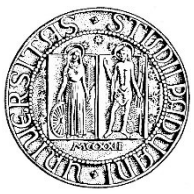


UNIVERSITA' DEGLI STUDI DI PADOVA

DIPARTIMENTO DI SCIENZE ECONOMICHE ED AZIENDALI "M. FANNO"

CORSO DI LAUREA MAGISTRALE IN

BUSINESS ADMINISTRATION

TESI DI LAUREA

"Exploring the Impact of Proactivity on Operational Excellence and Lean Transformation: A Literature Review"

RELATORE:

CH.MO PROF. ANDREA FURLAN

LAUREANDO: MAHBOOB ALI KHAN

MATRICOLA N. 2069656

ANNO ACCADEMICO 2023–2024

Dichiaro di aver preso visione del "Regolamento antiplagio« approvato dal Consiglio del Dipartimento di Scienze Economiche e Aziendali e, consapevole delle conseguenze derivanti da dichiarazioni mendaci, dichiaro che il prcscntc lavoro non è già Stato sottoposto, in tutto o in parte, per il conseguimento di un titolo accadctnico in altre Università italiane o straniere. Dichiaro inoltre che tutte le fonti utilizzate per la realizzazione del presente lavoro, inclusi i materiali digitali, sono state correttamente citate nel corpo del testo c nella sezione 'Riferimenti bibliografici',

I hereby declare that I have read and understood the "Anti-plagiarism rules and regulations " approved by the Council ofthe Department ofEconomics and Management and am aware oflhe consequences ofmakingfalse statements. I declare that this piece ofwork has not been previously submitted — eitherfully or partially —forfulfilling the requirements ofan academic degree, whether in Italy or abroad. Furthermore, I declare that the references usedfor this work — including the digital materials — have been appropriately cited and acknowledged in the text and in the section 'References '.

Firma (signature) .. 

TABLE OF CONTENT

Introduction

This thesis will address the issue of proactivity on Operation excellence (OpEx) and Lean transformation. Two fundamental approaches to increase value, efficiency and reducing waste. These essential approaches are now widely used over the world, and they are more crucial than ever in a globalized and competitive environment.

This thesis seeks to investigate the impact of proactivity on operational excellence and lean transformations, conducting an in depth literature review

The first chapter offers, in the first part, a complete background on operational excellence and lean philosophy, with a small excursus on the history and origins of lean. Providing an introduction also on the most common methodologies associated with these approaches, such as Six Sigma, OKAPI et al. In addition to a broad introduction, the second section of the chapter introduces the topic of proactive behaviors and examines some of the most well-known research and models from the scientific community.

The second chapter delves into the methodologies of literature analysis, which include direct citation, co-citation, bibliography coupling, focusing also on development of bibliographic maps through the use of different software. Each method brings a new perspective, enriching the research.

In the third and final chapter, the papers identified through the methodologies discussed in the second chapter, are analyzed and the results are examined. The analysis reveals interesting insights related to the concept of lean and proactivity, such as innovation, adaptability, agility and the weight of the cultural factor on changes.

Notably, the final section discusses the applicability of these findings in the context of the Indian economy, as the Asian nation appeared frequently throughout the examination of the analyzed literature.

CHAPTER 1

Operation excellence, Lean and Proactive behaviors

Introduction

Achieving operational excellence for companies is essential nowadays in order to achieve long-term and lasting success. This chapter begins with an excursus on the origins and foundations of lean and OpEX.
The second section will deal with what are proactive behaviors and how organizations can encourage them.

1.1 Operation Excellence

“Operational excellence (OpEx) is an approach to business management that emphasizes continuous improvement across all aspects of the business and within all business processes by creating a culture where management and employees are invested in business outcomes and empowered to implement change”(IBM cloud education). This is one of the many definitions it is possible to find to fully understand a complex topic such as OpEx. But it has also a broader meaning, it can also be defined as a philosophy that aims to continuously improve the efficiency of the company at an organizational, production and leadership level, setting increasingly better objectives (Institute for Operational Excellence, 2012).

Its origin is not particularly clear, some scholars attribute the first real attempt to create such a scientific approach to quality to Dr Joseph Juran (DeFeo,2024), one of the pioneers of the XX century to tackle the topic with his books “Quality Control Handbook”(1951).
Where he introduced his trilogy on quality. Quality planning, quality control and quality improvement, the latter representing the continuous search for process improvement, not only with the right tools but with the most suitable individuals (Juran,1951).

While it’s easy to affirm that Dr Shigeo Shingo, a Japanese engineer was the creator of a model that still today provides the Core values of the OpEx(DeFeo,2024). He sought a method to reduce the non-value activity and increase the efficiency(Alanzi,2024), while working in Toyota Motor Company,

The Shingo Model is based on 4 important cornerstones (Shaun Barker, Dr. Randall Cook, Robert Miller, and Jacob Raymer, 2008):

1. The Guiding Principles
2. Systems
3. Tools
4. Results

Together they form the Culture.

Shingo understood that in order to achieve any kind of results, the drive for change had to come from the leaders of the company (Shaun Barker, Dr. Randall Cook, Robert Miller, and Jacob Raymer, 2008). Indeed, the establishment through the culture and the norms, based on the Guiding Principles, must lead the organization and its members to excellence and company alignment.

Below are listed all the values provided by the Shingo's model(DeFeo,2024), that can be divided into 4 subgroups. Cultural Enablers, Continuous Improvement, Enterprise Alignment and Results.

Often this division is visually represented by a house (Barker et al ,2017)

where:

The Cultural Enablers, represented in the visual representation from the foundation, form the basis of organizational culture and are formed by:

- Respect every individual
- Lead with humility

Continuous Improvement and Enterprise Alignment, represented by the load-bearing structure of the house, are formed by values that aim toward the enhancement and alignment of the organization:

- Seek perfection
- Embrace scientific thinking
- Focus on process
- Assure quality at the source
- Flow & pull value
- Think systemically
- Create consistency of purpose

And lastly Results, this subcategory of value composes the final part of the visual representation, in fact, it constitutes its roof and represents the importance of reacting after a thorough analysis of outcomes:

- Create value for the customer

It is important to specify that these fundamental theoretical values must be applied with some methodologies in order to obtain practical feedback.
There are several methodologies to obtain Operational Excellence, but the ones listed, of which a more in-depth analysis will be carried out later, are the most widespread and used: OKAPI, Six Sigma and Lean Management (Chiarini,Kumar 2021).

1.2 Methodologies

1.2.1 OKAPI

It is a framework that allows the company to achieve operational excellence, extremely flexible to any context and is used especially by consultancy companies.
It is based on five cornerstones whose initials make up the acronym OKAPI(Flint, 2023)
.

1. Objective: start from a clear definition of the objectives and outcomes that the process wants to achieve
2. Key Results: define the results, which must be explicit and achievable.
3. Action: transparently define the possible actions that will be taken during the process
4. Performance: It is important to constantly monitor the progress of the process and collect data.
5. Insight: Use the collected data to gain useful insights in order to understand and improve performance.

This tool is essential in order to establish common objectives to work towards, aligning leadership at the lower corporate levels. Helping to motivate people by furnishing clarity and transparency on progress and goals but also by providing constant updates to leadership who can act and react promptly.

1.2.2 Six Sigma

The Six Sigma is a methodology developed by Motorola(Slack et al.,2022) that finds its roots in the DMAIC (define, measure, analyze, improve and control) model and on the intuition of Walter Shewhart, who at the beginning of the 20th century was able to understand that all processes that had a variable that was three standard deviations away from the mean of the normal curve needed correction (Bertolaccini, Viti, Terzi;2015). The sigma model was introduced by the American company in the mid-80s and is based on the founding principle of reducing the variability of a service or product to a standard deviation (-6;6+). The standard deviation was specifically chosen to be 6 in order to reduce the probability of defective outputs to 3.4 per million opportunities (DPMO)(Slack,Brandon, Burges, 2022).
Indeed the "Sigma measurement derived from the DPMO is the number of standard deviations of the process variability that will fit within the customer specification limits" (Slack,Brandon, Burges, 2022,p.528).

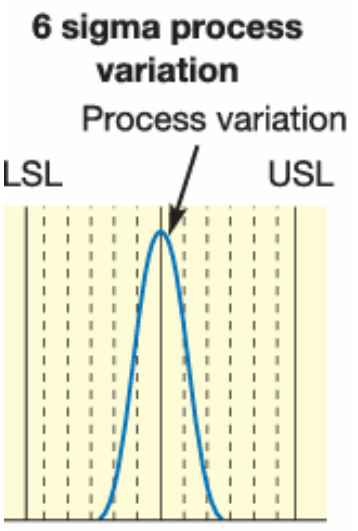


Figure 1.1 Process variation and its impact on process defects per million
Source: Slack,Brandon-jones and Burges, 2022,Operation Management, tenth editions

As the image shows, by choosing the value of 6σ it is possible to reduce the variability of processes and products (which can be found on the small tails of the normal curve), leading to a defect reduction but also to a quality and efficiency enhancement. (Bertolaccini Viti,Terzi, 2015)

All these achievements led to an exponential lowering of costs, as they made it possible to identify and correct the various defects as soon as possible, making this methodology extremely popular in manufacturing and healthcare sectors. (Bertolaccini, Viti, Terzi., 2015)

1.2.3 Lean management and its history in brief

To fully understand the concept of such a revolutionary idea, it is important to give a historical and environmental background.

The concept of Lean was created by Wockman, Jones and Roos in their book, "The Machine That Changed The World" (1990), in order to synthesize the new approach to production, TPS, created by the Toyota Motor Company, which was based on the principles of just in time (JIT) and Jidoka (Lean Enterprise Institute, 2014).

To acknowledge the origins of lean it is important to look at the automotive industry and its development. At the beginning this industry was made up of only highly specialized builders and workers. Time and money were needed to create the product, making the car a luxury good accessible to few individuals(Wockman, Jones and Roos, 1990).

At the beginning of the 20th century, this will be radically changed, thanks to Fordism. Fordism takes its name from Henry Ford, founder of the homonymous car manufacturer, and is a term that indicates a philosophy of mass production that drives mass consumption thanks to its very low production costs.(Jessop, Bob,2020)

Such low costs were possible since workers and machinery were seen as interchangeable pieces (Wockman, Jones and Roos, 1990), where no specialization was required on behalf of the staff who had to constantly repeat the same easy movements all day long. In Italy the term was rendered famous by the communist politician Antionio Gramsci who harshly criticized such philosophy (Jessop, Bob,2020). Fordism made possible the development and diffusion of technologies in the automotive and non-automotive sectors, allowing the United States to drive the world economy from the Second World War until the seventies; but at the end of the

20th century, a progressively globalized world with an increasingly varied demand was no longer satisfied with mass-produced products, since low cost was no longer the only prerogative. Consumers needed something different but so did workers: the working class, which was once the backbone of the United States economy, tired of the repetitive and alienating work in the production chains(Jessop, Bob,2020), was starting to age, manifesting health problems (Costa,2020) and intolerance towards the production system, forcing society and companies to face the growing obsolescence of Fordism.

It is important to specify that such a system, which initially brought great benefits, was suitable for the US market, not for all other countries.
Japan, having just emerged from a devastating war and having to be completely rebuilt with a smaller market and with completely different needs, could not adopt this method and engineer Ohno Taiichi immediately understood this.
In fact, the Japanese society needed various types of vehicles, it did not have Western technologies or capitals but above all its workers were not willing to leave agricultural work to be treated as interchangeable pieces in a production chain (Wockman, Jones and Roos, 1990).
To satisfy all these needs the Japanese engineer created the Toyota Production System , composed of two pillars: Just in Time system and Jidoka.
The first concept was based on the idea of (University of Cambridge, 2018):

- Avoid any kind of waste, identifying 7 different type of waste: Overproduction,Waiting,Conveyance,Processing,Inventory,Motion,Correction(Lean Enterprise Institute, 2021)
- Chase the demand instead of creating stocks with the help of “Kanban”,a useful tool to keep production under control (Al-Baik,Miller, 2014)
- Responding immediately and efficiently to any kind of market fluctuations
- Kaizen, a concept that promotes ongoing, incremental improvements and comes from the Japanese words *kai* (change) and *zen* (good). (Abuzied Y., 2022)

Lastly there is the notion of Jidoka, the ability for workers and machines to detect any kind of issue in the flow and stop the process, before the problem can continue to escalate, leading to defective parts and much higher costs.

From this scenario, initially conceived for the Japanese economy, Workman and Jones managed to draw five values, synthesizing a new philosophy and approach to production, applicable in every country. (Wockman et al, 1996)

1. Define Value: What is valuable for the consumers, what are their expectations and why
2. Map Value: Defining all the action that must take place to satisfy the consumer, avoiding every non-value-added activity
3. Flow: Eliminating any kind of "departmental mentality", eliminating batches to improve speed and quality
4. Pull: Following the demand and its fluctuation, desisting from the need to produce excessively to stock
5. Perfection: Aiming for perfection is an abstract concept that explains the importance of never being satisfied as there is always room for improvement

1.3 Proactive Behaviors

Although companies in today's society find themselves in an increasingly technological and competitive globalized economic context, they have an essential need for qualified people who can interface with a dynamic environment. Here the concept of "Proactive Behaviors" comes into play, a series of anticipatory actions (Crant, 2000) necessary to obtain the efficiency and continuous improvement necessary for Operational excellence.

Below there will be an in-depth explanation of these topics, recalling studies addressed by scholars of the caliber of Crant, Bateman, Deluga (et al.) which towards the end of the 20th century led to new outcomes.

The exposition of the main notions and theories will be followed by an analysis of the Crant Model, which constitutes the foundation for the in-depth study of this subject.

1.4 Theories and the Crant Model

Proactive behaviors are self-initiated and future-focused actions aimed at changing the status quo, not limiting themselves to reactive but anticipatory actions in order to be able to seize every opportunity and avoid risks or at least contain them (Crant,2000).

Certain actions, attitudes or initiatives can come from "Individual differences" (Crant, 2000), a series of personal attitudes and behaviors given by the character of the individual, other

action are originated from the context, environment, rules and feedback received, the so-called "contextual factors"(Crant, 2000).
These essential components converge in the creation of Proactive Behavior (Crant, 2000).

The contextual factors have been at the center of various studies, as companies are interested in understanding how to improve the corporate context to obtain active and proactive behavior from employees.

One of the most accredited theories belongs to psychologists Edward L. Deci and Richard M. Ryan, the Self-Determination Theory (SDT). In which the two researchers explain how the individual acts driven by “Intrinsic motivation” and “extrinsic motivation”(Ryan,Deci,2000, p.335). The first are feelings and desires that push the subject to act to obtain pleasure and gratification; the latter term indicates all those external pushes, provided by society, money or family that lead the subject to a specific behavior for the purpose of receiving recognition and avoiding punishment. In their research, however, the scholars focus on the individual's need to feel autonomous in their decisions and how this can improve the individual's interaction in the framework leading to the development of new abilities.
Hence the idea that greater autonomy could create greater personal involvement and satisfaction, generating an “internalization of extrinsic motives”(Gagne , Deci,2005) from which proactive behaviors and the development of new skills would result (Ryan, Deci,2020).

The second theory is the Social cognitive theory, which also concerns the concept of contextual factor (Crant, 2000), it explains how people do not learn only through direct experience but also through observation (Bandura,1986) and how they can take on proactive behavior, not only on the basis of incentives but also based on “Self-efficacy” (Bandura, 1997), i.e. the confidence they have in their skills. This theory used in the business environment explains that the best way to encourage proactive behavior is through the use of clearly visible feedback and a culture which encourages individuals to engage in increasingly difficult jobs that will improve their confidence, hoping to create a vicious circle.

The third and last of the most accredited theories, developed by Arnold Bakker and Evangelia Demerouti (2007) is called The Job Demands-Resources theory. It takes the concept of Demand, whose meaning is translated as what is requested by the company and the concept of Resources, understood as a whole series of tools that the company makes available to its employees.

Widespread in the healthcare sector, this theory is revealing since it explains the reasons for certain behaviors and situations such as burnouts or resignations (Bakker, Demerouti 2007). It is important to underline that in this case the notion of tools does not only concern monetary incentives but a system formed by instruments, norms, feedback and the recognition of excellence, that will help the individuals to feel more engaged, generating proactive behaviors.

The theories explained above try to understand the possible causes that lead some individuals to act before a certain situation even occurs and why others act only later or do not react at all by adapting to the circumstances (Crant, Bateman,1999).

For this task it is essential also to cite Crant's model, which gives a more complete picture of the causes and consequences of the proactive behaviors. After having found contextual factors and individual differences as causes of proactive behavior (Crant, 2000), the model proceeds to divide Proactive behaviors into generic ones and context-specific ones (Crant, 2000). The former come largely from the person's character and include the desire to challenge the status quo and the ability to seize opportunities (et al.) (Crant, 2000); the latter are composed of Socialization, Feedback Seeking, Issue Selling, Innovation, Career management and Stress Coping (Crant, 2000).

Context-specific Proactive Behaviors (Crant,2000):

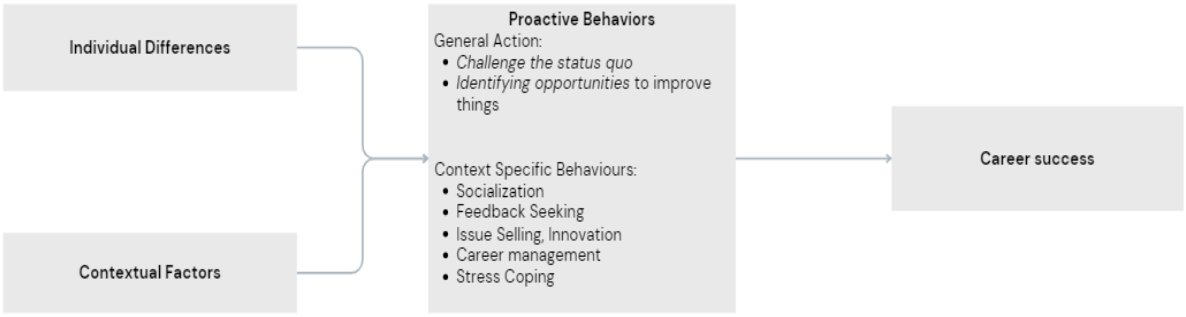
- Socialization is the initial process during which new hires must gain an understanding of the norms for the purpose of becoming an effective part of the organization (Fisher, 1986). If the establishment creates an environment that facilitates the process, the individual will more easily develop some kind of proactive behavior that will push him not to remain a passive party but to connect with others.
- Seeking feedback is essential for individuals in an organization to learn (VandeWalle, Cummings, 1997) and understand each other, but this process can be undermined if individuals are punished or ego-injured for doing so (Levy et al., 1995)
- Issue selling (Dutton & Ashford, 1993) is the process through which individuals can put issues considered important at the center of management's attention. It can be extremely useful, but it cannot happen if there is a closed establishment unwilling to cooperate.
- Innovation refers to the set of actions and attitudes that have the aim of creating or bringing new ideas and methods. The operation, however, involves challenging the

status quo and old norms, involving great risk for the individual (Schön, 1963). Consequently, to implement this proactive behavior it is necessary that the organization is open to transformation and change.

- Career management refers to the proactive behavior with which people tend to acquire certain skills or create interpersonal networks in order to change or improve their career path (Claes, Ruiz-Quintanilla, 1998).
- Stress coping is the behavior that causes some individuals to try to anticipate and act on certain future events (Aspinwall, Taylor, 1997)

In creating his model, Crant relies on studies conducted by him and other scholars to show the benefits of such behaviors. Revealing a strong correlation between proactive behaviors and career success.

Figure 2.1 Proactive behavior model. Adapted from: Crant (2000)



It is clear at this point that proactive behaviors are linked not only to the anticipation of change but to its creation. It is important to underline, however, that not all changes are equivalent to proactive behavior, to be considered such they must be deliberate and intentional (Bateman, Crant 1993).

As a way to achieve proactive behaviors, companies should select individuals with a proactive nature, focus on leaders who inspire the shift and create an environment that can support everyone to achieve continuous improvement (McCormick et al. 2018).

CHAPTER 2

Literature review techniques and methods.

2.1 Introduction

Conducting a literature review on operational excellence and proactive behaviors is important to develop a thorough understanding of how these various theories have been developed over the years. By reviewing past and present research, it is possible to examine the key ideas and methodologies used till now. Such an operation gives the opportunity to understand advantages and disadvantages of different approaches, highlighting their strengths and weaknesses. Ultimately a comprehensive literature review can underline the current state of the research, providing the reader with a clearer picture.

2.2 Review Methods

There are several methods to do a literature review:

- "Traditional" literature review: Commonly known as narrative review, it is a method that aims to provide a summary of the current situation. This review can be approached through chronological or thematic logic, however it is important to underline that the choice of themes is subjective, for this reason the use of this procedure often leads to the formation of prejudices within the review (Tranfield, Denyer, Smart, 2003).
- Systematic Literature Review (SLR): designed to provide an unbiased and reproducible synthesis on the collective findings from a wide range of studies. A method divided into five essential steps (Carrera-Rivera et al, 2022).

1.PICOC

The first consists in defining a series of predetermined questions that will underline the focus and the context of the review through the use of PICOC framework, other texts may refer to this frame as PICO or CIMO (context, intervention, mechanism and outcome).

PICOC is an acronym that stands for:

- Population: A pool of individuals, a specific job domain or an organization that are going to be the focus of the review (the letter P can also represent patient or problem when this framework is used in the medical field)
- Intervention: The methodology, treatment or action used to address the phenomenon
- Comparison: The alternative methodology or action that is going to be compared to the one used prior

- Outcome: The results produced by the intervention, used to understand its effectiveness
- Context: The conditions in which the comparison took palace (often this last point can be omitted)

Such a framework is fundamental to guarantee a full transparency of the process and to reduce the possibility that any kind of bias will interfere with the analysis.

2.Selecting database

This selection in a systematic literature review consists in defining a database through which to conduct the research; a digital library where it is possible to find papers, articles or books. Scopus, Google scholars and Web of Science are perfect examples of reliable sources of information.

After choosing the resources, it is necessary to choose the key terms, in order to identify all the literature that deals with the topic at the center of the review. This search can be done better with the help of Boolean operators. It is possible to merge the findings from different databases.

3.Definition of exclusion/inclusion criteria

The third part of the SLR process is the definition of exclusion/inclusion criteria. Indeed, it is not possible to include every piece of literature that cites a certain topic/keyword. It is fundamental to define some boundaries. Only the articles that will pass this selection are going to be analyzed. The most common criteria are (Carrera-Rivera et al, 2022):

- The date of publication, some papers with the passage of time become obsolete
- The area of studies, in which the papers are published, the same keyword can have a totally different meaning in different study fields.
-Language, it's useful in some cases to take in consideration only papers published in a certain language and exclude the others.
-Type of sources, information can be excluded or included based on their origin (book, paper, news journal).

4.Quality assessment

The validity of the SLR will be based also on the quality of the information used and analyzed. So after the selection of the inclusion/exclusion criteria, a Quality assessment must

be conducted. The assessment use numeric values and takes in consideration four main aspect of the information: Reporting, Rigor, Credibility, and Relevance (Zhou et al,2021)

5.Review and data extraction

The review consists in in-depth analysis of the articles selected in order to extract the informations that are going to answer the question posed in the beginning. There are different methods to extract the data that have to be classified and scrutinized in order to obtain the answer needed:

- Meta-Analysis: A qualitative and quantitative method that, through the use of statistical techniques (calculation of weighted averages, confidence intervals, etc.), compares different studies in order to find common patterns or differences (Davis et al., 2014). It is often used in medical, psychological, social science fields and can be performed through various methodologies and softwares (e.g. R., STATA).
  Doctor Russo (2007) provides a table to verify the correctness of the procedure regardless of the technique used.

Study question	• Objectives clearly stated • Clinically relevant and focused study question included • Effectiveness of intervention not convincingly demonstrated in clinical trials
Literature search	• Comprehensive literature search conducted • Searched information sources listed (ie, PubMed, Cochrane database) • Terms used for electronic literature search provided • Reasonable limitations placed on search (ie, English language) • Manual search conducted through references of articles, abstracts • Attempts made at collecting unpublished data
Data abstraction	• Structured data abstraction form used • Number of authors (>2) who abstracted data given • Disagreements listed between authors and how they were resolved • Characteristics of studies listed (ie, sample size, patient demographics) • Inclusion and exclusion criteria provided for studies • Number of excluded studies and reasons for exclusion included
Evaluation of results	• Studies were combinable • Appropriate statistical methods used to combine results • Results displayed • Sensitivity analysis conducted
Evaluation for publication bias	• Publication bias addressed through evaluation methods such as funnel plot or sensitivity analysis
Applicability of results	• Results were generalizable
Funding source	• Funding source(s) stated • No conflict of interest seen

Figure 2.1Checklist for a meta-analysis

Source: Russo MW. How to Review a Meta-analysis. Gastroenterol Hepatol (N Y). 2007 Aug;3(8):637-42. PMID: 21960873; PMCID: PMC3099299.

- Bibliometric Review: Techniques that go beyond the classic qualitative/quantitative methods division (Schmidt, 2008), exploiting a third option called science mapping. Science Mapping deals with creating a visual representation of the various interconnections between articles and scientific research. (Zupic and Čater, 2015) Creating a structure that allows researchers to base their findings on aggregated bibliographic data produced by others (Zupic and Čater, 2015).

This thesis will use Bibliometric techniques to perform the literature review.

2.3 Bibliometric Review (Science mapping)

Science mapping has progressed beyond its academic roots and is now driven by practical applications, especially in research planning and evaluation. While visual representations of maps are useful, decision-makers are more interested in the partitions and detailed analysis of the bibliographic units (e.g., documents, words, authors, journals) that make up these maps. (Boyack, Klavans,2010)

The four main approaches in science mapping—bibliographic coupling, co-citation analysis, co-word analysis and direct citation—have distinct histories and applications.

Bibliographic coupling was introduced in 1963 by Kessler, while co-citation found its root with Marshakova and Small in 1973. In recent years, there has been an increased use of the former, which had previously been employed only as an alternative approach to co-citation since the 1970s. (Boyack, 2009; Jarneving, 2005, 2007; Sandström, 2009)

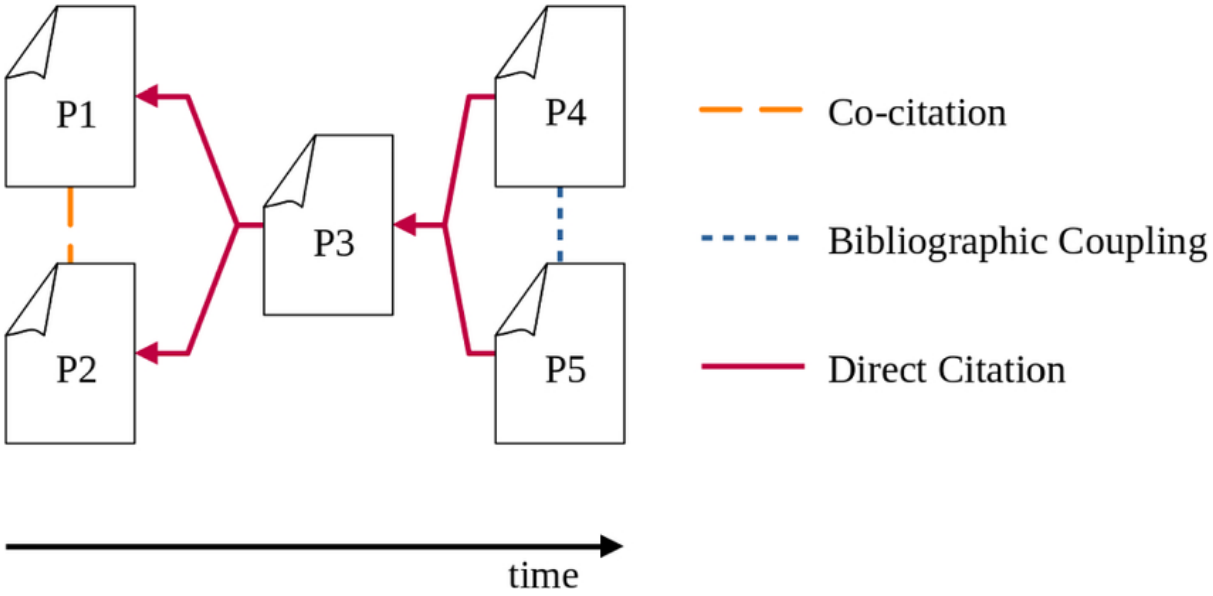


Figure 2.1 visual representation of Bibliometric techniques

Source : Entrup, Elias & Eppelin, Anita & Ewerth, Ralph & Hartwig, Josephine & Tullney, Marco & Wohlgemuth, Michael & Hoppe, Anett. (2023). Comparing different search methods for the open access journal recommendation tool B!SON. International Journal on Digital Libraries. 25. 505-516. 10.1007/s00799-023-00372-3.

2.3.1 Direct Citation analysis

Direct citation analysis involves examining how often a particular academic work, author, or journal is cited, in part or in whole, by other authors/articles. (Kuri, Hajje,2014)
However, this analysis does not allow us to draw the structure of connections within the literature. Another problem is that citation analysis may be affected by the so-called Citation Bias, due to which authors often tend to prefer citing articles/papers that support their claims (Gøtzsche, 2022)

2.3.2 Co-Citation analysis

It is an extremely widespread method for examining the relationship between the sources of two papers (article et al.) based on the number and way in which they are cited conjointly. In other words, Co-citation analysis, as a bibliometric tool, measures the frequency with which two documents are cited together by other academic papers. In Business and Management Research conducting such analysis is essential to recognize influential theories and key concepts.

To perform effectively a co-citation analysis, several steps must be followed:

Data collection

Data collection starts from the selection of a database, platforms such as Scopus, Web science or Google Scholars are the most suitable. From this starting point it is important to proceed with the choice of Boolean operators that can provide a wide range of articles related to the topic of interest, on which a more in-depth analysis will subsequently take place. It is important to underline that in this initial search the platforms provide filters to select the source of the articles, the language, the date of publication as well as the subject area. Making the search more targeted and precise.
The final step is to export the result of this search in RIS and CSV (comma separated value) format, in order to elaborate subsequently on such data, through the use of external software.

Cluster analysis

Cluster analysis in a co-citation analysis is used to group related items (such as authors, journals, or documents) that are frequently cited together in academic or scientific literature.

The co-citation can be made through Bibexcel or VOSviewer, in this paper both methods will be explained theoretically, but the analysis will be done through the latter one.

Bibexcel

After extracting the necessary information, through the use of bibexcel it is possible to elaborate the RIS files and convert them. The next step is Creating an OUT-file in order to compute the frequency distribution file of sample's references and the co-occurrences file. This whole process is an intermediate phase with the aim of producing a matrix to be exported to external statistical software (Fredrik åström et al., 2009) and proceed with the PCA.

At this point you should get a table that looks like this:

	AU 1	AU 2	AU3
AU1	0	x	y
AU2	x	0	z
AU3	y	z	0

Fig 2.2 example of co-citation matrix for authors
Source: Personal elaboration

Principal Component Analysis

PCA is a technique that laid the foundations in 1901, thanks to the British mathematician Karl Pearson, but which nowadays, thanks to computers, finds a more extensive use.
It reduces the size of the dataset while preserving information (Joliffe, Cadima, 2016), making data processing more efficient.
In other words, the technique consists in simplifying complex datasets by transforming them into a new set of uncorrelated variables called principal components. The number of components must be chosen in the beginning, following the “Kaiser rule”.

The Kaiser rule states that it is important to keep only those principal components whose eigenvalues are greater than 1.
An eigenvalue greater than 1 signals a greater variance than each variable measured in the original dataset.

Once obtained the principal components, it is essential to select only those that explain the most variance in the dataset, usually the first are sufficient, indeed adding too many components often does not significantly benefit the analysis (Fabrigar et al., 1999; Conway and Huffcutt, 2003). The final step consists in grouping each document within these components, reducing the dataset and simplifying the analysis; this last action is often facilitated by visualization software.

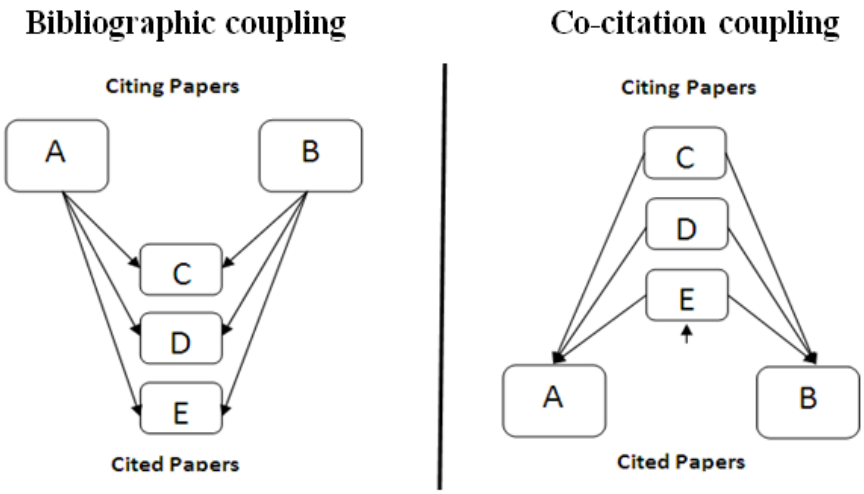
VOSviewer

In this case after extracting the data in the CSV format it is sufficient to upload the information and choose the number of sources.

2.3.3 Bibliographic Coupling

Bibliographic coupling is a method used in citation analysis to measure the similarity between two documents based on the references they share. (Boyack, Klavans,2010)
Its aim is to evaluate the current state of literature.

In bibliographic coupling, two documents are said to be coupled when they cite one or more common references. It is important to underline that in this case, unlike co-citation, the papers are taken as reference, not the sources (Glänzel, Czerwon,1996). The strength of the coupling is determined by the number of references they share.



Papers A and B are bibliographically coupled because they have cited papers C, D and E in their reference list.

Papers A and B are associated because they are co-cited in the reference list of papers C, D, and E

Figure 2.3 Bibliographic coupling and co-citation coupling Source : Surwase, Ganesh & Sagar, Anil & Kademani, B. & Bhanumurthy, K.. (2011). Co-citation Analysis: An Overview.

The strength of the coupling between two or more papers can be measured unitarily or fractionally. In the first case if paper A cites paper B, they have a bibliographic coupling strength of one. In Fractional counting, however, the BC strength is calculated by dividing the number of references shared by the number of paired documents. So, taking the previous example again, if Paper A cites Paper B, the coupling strength will be equal to 0.5 (1/2).

Nowadays to compute bibliographic coupling strengths and visualize these relationships, it is possible to use special software, such as VOSviewer or CiteSpace.

2.3.4 Co-word analysis

Co-word analysis is a bibliometric technique used to map the conceptual structure of a research field by analyzing the co-occurrence of words between documents (He, 1999). The frequency with which these phrases or keywords are cited is measured by the indexes and thanks to them, items are combined into groups and disposed in a network map. (He, 1999)

2.4 Types of bibliometric maps

Starting from the use of visualization software it is possible to create two types of maps (Jan van Eck, Waltman, 2009):

1. Distance-based maps
2. Graph-based maps.

Distance-based maps represent the strength of the relationship that links items by the distance between them, with shorter distances indicating stronger connections. Although they are very intuitive, similar clusters within these maps tend to overlap, making visualization and analysis complicated.

Graph-based maps are a type of map where the distance between two items doesn't necessarily represent the strength of their relationship. Instead, lines are used to indicate connections between items. In this case there is no overlap between clusters, but it is often not possible to fully understand the strength that binds them.

For the measurement within this thesis VOSviewer will be used. The software was developed by Nees Jan van Eck and Ludo Waltman, whose aim was to provide the possibility of detailed analysis of bibliometric maps, providing the ability to zoom and scroll around the map. The developers report this functionality to be fundamental with maps that contain a large number of items (Jan van Eck, Waltman,2009). It supports only distance-based maps and can be used to display two-dimensional maps regardless of the technique used to create them. (Jan van

Eck,Waltman,2009). Depending on the available data, VOSviewer is able to create different types of maps, in order to best represent the relationship that binds the clusters.
The main ones are:

- The scatter view, the simplest one, there are only circles, which represent the items. These circles could be colored differently, based on the color of the items that compose them. (Jan van Eck,Waltman,2009)
- Label view, in this second graphic representation, the circles representing the object are accompanied by labels and both grow in size as the importance of the object increases. (Jan van Eck,Waltman,2009)

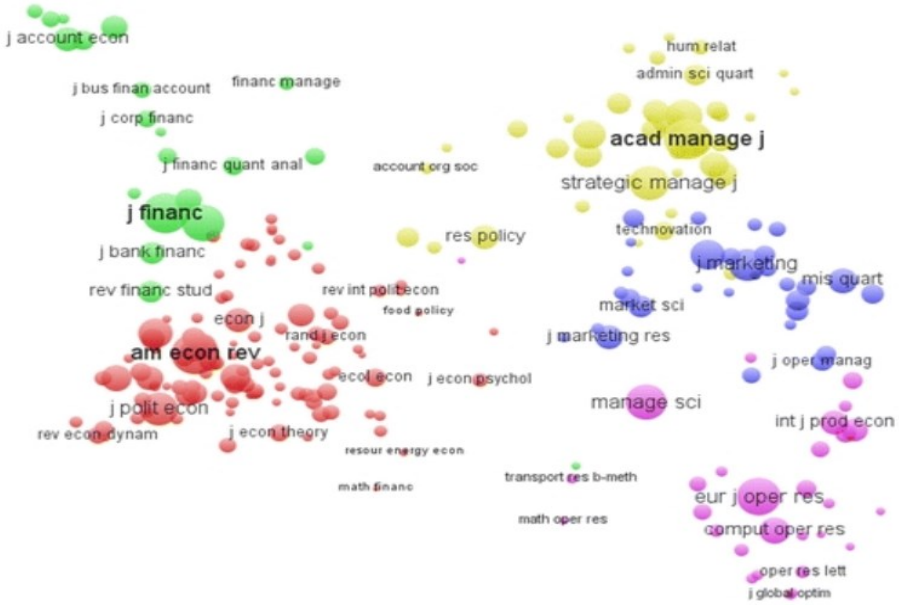


Figure 2.4 example of label view

Source : van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010 Aug;84(2):523-538.

- Density view, in this third case, the labels are linked to points on the map, which will change color based on the density of the items around them (Jan van Eck,Waltman,2009)

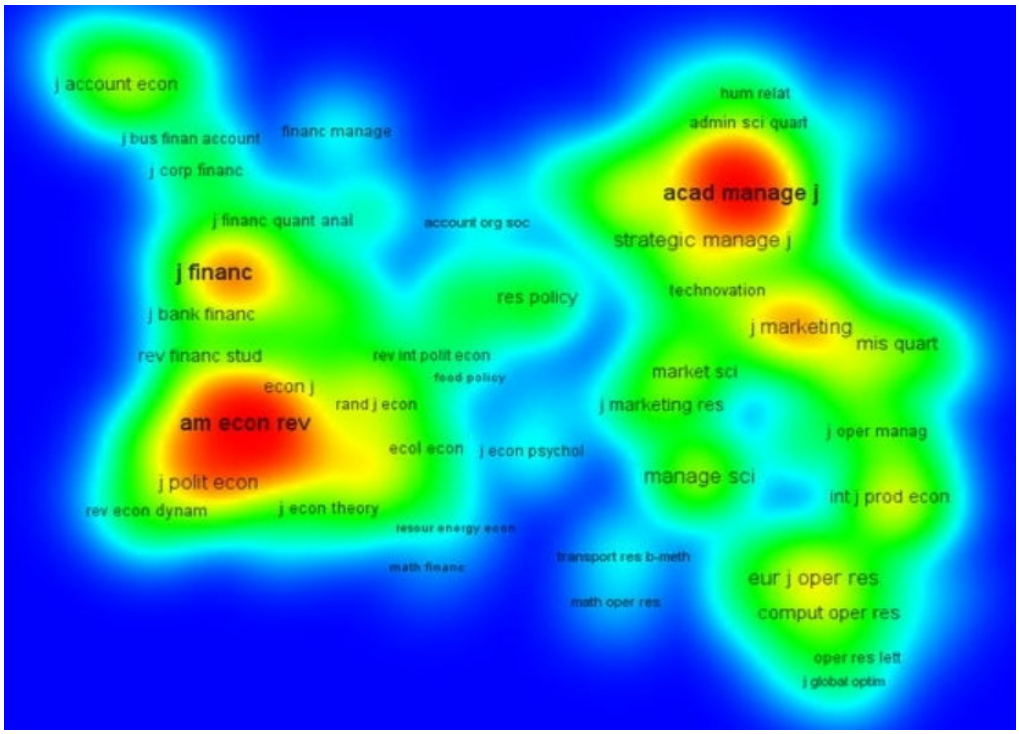


Figure 2.5 example of density view

Source : van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010 Aug;84(2):523-538.

The choice of the most suitable view is not only based on the dataset, but also on the objective you want to achieve. A label view is ideal for analyzing the map in detail, a density view is more suitable if the goal is to understand its structure.

In "*Software survey: VOSviewer, a computer program for bibliometric mapping"*, in which Jan van Eck and Waltman explain the use of VOSviewer, the developers specify that the mapping process can be divided into 3 phases.

1. Creation of similarity matrix
2. VOS mapping technique
3. Translation, rotation, and reflection

Creation of Similarity matrix

The VOS technique requires a similarity matrix, which can be obtained through the normalization of a co-occurrence matrix. VOSviewer to normalize the co-occurrence data use

a similarity measure known as the proximity index (e.g., Peters and Van Raan 1993; Rip and Courtial 1984).

VOS mapping technique

The second step is to create a two-dimensional map based on a similarity matrix derived from the data. This phase aims to position items in such a way that their distances on the map accurately reflect their similarity scores, exploiting the minimization of a weighted sum of the square Euclidean distances between all pairs of elements.

Thus obtaining that greater a similarity corresponds to a smaller distance between the items

Translation, rotation, and reflection

The outcome of the second stage, not being an optimal result, will have to be reworked through: (Jan van Eck,Waltman,2009)

Translation: The map is adjusted so that it is centered at the origin (0,0), ensuring a consistent starting point.

Rotation: The map is rotated such that the variance along the horizontal (x-axis) is maximized.

Reflection: The map is reflected over the vertical and/or horizontal axes based on the median values

CHAPTER 3

Literature review: Results

3.1 Data extraction

To get started it is necessary to acquire a comprehensive dataset, as this will form the foundation on which subsequent work will be based. This first step is fundamental, because the accuracy and efficiency of the analysis depends on the quality and relevance of the dataset. Having a well-structured data pool allows the researcher to carry out any type of analysis at a later stage.

To collect a complete dataset, this research uses the Scopus platform, known for its reliability in the academic world. The process begins with a query search, here it is essential to use relevant and inclusive Boolean operators.

The term “proactive” chosen as the primary keyword was combined with the terms “lean”, “TQM”, “kaizen”, “six sigma” and “operation* excellence”. The asterisk in the word operation was included in order to expand the search to all the various word forms related to “operation”.

The search was refined using some additional filters, the chosen time frame for this study was from 1997 to 2024. Within this period, only articles categorized under the subject areas of “Business Management and Accounting”, as well as “Economics, Econometrics, and Finance,” were included in the selection process, in order to avoid articles that were out of context or that dealt with topics not inherent to the research. Indeed, terms such as kaizen and lean are widely used in various fields of study. A further screening was then carried out, selecting only articles (excluding books, conference papers et al.), in English and whose publication stage is final

3.2 Citation Analysis

An effective way to initiate a literature analysis is by conducting a citation analysis. Even though this method has its own limitations, it is a practical method to begin with. Citation analysis allows researchers to gain an initial, albeit superficial, understanding of the influence and impact that specific papers have within a given study field. By examining the frequency with which certain authors or keywords are cited it is possible to frame, in a first superficial way, the most influential documents in a certain field.

A minimum threshold of 72 citations was chosen to obtain these papers, the ten most cited ones.

The analysis was performed on VOSviewer:

Article title	Author	Year	TOT citation	Source
Fourth generation ports – a question of agility?	Ana Cristina Paixão, Peter Bernard Marlow	2003	216	International Journal of Physical Distribution & Logistics Management
Spatial and Temporal Exposure to Safety Hazards in Construction	R. Sacks O. Rozenfeld and Y. Rosenfeld	2009	136	Journal of Construction Engineering and Management
Improving sustainable supply chains performance through operational	Simone Sehnem, Charbel Jose Chiappetta Jabbour, Susana Carla Farias	2019	127	

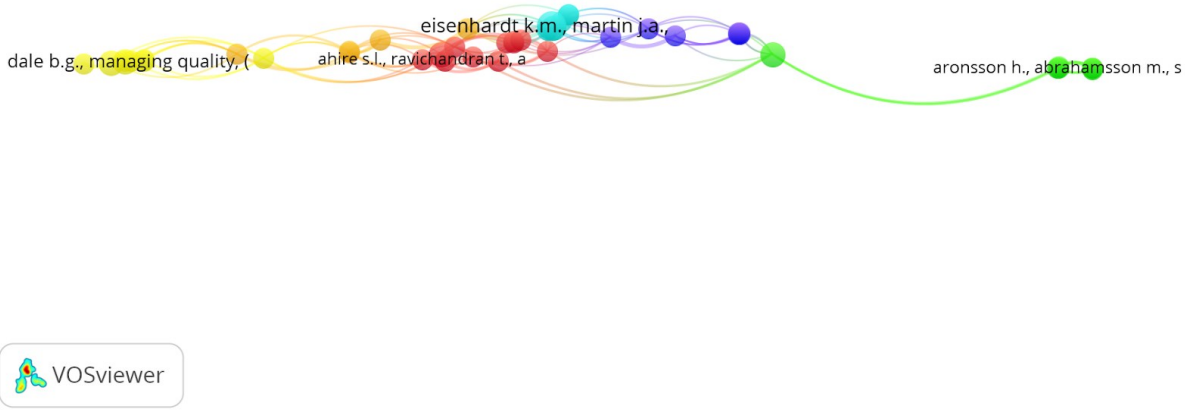
excellence: circular economy approach	Pereira, Ana Beatriz Lopes de Sousa Jabbour			Resources, Conservation and Recycling Journal
Total quality maintenance: An approach for continuous reduction in costs of quality products	Basim Al-Najjar	1996	115	Journal of Quality in Maintenance Engineering
Integration of management systems: towards a sustained success and development of organizations	Manuel Ferreira Rebelo, Gilberto Santos, Rui Silva	2016	113	Journal of Cleaner Production
Are quality and innovation management conflicting activities?	Nuria López-Mielgo, José M. Montes-Peón, Camilo J. Vázquez-Ordás	2009	93	Technovation Journal
Responses to COVID-19: The role of governance, healthcare infrastructure, and learning from past pandemics	Amalesh Sharma, Sourav Bikash Borah, Aditya C. Moses	2021	88	Journal of Business Research
Impact of disruptions in agri-food supply chain due to COVID-19 pandemic:	Ruchi Mishra, Rajesh Kumar Singh,	2022	83	The International Journal of

contextualised resilience framework to achieve operational excellence	Nachiappan Subramanian			Logistics Management
An Empirical Examination of Dynamic Quality-Based Learning Models	Christopher D. Ittner, Venky Nagar, Madhav V. Rajan	2001	81	Management Science Journal
An evaluation of the synergic implementation of TQM and TPM paradigms on business performance	Mandeep Kaur, Kanwarpreet Singh, Inderpreet Singh Ahuja	2013	80	International Journal of Productivity and Performance Management

Table 3.1 the ten most cited articles Source: personal elaboration through VOSviewer

3.3 Co-citation Analysis

After the citation, a co-citation analysis was performed following the instructions provided in the second chapter. The data collected were uploaded to VOSviewer ; six different clusters were obtained. To interpret the map it is necessary to remember that the size of the nodes is proportional to the number of citations of a certain document, while the thickness of the line connecting two nodes represents the strength of that co-citation relationship. Different colors highlight different clusters.



Orange cluster:

Focused on analyzing the consequences of innovation on the supply chain, this cluster also provides a view on sustainability and its importance. Firms in order to be green must adopt a proactive approach, anticipating environmental impacts and addressing them through a strategic plan. Green et al. (2018) offer a study on the complementarity of TQM, JIT and

green supply chain: analyzing 225 US companies, the researchers identified a positive influence of these models on improving environmental performance. While Ivanov, Dolgui and Sokolov (2018) analyzed the outcomes of the digitalization and industry 4.0 on the ripple effect and supply chain risk analytics.

Yellow cluster:

In this second cluster the topic of quality maintenance is explored, focusing particularly on the TPM method as a way to cut costs and increase quality. The documents analyze mainly the Asian context with a special focus on India and China, like Tsang et al. (2000). The researchers, indeed, analyze how to implement the TPM approach in the Chinese manufacturing sector, which is more reactive rather than proactive and extremely reluctant towards big changes, an environment in which the workers pursue instant gratification over long-term improvement.

Green cluster:

The cluster investigates lean management's transformational impact on company operations.

Transforming the way managers view the organization as a whole, realizing that all departments, procedures, and functions are interconnected and essential to create value. Every aspect of the business, such as decision making, resource management and long term goals, can be impacted by a proactive approach during the implementation of the lean method. Aronsson, Abrahamsson and Spens (2011) on this matter try to understand what is needed in a healthcare supply chain and how applying lean principles can improve the underlying processes.

Red Cluster:

This group of papers focuses its efforts on exploring the link between proactivity, competitive advantage and profitability and the methods to achieve them. Jay Barney (1991) in his analysis evaluates the connection between resources and competitive advantage, hypothesizing a world where the strategic resources are equally distributed between firms.

Narver and Stanley (1990), scrutinizing 140 businesses, try to discover the relation that links the market orientation to the business profitability, identifying a positive correlation, whether either a commodity or a non-commodity business unit.

Light Blue cluster

In this fifth subfield there is an in-depth analysis of strategic management with a particular focus on dynamic capabilities. Proactive organization are able to develop more efficiently capabilities that will give theme a competitive advantage. Teece (2007) explains what are these dynamic capabilities and their micro foundations, highlighting their importance to perform in a globalized context, while Eisenhardt and Martin (2000) describe dynamic capabilities as a set of identifiable routines that adapt to the environment.

Blue cluster

The final cluster focuses on the human subjects of the company, with a particular emphasis on the learning processes. Teams that learn from their achievements and failures are more likely to take proactive actions to execute change, rather than waiting for higher-level orders. Edmondson (2002) provides with her analysis, on twelve organizations, a new vision on how team learning can improve organizational learning in both a radical and incremental way. While Czarniawska and Mazza (2003) offer a fresh perspective on how consulting firms can act as a liminal space, allowing companies to embrace new procedures and methods.

3.4 Bibliographic coupling

The paper now focuses its effort on bibliographic coupling. As mentioned previously, Bibliographic coupling is a method used to measure the similarity between two documents based on the references they share, (Boyack, Klavans, 2010) and it is perfect to evaluate the current state of the literature.

The analysis was conducted on VOSviewer, using the data previously extracted and saved in CSV format. The fractional method was chosen as the counting method and the documents as the unit of analysis. According to VOSviewer developers Ludo Waltman and Nees Jan van

Eck (2015), the crucial distinction between full counting and fractional counting lies in how credit is assigned to each co-author of a publication. In the case of full counting, every co-author receives a weight value of 1, regardless of the total number of collaborators on the document; this can give the impression of inflating and confusing the data if there are numerous co-authors. In contrast, with fractional counting, the total weight of 1 is divided equally among all co-authors, therefore with 8 co-authors the weight will be equal to 0.125 (1/8).

A threshold of 5 was chosen as the minimum required number of citations per document, which resulted in 30 of the initial 85 documents in the dataset being discarded. Further screening determined that only 37 of the 55 documents remained, were part of a connected dataset.

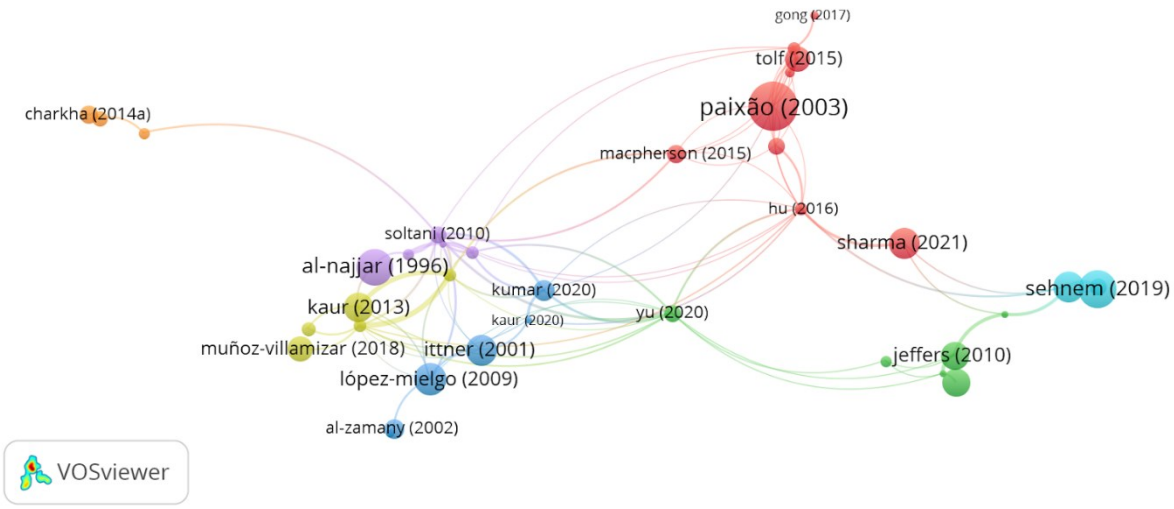


Figure 3.2 Bibliographic Coupling network representation.

Source: personal elaboration on VOSviewer

Figure 3.2 shows the screenshot of the bibliographic coupling conducted on VOSviewer. The map is a Distance-based map, whose distance between items indicates the force that binds them.

It is now important to proceed with the analysis of each cluster, to understand and design a structure that can represent the main current themes addressed by literature.

Red subgroup : Leanness, Agility and proactivity in the (production) Flow

Title	Author	Years	Source
Fourth generation ports – a question of agility?	Ana Cristina Paixão, Peter Bernard Marlow	2003	International Journal of Physical Distribution & Logistics Management
The change of production systems through consultancy involved projects: a multiple case study in Chinese SMEs	Hu, Q., Williams, S. J., Mason, R., & Found, P.	2016	Production Planning & Control journal
Responses to COVID-19: The role of governance, healthcare infrastructure, and learning from past pandemics	Amalesh Sharma Sourav Bikash Borah Aditya C. Moses	2021	Journal of Business Research
Participative work design in lean production: A strategy for dissolving the paradox between standardized work and team proactivity by stimulating team learning	Annika Lantz, Niklas Hansen, Conny Antoni	2015	Journal of Workplace Learning
Kaizen: a Japanese philosophy and system for business excellence	Wayne G. Macpherson, James C Lockhart, Heather	2015	Journal of Business Strategy

	Kavan, Anthony L. Iaquinto		
An Analysis of Inventory Attributes in Leagile Supply Chain: Cause and Effect Analysis	Mukesh Kumar, Dixit Garg, Ashish Agarwal	2019	International Journal of Mathematical, Engineering and Management Sciences
Agile, a guiding principle for health care improvement?	Sara Tolf, Monica E. Nyström, Carol Tishelman, Mats Brommels, Johan Hansson	2015	International Journal of Health Care Quality Assurance
Managing a variable acute patient flow – categorising the strategies	Olle Olsson, Håkan Aronsson	2015	Supply Chain Management Journal
The role of Lean principles in supporting knowledge management in IT outsourcing relationships	Gong, Y., Blijleven, V.	2017	Knowledge Management Research & Practice Journal

Table 3.2 Documents belonging to the Red Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

Paixão and Marlow (2003) address the issue of proactivity linked with the concept of lean and agility within the port industry. Starting with an introduction to the general situation, they explain how the sector has been profoundly changed by technological progress and globalization, which have pushed the old big players out of the market and forced those that remained into a continuous series of M&A to withstand the pressure. To remain competitive, ports require a proactive approach. The authors propose transforming ports from mere transfer points to value-adding entities through the use of lean philosophy and agility. The method to be used according to Paixão et al. can be briefly summarized in two phases, the first is the implementation of JIT to support lean production, the second phase includes the integration of the lean philosophy and agility throughout the system. The lean approach enables

improvements in service quality and waste and cost reductions, around 10 to 40 percent (Child et al., 1991; Knorr, 1991); while proactivity and agility are able to generate anticipation and responsiveness with the aim of creating value in a fast and dynamic environment.

In their article, Lantz, Hansen and Antoni(2015) , seek to understand how team proactivity can be positively influenced by participation in decision-making and inter-team relations within a lean system that has a limited autonomy.

The analysis, conducted within a Volvo production plant, was carried out using questionnaires and with the effective participation of 417 people (managers and workers), divided into 57 teams. Data was collected using a five-point Likert scale. The results conclude that the standardization of some processes does not necessarily lead to a decrease in proactive behaviors, but rather encourages the development of shared meaning. Furthermore, the study indicates that involving teams in decision-making is essential to cultivate proactivity and improved inter-team relationships are positively associated with increased proactivity.

A deeper insight of the concept of Agile is carried out by Tolf et al. (2015), in their article, the researchers aim to define agility and improve both internal and external efficiency within the Hospital Industry. Agility is defined as “the ability of an organization to thrive in a continuously changing, unpredictable business environment” (Dove, 1999, p. 19).

The analysis involved reviewing documents from the reSEARCH platform and using a qualitative content analysis to categorize all the information; only 60 out of 361 articles found met the required criteria. In addition to offering various definitions, the authors underline that agility expresses the ability to respond quickly and effectively to external inputs. In the document it is emphasized that agile organizations with proactive strategies are best suited to an uncertain and unstable environment. In conclusion, the study highlights all the connections and similarities between the agility and the lean approach underlying how the latter is better suited for stable external conditions.

The Lean and Agile issues are addressed again in the hospital context by Olsson and Aronsson (2015). In their study, the researchers aim to categorize the actions undertaken by a Swedish university hospital as either Lean, Agile, or Leagile, with Leagile actions representing a mix of both lean and agile principles. The study was conducted through the analysis of internal documents, conferences and interviews across four different departments. The interviews proposed different questions based on the interviewee. The study shows that the hospital adjusts its strategies according to the patient's flow and the severity of situations, concluding that lean and agile approaches can effectively coexist and support each other in healthcare environments.

The term leagile is also used by Kumar M. et al. (2019), to delve deeper into the topic of inventory attributes within the supply chain, an increasingly delicate topic in a fast and competitive environment like today's. In this document, the researchers analyze the tradeoff between a lean supply chain (LSC) and an agile supply chain (ASC), driving the attention to the concept of a Leagile Supply Chain (LASC), which combines both approaches. Key findings indicate that lean and agile inventory attributes are positively correlated with increased frequency of information exchange, enhanced integration levels and reduction in both production and transportation lead times.

In Gong and Blijleven (2017) researchers tried to understand if and how lean principles can support knowledge management in information technology outsourcing (ITO) processes. The authors emphasize that this topic has not been sufficiently explored in previous research and suggest that a detailed investigation could be useful for the organization, especially because knowledge is regarded as the most precious asset of a company. The analysis was done through eighteen interviews with three Dutch companies that meet specific criteria related to their production areas, sustainability, and previous application of lean principles. In conclusion, the study finds that lean principles can help organizations in Information Technology Outsourcing processes, but not all principles are equally effective or relevant, indeed each organization has a preference for different tools. The authors at the end suggest for future research to explore why only some Lean principles are beneficial, how they function in different contexts, and the different levels of impact they have on knowledge management in ITO relationships.

Macpherson et al. (2015) try to offer an explanation of the concept of kaizen for Western academics and companies. Coming to the conclusion that there is no precise definition, but as a philosophy, various interpretations are accepted.

Hu et al. (2016) explore the concept of proactivity within lean systems in non-Western contexts, focusing on how this concept can change the impact of the Lean Production System (LPS) in small and medium-sized enterprises in China. The study included four case studies, involving four different companies, clients of the Chinese consulting company AB. The major issue was the lack of initiative from the client, who often relied only on the expert's point of view and the lack of contextual knowledge, as most company practices were informal and not clearly defined. Cultural factors also posed obstacles, since the majority of the middle manager tended to follow passively the instruction provided by the authority. As solutions, the researchers proposed to the SME managers to adopt a proactive approach, actively engaging in the process and improving the access to company information, in order to facilitate knowledge transfer. The consultants were also advised to involve customers more and to assign key roles to experts in the field.

In the final article of this cluster, Sharma, Borah and Moses (2021) examine if macro factors, such as healthcare system, good governance, insurance system and past experiences may have influenced the Covid-19 response of some countries.Utilizing data gathered from the World Bank, WHO, and national health agencies, the researchers tested two hypotheses using two distinct models. The first model analyzes the reactive response while the second the proactive response. The researchers concluded that efficient training based on past pandemic experiences, substantial investments in the healthcare system, and a solid insurance infrastructure positively influence the response to COVID-19; the article also notes that while centralized governance can enhance reactive behaviors, it tends to reduce proactive responses.

Lightblue subgroup: Proactivity and operational excellence in the supply chain

Title	Author	Year	Source
Improving sustainable supply chains performance through operational excellence: circular economy approach	Simone Sehnem, Charbel Jose, Chiappetta Jabbour, Susana Carla Farias Pereira,Ana Beatriz Lopes de Sousa Jabbour	2019	Resources, Conservation & Recycling Journal
Impact of disruptions in agri-food supply chain due to COVID-19 pandemic: contextualised resilience framework to achieve operational excellence	Ruchi Mishra, Rajesh Kumar Singh, Nachiappan Subramanian	2021	The International Journal of Logistics Management
Disaster resilient proactive and reactive procurement models for humanitarian supply chain	Harpreet Kaur, Surya Prakash Singh	2020	Production Planning & Control Journal

Table 3.3 Documents belonging to the Lightblue Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

The study conducted by Sehnem et al. (2019) analyzes the connection between operational excellence and sustainable supply chains, stressing the importance of sustainability in operations management.The study looks into how four businesses from two different nations are affected by the Upper Echelons theory and the circular economy. The circular economy is a productive approach based on saving resources and reducing environmental impact, aiming

to create products that can last as long as possible and then recycle or reuse them (Ellen MacArthur Foundation, 2015) ; while the Upper Echelons theory suggests that the characteristics of top management,such as age, education, and career experience, play a crucial role in addressing critical issues (Hambrick and Mason, 1984) . To gain a better understanding, researchers have chosen two distinct economic contexts, Scotland as a developed country and Brazil as an emerging economy. After collecting data through interviews and visits to the facilities and analyzing them, the researchers came to the conclusion that companies that showed proactive behavior towards the circular economy were able to better manage the critical success factors and that senior managers' sustainability awareness and education significantly influence decision-making about the circular economy.

In the paper by Kaur H. et al. (2020) the topic of proactivity in supply chains is addressed again but from another perspective. In this document, in fact, the researchers are concerned with finding solutions that can avoid blockages (proactive approach) or mitigate the consequences (reactive approach) in a supply chain caused by natural or man-made disasters.Through the use of two mathematical models and five different scenarios, the paper proposes a disaster resilience framework for an Indian company with a global network. This framework can be divided into three steps: the first is selecting the least risky and most resilient suppliers using the DEMATEL-fuzzy-TOPSIS approach; the second involves minimizing total procurement costs through a mathematical model; and the third include the utilization of a disaster-resilient procurement model that limits the impact of disasters by reallocating orders to unaffected suppliers with minimal additional costs.

The paper by Mishra, Sing and Subramanian (2021) also explores supply chain resilience as an approach to achieving operational excellence, but it specifically focuses on the agri-food sector.

Green subgroup: Strategic operations and capabilities

Title	Author	Year	Source

Symbiotic association of resources and market-facing capabilities in supply chains as determinants of performance: a resource orchestration perspective	Karthik N.S. Iyer, Prashant Srivastava, Mahesh Srinivasan	2023	European Journal of Marketing
Embracing sustainability: Information technology and the strategic leveraging of operations in third-party logistics	Patrick I. Jeffers	2010	International Journal of Operations & Production Management
Improving firm performance using market orientation and capabilities: a case study approach	Sandeep Narula, Sudhir Rana, Shakul Srivastava, Manjeet Kharub	2021	South Asian Journal of Business Studies
The key success factors, distinctive capabilities, and strategic thrusts of top SMEs in Singapore	B.C Ghosh,Tan Wee Liang,Tan Teck Meng,Ben Chan	2001	Journal of Business Research
Moderating role of CEO compensation in lean innovation strategies of Chinese listed family firms	Muhammad Zulfiqar, Khalid Hussain, Muhammad Usman Yousaf, Nadeem Sohail, Sadeen Ghafoor	2020	The international journal of business in society
A strategy perspective on total quality management	Yu, G. J., Park, M., & Hong, K. H.	2020	Total Quality Management & Business Excellence

Table 3.4 Documents belonging to the Green Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

In the work of Jeffers (2010) there is an in-depth study on the benefits of adopting a corporate sustainability approach and operations-as-marketing strategy to make IT investment

decisions in third-party logistics firms. The author explains in the first moment the concept of corporate sustainability based on two pillars: the respect for the environment while producing and the lean philosophy, which aims to limit any unnecessary waste.Subsequently the paper explains the other fundamental concept in this paper: operations-as-marketing.. This term refers to the integration of operations and marketing in order to create internal efficiency that puts at the center the customer needs.

For the study the data was collected using surveys, distributed to 500 third-party logistics (3PL) companies, but only 64 of them provided a complete response.The informations were initially filtered to eliminate potential bias and then analyzed using statistical methods. The results demonstrate that the marketing-as-operation model can serve to effectively mediate IT investments and improve company performance.

The purpose of the paper by Ghosh et al. (2001) is to analyze what capabilities and key success factors (KSF) have led some Singapore companies to be successful in the late 1990s. The research was conducted through questionnaires administered to the top 50 companies in Singapore in 1995-1996, for a total of 66 companies. The researchers managed to identify the KSFs through the application of the multi-range test and then deepen the relationship between the capabilities and the KSFs using the Pearson correlation technique.

The researchers state that although strategies may vary from context (e.g. some companies may take a "defender" position, others an "analyzer" position) it is possible to identify 6 universal KSFs and capabilities. The KSF are : I)Committed supportive and strong management system II) Leadership III) Adopting correct strategy IV) Identify and focus on market V) Develop and sustain capabilities VI) Good customer and client relationships.

While the six capabilities complementary to the KSF are : I) Frequently satisfy customer needs II) Regionalization III)Developing new ideas and capabilities IV) Identify market well V)Identify niches well VI)Good relationship between top management and employees.

The issue of capabilities is also addressed by Narula et al. (2021), but in this case their relationship with market orientation (MO) and firm performance is explored in-depth. Market orientation is an approach whose objective is to improve marketing capabilities and enable firms to achieve competitive advantage. (Davcik and Sharma, 2016)

The research focused on a single case study, the examination of an Indian pharmaceutical company that, through its market entry, managed to significantly lower vaccine prices. The analysis was made using interviews with 25 key figures of the company including the vice president and some subjects of the R&D department. The study's results show that the market orientation (MO) approach, when combined with the firm's marketing capabilities, leads to a competitive advantage and improved business performance. Furthermore, the researchers emphasize that the combination of responsive market orientation (RMO) and proactive market orientation (PMO) allowed the organization to effectively capture feedback from customers and competitors.

The study done by Iyer, Srivastava and Srinivasan (2023) aims to understand the optimal allocation of resources in inter-firm relationships. It focuses primarily on how companies can align their supply chains and capabilities to achieve a better performance. The research was carried out in the United States and involved 152 different companies, such statistical analyzes were conducted on the basis of the interviews, ensuring that the questionnaires were only proposed to senior executives in order to reduce the common method bias. The model that tested the hypothesis used the Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the psychometric properties and the structural model, in addition, all variables except lean and agility, were based on marketing and supply chain measures. The study confirms that combinations of resources and capabilities enhance operational performance to improve productivity, lean capabilities perform better with complementary resources but companies must improve both lean and agility capabilities and form more strategic alliances in order to create value in an increasingly competitive context.

In their work Zulfiqar et al. (2020) seek to understand the consequences of using lean strategies within listed family firms and how these effects may be influenced by CEO compensation.The research focuses on the Chinese context, explaining that in this environment, listed family-run companies tend to be very efficient in turning innovation inputs into outputs (Carney et al., 2018; Xiang et al., 2019). The analysis was conducted on the CSMAR (China Stock Market and Accounting Research) database, using the family and non-family business division as the independent variable while the dependent variable was R&D investment,patent applications,propensity to patent and conversion rate of R&D investments into successful patents. In addition, there is also a moderator variable in the model represented by CEO compensation.The results show that family businesses are more

successful at promoting lean innovation, especially when it comes to R&D spending and patent filings. CEO compensation stimulates innovation, but it has a negative moderating influence on the relationship between lean innovation and family businesses.

In Yu's et al. (2020) work the relationship between company performance and Total Quality Management is deepened. Through an analysis conducted on 565 Korean companies, the researchers aim to understand what increases and decreases the effects of TQM, seen as a source of competitive advantage. The paper concludes that when a company pursues a proactive strategy (an internal factor) and is in the growth stage of the product life cycle (an external component), TQM has a larger beneficial effect on firm performance.

Blue Subgroup: TQM

Title	Author	Year	Source
Barriers to Total Quality Management for sustainability in Indian organizations	Vimal Kumar, Pratima Verma, Sachin Kumar Mangla, Atul Mishra, Dababrata Chowdhary, Sung Chi Hsu, Kuei Kuei Lai	2020	International Journal of Quality & Reliability Management
Assessing the synergy status of TQM and SCM initiatives in terms of business performance of the medium and large scale Indian manufacturing industry	Mandeep Kaur, Kanwarpreet Singh, Doordarshi Singh	2019	International Journal of Quality & Reliability Management

An Empirical Examination of Dynamic Quality-Based Learning Models	Christopher D. Ittner, Venky Nagar, Madhav V. Rajan	2001	Management Science Journal
Are quality and innovation management conflicting activities?	Nuria López-Mielgo José M. Montes-Peón Camilo J. Vázquez-Ordás	2009	Technovation
Understanding the difficulties of implementing quality management in Yemen	Yasser Al-Zamany, Stephen E.J. Hoddell, Barbara M. Savage	2002	The TQM Magazine
Changing from a product to a process perspective for service improvements in a manufacturing company	Peter Cronemyr, Lars Witell	2010	The TQM Journal

Table 3.5 Documents belonging to the Green Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

In the work of Lopez-Miego et al. (2009), the relationship between the innovative capabilities and the Hard Components (HC) of Total Quality Management is addressed. Demonstrating that the adoption of HC of management does not depress innovation but on the contrary in this two-way relationship the increase of innovative capacities leads to an increase in HC. Hard components of TQM are mechanistic practices focused on process and product control to meet quality standards.(Abrunhosa and Sá, 2008;Prahogo and Sohal, 2004; Moreno-Luzon and Peris, 1998). Data from 2300 Spanish businesses engaged in a variety of industries were gathered for the study through the Spanish Industrial Strategic Behavior Survey (SISB); creating a mathematical model that included Standardization and quality control (S&QC), innovation and technology data, industry-specific trends et al.

Through this process, the researchers were able to support their two hypotheses: first, that innovation, particularly process innovation, increases the likelihood of investing in Total Quality Management (TQM) components, and second, that S&QC activities are influenced by firm characteristics such as size.

Al Zamany, Hoddell and Savage (2002) explore TQM in more depth within the context of Yemen's economy. Through a survey, the researchers demonstrate how Yemen and other Arab nations continue to be mostly unaware of the meaning and application of Total Quality Management (TQM). They attribute this to protectionist measures that have caused Yemeni enterprises to be isolated and to the government's heavy participation in the economy. Al Zamany et al. stress in their paper that in order for the companies to restore their competitiveness on the global stage, the government must take a proactive approach in incentivising companies. They also emphasize how crucial it is for managers to encourage more employee involvement and to offer larger incentives.

The goal of Kumar et al. (2020)'s paper is to identify the main operational and human-related obstacles to Total Quality Management (TQM) implementation within Indian organizations.

To find these obstacles, the research analyzes cases of TQM failure companies, trying to find the causes and consequences.The research methodology in this study utilizes ISM (Interpretive Structural Modeling) and fuzzy MICMAC techniques for data analysis; ISM is a structured approach created to find and examine connections between certain barriers that are causing an issue, assisting in the hierarchical modeling of these barriers(Sage, 1977; Warfield, 1974; Attri and Grover, 2018; Patri and Suresh, 2018), while the fuzzy MICMAC technique identify the effects between these barriers(Mangla, 2014).After conducting a comprehensive study of the literature and consulting with twelve experts, Kumar et al. (2020) distinguished three categories of barriers; the dependent barriers distinguished by a low driving force but a strong dependence, linkage barriers possessing both a large driving force and a strong dependence and finally the independent barrier, with a strong driving force but weak dependence. Furthermore, the research highlighted that “Lack of top management involvement” and “Ineffective leadership,” both classified as independent barriers, are the most damaging to TQM implementation.

The concept of TQM, in a non-Western context, applied within the supply chain management (SCM) is addressed by Kaur M., Singh, K. and Singh, D. (2019). The study involves a pool of 720 Indian companies to which a questionnaire is submitted, whose

questions have been selected after a careful literature review.The investigation reveals that major Indian manufacturers have embraced proactive steps to better their operations by combining several lean manufacturing concepts, such as TQM, TPM, SCM, 5S, and Six Sigma.Moreover, the results suggest that businesses which incorporate these strategies into their supply chain management attain synergies that result in better performance compared to companies that do not.

The study highlights the need of TQM methods for continuous improvement in conjunction with SCM activities, emphasizing the need for firms to adjust and learn from their processes in order to improve performance.This is in line with research done by Ittner,Nagar and Rajan,(2001), which offers proof that this relationship is reciprocal.Indeed the researchers analyzing data from twelve plants of a Fortune 500 company, provide empirical evidence that learning is influenced by proactive investments in quality improvement.

The importance of Proactive culture is highlighted also in the work of Cronemyr and Witell (2010). In this paper, the researchers examine how customer feedback has pushed manufacturing organizations to shift from a product-focused to a process-centered approach. Utilizing the Siemens factory in Sweden as a case study, they investigate how 336 defect reports were handled. Discovering that the company, after using the Six Sigma method to handle product issues, added another procedure called “process fault reports”, in which the company reviewed the whole process. Through this proactive approach, based on customer feedback, the organization was able to stop recurring and preventable problems.

Yellow Subgroup : Total Productive Maintenance (TPM)

Title	Author	Year	Source
Manufacturing and environmental practices in the Spanish context	Andrés Muñoz-Villamizar, Javier Santos, Elisabeth Viles,Marta Ormazábal	2018	Journal of Cleaner Production
Evaluating the contributions of total productive maintenance on manufacturing performance	Upkar Singh, Inderpreet Singh Ahuja	2015	International Journal of Process Management and Benchmarking
Assessing the business performance measurements for transfusion of TQM and TPM initiatives in the Indian manufacturing industry	Kanwarpreet Singh I.P.S. Ahuja	2014	International Journal of Technology, Policy and Management
An evaluation of the synergic implementation of TQM and TPM paradigms on business performance	Mandeep Kaur, Kanwarpreet Singh, Inderpreet Singh Ahuja	2013	International Journal of Productivity and Performance Management
Implementing TQM and TPM paradigms in Indian context: critical success factors and barriers	Kanwarpreet Singh Inderpreet Singh Ahuja	2013	International Journal of Technology, Policy and Management

Table 3.6 Documents belonging to the Yellow Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

In this subgroup there is an in-depth analysis of total productive maintenance (TPM), the various contexts in which it can be applied and its synergies with other approaches for continuous improvement (e.g. TQM). The TPM approach can be defined as an innovative approach to maintenance that maximizes equipment effectiveness, eliminates breakdowns, and encourages autonomous operator maintenance.(Nakajima, 1989; Pophaley and Vyas, 2010)

The study by Kaur M., Singh and Ahuja (2013) examines the synergies that resulted from the application of TQM and TPM approaches in Indian manufacturing firms.The analysis examines data gathered from surveys mainly directed at senior executives in thirty-four organizations, classifying them into three groups according to the stages at which TQM and TPM have been adopted: businesses that have adopted these strategies recently (less than three years), businesses in the middle (three to five years), and businesses with more established procedures (more than five years).The results obtained through statistical techniques (e.g regression analysis, correlation analysis ,Pearson coefficient evaluation) suggest that businesses that implement TQM and TPM models perform better. Singh U. and Ahuja. (2015) further note that TPM initiatives have greatly improved the synergy between the maintenance department and other manufacturing operations. This has reduced costs and strengthened sustainability by resulting in the elimination of faults, improved manufacturing process dependability and overall equipment effectiveness (OEE).

Singh K. and Ahuja (2014) stress the value of prioritizing TPM for increased efficiency and TQM for quality improvement. They point out that since TPM is formed from TQM, the two methodologies are complementary and can eventually work together to provide a competitive advantage.

The previous year, the same researchers (Singh K. and Ahuja,2013) had investigated and analyzed the main barriers to implementing the TQM and TPM models, in addition to emphasizing the value of doing so. The researchers decided to conduct a two-phase investigation.The first part consisted of a detailed literature review, followed by the creation

of a questionnaire based on the review's findings. The survey included various questions for employees and managers, with questions designed on a four-point scale, ranging from one to four. Subsequently, the study further classified the organizations into two groups: those using simply TPM and those utilizing both TQM and TPM.According to the analysis, the main causes of the TPM and TQM models unsuccessful implementation are: the lack of top-level management support, employee resistance to change due to cultural differences, insufficient training and lastly a lack of resources and infrastructures that can facilitate the process. In conclusion, the document underlines the importance of encouraging a change of perspective, strengthening managerial commitment and investing in infrastructure and training, in order to reap the benefits of these models.

Purple subgroup: Continuous Improvement

Title	Author	Year	Source
Total quality maintenance: An approach for continuous reduction in costs of quality products	Basim Al-Najjar	1996	Journal of Quality in Maintenance Engineering
Business ethics in TQM: The qualities and spectrum zones of a case illustration	Göran Svensson, Greg Wood	2005	The TQM Magazine
A more proactive approach to addressing gender-related employment disparities in the United States	Mary E. Graham, Julie L. Hotchkiss	2009	Gender in Management
Application of the total quality management approach in a Spanish retailer: the case of Mercadona	Miguel, B. C., & Santiago, G. B	2010	Total Quality Management & Business Excellence journal
Stuck in the middle with you: The effects of incongruency of senior and middle managers' orientations on TQM programmes	Ebrahim Soltani, Adrian Wilkinson	2010	International Journal of Operations & Production Management

Table 3.7 Documents belonging to the Purple Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

In his work Basim Al Najjar (1996) discusses the issue of total quality maintenance (TQMain), a production method that integrates maintenance with other plant-based programs to ensure the proper operation of machinery, personnel, processes, materials and practices. Maintenance is regarded as a key action to guarantee quality and continuous operation; identifying two types of approaches: proactive maintenance, aimed at avoiding malfunctions, and predictive maintenance whose purpose is to identify the symptoms of malfunctions and limit damage.(Fitch, J. and Borden, H,1993). TQMain uses data-driven monitoring to detect small deviations in machinery that could anticipate failure and uses the deming cycle (plan - do - check - act) in order to fix the problem at its roots.(Bergman, B. and Klefsjö, B;1994).However, according to Al Najjar a common database is required to fully benefit from this effective approach throughout the entire company, allowing activities coordination, preventing delays and waste of any kind. This method, concludes the author, can be considered essential for obtaining continuous improvement and quality products.

Svensson and Wood (2005) explore the connection between TQM (Total Quality Management) and business ethics. Business ethics can be viewed as an alternative philosophy in which the ultimate goal of enterprises is improving people's lives (Bowman, J.S., Wittmer, D.L.,2000).

The paper presents the case study of the Finnish company Metsä Tissue, which caused some controversy among the Swedish Muslim community when it introduced new toilet paper with some ambiguous phrases on the Swedish market, even if the company was immediately able to withdraw the product, apologize and recreate a climate of trust with customers; the authors use this case to demonstrate how demographic changes can lead to changes in the market and its values, underlining how quality management should proactively integrate ethical core values based on time and context.This is the same point made by Miguel and Santiago(2010) made when he examined the Spanish context and discovered that Mercadona, a Spanish retailer, was able to recover from almost going bankrupt using TQM concepts adapting to the new circumstances. In conclusion the authors specify that TQM will not succeed in business operations unless business ethics is considered.

Another important issue nowadays,in order to achieve continuous improvement, is gender equality in the workplace. In their paper Graham and Hotchkiss (2009), conducted an analysis using data from the US Current Population Survey and a gender Equal Employment Opportunity (EEO) scorecard. The researchers identified two primary causes for the wage gap: an industry-related factor, where certain sectors have a higher concentration of male workers (Blau, Ferber and Winkler, 2006), and individual- related factors where there is a discrimination against a specific employee. In their study they propose an approach formed by proactive rather than reactive policies to reduce gender inequality in the USA, applying principles from Total Quality Management (TQM) and Statistical Process Control (SPC) to enforce EEO laws, while also considering employee feedback.

Soltani and Wilkinson (2010) point out in their work how the incongruence in the TQM orientation of the middle management and the top management can lead to a failure in the implementation of the method and argue that senior management's commitment to TQM is critical for its success. The study focused on three case studies, analyzing the private, public and third sectors, through 68 interviews at top and middle managers. The results showed a very clear influence of the Pelz effect. The Pelz Effect refers to the ability of a leader's upward organizational influence to mitigate the impact of a leader's downward behavior. (Jablin, 1980). Indeed the paper highlights a behavior among middle management that prioritizes alignment with senior management’s stance to protect their own position, rather than adhering to TQM principles to improve the processes.

Orange subgroup: Quality and measurement systems

Title	Author	Year	Source

Supply chain performance measurement system: an overview	Pranav G. Charkha Santosh B. Jaju	2014	International Journal of Business Performance and Supply Chain Modelling
The Need for Implementation of Integrated Management Systems (IMS) in Macedonian Companies	Elizabeta Mitreva, Nako Taskov, Julijana Sazdova, Ivana Georgieva, Hristijan Gjorshevski	2015	Calitatea - acces la succes (Quality - Access to Success)
Designing innovative framework for supply chain performance measurement in textile industry	Pranav G. Charkha and Santosh B. Jaju	2014	International Journal of Logistics Systems and Management

Table 3.8 Documents belonging to the Orange Subgroup in the Bibliographic Coupling network. Source: personal elaboration through VOSViewer

Successful supply chains use measurement systems as a driver to achieve operational excellence and efficiency, Charka and Jaju (2014) in both their work try to suggest a supply chain performance measurement system (SCPMS) beneficial for internal supply chain management in the production process activities. The SCPMS is an approach that acts as a foundation for Total Quality Management and goes beyond conventional supply chain management, which prioritizes financial goals above everything else. The authors, through an accurate literary analysis, propose a new model of SCPMS with aims to address deficiencies identified in previous research. The proposed model has many unique features, here are reported the main ones. The system will be based on Multi-Criteria Decision Making (MCDM) principles; it will be managed directly by the production cell staff and production managers who will proactively identify any potential errors that may occur in the production process. In addition Six Sigma metrics will be utilized to identify issues within the production workflow.

Mitreva et al. (2015) explore the topic of implementation and assesment of quality systems and standards such as ISO 90001:2008, in the Macedonian economic context. The purpose of these certifications is to evaluate an organization's quality and standards in various domains, including environmental sustainability and process quality. The implementation of ISO 9001, as stated by Mitreva et al. (2015) can be seen as a first step towards a Total Quality Management approach.The analysis was conducted through questionnaires administered to 160 Macedonian companies operating in various sectors (finance, agriculture, transport et al.). The results showed that only 40% of the companies analyzed had implemented an ISO 9001:2008 quality system, of which 60% reported advantages in customer satisfaction, cost savings, and product quality. Instead, 25% of these companies possessed the certification only to meet the market requirement without a sensible strategy for managing quality and as a result, they were not benefiting from it. In conclusion, the research indicates that even a proper implementation of ISO 9000 may no longer be sufficient, as the market increasingly demands additional quality and sustainability certifications from companies. The authors suggest that proactive management and the integration of quality standards are the keys to solving this intricate and expensive problem.

3.5 Co-word Analysis

To conclude this literature review a co-occurrence analysis was performed in order to obtain a conceptual structure. selecting a threshold of two minimum number of occurrences.

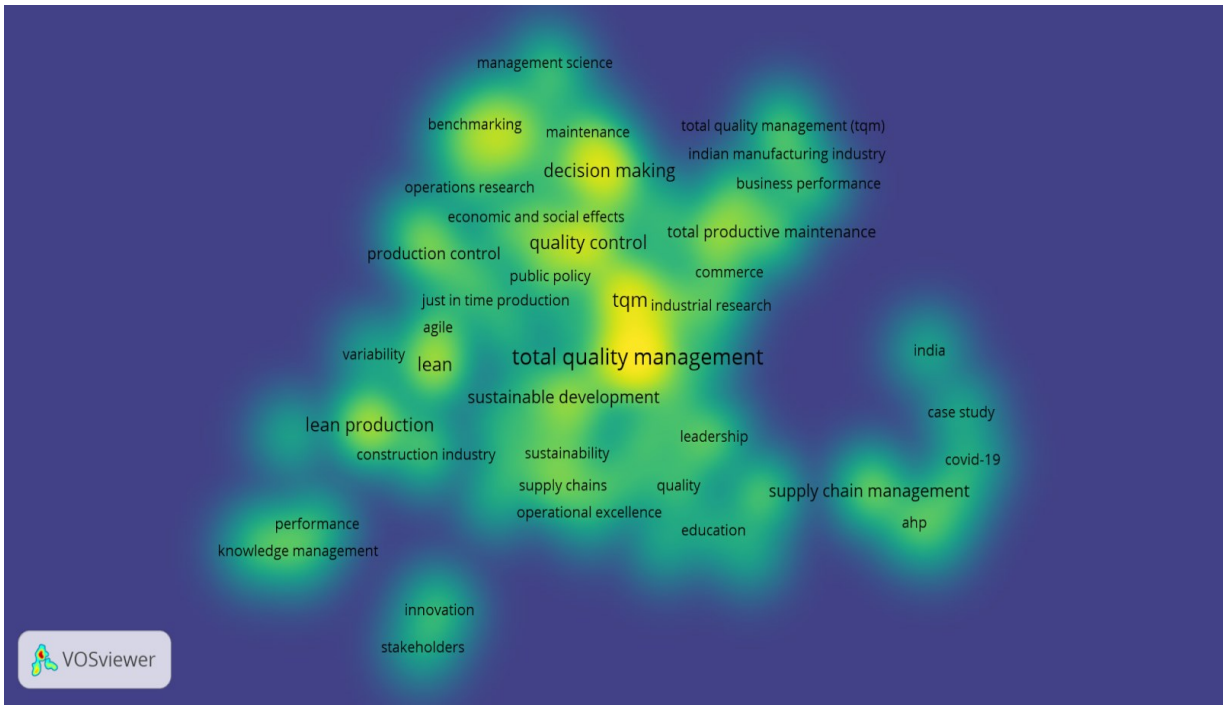


Figure 3.5 Co-word analysis heatmap. Source: VOSviewer

Selecting a threshold of two minimum number of occurrences, this analysis shows a clear dominance of terms such as “Total Quality Management”, “TQM”, “Lean”, “Supply Chain Management” and “Quality control”. The presence of “decision making” and “JIT” highlight their contribution to the literature's decision-making and performance evaluation processes. Another visible term that has appeared many times within our analysis is “India”, underlining the importance of the issues in that area of the globe

3.6 Insight: India's case

After general analysis of such important concepts, the research focuses on a practical and specific case.

In Western culture proactivity is linked to the concept of responsibility and autonomy, workers are encouraged to take initiative and give their own opinion (Hofstede, 2011). Western organizations tend to have a less pyramidal structure, preferring assertive communication which, if necessary, leads to direct confrontation (Ting-Toomey, 2015).

On the other hand, Eastern organizations prefer collectivism and harmony (Abbott; 1970) where people tend to consider more group dynamics (Markus at al.; 1991). They have organizational structures where the hierarchy is well defined and it is preferable to avoid direct confrontations, (Hofstede, 2011) long and stable improvements are preferred since they follow the kaizen philosophy.

The papers analyzed have repeatedly brought attention to an exception in this world division, a country which is geographically located to the east but whose culture and traditions often go beyond this division or are the result of a mix of Western and Eastern visions: the new Asian giant, India. The country has all the credentials to become the new global superpower, but it must address all the actual challenges in the right way. The literature review showed that lean transformation coupled with proactive behaviors are essential for India to maximize the benefits of its long term growth. The Indian way of doing business combines the emphasis on profitability and performance, typical of western companies, with a sense of community and attachment to values and traditions as eastern-based organizations.

The country is growing at an extraordinary rate and is going to have the largest working-age population for decades (NSSO, 2014). The challenges the emerging global power faces and how it handles them will determine its future.

Lean transformation, as mentioned before, involves refining the processes, eliminating any kind of waste and improving productivity, these are essential factors to India's competitive market. Studies like the ones conducted by Kumar (2019) and Kaur M. (2019) highlight how adopting lean principles can help the companies in emerging markets, like India, to reduce operational cost, improve the quality of services and products and last but not least with a proactive approach also increase the responsiveness to the market fluctuations. Proactivity instead, as highlighted in the red subgroup of the bibliographic coupling, especially

in Paixão, Marlow(2003) and Soltani, Wilkinsons (2010) papers, is essential to anticipate the customer shift in such a big market, pushing the companies to actively search for continuous improvement instead of following the transformations forced by external pressure. Proactivity in the purse of operational excellence would guarantee resilience and innovation to the Indian firms, that would set the standard instead of adapting to it. As highlighted by Gong and Blijleven (2017) every intensive-knowledge sector could benefit if not from all but at least from some lean principles, leading to improvement in important sectors for the country, like Pharmaceutical or IT. The latter after the economic liberalization of the 90s and the help of Indian professionals working in the Silicon Valley has become one of the main industries for the Indian economy (Gupta et al., 2015). Using a proactive management approach in lean transformation would allow tech companies to identify inefficiencies and manage the resources to face disruptive events and maintain a competitive advantage (Sharma,Borah and Moses,2021).

However, India as an emerging country will face some complicated challenges. Industries such as technology, manufacturing and pharmaceuticals need major investments to pursue a strategy of operational excellence; often in emerging economies, small and medium-sized enterprises, due to lack of funds, focus on compliance rather than continuous improvement or obtaining certifications that allow them access to international markets.(Henríquez-Machado,Muñoz-Villamizar,Santos,2021). Adapting to global standards is essential for participating in the globalized market without obstructions, the same Indian pharmaceutical sector, was put under heavy pressure by international bodies for the repeal of the Indian Patents Act, 1970. (United Nations Development Program,2013) Law that allowed Indian pharmaceutical companies to replicate foreign drugs in order to sell them to the Indian public at a lower cost. Another challenge to be faced, highlighted in the subgroup “TQM” of bibliographic coupling, will be the change of behavior by management and the executive class, in order to eliminate the two major obstacles identified by Kumar et al. (2020): lack of top management involvement and ineffective leadership.

Conclusion

The history and principles of lean philosophy were presented and discussed at the beginning of this thesis. These concepts, created in the Toyota plants following World War II, were combined and popularized by Wockman et al. with the release of their books.
The thesis went on to describe the most popular methods for achieving operational excellence (OpEx) such as OKAPI, Kaizen, and Six Sigma.
The study then, explained proactive behaviors and their importance to achieve more resilient, flexible, agile organizations and seeking continuous improvement. Also, in this case the most accredited theories were analyzed like the social cognitive theory, Self-Determination Theory and Job Demands-Resources theory, emphasizing important distinction like the one between Intrinsic motivation and extrinsic motivation.

The literature review was done through direct citation, co-citation and bibliographic coupling, which have synthesized and explained the past and present researches, highlighting crucial topics. In addition to a better understanding, a visual representation was created through Vosviewer.

Organizations that are more proactive perform better and have employees who take on more responsibility and initiative. The leaders of these organization, are a key part of these changes and must inspire and help these lean transformation.

Finally, the literature analysis showed that companies adopting these methodologies, in addition to being more agile and responsive to the market, have more efficient and resilient supply chains.
The application of these key insight in the last section are applied to the Indian economic context, providing a practical and actual example.
This thesis in conclusion lays the foundations for future research on the subject, especially on emerging economies, since exploring the impact of proactivity on operational excellence and lean transformation is more important than ever.

BIBLIOGRAPHICAL REFERENCES

åStröM Fredrik,Rickard Danell, Birger Larsen, Jesper Wiborg Schneider Fredrik åStröM BaláZs Schlemmer, A Festschrift For Olle Persson At His 60th Birthday Special Volume Of The E-Newsletter Of The International Society For Scientometrics And Informetrics Vol. 05-S June 2009 Editorial Board Co-Editors Of Special Volume: Technical Editors. Published By Issi

Abbott, K. A. (1970). Harmony and individualism

Abrunhosa A., P.M.E. Sá (2008)"Are TQM principles supporting innovation in the Portuguese footwear industry?" Technovation, 28 (2008), pp. 208-221

Abuzied Y. A Practical Guide to the Kaizen Approach as a Quality Improvement Tool. Glob J Qual Saf Healthc. 2022 Aug 22;

Alanazi, Mohammed Hamdan, 2024, Business and operational excellence at organizational levels: an integrated methodology for self-assessment

Al-Baik Osama, 2014,Al-Baik, O., Miller, J. The kanban approach, between agility and leanness: a systematic review

Al-Najjar, B. (1996, September 1). Total quality maintenance: An approach for continuous reduction in costs of quality products. Journal of Quality in Maintenance Engineering. https://www.emerald.com/insight/content/doi/10.1108/13552519610130413/full/html#:~:text=Total%20quality%20maintenance%20(TQMain)%20is,economic%20effectiveness%20of%20process%20elements

Al-Zamany, Y., Hoddell, S. E. J., & Savage, B. M. (2002, August 1). Understanding the difficulties of implementing quality management in Yemen. The TQM Magazine. https://www.emerald.com/insight/content/doi/10.1108/09544780210429852/full/html

Andreason, A.R. and Kotler, P. (1991), Strategic Marketing for Nonprofit Organizations, Prentice-Hall, Englewood Cliffs, NJ.

Aronsson, H., Abrahamsson, M., & Spens, K. (2011). Developing lean and agile health care supply chains. Supply Chain Management, 16(3), 176-183. doi:https://doi.org/10.1108/13598541111127164

Aspinwall, L. G., & Taylor, S. E. 1997. A stitch in time: Self-regulation and proactive coping. Psychological Bulletin, 121: 417–436.

Attri, R. and Grover, S. (2018), “Analysis of quality enabled factors in the product design stage of a production system life cycle: a relationship modelling approach”, International Journal of Management Science and Engineering Management, Vol. 13 No. 1, pp. 65-73.

Bakker Arnold B. , Evangelia Demerouti, (2007) "The Job Demands-Resources model: state of the art", Journal of Managerial Psychology, Vol. 22 Issue: 3

Bandura Alber,1986,Social Foundations of Thought and Action,1st edition,Prentice Hall

Bandura, A. (1997). Self-Efficacy: The Exercise of Control. W. H. Freeman

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1), 99-120. https://doi.org/10.1177/014920639101700108

Bergman, B. and Klefsjö, B., Quality from Customer Needs to Customer Satisfaction, Studentlitteratur, Lund, Sweden, 1994.

Bertolaccini L, Viti A, Terzi A. The Statistical point of view of Quality: the Lean Six Sigma methodology. J Thorac Dis. 2015 Apr

Blau, F.D., Ferber, M.A. and Winkler, A.E. (2006), The Economics of Women, Men, and Work, 5th ed., Prentice-Hall, Upper Saddle River, NJ

Bowman, J.S. and Wittmer, D.L. (2000), “The unfashionable Drucker: ethical and quality chic”, Journal of Management History, Vol. 6 No. 1, pp. 13-29.

Boyack Kevin W. & Richard Klavans, 2010. "Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately?," Journal of the Association for Information Science & Technology, Association for Information Science & Technology, vol. 61(12), pages 2389-2404, December

Boyack Kevin W., Richard Klavans.Co-Citation Analysis, Bibliographic Coupling, and Direct Citation: Which Citation Approach Represents the Research Front Most Accurately?,

December 2010 Journal of the American Society for Information Science and Technology,61(12):2389-2404,61(12):2389-2404,DOI:10.1002/asi.21419

Carney, M., Zhao, J. and Zhu, L. (2018), “Lean innovation: family firm succession and patenting strategy in a dynamic institutional landscape”, Journal of Family Business Strategy, Vol. 10 No. 4, pp. 1-13.

Carrera-Rivera Angela,William Ochoa ,Felix Larrinaga,Ganix Lasa , 2022, How-to conduct a systematic literature review: A quick guide for computer science research, MethodsX,Volume 9, 2022, 101895

Chiarini Andrea & Maneesh Kumar (2021) Lean Six Sigma and Industry 4.0 integration for Operational Excellence: evidence from Italian manufacturing companies,Production Planning & Control

Child, P., Raimund, D., Sanders, F. and Wisniowski, S. (1991), “SMR forum: the management of complexity”, Sloan Management Review, Vol. 33 No. 1, pp. 73–80.

Claes, R., & Ruiz-Quintanilla, S. A. 1998. Influences of early career experiences, occupational group, and national culture on proactive career behavior. Journal of Vocational Behavior, 52: 357–378

Costa, F. (2020). Questa è l’america: Storie per capire il presente degli stati uniti e il nostro futuro. Mondadori

Cronemyr, P., & Witell, L. (2010, January 12). Changing from a product to a process perspective for service improvements in a manufacturing company. The TQM Journal. https://www.emerald.com/insight/content/doi/10.1108/17542731011009603/full/html

Czarniawska, B., & Mazza, C. (2003). Consulting as a Liminal Space. Human Relations, 56(3), 267-290. https://doi.org/10.1177/0018726703056003612

D. Prahogo, A. Sohal(2004) “ The multidimensionality of TQM practices in determining quality and innovation performance: an empirical examination” Technovation, 24 (6) (2004), pp. 443-453

Davcik, N.S. and Sharma, P. (2016), “Marketing resources, performance, and competitive advantage: a review and future research directions”, Journal of Business Research, Vol. 69 No. 12, pp. 5547-5552, doi: 10.1016/j.jbusres.2016.04.169.

Davcik, N.S. and Sharma, P. (2016), “Marketing resources, performance, and competitive advantage: a review and future research directions”, Journal of Business Research, Vol. 69 No. 12, pp. 5547-5552, doi: 10.1016/j.jbusres.2016.04.169.

Davis J, Mengersen K, Bennett S, Mazerolle L. Viewing systematic reviews and meta-analysis in social research through different lenses. Springerplus. 2014 Sep 10;3:511. doi: 10.1186/2193-1801-3-511. PMID: 25279303; PMCID: PMC4167883.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry, 11(4), 227–268

Dove, R. (1999), “Knowledge management, response ability, and the agile enterprise”, Journal of Knowledge Management , Vol. 3 No. 1, pp. 18-35.

Dr. Joseph A DeFeo, 2024,What Does Operational Excellence Look Like?

Dutta Gupta, Sangita;Raychaudhuri, Ajitava;Haldar, Sushil Kr.Gender in management : an international journal, 13 Apr 2015, Vol. 30, Issue 2, pages 94 - 108

Dutton, J. E., & Ashford, S. J. 1993. Selling issues to top management. Academy of Management Review, 18(3): 397–428.

Edmondson, A. C. (2002). The local and variegated nature of learning in organizations: A group-level perspective. Organization Science, 13(2), 128–146. https://doi.org/10.1287/orsc.13.2.128.530

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? Strategic Management Journal, 21(10/11), 1105–1121. http://www.jstor.org/stable/3094429

Ellen MacArthur Foundation (2015), Grow Within: a Circular Economy Vision for a Competitive Europe Disponible at<https://www.ellenmacarthurfoundation.org/assets/downloads/publications/ Ellen MacArthur Foundation_Growth-Within_July15.pdf

Fisher, C. D. 1986. Organizational socialization: An integrative review. In K. M. Rowland & G. R. Ferris (Eds.), Research in personnel and human resource management (vol. 4): 101–145. Greenwich, CT: JAI Pres

Fitch, J. and Borden, H., “Interpreting contaminant analysis trends into a proactive and predective maintenance strategy”, in Profitable Condition Monitoring, Kluwer Academic, Kingston-upon-Thames, 1993, pp. 11-26

Flint Jacob , 2023,Unveiling Success with the OKAPI Framework, University of Salford Manchester

front. Scientometrics, 65, p. 245-263.

gagne´ Marylène and Edward l. deci 2005, Self-determination theory and work motivation,Journal of Organizational Behavior J. Organiz. Behav. 26, 331–362 (2005)Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/job.322

Geert Hofstede,2011, Dimensionalizing Cultures: The Hofstede Model in Context Universities of Maastricht and Tilburg, The Netherlands

Ghosh, B. C., Tan, W.-L., Tan, T. M., & Chan, B. (2001, March). The key success factors, distinctive capabilities and strategic thrusts of top smes in Singapore | request PDF. Elsevier. https://www.researchgate.net/publication/49249886_The_Key_Success_Factors_Distinctive_Capabilities_and_Strategic_Thrusts_of_Top_Smes_in_Singapore

Glänzel, W., Czerwon, H.J. A new methodological approach to bibliographic coupling and its application to the national, regional and institutional level. Scientometrics 37, 195–221 (1996). https://doi.org/10.1007/BF02093621

Gong, Y., & Blijleven, V. (2017, August 29). The role of Lean Principles in supporting knowledge management in IT outsourcing relationships - knowledge management research & practice. SpringerLink. https://link.springer.com/article/10.1057/s41275-017-0072-8#citeas

Gøtzsche PC. Citation bias: questionable research practice or scientific misconduct? Journal of the Royal Society of Medicine. 2022;115(1):31-35. doi:10.1177/01410768221075881

Graham, M. E., & Hotchkiss, J. L. (2009, November 6). A more proactive approach to addressing gender-related employment disparities in the United States. Gender in Management: An International Journal. https://www.emerald.com/insight/content/doi/10.1108/17542410911004858/full/html

Grant Adam M. , Susan J. Ashford,2008, The dynamics of proactivity at work, Research in Organizational Behavior 28 (2008) 3–34

Green, K. W., Inman, R. A., Sower, V. E., & Zelbst, P. J. (2018, September 21). Impact of JIT, TQM and Green Supply Chain Practices on environmental sustainability. Journal of Manufacturing Technology Management. https://www.emerald.com/insight/content/doi/10.1108/JMTM-01-2018-0015/full/html

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. The Academy of Management Review, 9(2), 193–206. https://doi.org/10.2307/258434

He, Qin; (1999); "Knowledge Discovery Through Co-Word Analysis", Graduate School of Library and Information Science. University of Illinois at Urbana-Champaign ISSN 0024-2594 https://hdl.handle.net/2142/8267

Henríquez-Machado R, Muñoz-Villamizar A, Santos J. Sustainability through Operational Excellence: An Emerging Country Perspective. Sustainability. 2021; 13(6):3165. https://doi.org/10.3390/su13063165

Henríquez-Machado, R.; Muñoz-Villamizar, A.; Santos, J.;2021; Sustainability through Operational Excellence: An Emerging Country Perspective. Sustainability 2021, 13, 3165. https://doi.org/10.3390/su13063165

Hu, Q., Williams, S. J., Mason, R., & Found, P. (2016). The change of production systems through consultancy involved projects: a multiple case study in Chinese SMEs. Production Planning & Control, 27(7–8), 550–562. https://doi.org/10.1080/09537287.2016.1165303

Institute for Operational Excellence, 2012, What is Operational Excellence?

Ittner, C. D., Nagar, V., & Rajan, M. V. (2001). An Empirical Examination of Dynamic Quality-Based Learning Models. Management Science, 47(4), 563–578. http://www.jstor.org/stable/2661671

Ivanov, D., Dolgui, A., & Sokolov, B. vladimirovich. (2018, June). (PDF) the impact of digital technology and Industry 4.0 on the ripple effect and supply chain risk analytics. https://www.researchgate.net/publication/326046999_The_impact_of_digital_technology_and_Industry_40_on_the_ripple_effect_and_supply_chain_risk_analytics

Iyer, K. N. S., Srivastava, P., & Srinivasan, M. (2023, October 24). Symbiotic Association of resources and market-facing capabilities in supply chains as determinants of performance: A resource orchestration perspective. European Journal of Marketing. https://www.emerald.com/insight/content/doi/10.1108/ejm-04-2021-0290/full/html

J. Michael Crant,2000,Proactive Behavior in Organizations,Journal of management

Jablin, F.M. (1980), “Superior's upward influence, satisfaction and openness in superior-subordinate communication: a re-examination of the Pelz effect”, Human Communication Research, Vol. 6, pp. 210-20.

Jarneving, B. (2005). A comparison of two bibliometric methods for mapping of the research front. Scientometrics, 65, p. 245-263.

Jarneving, B. (2007). Bibliographic coupling and its application to research-front and other core documents. Journal of Informetrics, 1, p. 287-307.

Jeffers, P. I. (2010, February 23). Embracing sustainability: Information technology and the strategic leveraging of Operations in third-Party Logistics. International Journal of Operations & Production Management. https://www.emerald.com/insight/content/doi/10.1108/01443571011024629/full/html

Jessop, Bob. "Fordism." Encyclopedia Britannica, 15 May. 2020, https://www.britannica.com/money/Fordism. Accessed 6 August 2024

Jolliffe IT, Cadima J. Principal component analysis: a review and recent developments. Philos Trans A Math Phys Eng Sci. 2016 Apr 13;374(2065):20150202. doi: 10.1098/rsta.2015.0202. PMID: 26953178; PMCID: PMC4792409.

Jolliffe IT, Cadima J. Principal component analysis: a review and recent developments. Philos Trans A Math Phys Eng Sci. 2016 Apr 13;374(2065):20150202. doi: 10.1098/rsta.2015.0202. PMID: 26953178; PMCID: PMC4792409.

Juran, J. M. ,1951,Quality Control Handbook. New York: McGraw-Hill

Kaur, H., & Singh, S. P. (2020). Disaster resilient proactive and reactive procurement models for humanitarian supply chain. Production Planning & Control, 33(6–7), 576–589. https://doi.org/10.1080/09537287.2020.1834124

Kaur, M., Singh, K., & Ahuja, I. S. (2013, January 1). An evaluation of the SYNERGIC implementation of TQM and TPM Paradigms on business performance. International Journal of Productivity and Performance Management. https://www.emerald.com/insight/content/doi/10.1108/17410401311285309/full/html

Kaur, M., Singh, K., & Singh, D. (2019, October 25). Assessing the synergy status of TQM and SCM initiatives in terms of business performance of the medium and large scale Indian manufacturing industry. International Journal of Quality & Reliability Management. https://www.emerald.com/insight/content/doi/10.1108/ijqrm-07-2018-0192/full/html

Knorr, R.O. (1991), "Business process redesign: key to competitiveness", The Journal of Business Strategy, Vol. 12 No. 6, pp. 48–51.

Kumar, M., Garg, D., & Agarval, A. (2019, August). (PDF) an analysis of inventory attributes in Leagile Supply Chain: Cause and effect analysis. https://www.researchgate.net/publication/334841999_An_Analysis_of_Inventory_Attributes_in_Leagile_Supply_Chain_Cause_and_Effect_Analysis

Kumar, V., Verma, P., Mangla, S. K., Mishra, A., Chowdhary, D., Sung, C. H., & Lai, K. K. (2020, March 17). Barriers to total quality management for sustainability in Indian organizations. International Journal of Quality & Reliability Management. https://www.emerald.com/insight/content/doi/10.1108/ijqrm-10-2019-0312/full/html#:~:text=It%20includes%20five%20barriers%20which,B10)%2C%20and%20%E2%80%9CTQM%20implementation

Lantz, A., Hansen, N., & Antoni, C. (2015, January 12). Participative work design in lean production: A strategy for dissolving the paradox between standardized work and team proactivity by stimulating team learning?. Journal of Workplace Learning. https://www.emerald.com/insight/content/doi/10.1108/JWL-03-2014-0026/full/html

Lanxin Yang,He Zhang ,Haifeng Shen ,Xin Huang,Xin Zhou,Guoping Rong,Dong Shao,2021,Quality Assessment in Systematic Literature Reviews: A Software Engineering Perspective, Information and Software Technology,Volume 130, February 2021, 106397

Lean Enterprise Institute, 2021, 7 Wastes

Leandre Fabrigar,Duane T. Wegener, Robert C. MacCallum,Erin J. Strahan, Evaluating the Use of Exploratory Factor Analysis in Psychological Research, September 1999Psychological Methods 4(3):272 4(3):272, DOI:10.1037/1082-989X.4.3.272

Levy, P. E., Albright, M. D., Cawley, B. D., & Williams, J. R. 1995. Situational and individual determinants of feedback seeking: A closer look at the process. Organizational Behavior and Human Decision Processes, 62: 23–37

López-Mielgo, N., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2009). Are quality and innovation management conflicting activities?. Technovation, 29(8), 537-545.

M.D. Moreno-Luzon, F.J. Peris (1998) "Strategic approaches, organizational design and quality management—integration in a fit and contingency model" International Journal of Quality Science, 3 (4) (1998), pp. 328-347

Macpherson, W. G., Lockhart, J. C., Kavan, H., & Iaquinto, A. L. (2015, September 21). Kaizen: A Japanese philosophy and system for business excellence. Journal of Business Strategy. https://www.emerald.com/insight/content/doi/10.1108/JBS-07-2014-0083/full/html

Malin, Morton V. "The Science Citation Index :A New Concept in Indexing." Library Trends 16(Jan. 1968):376

Mangla, S., Madaan, J., Sarma, P.R.S. and Gupta, M.P. (2014), "Multi-objective decision modelling using interpretive structural modelling for green supply chains", International Journal of Logistics Systems and Management, Vol. 17 No. 2, pp. 125-142.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review, 98(2), 224–253. https://doi.org/10.1037/0033-295X.98.2.224

McCormick, Guay,Colbert,Stewart,2018,Proactive personality and proactive behaviour: Perspectives on person–situation interaction

Miguel, B. C., & Santiago, G. B. (2010). Application of the total quality management approach in a Spanish retailer: the case of Mercadona. Total Quality Management & Business Excellence, 21(12), 1365–1381. https://doi.org/10.1080/14783363.2010.530782

Mishra, R., Singh, R. K., & Subramanian, N. (2021, August 2). Impact of disruptions in Agri-Food Supply Chain due to covid-19 pandemic: Contextualised resilience framework to achieve operational excellence. The International Journal of Logistics Management. https://www.emerald.com/insight/content/doi/10.1108/IJLM-01-2021-0043/full/html

Mitreva, E., Taskov, N., Sazdova, J., Gjeorgieva, I., & Gjorshevski, H. (2015, August 1). The need for implementation of Integrated Management Systems (IMS) in Macedonian companies. Go to start page! https://eprints.ugd.edu.mk/13691/

Muñoz-Villamizar Andrés , Javier Santos a, Elisabeth Viles a, Marta Ormazábal;Manufacturing and environmental practices in the Spanish context;Journal of Cleaner Production Volume 178, 20 March 2018, Pages 268-275; https://doi.org/10.1016/j.jclepro.2018.01.026

Nakajima, S. (1989), “TPM Development Program: Implementing Total Productive Maintenance”, Productivity Press Inc, Cambridge.

Narula, S., Rana, S., Srivastava, S., & Kharub, M. (2021, December 14). Improving firm performance using market orientation and capabilities: A case study approach. South Asian Journal of Business Studies. https://www.emerald.com/insight/content/doi/10.1108/sajbs-10-2021-0375/full/html

Narver, J. C., & Slater, S. F. (1990). The Effect of a Market Orientation on Business Profitability. Journal of Marketing, 54(4), 20–35. https://doi.org/10.2307/1251757

National Sample Service Office(NSSO) Government of India (2014), "Employment and unemployment situation in India 2011–2012".

Nightingale Alison , 2009,A guide to systematic literature, reviews, https://doi.org/10.1016/j.mpsur.2009.07.005

Olsson, O., & Aronsson, H. (2015, March 9). Managing a variable acute patient flow – categorising the strategies. Supply Chain Management: An International Journal. https://www.emerald.com/insight/content/doi/10.1108/SCM-06-2014-0203/full/html

Paixão, A. C., & Marlow, P. B. (2003, May 1). Fourth Generation Ports – a question of agility?. International Journal of Physical Distribution & Logistics Management. https://www.emerald.com/insight/content/doi/10.1108/09600030310478810/full/html

Parijat Ghosh, Satyam Mehra and Arunava Saha Dalal,2018,Operational Excellence in Healthcare Delivery in India A Critical Imperative During a Painful Transition, Bain & Company, Inc

Patri, R. and Suresh, M. (2018), "Factors influencing lean implementation in healthcare organizations: an ISM approach", International Journal of Healthcare Management, Vol. 11 No. 1, pp. 25-37

Peters, H. P. F. & van Raan, A. F. J., 1993. "Co-word-based science maps of chemical engineering. Part I: Representations by direct multidimensional scaling," Research Policy, Elsevier, vol. 22(1), pages 23-45, February

Pophaley, M. and Vyas, R.K. (2010), "Optimizing maintenance management efforts by the application of TOC: a case study", The IUP Journal of Operations Management, Vol. 9 No. 3, pp. 48-61.

Prakash A, Sarma P, Kumar S, Medhi B. Intellectual property rights and Indian pharmaceutical industry: Present scenario. Indian J Pharmacol. 2018 Mar-Apr;50(2):57-60. doi: 10.4103/ijp.IJP_320_18. PMID: 30100652; PMCID: PMC6044128.

Pranav G. Charkha & Santosh B. Jaju, 2014. "Supply chain performance measurement system: an overview," International Journal of Business Performance and Supply Chain Modelling, Inderscience Enterprises Ltd, vol. 6(1), pages 40-60.

Ramesh Kuri1 & Venugopal Hajje, Citation Analysis of Pearl: A Journal of Library and Information Science, Asian Journal of Multidisciplinary Studies Volume 2, Issue 9, September 2014 ISSN: 2321-8819 (Online)

Rip, A., Courtial, J.P. Co-word maps of biotechnology: An example of cognitive scientometrics. Scientometrics 6, 381–400 (1984). https://doi.org/10.1007/BF02025827

Russo MW. How to Review a Meta-analysis. Gastroenterol Hepatol (N Y). 2007 Aug;3(8):637-42. PMID: 21960873; PMCID: PMC3099299.

Ryan Richard M. & Edward L. Deci, 2020,Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions

Sage, A.P. (1977), "Interpretive Structural Modelling: Methodology for Large-Scale Systems", McGraw-Hill, New York.

Sandström, U. and Sandström, E. (2009). Meeting the micro-level challenges: bibliometrics at the individual level. Proceedings of the 12th International Conference on Scientometrics and Informetrics. Rio de Janeiro: BIEREME/PAHO/WHO, p. 845-856

Schmidt, F. (2008). Meta-analysis: A Constantly Evolving Research Integration Tool. Organizational Research Methods, 11 (1), 96-113.

Schneider, Sebastian & Pilz, Matthias. (2024). India's labour market challenges: Employability of young workforce from the perspective of supply and demand. PROSPECTS. 10.1007/s11125-024-09691-y.

Scho¨n, D. A. 1963. Champions for radical new inventions. Harvard Business Review, 41(March-April): 77–86.

Sehnem, S., Jabbour, C. J. C., Farias Pereira, S. C., & Lopes de Sousa Jabbour, B. (2019). Improving sustainable supply chains performance through operational excellence: circular economy approach https://www.sciencedirect.com/science/article/pii/S0921344919302344

Sharma, A., Borah, S. B., & Moses, A. C. (2021). Responses to COVID-19: The role of governance, healthcare infrastructure, and learning from past pandemics. Journal of business research, 122, 597–607. https://doi.org/10.1016/j.jbusres.2020.09.011

Shaun Barker, Dr. Randall Cook, Robert Miller, and Jacob Raymer, Utah State university, 2008,Shingo model

Shaun Barker, Dr. Randall Cook, Robert Miller, and Jacob Raymer, Utah State university, 2017,Shingo model for operation excellence,shingo model Handbook

Singh, K. and Ahuja, I.S. (2013) 'Implementing TQM and TPM paradigms in Indian context: critical success factors and barriers', Int. J. Technology, Policy and Management, Vol. 13, No. 3, pp.226–244

Singh, K., & Ahuja, I. P. S. (2014, January 1). Assessing the business performance measurements for transfusion of TQM and TPM initiatives in the Indian Manufacturing Industry. EconBiz. https://www.econbiz.de/Record/assessing-the-business-performance-measurements-for-transfusion-of-tqm-and-tpm-initiatives-in-the-indian-manufacturing-industry-singh-kanwarpreet/10010388768

Slack,Brandon-jones and Burges, 2022,Operation Management, tenth editions

Slack,Brandon-jones and Burges, 2022,Operation Management, tenth editions; p.528; chapter 15

Snyder Hannah, 2019, Literature review as a research methodology: An overview and guidelines,Journal of Business Research,Volume 104, November 2019, Pages 333-339,https://doi.org/10.1016/j.jbusres.2019.07.039

Soltani, E., & Wilkinson, A. (2010, March 23). Stuck in the middle with you: The effects of incongruency of senior and middle managers' orientations on TQM programmes. International Journal of Operations & Production Management. https://www.emerald.com/insight/content/doi/10.1108/01443571011029976/full/html

Surwase, Ganesh & Sagar, Anil & Kademani, B. & Bhanumurthy, K.. (2011). Co-citation Analysis: An Overview.

Svensson, G., & Wood, G. (2005, February 1). Business ethics in TQM: The qualities and spectrum zones of a case illustration. The TQM Magazine. https://www.emerald.com/insight/content/doi/10.1108/09544780510573039/full/html

Teece, D. J. (2007). Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance. Strategic Management Journal, 28(13), 1319–1350. http://www.jstor.org/stable/20141992

Ting-Toomey, S. (2015). conflict facework theory, , California State University, Fullerton https://www.researchgate.net/publication/303786331_Conflict_Facework_Theory

Tolf, S., Nyström, M. E., Tishelman, C., Brommels, M., & Hansson, J. (2015, June 8). Agile, a guiding principle for health care improvement?. International Journal of Health Care Quality Assurance. https://www.emerald.com/insight/content/doi/10.1108/IJHCQA-04-2014-0044/full/html

United Nation Development Program,2013,Five Years into the Product Patent Regime: India's Response https://www.undp.org/india/publications/five-years-product-patent-regime-indias-response

Upkar Singh & Inderpreet Singh Ahuja, 2015. "Evaluating the contributions of total productive maintenance on manufacturing performance," International Journal of Process Management and Benchmarking, Inderscience Enterprises Ltd, vol. 5(4), pages 425-455.

Upkar Singh and Inderpreet Singh Ahuja (2015), "Evaluating the contributions of total productive maintenance on manufacturing performance" October 12, 2015pp 425-455https://doi.org/10.1504/IJPMB.2015.072324

Van Eck NJ, Waltman L. Bibliometric mapping of the computational intelligence field. International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems. 2007;15(5):625–645. doi: 10.1142/S0218488507004911

Van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010 Aug;84(2):523-538. doi: 10.1007/s11192-009-0146-3. Epub 2009 Dec 31. PMID: 20585380; PMCID: PMC2883932. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2883932/

VandeWalle, D., & Cummings, L. L. 1997. A test of the influence of goal orientation on the feedback-seeking process. Journal of Applied Psychology, 82: 390–400.

Waltman Ludo, Nees Jan van Eck, 2015 ,Field-normalized citation impact indicators and the choice of an appropriate counting method, Journal of Informetrics Volume 9, Issue 4, October 2015, Pages 872-894 https://doi.org/10.1016/j.joi.2015.08.001

Warfield, J.W. (1974), "Developing interconnected matrices in structural modelling", IEEE Transcript on Systems, Men and Cybernetics, Vol. 4 No. 1, pp. 81-87

Wockman and Jones, 1996, Lean Thinking: Banish Waste and Create Wealth in Your Corporation

Wockman, Jones and Roos, 1990, The Machine That Change The World, Rawson Associates

Xiang, D., Chen, J., Tripe, D. and Zhang, N. (2019), "Family firms, sustainable innovation and financing cost: evidence from chinese hi-tech small and medium-sized enterprises", Technological Forecasting and Social Change, Vol. 144 No. 45, pp. 499-511.

Yu, G. J., Park, M., & Hong, K. H. (2017). A strategy perspective on total quality management. Total Quality Management & Business Excellence, 31(1–2), 68–81. https://doi.org/10.1080/14783363.2017.1412256

Zulfiqar, M., Hussain, K., Yousaf, M. U., Sohail, N., & Ghafoor, S. (2020, June 15). Moderating role of CEO compensation in Lean Innovation Strategies of Chinese listed family firms. Corporate Governance: The International Journal of Business in Society. https://www.emerald.com/insight/content/doi/10.1108/cg-03-2019-0092/full/html

Zupic, Ivan & Čater, Tomaž. (2015). Bibliometric Methods in Management and Organization. Organizational Research Methods. 18. 429-472. 10.1177/1094428114562629. DOI: 10.1177/1094428114562629

Web Sources

(https://sapartners.com/wp-content/uploads/2020/04/Shingo-Model-booklet-v14.3.pdf)

https://bpspsychub.onlinelibrary.wiley.com/doi/epdf/10.1111/joop.12234

https://homepages.se.edu/cvonbergen/files/2013/01/Proactive_Behavior-Meaning_Impact_Recommendations.pdf

https://instituteopex.org/what-is-operational-excellence/

https://lean.nh.gov/documents/Shingo%20Model%20Handbook.pdf

https://peopleful.io/Job-Demands-Resource-Model-research.pdf

https://selfdeterminationtheory.org/SDT/documents/2005_GagneDeci_JOB_SDTtheory.pdf

https://selfdeterminationtheory.org/wp-content/uploads/2020/04/2020_RyanDeci_CEP_PrePrint.pdf

https://www.juran.com/blog/introduction-to-operational-excellence-opex/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4419289/

https://www.salford.ac.uk/spd/unveiling-success-okapi-framework

IBM cloud education

Lean Enterprise Institute, 2014,A brief History of Lean (https://www.lean.org/explore-lean/a-brief-history-of-lean/)

Shaun Barker, Dr. Randall Cook, Robert Miller, and Jacob Raymer, Utah State university, 2008,Shingo model