellegrino, 2014). Few papers are written on the process to determine critical success factors in process improvement in service sectors (Marmura *et al*., 2021, Al-Doori, 2020; Vignesh *et al*., 2016). This study intends to investigate this problem.

The two key questions of the paper are:

Q1: *How to improve the long-term sustainability strategy by lean management?*

Q2: *Which methodologies are better to use to improve global performance?*

The outline of the paper is as follows: the *second section* describes the theoretical review and the *third section* the methodological aspects; the *fourth section* describes the case of study; the *fifth section* reports the results and describes the change management and lean transformation; in the *sixth section* there is the discussion and the last one concludes.

2 – Theoretical background

The literary review shows the importance of lean management for the strategy (see Table 1). A body of literature analyzes how lean management is an important role in improving

performance (Dos Santos & Cabrita, 2016; Secchi & Camuffo, 2021; Shin & Jemella, 2002; 2021; Mella 2012, 2014, 2015, 2021b) and the importance of a sustainable strategy for the long-range (Imai, 1986; Itami, 1993; Gazzola & Colombo, 2014; Gazzola & Mella, 2003, 2006, 2017; Gazzola *et al*., 2020; Preite, 2007; Riva and Pilotti, 2020; Senge, 1999; Pilotti & Rinolfi, 2022a,b).

Table 1 – Important study on lean management and improvement of performance (source: our elaboration)

	Author(s)	Theoretical perspective	Methodology	Main findings	Context	Sample
1	Al-Doori (2020)	LEAN MANAGEMENT TOOLS	Questionaries	Improvement of results	Bank Sectors	Jordan banks
2	Gupta *et al.* (2016)	LEAN TOOLS AND OTHER METHODOLOGIES	Review literature	Importance of standardization of process and employment	Service sector	Service companies
3	Thomas and Saleeshya (2019)	INDICATORS TO MEASURE THE IMPACT OF LEAN MANAGEMENT	Calculation of productivity index and customer satisfaction	Impact of lean management on the Improvement of Performance	Banking industry	Field study with various banks
4	Cordesse (2012)	LEAN TRANSFORMATION	The measure of the impact of lean transformation	Improvement of 20%-25%of performance on average	Banking sector	Banks of the same group
5	Mbarchyan (2013)	LEAN AND EFFICIENCY	Comparison of performance	Impact of Lean on economic performance	Banking sector	BNP banks in Poland
6	Sansul and Ahmed (2012)	LEAN AND BUSINESS PROCESS REENGINEERING	The measure of the time cycle and customer satisfaction	Lean and Business process management permits to improve of the results	Business process	Multinational Banks
7	Marmura *et al.* 2021	LEAN SIGMA AND SIX SIGMA	The measure of the impact of lean tools on the performance	Positive Effects of Lean and six sigma on the Performance	Manufacture sectors	Case study

Al-Doori (2020) analyses the benefits of the lean management approach in banking in Jordan. The methodology is based on questionnaires sent to a selected group of banks. The results are analyzed to determine the results of the application of lean management in the banking sector. The application of lean management tools permits improving the results in the operation. The integration of total quality management and lean management permits the improvement of the global performance of the banks.

Gupta *et al*. (2016) analyzes the evolution of the literature review on lean management in the service sector. The research underlines the difference between lean management in the service sector. The results suggest the importance to use lean management in the service sector with the integration of other methodologies (Balanced Scorecard, TQM, sigma Six, etc.) (see Figure 2).

Thomas and Saleeshya (2019) describe the importance of lean management in the service and banking sectors. The paper analyses some indicators that can be applied to measuring the impact of lean management (productivity index and customer satisfaction). The results underline the importance of lean management in improving customer service.

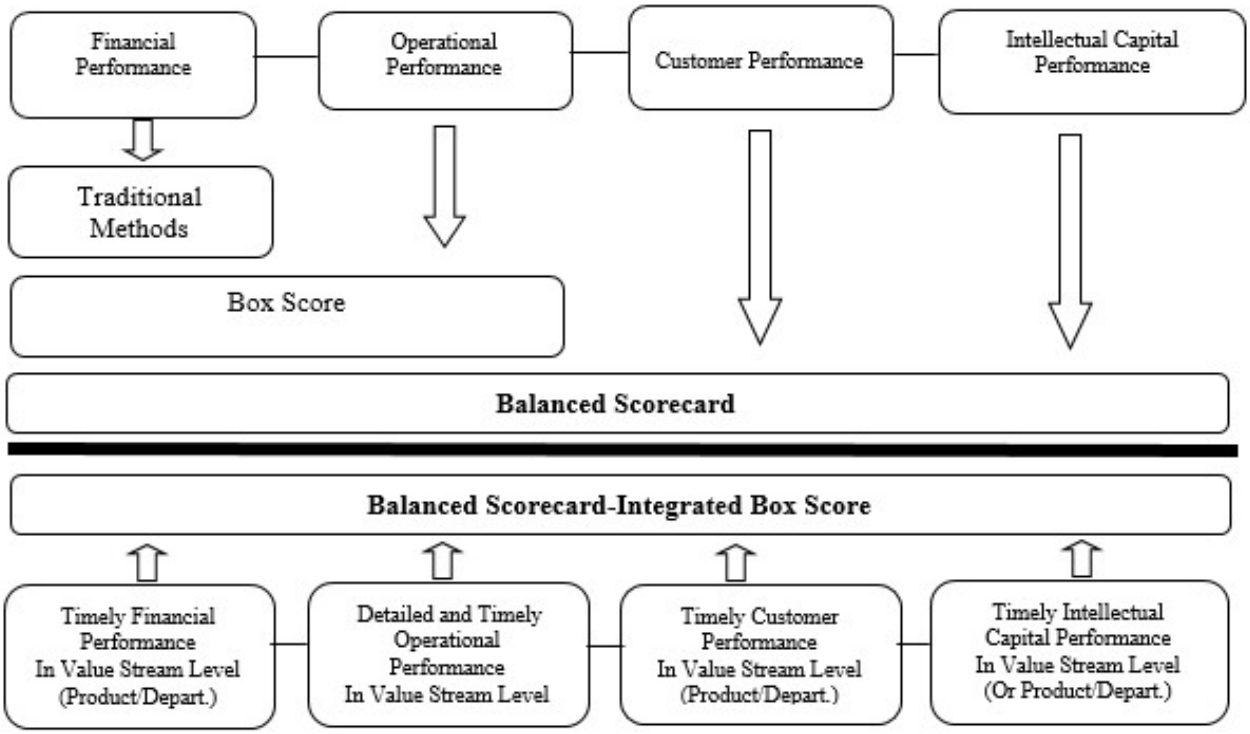

Fig. 2 – The integration of a balanced scorecard and lean management control
(source: elaboration from Kaldirim, 2020, p. 1104)

Cordesse (2012) shows the case of lean transformation of the group BNP Paribas Bank. The process of continuous improvement is based on the management of projects. The results show a performance improvement of 10 to 40%, with an average between 20 and 25%. It is above all an improvement in the fluidity of tasks and the speed of the processes based on continuous improvement (see Figure 3).

Mbarchyan (2013) proposes methods of a comprehensive analysis of Banking Group member efficiency based on the case of *BNP Paribas Polska SA (Poland)*. The banking group's financial result depends on the financial results of each group member. These methods provide a comparison of relative changes in the Banking Group member financial ratios with relative changes in the financial ratios of member banks.

Another body of literature analyzes the benefits of process improvement in the service sector based on research of process improvement based mainly on the reduction of time, cost, and improvement of quality (Das *et al*., 2017; Riva, 2006).

Along with this domain, Samsul and Ahmed (2012) describe the business service process of the credit card department of a multinational bank. Before the project of process reengineering, it requires eight to nine days to complete the process of issue of a card. The new proposed process reduces half of the time of the cycle time for the process with better customer satisfaction. This is possible by eliminating waste. The application of BPM and reengineering permits the bank to increase card market share in the segment of consumer products with economic benefits.

Also, a large body of literature discusses the importance to control the results of performance based on comparison with other companies using an integration of methodologies

A detailed description of benchmarking is present in some publications (Dattakumar & Jagadeesh, 2003; Camp, 1989; Mann *et al*., 2019; Riva & Pilotti, 2019b; Yassar & Zairi, 2000;

Halleck *et al*., 1991, Olesen *et al*., 2015; Cook, 1995 Kathleen *et al*., 1992; Shoettl, 2003; Yassar & Zari, 2000).

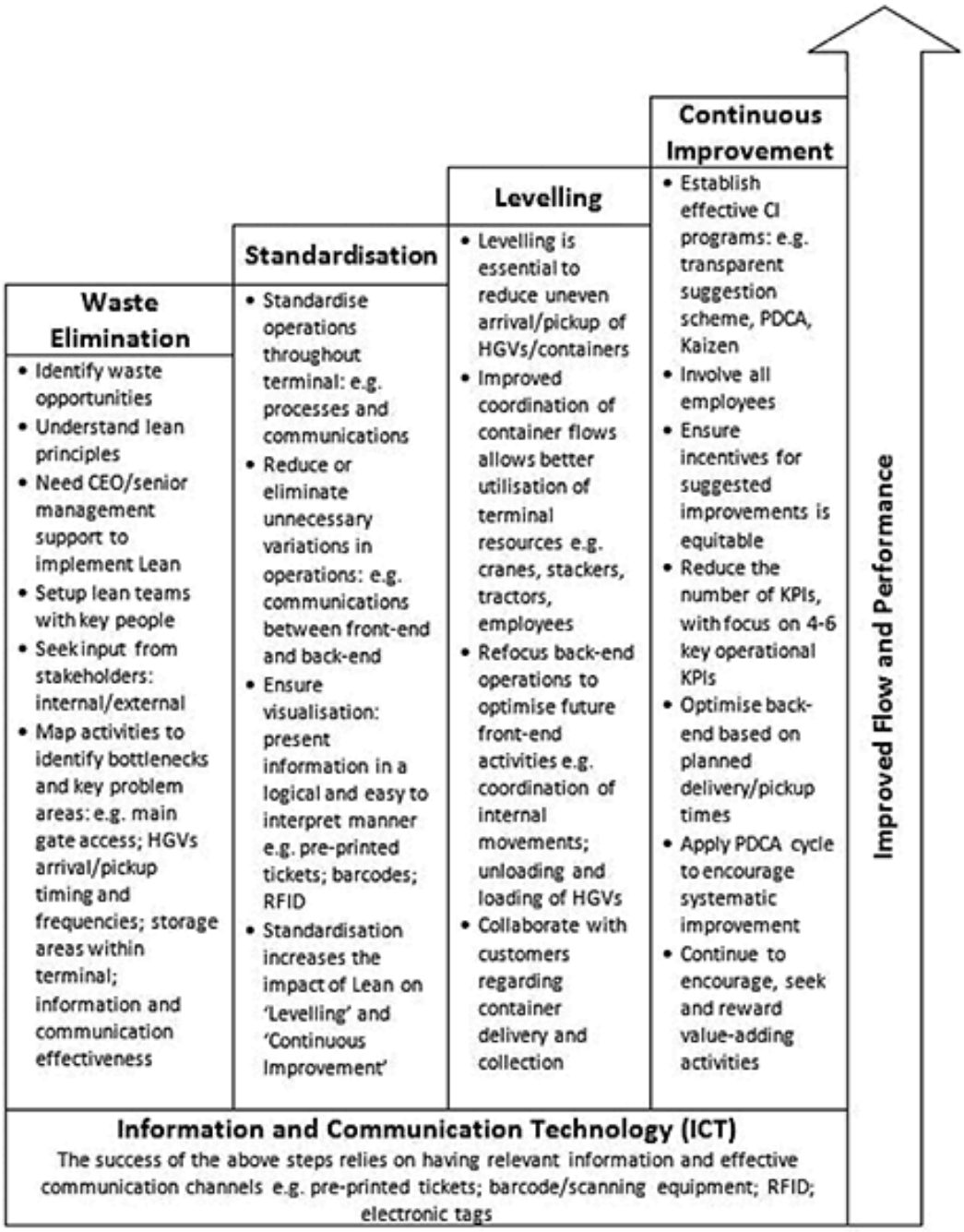

Fig. 3 – The level of lean strategy (source: elaboration from Dombrowski *et al.*, 2019**)**

Abbas *et al*. (2019) underlines the importance of lean management for the improvement of global performance (see Figure 4). The study adopts a case study methodology and describes the importance of benchmarking for improving the results. Benchmarking is a tool that permits to compete at the international level and to determine the performance gap.

Camp (1989) describes the model of Xerox of benchmarking can be defined as the continuous process of *evaluating their services and methods – comparison with those of the best in the sector*. The

process of benchmarking Camp in Xerox is organized into 10 steps benchmarking. Xerox and large companies began to develop the discipline of comparison, leaving the limits of the sector.

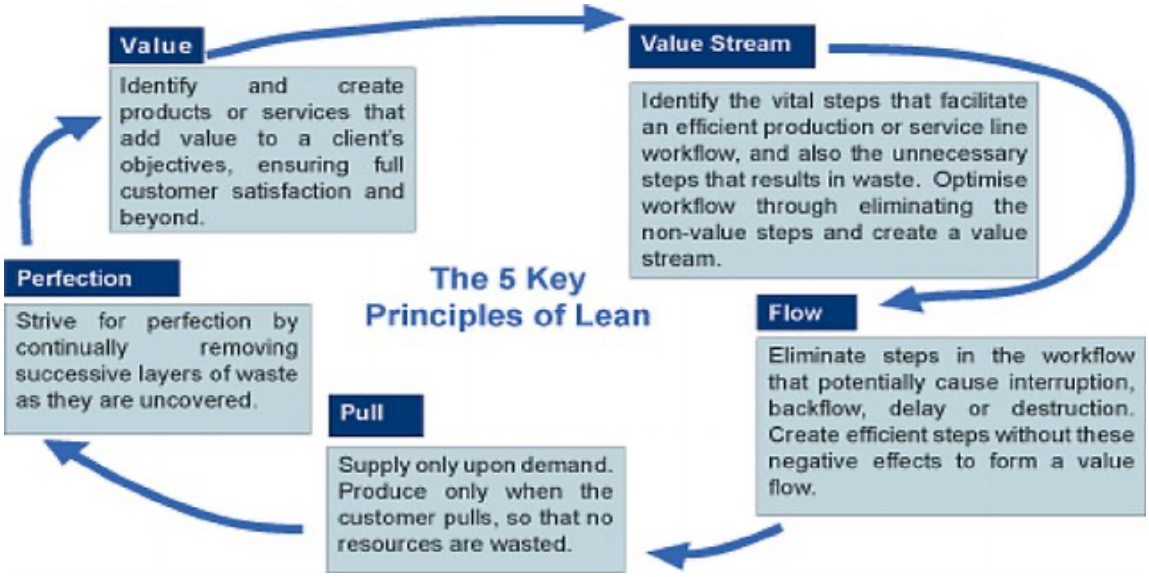

Fig. 4 – The strategy for perfection in lean management
(source: elaboration from Olesen *et al*. 2015)

An important body of literature has shown the importance of the integration of methodologies (Hammer *et al*., 1993, Hammer, 1990; Van der Aalst, 2004; Frei *et al*., 1999; Nelson, 2013). The value delivery system is an important methodology to determine how to choose, provide, and communicate the value (see Figure 5).

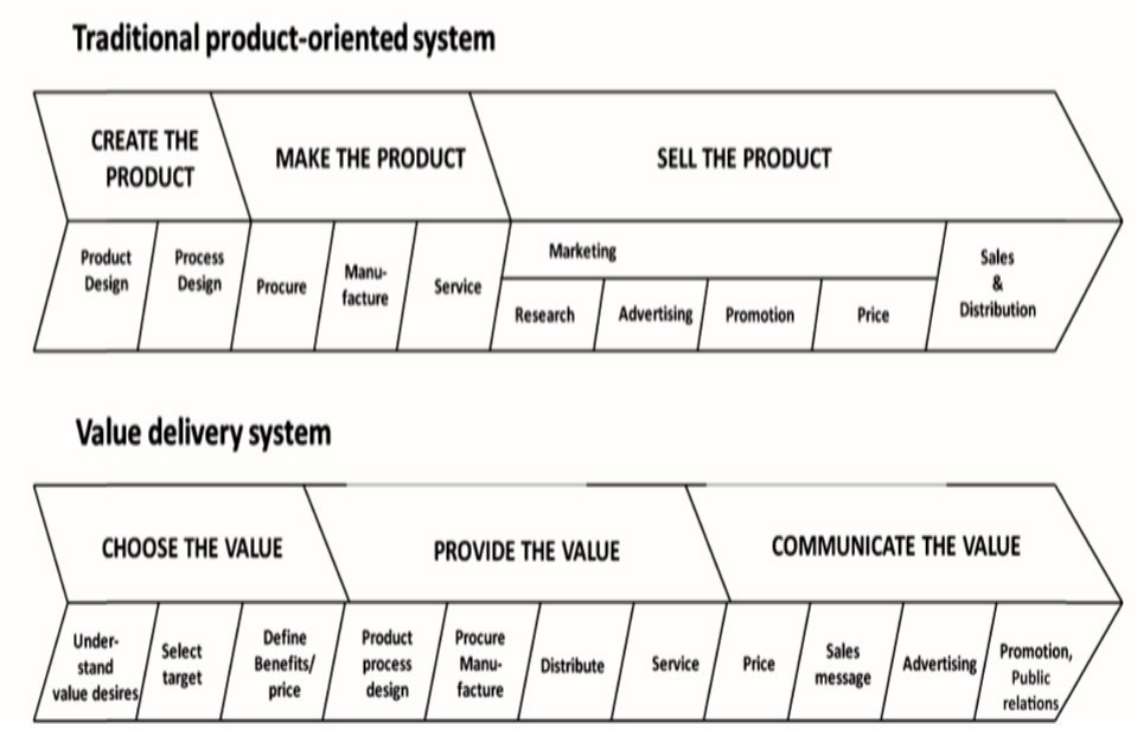

Fig. 5 – The value delivery system (source: from McKinsey; see Yu & Solvang, 2017)

Marmura *et al*. (2021) analyze the implementation of lean sigma and six sigma in a company using a qualitative approach. The main action and main transformation for improving the performance are analyzed. The importance to analyze customer satisfaction is evaluated. They are many benefits from the integration of different methodologies for improving performance. Lean thinking and Six Sigma are a methodology that permits process improvement and reduces cost and waste.

Roth (2010) describes ACE (achieving competitive excellence) methods used in developing, aligning, and communicating business-specific strategies. This case study provides an example of managerial and organizational changes that permits significant performance improvements. The ACE methodology is based on some management principles: a) the process improvement (5S - visual workplace, value stream management, process control certification, standard work, production preparation process, total productive maintenance, set-up reduction); b) problem-solving techniques (market feedback analysis, QCPC -quality clinic process charting-, relentless root cause analysis, mistake proofing); c) decision making. The integration of many methodologies can be used to improve performance (see Figure 6).

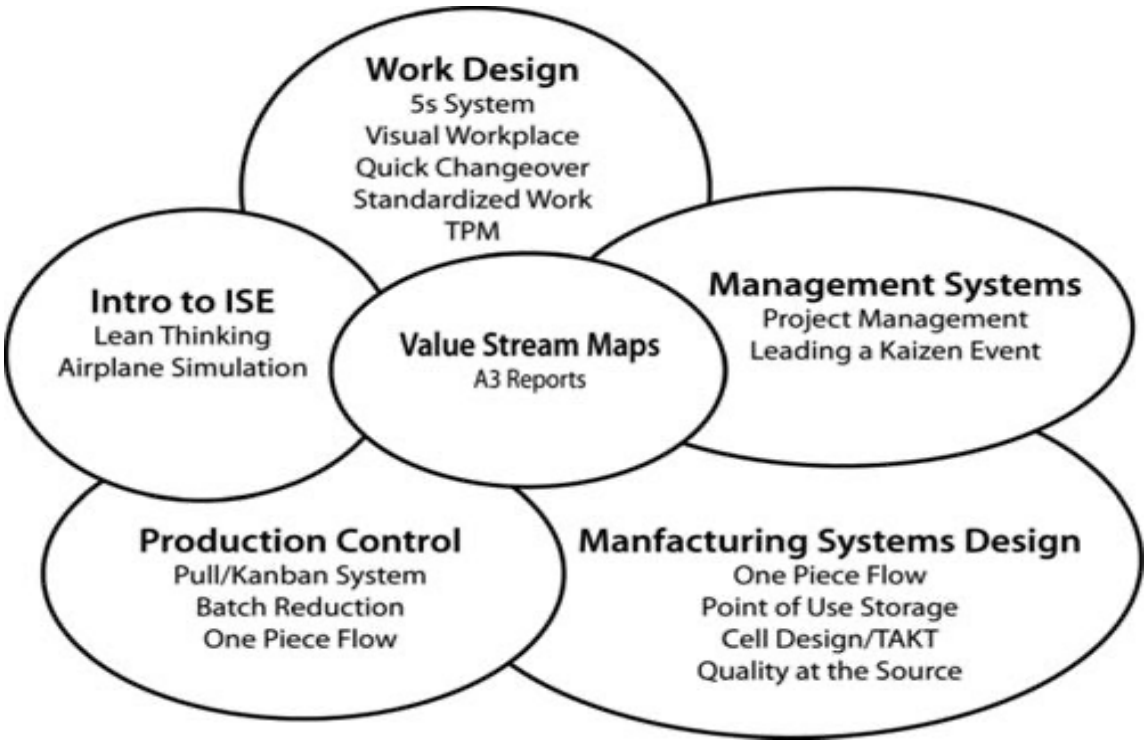

Fig. 6 – The lean management tools (source: elaboration from Harris *et al*., 2014)

Singh (2013) analyzes process management to sustain a competitive advantage for organizational performance and improvement. Transformational leaders have a tremendous influence on the workplace and the organization's culture. McKinsey's 7S framework is a model for analyzing organizations and their effectiveness: strategy, structure, systems, shared values, style, staff, and skills. This framework must be aligned and this permits to reach leadership excellence.

The focus of many papers is how to apply some methodology (lean management, process improvement, ACE methodology, benchmarking, balanced scorecard, etc.) in concrete practice to improve performance.

3 – Methodology

3.1 – *The research design*

We based our study on an important Italian bank BNL (Banca Nazionale del Lavoro) (Yin, 2017; 2009; Stake, 2011; Eisenhardt, 1989; Glaser & Strauss, 1967; Riva, 2018a,b).

We base our study on the case of BNL; it can be considered an interesting case also because:

a) it is an important historical Italian bank;

b) there is the application of lean management with many methodologies for improvement.

We analyze the case based on the previous literature using a procedure in some steps (see Table 2).

Table 2 – Phases of research steps (source: our elaboration)

PHASE	(1) LITTERATURE REVIEWS	(2) ANALYSE SYNTHESIS	(3) COLLECT DATA	(4) DATA ANALYSIS	5) SYNTHESIS
TARGET /AIM	**LITERARY REVIEW OF RESEARCH QUESTIONS**	**develop a first version research model**	**deep analysis**	**discussion analyze the data**	develop a second version of the model
ACTION	**Identification of main relevant resources and concepts**	**search new information**	**understand the secondary data and conduct interview**	**create a general model**	theorize prepositions and concepts

3.2 – *Data Collection and Analysis*

Data collection is based on different sources starting from analyzing many companies' documentation (Bryman, 2012; Stake, 2011).

Based on the use of multiple data collection for the case study, data are collected from multiple choices: secondary data as an official document, direct observations, and semi-structured interviews.

As secondary data, we also study the public balance sheet of the company (Annual reports Gruppo BNP Paribas; Riva, 2006; Pilotti, 2017) and we analyze important documents (see Table 3).

About primary data, we collect data and information by contact and interviewees (see Table 4) with the experts (Noor, 2008); in particular, the experts are specialized in some areas (see Table 5).

The interviews are conducted by telephone or face to face and lasted about forty and sixty minutes; all participants are experts with almost five years of experience in the financial sectors.

Table 3 – Secondary data used in this research (source: our elaboration)

MAIN SECONDARY DATA	FOCUS
ANNUAL REPORTS 2015-2016-2017-2018-2019-2020-2021-2022 *(Source: BNL-– Gruppo BNP Paribas, www.bnl.it*)	focus on strategy and economy
SUSTAINABILITY REPORT 2015-2016- 2017- 2018-2019- 2020-2021 (*Source: BNL-– Gruppo BNP Paribas*)	focus on sustainability strategy
INTEGRATED REPORT 2020 (*Source: BNL-– Gruppo BNP Paribas)*	focus on global strategy
HIGHLIGHT DI SOSTENIBILITA 2020 (*Source: BNL-– Gruppo BNP Paribas*)	focus on global strategy
INVESTOR RELATIONS (*Source: www.invest.bnpparisbas.it)*	focus on strategy
DATABASE Economic magazine Il Sole 24 ore; Milano Finanza	focus on history

Table 4 – Number of interviewees for the professional category (source: our elaboration)

Specialization of experts	Number of interviews
Advisor	**7**
Professional consulting	**2**
Economic journalist	**1**

The semi-structured interviews (Adams, 2015) permit to have enough feasibility to analyze the respondent's opinions about some issues relevant to the aim of the study. The method of case study is used because it permits to underline of the main innovations and the evolution of the strategy of the company.

Table 5 – Interview protocol and main topics covered during the collection of data (source: our elaboration)

	MAIN QUESTIONS	POSSIBLE FOLLOW-UP QUESTIONS	TOPICS
RQ1	**How to improve the long-term sustainability strategy through lean management?**	(1) What is the rationale behind that choice? (2) What are the main priorities? (3) What are the achieved benefits? (4) How is evaluated? (5) How lean management strategies and process improvement are used? (6) How other strategies are applied? Why? (7) How will the sequence continue in the future?	- global strategy - main priorities - lean management - quality - performance benefits

Table 5 – Interview protocol and main topics covered (continued)			
RQ2	**Which methodologies are better to use to improve global performance?**	(1) What are the reasons behind that allocation? (2) Why are the main tools and methodologies applied? (3) How is the general framework for innovation? (4) How to apply the strategy and best practices? (5) How other methods are applied? (6) How is the system of control organized? (7) Why organize the system of control?	-main tools - main methodologies - a general framework for innovation -strategy and best practices -a system of control

3.3 – *The integration of data in the research*

For the choice of the expert, we used the *key informant app*roach (Robson & Fosten, 1989) and using expiring profile (Dexter, 1970). The importance of using multiple methods for collecting information permits the improvement of the quality of the research (see Table 6) (Yin, 2009; Eisenhardt, 1989; Stake, 2010).

Table 6 – Integration of data collection and analysis (source: our elaboration)

METHOD	PRIMARY DATA	SECONDARY DATA
COMPARISON AND TRIANGULATION	**Observation** **Personal interview**	**Website** **Publication** **Internal records.** **Firm's publication**

Recently companies began to build upon the principles of lean management (Liker, 2004; Liker & Meier, 2006) and BPM (Business process management), BPR (Business Process Re-engineering), and change management.

Business process management can be defined (Van der Aalst, 2004) as follows: business processes using methods, techniques, and software to design, control, and analyze operational processes involving humans, organizations, applications, documents, and information.

4 – The strategy of BNL of BNP Paribas Group

The case study is based on BNL (Banca Nazionale Lavoro). BNL is founded in 1913 and it is one of the leading Italian banking groups and one of the most recognized names in Italy. BNL has about 900 outlets in Italy and offers a broad range of traditional to highly innovative products and services for individuals, businesses, and government agencies (Skinner, 2015).

After the acquisition of BNP Paribas Group in 2006 it is one of the major Italian banking groups (see Figure 7) (Pellegrino, 2014, BNP Paribas Annual Report, 2015-2020; Gatti, 1999; Osservatorio Processi Bancari, 2010; Mottura, 2011).

Fig. 7 – The skyscraper of Gruppo BNP Paribas in Milano
(source: elaboration from Alerove)

BNL continues upgrading the product line with some new products (*Conto Revolution, Mutuo Revolution, Prestito Revolution*). BNL is under the control of the French group BNP Paribas since 2006 (the integration process ended in 2008 BNL) (Bollard *et al*., 2014) (see Table 7).

Table 7 – Profile of Banca Nazionale del Lavoro (source: BNL- Gruppo BNP Paribas, 2020)

INDUSTRY	BANKING - FINANCIAL SERVICES
FOUNDED	**1913 (104 years ago as Istituto Nazionale Di Credito Per La Cooperazione)**
HEADQUARTERS	**ROME, ITALY**
AREA SERVED	**ITALY**
NUMBER OF EMPLOYEES	**11840 (2020)**
PARENT	**BNP PARIBAS**

Gruppo BNP Paribas has about 2.5 million retail customers, including 130 thousand small businesses and professionals and over 33000 enterprises and organizations (see Table 8).

Table 8 – Profile Bnp Paribas (source: Bnp Paribas)

DIMENSION	DATA
PREDECESSOR	**Banque Nationale de Paris Paribas**
FOUNDED	**1848; 169 years ago (as BNP);1872 (as Paribas); 2000 (as BNP Paribas)**
HEADQUARTERS	**Boulevard des Italians, Paris, France**
AREA SERVED	**Worldwide**
PRODUCTS	**ASSET MANAGEMENT, CONSUMER BANKING, CORPORATE BANKING, CREDIT CARDS, INVESTMENT BANKING, MORTGAGE LOANS, PRIVATE BANKING, WEALTH MANAGEMENT**
NUMBER OF EMPLOYEES	**193319 (2021) total 147680 Europe;17472 America 18680; Asia Pacific 8974 Africa;513 Middle East**
FINANCIAL RESULTS	**Revenue: 44.275 million euros (2020); Operating income: 8.364 million euros (2020); Net income 7.067 million euros (2020); Total assets: 2488,491 million euros (2020); Total equity: 117.349 million euros (2020)**
TRADED AS	**Euronext: BNP, OTCQX: BNPQY**

The BNP Paribas is present in over 85 countries, with about 155000 employees. The group holds key positions in three major business segments: finance and investment banking, asset management and services, and retail banking. BNP Paribas also has an important presence in the United States and positions in Asia. It is a leading banking and financial services provider, with strong positions in its two core activities: retail banking, and corporate and institutional banking. In Europe, the group has four main domestic markets, Italy, Belgium, France, and Luxembourg. The group is present also in Turkey and Eastern Europe and has a large network in the Western US. It is present in Europe the Americas and Asia-Pacific.

5 – Results and finding

5.1 – *The program ACE (achieving competitive excellence)*

ACE is a methodology developed by UTC United Technologies Corporation. (see Figure 8). (Pellegrino, 2014, Hutton, 2004, BNP Paribas Annual Report, 2015); it is based on continuous improvement (Bogan, 1994; Bocchino, 1995; Oriani,1996; Bollard *et al.*, 2014).

ACE is based on three sets of tools: a) waste elimination tool; b) decision-making tool; c) problem-solving tool. They are focused on competitive excellence. The phase of Ace methodology (Roth, 2010) can be defined: (1) *proof of the need* (the reason to change is analyzed); (2) *vision* (definition of the desired outcome, this is defined in a 90-second objective); (3)

developing commitment (a strong commitment to change); (4) *sustaining change* (sustain the long-run transformation); (5) *monitor progress* (measure the real progress, set the benchmark, and realize indicators establish to guarantee performance).

Fig. 8 – The ACE methodology (source: elaboration from UTC))

Ace methodologies show how competitiveness and process improvement in the service industry can be improved (George, 2003; Hagel *et al*., 1993; Stack *et al*., 1992).

The typical procedure of process improvement in service management can be based also on a set of integrated methodology as reengineering, benchmarking, and activity management (Porter, 1985, 1996; Ostroff & Smith, 1992; Masoud, 2014; Lizza, 2005; Zairi, 1996; Spendolini, 1992) involves collecting a database of performance indicators relevant to the case under consideration, drawing data from similar activities. The information obtained is used to compare the performance and determine the gap of competence (see Figure 9).

ACE methodology can be used integrated with lean management, reengineering, and a balanced scorecard (Dos Santos & Cabrita, 2016; Burch, 1994; Hagel *et al*., 1993) and benchmarking (Morris & Brandon, 1995).

5.2 – *Customer Satisfaction and competence strategy*

Important in BNL is the control of customer satisfaction. The focus is on finding the solution to customers' problems to permit the bank to work in a better way (Delgado *et al*., 2010; De Antonio, 2008; Majorana & Morelli, 2011; Wang & Chenb, 2010). A service of value is a product that can satisfy the consumer (price and quality and intrinsic characteristics). It is necessary to determine the value for the customer and define and analyze the flow of value, or the whole process that led to the realization (see Figure 10).

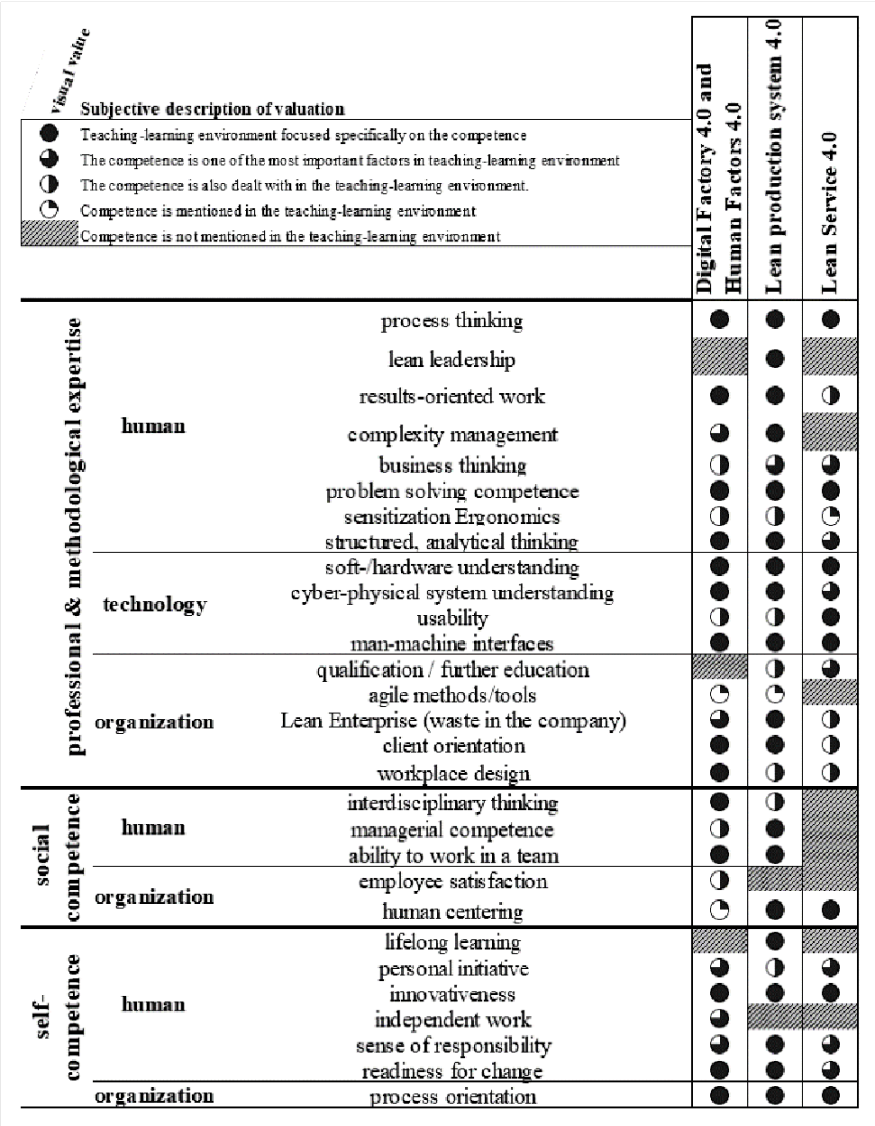

Fig. 9 – The competence evaluation matrix (elaboration from Dombrowski *et al.*, 2019, p. 69)

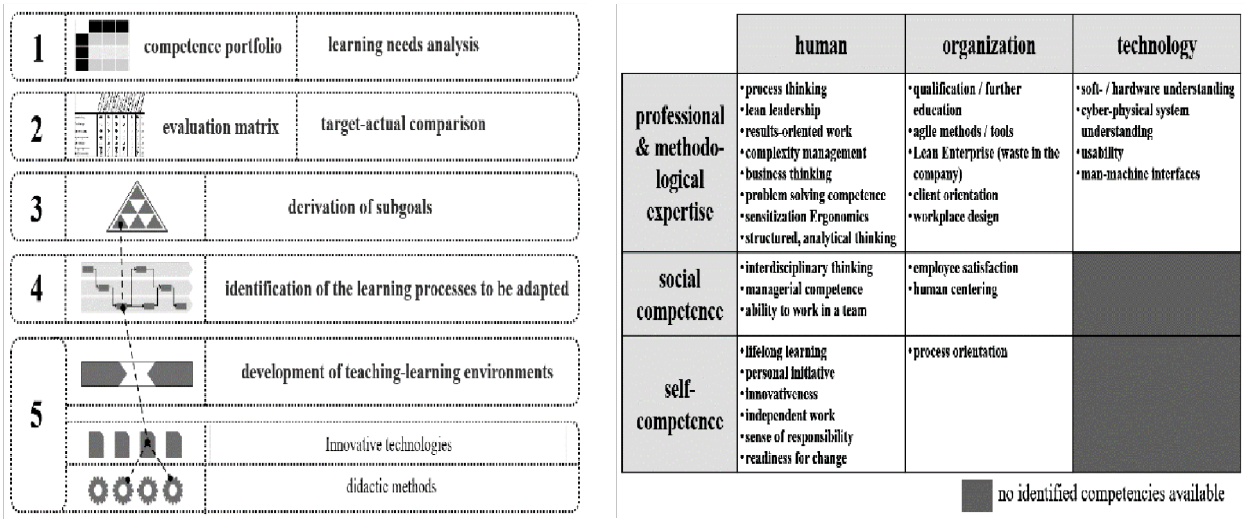

Fig. 10 – The development of a competence strategy
(elaboration from Dombrowski *et al.*, 2019, p. 68)

The idea is that quality does not happen by accident and needs to be planned and organized and it is important to use an integrated set of methodologies and the development of a competence strategy (Salaheldin & Abdelwahab, 2009; Dombrowski *et al*., 2019; Gatti & Marescha, 1999).

5.3 – *VOC (voice of the customers)*

The tool of VOC used by BNL permits the collection of detailed data from customers (Ohmae, 1982; Tonchia & Napoli, 2011) on their perceptions and needs to be correlated with the financial services.

The VOC (Womack & Jones, 1996) is a process used to capture the requirements of the customer (internal or external) to provide the customers with the best-in-class service quality. It can be captured in a variety of ways: interviews, field reports, complaint surveys, focus groups, and customer specifications (histograms and basic statistical sampling principles generate a picture of customer needs and perceptions). It is based on a procedure (Küng & Hagen, 2007):

1) identify the customers and the needs of those customers;
2) translate those needs into clear attributes;
3) design the service based on real needs;
4) deliver services and product with the features defined;
5) optimize the process;
6) quality improvement: to find always a better way to do the activity;
7) control and create a database of "best practices".

5.4 – *Quality and lean management methodologies*

The set of methodologies (see Table 9): used in BNL are (a) problem-solving; b) PDCA; c) A3; d) Project management.

Table 9 – Strategy for problem definition and solution (source: our elaboration)

TYPES OF PROBLEMS	SOLUTIONS-TOOLS
Fix an immediate problem, Implement a simple improvement, simple cause analysis	Problem-solving Daily task assignment board; Follow up
Problem-solving process for more Complex cause analysis, solution or Recommendation	Pdca A3 Via a one-page (a-3) visual project Plan reviewed at weekly project Review session
Long-term or more complex Problems or opportunities	Project management Via a one-page (a-3) Visual project Plan reviewed at weekly project Review session Monitor and revise solution

The basic steps are the same regardless of a problem can be defined: 1) identify and define the problem; 2) analyze the problem and take other immediate actions; 3) involve the appropriate, knowledgeable people; 4) conduct root-cause analysis; 5) identify the root -cause solutions, assess them, and test the preferred alternative; 6) implement the root-cause solution; 7) monitor and revise the solution as indicated by performance data (Kim, 1993).

By analyzing financial statements, we can analyze a global trend of improvement of economic performance during the time (BNL Annual Reports, 2015-2020; BNL Sustainability Report).

6 – Discussion and managerial implication

6.1 – *A framework for using lean to improve the performance*

Many tools (actions) and an integrated system of control with many KPIs (see Table 10) are used to implement the strategy.

Table 10 – Strategy and control in BNL – Group BNP Paribas (source: our elaboration)

STRATEGY		**CONTROL**	
(I) ACE METHODOLOGY	1) proof of the need: 2) vision 3) developing commitment 4) sustaining change 5) monitor progress and benchmarking	**(A) FOCUS COSTUMER**	*- Customer satisfaction* *- Market share rate* *- Profit per customer* *- Customer retention rate* *- Profit per customer* *- Customer increasing rate*
(II) CUSTOMER SATISFACTION	1) customer satisfaction, 2) customer complaints, 3) customer lost/won, 4) sales from new products, etc.;	**(B) INTERNAL PROCESS**	*- No. of new service items* *- Customer complaints* *- Transaction efficiency* *- Rationalized form & process* *- Management performance* *- Sales performance*
III) SET OF DECISION METHODOLOGIES OF LEAN	1) Identify who the customers are and the needs of those customers; 2) Translate those needs into clear attributes; 3) Design the service based on real needs. 4) Quality improvement: find always a better way to do the activity. 5) Control and create a database of "best practices"	**(C) LEARNING AND INNOVATION**	*- Responses to customer service* *- Professional training* *- Employee stability* *- Employee satisfaction* *- Organization competence*

Table 10 – Strategy and control in BNL – Group BNP Paribas (continued)			
IV) V.O.C. AND V.O.P. METHODOLOGY	Problem-solving, PDCA, A3 methodology, project management	***KPI OF FINANCIAL MANAGEMENT***	
V) USE OF A SET OF ORGANIZED KPIs	Quality, competitiveness, operative risks to visually control the performance.	**(D) FINANCE**	*- Sales* *- Return on assets* *- Debt ratio* *- Earnings per share* *- Return on investments* *- Net profit margin*

6.2 – *Main tools for improving the performance*

The quality strategy takes priority over all other strategies and affects everyone in the company (top managers and low-level employers) (Ohno, 1988; Druker, 1998; Holweg, 2007).

Achieving competitive excellence (ACE) operating system permits the identification and control of variation in the processes that most affect performance and profit.

The aim is to increase both speed and quality at all levels. This means that any person at all levels of the corporate hierarchy even at the lowest level, when he realizes that something is wrong is allowed to fix the problem (Leyer & Moormann, 2014). The application of this strategy requires that it is always rigidly applied and is also observed at the highest levels of the corporate hierarchy (Liker & Meier, 2006).

6.3 – *Business process management*

For BNL business processes permits administrative and supervisory control. BPM is a system implementation methodology.

The process of quality improvement is based on the three financial management processes of financial planning, financial control, and financial improvement. Important is the use of important lean management macro principles (philosophy, process, people, performance, problem-solving) (see Table 11).

6.4 – *The balanced scorecard and control of performance*

For BNL is important to control the performance by KPIs. A useful tool is a BSC (balanced scorecard) (Al Najjar & Kalaf. 2012). The creation of a strategic map allows us to consider different perspectives (Kaplan & Norton, 1996, 2001, 2004a,b,c):

*a -customer perspective (*typical measures used under this perspective are :customer satisfaction, customer complaints, customer lost/won, sales from new products, etc.);

*b -internal business processes perspective (*commonly used measures for this perspective are : the cost of quality, cost of non-conformance, process innovation, time savings, etc);

c -learning and growth perspective (actually, this perspective measures the extent to which the organization exerts efforts to provide its employees with opportunities to grow and learn in their domain);

*d -financial perspective (*financial measures and focus on profitability, measures incorporated are: ROI, cash flow, net operating income, revenue growth, etc.).

Table 11 – Strategy of improving service management in BNL (our elaboration from BNL-Group BNP Paribas; Liker, 2004; Liker & Maier, 2006)

MACRO PRINCIPLES	MICRO PRINCIPLES
PRINCIPLE (1) **PHILOSOPHY** **Purpose Long Term** PRINCIPLE (2) **PROCESS** **Promote flow: creating a pull production system that has a continuous flow and balanced workload** PRINCIPLE (3) **PERFORMANCE** **Visual Control** PRINCIPLE (4) **PEOPLE** **Respect and development Problem-Solving** PRINCIPLE (5) **PROCESS CONTINUOUS IMPROVEMENT** **Organize Their Continuous Improvement**	1. Base your management decision on a long-term philosophy even at the expense of short-term financial goals 2. Create a continuous process flow to bring a problem to the surface 3. Use a pull system to avoid overproduction 4. Level out the workload (*heijunka*) 5. Build a culture of stopping to fix problems, to get quality right the first time 6. Standardized tasks are the foundation for continuous improvement and employee empowerment 7. Use visual control so no problems are hidden 8. Use only reliable, thoroughly tested technology that serves your people and processes 9. Growing leaders who thoroughly understand the work live the philosophy, and teach it to others 10. Developing exceptional people and teams who follow your company's philosophy 11. Respecting your extended network of partners and suppliers by challenging them and helping them improve 12. Go and see for yourself to thoroughly understand the situation 13. Make decisions slowly by consensus, thoroughly considering all options, and implement decisions rapidly 14. Become a learning organization through relentless reflection and continuous improvement (*kaizen*)

The effort of BNL is to create a set of organized KPIs to determine the evolution in the time of a set of organized objectives and improve the level of application of lean management (see Table 12) (Harris *et al*., 2014; Riva, 2006; Wu *et al*., 2009, 2012).

For the application of lean management in the service, the sector is important to measure the impact of process improvement (Balkoskava & Fineva, 2016; Ben Bouheni, 2016; Hitt *et al*., 2014).

The following principles are important in BNL: specify *value* by specific product, identify the *value stream* for each product, make value *flow* without interruptions, let the customer *pull* value from the producer, and pursue *perfection*. The goal of process certification is to reduce the variability in processes to produce reliable products.

Table 12 – Level of application of lean management (elaboration from Harris *et al*., 2014)

LEVEL	CONSTRUCT	DEFINITION	BLOOM'S TAXONOMY
0	**AWARENESS**	The person has heard of lean, perhaps even read a book or taken a course or workshop in lean	**(1). REMEMBERING**
1	**INTRODUCTION**	The person is introduced to lean principles; he/she is taught *what* the tools are; he/she knows *how* to use the tools correctly but not necessarily *why, when* to, or *who* will use them	**(2). UNDERSTANDING**
2	**UNDERSTANDING**	The person understands the lean system and not only knows the tools but can recognize *when* to apply the tool; he/she has the understanding to apply the tool when seeing symptoms of which he/she is cognizant	**(3). APPLYING**
3	**MOTIVATED**	The person holds lean principles as core beliefs that influence his/her thinking; he/she knows and understands the tools and *when* they are to be applied but, moreover, the *why* behind the effort, seeking out wastes in its many forms as part of his/her core belief;	**(4). ANALYZING**
4	**MASTERY**	The lean thinker can see past the VSM-generated action item list of discrete improvement events to the goal of continuous improvement through all operations every day; he/she has evolved to become a "lean champion" who can succinctly and coherently express the vision of a lean enterprise to others	**(5). EVALUATING** **(6). CREATING**

7 – Conclusion

Quality management practices in lean production underline the concept of built core competence and eliminating waste (Folpmers & Lemmens, 2004; Dixon *et al*., 1994; Hall *et al*., 1993; Elewaut *et al*., 2003; Güler, 2015; Majorana & Morelli, 2011).

7.1 – *Role of the strategy of process improvement*

For what concern the *first question:*

Q1: *How to improve the long-term sustainability strategy by lean management?*

we discover:

A – FIRST, the strategy of process improvement by using lean management (see Table 13) is based on a strong commitment from all the employers using many tools (actions) and an integrated system of control with many KPIs.

Table 13 – Lean thinking compared to traditional management (source: our elaboration)

COMPARATIVE DIMENSION	TRADITIONAL MANAGEMENT	LEAN MANAGEMENT
Motivation	Extrinsic	Intrinsic
Perspective	Top-down	Outside-in
Organization	Specialisation	Demand value flow
Attitude to customers	Contractual	What matters
Control	Budget, targets, output, standards	Related to purpose, variation, and capability
Decision	Separated from work	Integrated with work
Management ethic	Manage budget and people	Act on the system

Delivering services more quickly is an essential element for the service (time-based strategy). Focus on speed and focus on quality have as consequences lowering costs and more customer satisfaction based on improvement on KPI in quality, competitiveness, and operative risks. All levels of the organization have a strong desire to evolve and improve; lean management must be applied from the top to the bottom of the organizational pyramid. In banking, by implementing lean management, the organization improves business performance by using simple, practical tools and techniques to enhance quality, cost, delivery, and people contribution (Dembowski, 2013; Leibfried & McNair, 1992; Ndaita & Gachie, 2015).

B – SECOND, the process improvement follows some phases:

1) explicitly map the value stream based on customer's needs (using KPI-key performance indicators) and VOC (voice of customers) and VOP (voice of processes);

2) use processes improvement activity to incremental continuous improvement that increases the effectiveness of an activity (eliminate waste and to produce more value);

3) find always a better way to do the processes by give a critique and create more value for the customers (Yang, 2005).

C – THIRD, the answers to the first question are consistent with past studies (Al-Najjar & Kalaf 2012; Skinner, 2015, Mella 1997, 2018, 2021a; Pilotti & Rinolfi 2022a,b; Riva & Pilotti 2018, 2019a,b ,2021; Riva, 2007; Anderon & McAdam, 2004; George, 2003).

7.2 – *Culture for continuous improvement and the Integration of methodologies*

Concerning the *second question:*

Q2: *Which methodologies are better to use to improve global performance?*

we discover:

A – FIRST, the strategy of process improvement is based on a set of integrated methodologies (see Table 14): a) the ACE methodology, b) Customer satisfaction and VOC; c) a

set of decision methodologies (problem-solving, PDCA, A3 methodology, project management); d) use of a set of organized KPI (quality, competitiveness, operative risks) for the visual control the performance.

Table 14 – Strategy and evolution of main theories (source: our elaboration)

	NOW AND FUTURE		PAST	
PERIOD	**2015-2050**	**1990-2015**	**1970-1990**	**1950-60**
FOCUS	**INTEGRATION OF LEAN WITH INNOVATIVES METHODOLOGIES:** **A)** ACE (Achieve competitive excellence) **B)** Process improvement **C)** Benchmarking **D)** Customer satisfaction **E)** Quality methodology **F)** SIPOC methodology **G)** Value Delivery System **H)** Digitalization **I)** Artificial intelligence	**Integrated control** **Balance scorecard approach** **Lean management**	**Stakeholder approach** **Customer satisfaction** **Long Range Planning**	**Budget and Corporate Planning** **Quality**

B – SECOND, the result of the BNL of application of an integrated set of methodologies is a reduction of costs and improve response times and reduce process errors. Teams study a problem by analyzing process variation and the causes, by using a set of methodologies to improve global performance: it is based on a strong culture and continuous improvement (Figure 11) (Anderson & McAdam, 2004; Hax & Majluf, 1996; Harris *et al*., 2016, Scozzese, 2005; Simon, 1995).

C – THIRD, the answers to the second question are consistent with past studies (Kaplan, 2004a,b,c; Nonaka & Takeuchi, 1995; Mella, 2012, 2014, 2015, 2022,b; Pilotti & Rinolfi, 2022 a,b; Gazzola & Colombo, 2014; Gazzola & Mella, 2003, 2006, 2017; Gazzola *et al*., 2020; Goldratt & Cox, 1984; Majorana & Morelli, 2011; Collis, 2016; Riva & Pilotti, 2018, 2019 a,b, 2021; De Koning, 2008; Itami, 1987).

7.3 *Original contribution and future research*

The original contribution of this paper (*highlights*) and the production of new knowledge in the field are:

I) to give a new practical framework for the strategic implementation of lean management with a set of innovative methodologies for improvement and control in the service sector;

II) There are analyses of several important tools and systems that can be used, with some limitations, by other companies to improve global results in the long run.

A limit of this work is based on the dimension of the sample.

Future research can be addressed to analyze other case studies (Imai 1986, Itami and Roehl 1993).

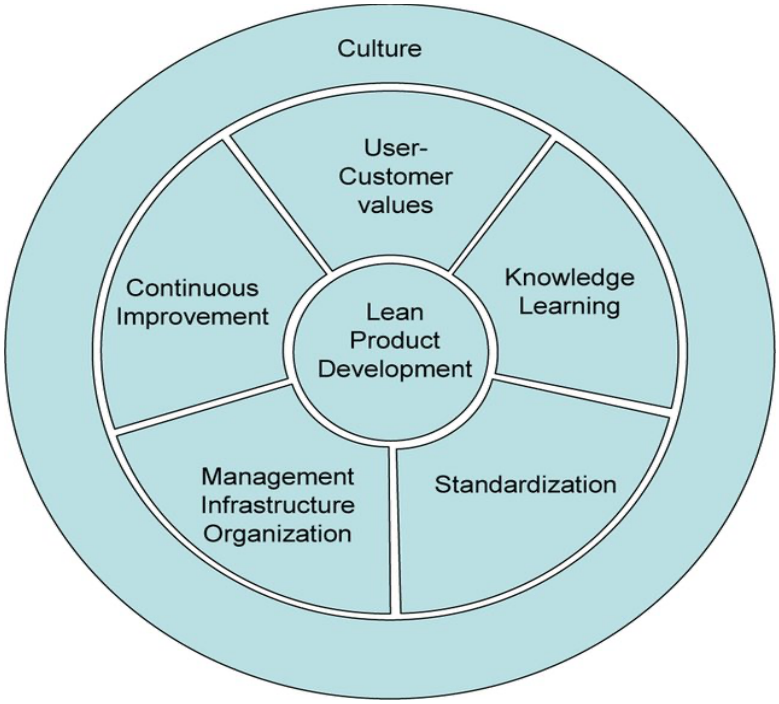

Fig. 11 – The methodologies to improve global performance
(source: our elaboration from Harris *et al*., 2016)

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