

The Respect for People model for lean implementation in South Africa

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Abstract

Purpose – This study aims to develop a people-centred model for lean implementation in the South African context that simultaneously focuses on continuous improvement and Respect for People (RFP).

Design/methodology/approach – The elaborated action design research (eADR) method was used within the design science research (DSR) paradigm. The research continuum was entered at the problem-diagnosing stage, after which four iterative concept design stages were completed: a systematic literature review revealed the meaning of Respect for People; an applied thematic analysis summarised the RFP principles in the South African context; the design requirements were developed; the Respect for People model was developed and evaluated using the Delphi technique.

Findings – The RFP model consists of two value streams – the traditional product value stream and the people value stream. A specific problem-solving process connects these two value streams to bring problems to the surface and help develop individuals who can solve these problems. It was concluded that an effective and sustainable lean implementation could occur only by valuing employees' knowledge, experience and insight and developing their skills. An improved people value stream would naturally lead to an improved product value stream.

Originality/value – To the best of the authors' knowledge, this is the first study that incorporates the true meaning of RFP into a practical lean implementation framework for the South African context. The RFP model contributes towards organisational success by providing a practical means to include people during the lean implementation process, thereby contributing to improved lean implementation.

Keywords Lean manufacturing, Toyota way, Respect for People, Systematic literature review, Design science research, Action design research, Applied thematic analysis, Plan-do-study-act, Delphi technique

Paper type Research paper



1. Introduction

Management of organisational change continues to be a topic of interest for researchers and practitioners (Magnani *et al.*, 2024). It encompasses a complex system that involves the flow of operations, information and people. Lean has emerged as a complementary support in coordinating and improving the efficient management of organisational change (Magnani *et al.*, 2024). To this end, Toyota developed and popularised several tools and quality improvement methods that are popular in manufacturing, using the lean philosophy (Liker, 2004). However, tools and techniques alone cannot serve as a strategy for transforming a business. The human factors must also be considered, as Toyota's continued success in implementing these tools stems from a more profound business philosophy based on its understanding of people and human motivation (Liker, 2004). Ohno (1988), the developer of the Toyota Production System (TPS), emphasised this when he stated that respect for humanity and the reduction of waste (to increase productivity) are the foundations of the TPS. Also, in 1988, Krafcik (1988) illustrated the power of an integrative approach to human resource management, manufacturing strategy and the implementation of new technology. Similarly, Fujio Cho, Toyota's former chairman, emphasised the focus on people with his famous statement: "First we build people, then we build cars" (Liker, 2004). Eiji Toyoda, president and later chairman of the Toyota Motor Corporation and the person mainly responsible for making Toyota profitable and bringing it to worldwide prominence (Liker and Hoseus, 2008), also supports these views: "People are the most important asset of Toyota and the determinant of the rise and fall of Toyota". Research on the topic of "Just-in-Time" and "Respect-for Human" was published in English as early as 1977 by Sugimori *et al.* (1977a) and Sugimori *et al.* (1977b) (Holweg, 2007).

The Toyota Way and the TPS are the double helix of "Toyota's DNA". They define the 'company's management style and what is unique about the company (Liker, 2004), but they are not the same thing. TPS is the most systematic and highly developed example of what the principles of the Toyota Way can accomplish. The Toyota Way consists of the foundational principles of the Toyota Culture, which allows the TPS to function so effectively.

The Toyota Way is centred on two pillars: "Continuous Improvement" (CI) and "Respect for people" (RFP) (Liker, 2004). Although RFP is one of the pillars of the Toyota Way, the phrase is often used without fully appreciating the original meaning and intention. Stewart (2011) and (Liker, 2004) warn that misunderstanding this term could harm an organisation. Most of the literature about Lean Production has focused overwhelmingly on Continuous Improvement. It fails to treat Respect for People as an equal and interdependent pillar (Gundlach, 2024). It is overlooked or understated, resulting in a lean-to system, not a lean system (Gundlach, 2024).

Although research has been done on the relationship between RFP and CI (Assadej Vanichchinchai, 2022), limited research has been done to understand the true meaning of RFP (Erazo-Rondinel *et al.*, 2024). Some of the first authors to investigate this topic across all application fields of lean were Ljungblom and Lennerfors (2021) and Coetzee *et al.* (2019b). Ljungblom and Lennerfors (2021) found that the concept of respect should not be seen as the emotional kind but rather as "ought respect". In other words, respect "as due consideration". The concept of people in RFP corresponds to personhood/humanity, which, according to Toyota, brings out the capacity of thinking and producing in every human being (Ljungblom and Lennerfors, 2021). RFP also means enhancing workers' involvement and voluntary efforts and drawing out their full capacity (Ljungblom and Lennerfors, 2021; Ljungblom and Lennerfors, 2021) concluded that RFP should be interpreted as respect for craftsmanship (RFC). Focussing on a specific application area of lean, good practices, benefits and barriers associated with RFP in lean constructed were investigated by Erazo-Rondinel *et al.* (2024).

Prominent among the reasons cited for the overall low success rate of lean implementation is the intense focus on lean tools and techniques at the expense of the

human side of lean management (Ljungblom and Lennerfors, 2021; Magnani *et al.*, 2024; Miller *et al.*, 2001; Nordin *et al.*, 2011; Bhasin, 2012; Jadhav *et al.*, 2014; Pakdil and Leonard, 2014; Cardon and Bribiescas, 2015; Gao and Low, 2015; Coetzee *et al.*, 2016).

As Toyota expanded its operations worldwide, it encountered cultural challenges, as the Toyota Way is deeply rooted in Japanese culture (Liker and Hoseus, 2008). Already in 1986, research was conducted at MIT's Sloan School, investigating Japanese transplants in the USA, trying to understand how well they were able to transfer the Japanese human resource and production systems (Holweg, 2007), as there are differences in the ways people think in the east and the west (Liker and Hoseus, 2008). People in the West tend to see lean (incorrectly) as a tool kit to help control the workplace to achieve specific, measurable objectives. Essentially, what is happening in the Western world is objectifying the workplace and seeing simple cause-and-effect relationships while losing sight of the people and the complex dynamics of the environment (Liker and Hoseus, 2008). Contrary to this Western approach, when a Toyota sensei looks at improving the workplace, they do not see independent variables that can be manipulated. They would rather see people working together in a process filled with waste (Liker and Hoseus, 2008).

More specifically, in Sub-Saharan Africa, participants in a South African study (Coetzee, 2019) agreed that lean has a low success rate in South Africa and that the intense focus on lean tools and techniques at the expense of the human side of lean was a significant contributing factor.

South Africa is a melting pot of rich diversity and cultural wealth, comprising of several cultures and subcultures. To compare lean manufacturing implementation in the global north and south, it is essential to consider the influence of organisational culture, leadership commitment and workforce engagement. The adaptability of lean manufacturing to the African context is important due to the differences in cultural and business practices (Sinkamba *et al.*, 2023; Olu-Lawal *et al.*, 2024). In South Africa, limited resources and infrastructure challenges require unique strategies to ensure leadership commitment. The cultural impact on workforce participation also necessitates tailored approaches to engage employees effectively (Dondofema *et al.*, 2017).

Investigating lean implementation in South Africa, Coetzee (2019) found that when lean implementation was successful, it resulted from management driving the process. The focus on lean tools and techniques at the expense of the human side of lean is a significant inhibiting factor. Also, most participants in the study agreed that the cultural differences between South Africa and Japan played a role during lean implementation in South Africa. It was found that lean implementation fails due to management approaching it incorrectly and is not sustained due to a lack of buy-in from executive management. There is a difference between management saying that something must be done and allocating resources and time. The problem is often the lack of top management involvement, poor knowledge base and aloof leadership style (Coetzee, 2019).

The challenge for South African leaders is to comprehend what Respect for People truly means so that they can practise lean manufacturing correctly and improve business performance. The involvement of employees in the continuous improvement process influences successful lean transformation. This motivates the development of a lean implementation framework for the South African context that focuses on the human factor. In other words, a lean implementation framework that is upheld by both the Toyota Way pillars: Continuous Improvement and Respect for people. It implies an interaction between people and the technical side of lean. In addition, there is an opportunity to "translate" the Japanese lean principles into principles that apply to the South African context. Currently, no coherent lean implementation framework exists in the South African context.

Such a framework will allow managers to provide practical support to people undergoing change. It may prevent the inadvertent constraints on people that make their personal task of coping more difficult (Carnall, 1991). This will consequently increase the success rate of implementing lean manufacturing as a continuous improvement philosophy.

Thus, the research problem to be addressed is the low lean implementation success rate in South Africa due to the intense focus on tools and techniques at the expense of the human element. Therefore, the study aims to develop a people-centred model for lean implementation in South Africa that simultaneously focuses on Continuous Improvement and Respect for People.

2. Literature review

2.1 *Lean in the African context*

In Africa, economic and infrastructural factors present challenges and opportunities (Olu-Lawal *et al.*, 2024). Limitations in infrastructure and cultural differences often hinder the integration of African firms into global value chains, making it difficult for foreign firms to assign more strategic roles to local suppliers (You *et al.*, 2018). There is also a need for more research in supply management within Africa to better understand and address the economic and infrastructural issues (Kauppi *et al.*, 2018). Cultural factors shape African economic activities (Olu-Lawal *et al.*, 2024). Cultural differences and foreign direct investment trends influence economic collaboration between Africa and other countries. The COVID-19 pandemic has added new challenges to employment, infrastructure development and economic transformation in Africa, further highlighting the interaction between cultural and economic factors in shaping priorities. Barriers to the growth of enterprises shape socio-economic dynamics in Africa. These barriers can limit the quality of opportunities and the value generated, reflecting the complexity of the socioeconomic environment (Nwajiuba *et al.*, 2020; Olu-Lawal *et al.*, 2024). At the same time, the vision for sustainable development provides an important framework for addressing urban challenges in Africa. This requires practical, interdisciplinary approaches to infrastructure and governance issues (Pieterse *et al.*, 2018). Overall, Africa's developmental priorities and industrialisation efforts are closely connected to the interplay of economic and infrastructural factors, cultural considerations and socio-economic dynamics.

2.2 *Lean implementation and frameworks*

The understanding that improvements require change is fundamental to the success of any improvement effort. Unfortunately, not all changes result in improvements. Langley *et al.* (2009), therefore, explain the principles of improvement as follows: understanding the need for the improvement, ensuring a way to obtain feedback to know the improvement is taking place, developing a change that will probably result in an improvement; and testing any change before attempting to implement. Deros *et al.* (2006) compiled a list of design requirements for implementation frameworks. The frameworks should be systematic and easily understood, simple in structure, have clear links between the elements or steps outlined, general enough to suit different contexts, represent a road map and planning tools for implementation, answer "how to?" and not "what is?" -questions; and implementable at reasonable cost and time.

According to Anand and Kodali (2010b), an implementation framework should be like a guiding torch that helps a manager by providing the necessary direction during the change management programme implemented in the organisation. The framework should be fit for purpose and provide clear guidance to minimise resistance and conflicts (Nordin *et al.*, 2012). During a similar study, Nordin *et al.* (2012) set the design requirements for a lean framework in terms of overall structure: a comprehensive approach that covers all the

significant aspects of lean manufacturing implementation, provides a straightforward guide, and simplifies the process even to someone new to the lean manufacturing concept. Furthermore, [Nordin et al. \(2012\)](#) provided requirements in terms of abstractness: The reader should be able to understand the sequence of the implementation, the stages should be easy to understand, and there should be a systematic guide to successful lean manufacturing implementation, and the proposed stages should be logical and practical.

Specifically, during a lean implementation, different aspects should receive attention, e.g. Respect for People ([Ohno, 1988](#); [Liker, 2004](#); [Liker and Hoseus, 2008](#)), continuous improvement ([Liker, 2004](#); [Liker and Hoseus, 2008](#)), challenging people ([Liker and Hoseus, 2008](#)), *Genchi Genbutsu* ([Liker and Hoseus, 2008](#)), teamwork ([Liker and Hoseus, 2008](#)) and waste reduction ([Ohno, 1988](#)).

2.3 Elaborated action design research

The action design research (ADR) method developed by [Sein et al. \(2011\)](#) tends to suggest a single design science research (DSR) entry point focused on an existing artefact, using an action research cycle from problem formulation (Stage 1) to build, intervention and evaluation (Stage 2) ([Mullarkey and Hevner, 2015](#)). However, in some research cases, the possibility exists that there is no artefact in the problem domain studied ([Mullarkey and Hevner, 2015](#)). Therefore, [Mullarkey and Hevner \(2015\)](#) suggest an elaborated ADR (eADR) method that complements the work of [Sein et al. \(2011\)](#).

In the original ADR method, the first stage consists of two principles: practice-inspired research and theory-ingrained artefact. It, therefore, assumes the presence of an artefact. However, when an artefact does not exist, an earlier entry point is required where the researcher identifies the requisite theory and verifies with practitioners the need for a yet undesigned innovative artefact ([Mullarkey and Hevner, 2015](#)). There is also a need to elaborate and evaluate the principles and features of a proposed artefact.

A second improvement to the original ADR method was to divide the problem formulation stage into two different stages – *problem diagnosing* (PD) and *concept design* (CD) ([Mullarkey and Hevner, 2015](#)). There should be an emphasis on the *problem diagnosing* and *concept design* processes steps prior to the *building* and *implementing* steps ([Mullarkey and Hevner, 2015](#)). The method, therefore, starts with demonstrating the rigorous *problem diagnosing* stage informed by theory and an expressed need in practice, after which the (added) *concept design* stage for the rigorous evaluation of design principles and features follows. All of this is required before the *build* stage.

Furthermore, [Mullarkey and Hevner \(2015\)](#) conclude that *intervention* and *evaluation* should occur at every stage (as opposed to only in Stage 2 of the original ADR method). They also emphasise a disciplined reflection and evaluation cycle within the PD and CD stage before the artefact build stage occurs. Therefore, each stage should have an *intervention* (I) and an *evaluation* (E) activity to ensure researcher-practitioner intervention *in situ* to avoid the development of any part of the artefact in isolation from the organisational problem setting ([Mullarkey and Hevner, 2015](#)).

Contrary to the model of [Sein et al. \(2011\)](#), where *formalisation of learning* only occurs after Stages 1, 2 and 3, [Mullarkey and Hevner \(2015\)](#) believe that learning (L) could also occur because of each stage of the ADR method. Learning that informs researchers and practitioners should be the output from each stage in a robust application of ADR.

[Figure 1](#) provides the elaborated ADR method, showing the iterative process within and between stages with entry points positioned appropriately along the innovative artefact design continuum ([Mullarkey and Hevner, 2015](#)). Given the additional stages that [Mullarkey and](#)

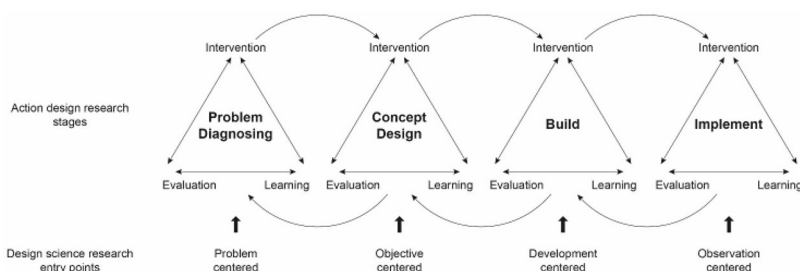


Figure 1. Elaborated ADR (eADR) method identifying DSR entry points

Source: Mullarkey and Hevner (2015)

Hevner (2015) added, the eADR method allows researchers to enter the research continuum at multiple points.

The goal of the DSR research paradigm is the production of an innovative artefact. The artefact may be the output of any one of the stages described. When performed in adherence to the ADR method, the artefact will be structured as a function of researcher-practitioner intervention in the problem space and be relevant to the problem at that point on the research continuum (Mullarkey and Hevner, 2015). The lessons learned from the iterative evaluation and reflection through intervention can inform both researchers and practitioners and provide a meaningful contribution to both: an artefact that was constructed using a rigorous method (Mullarkey and Hevner, 2015)

3. Research design

Within the paradigm of DSR, the action design research (ADR) method was applied, as it addresses two challenges: the problem situation encountered in the organisational setting, and it constructs and evaluates an artefact that addresses the problem typified by the situation (Sein *et al.*, 2011). However, as the focus of this research was to design a new, innovative artefact (as opposed to evaluating an existing artefact), the eADR method was followed (Mullarkey and Hevner, 2015). An earlier entry point is required where the researcher identifies the required theory and verifies the need for an innovative artefact with practitioners.

The research continuum (Figure 2) was entered at the problem-diagnosing stage, following four iterative concept design stages. Although the eADR method specifies the intervention, evaluation and learning steps in each stage, this study found that there was different emphasis on these steps throughout the problem diagnosing and concept design stages. Each iterative round also had a different sub-problem to be solved, and a different artefact was produced at the end of each iteration. Thus, each concept design iteration included the problem and artefact steps. The five iterative cycles that were followed are shown in Figure 2. Findings from iterations one to three have been published in the author's prior work (Coetzee *et al.*, 2016; Coetzee *et al.*, 2019a; Coetzee *et al.*, 2019b). The current study will focus on Iteration 4 (Developing the design requirements) and Iteration 5 (Developing the RFP model). Thus, the current paper provides the final iteration that concludes the more extensive study and provides the final artefact that addresses the organisational problem. The five iterations were conducted as follows:

Iteration 1 elaborated on the content of the Toyota Way and revealed the important link between the “continuous improvement” pillar and the “Respect for People” pillar, emphasising the importance of including people in the CI problem-solving process (Coetzee *et al.*, 2016). Different lean implementation strategies were analysed, and it was revealed that a few of the Toyota Way management principles have been included. The main point of

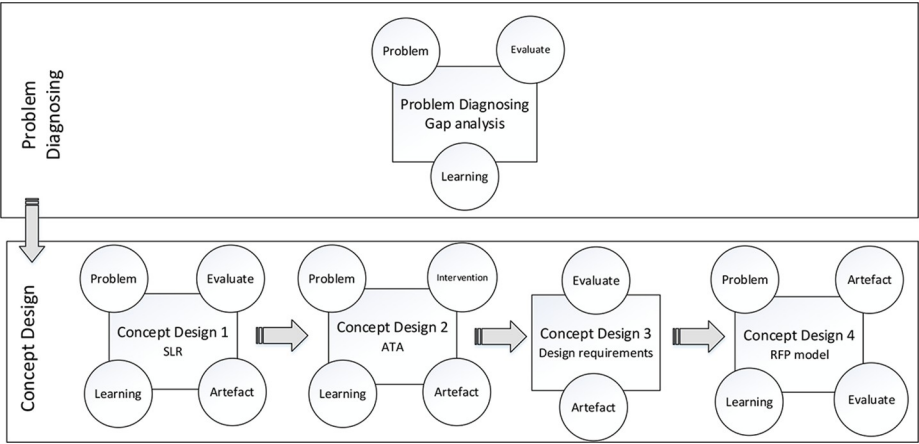


Figure 2. Research design according to the eADR method
Source: Authors' own creation

concern demonstrated by this iteration was the CI/Respect-for-people relationship, which was not included in any of the lean implementation strategies. This might be the fundamental reason the lean implementation success rate is extremely low, as the importance of including people in the problem-solving process has been emphasised (Coetzee *et al.*, 2016).

In Iteration 2, the true, original meaning of the RFP principles of the Toyota Way was systematically reviewed from existing literature, and the results were reported in an RFP framework (Coetzee *et al.*, 2019b). The results of the systematic literature review were interpreted by proposing a conceptual RFP lean implementation framework. The literature about RFP was much fragmented, though consistent, among different authors. Limited resources were available that explained the original meaning of RFP. This study, therefore, depended mainly on the work of Jeffrey K. Liker. This lack of resources could also indicate that the RFP principles do not receive the required attention intended by the original creators of the Toyota Way (Coetzee *et al.*, 2019b).

Once the original Japanese meaning of RFP was determined, Iteration 3 was used to provide qualitative insight into the understanding and applicability of the Japanese RFP principles within the South African context (Coetzee *et al.*, 2019a).

The current study, presented in this paper, focuses on the fourth and fifth concept designs. The eADR method that was continued is described below:

3.1 Concept design – design requirements

The fourth iteration was used to develop the design requirements for the RFP model for lean implementation.

3.1.1 Evaluation. The following literature was consulted to determine the design requirements:

- the lean philosophy;
- the RFP themes identified during the systematic literature review (Japanese RFP themes) as well as the RFP themes identified during the applied thematic analysis (South African RFP themes); and
- literature on the design of implementation framework.

3.1.2 Artefact design. Information gathered in the first two concept design iterations and from the abovementioned literature sources was used to develop the design requirements traceability matrix (presented in [Table 2](#) of Section 4).

3.2 Concept design – Respect for People model

The fifth and final iteration was used to develop the Respect for People model for lean implementation.

3.2.1 Problem definition. The problem addressed in this final iteration was that a people-centred model for lean implementation in the South African context had not been developed.

3.2.2 Artefact design. The Respect for People model for lean implementation (RFP model) was designed based on the design requirements traceability matrix from the previous eADR iteration. An explanation of the model is provided in Section 6.

3.2.3 Intervention/evaluation. The artefact was evaluated using the Delphi technique, a process used to collect and distil the judgements of experts from the industry. Questionnaires with a five-point Likert scale (strongly disagree, disagree, I do not know, agree and strongly agree) were combined with qualitative feedback ([Linstone and Turoff, 1975](#); [Skulmoski et al., 2007](#)).

Consensus was defined as an agreement between the experts in rating a particular item on the questionnaire. The minimum percentage of agreement on a particular item was considered as 75% ([Nordin et al., 2012](#)). Therefore, for this study, consensus was achieved when an average rating above 3.7 (75% of a five-point Likert scale) was achieved for each item ([Nordin et al., 2012](#)).

The panel was selected by purposive sampling experts in the required field. The participants were selected based on their expert ability to answer the research questions and not to form a representative sample for statistical purposes ([Skulmoski et al., 2007](#); [Nordin et al., 2012](#)). The inclusion criteria to participate in the study were a minimum of 3 years of known and demonstrable experience and expertise in the area of lean implementation; capacity and willingness to participate; sufficient time to participate; and effective communication skills ([Skulmoski et al., 2007](#)). A heterogeneous group was formed by selecting lean experts from academia, lean experts from industry (automotive, aviation, precious metals, stainless steel) and human resource managers from industry. A total of 26 participants were selected. Following this, snowball sampling was used to ask these participants to forward the invitation to other potential participants who met the inclusion criteria. In total, 20 participants responded by completing the questionnaire, providing a 77% response rate.

[Table 1](#) provides the frequency distribution of the participants' experience level. The largest group of participants (six) had more than 21 years of experience in lean implementation, and the majority (11) had more than 10 years of experience.

Table 1. Frequency distribution of the level of experience of the Delphi panel

Experience level	Frequency	%
3 years	1	5.6
4–6 years	3	16.6
7–10 years	5	27.8
11–15 years	4	16.6
16–20 years	1	5.6
21+ years	6	27.8

Source(s): Authors' own creation

The questions were designed to seek agreement between the participants using a Likert scale (Nordin *et al.*, 2012). The participant could provide open-ended qualitative feedback at the end of each questionnaire section. Care was taken to formulate the questions to avoid any ambiguity that could frustrate the participants (Skulmoski *et al.*, 2007). A pilot study was also run to test for ambiguity, after which a few language changes were made. The findings are presented in Section 7.

3.2.4 Learning. The learning that occurred throughout this study is documented in this research paper's findings and conclusion sections.

4. Design requirements for the Respect for People model

The following inputs were used to determine the design requirements for the RFP model (Table 2):

- literature on the design requirement of implementation frameworks (refer to Section 2);
- the lean philosophy theory (refer to Section 2); and
- the Japanese RFP themes identified during the systematic literature review (Coetzee *et al.*, 2019b) and the South African RFP themes identified during the applied thematic analysis (Coetzee *et al.*, 2019a).

5. Findings – the Respect for People framework

The study developed a novel RFP model that could be used for lean implementation in the South African context. However, before such a model could be designed, a framework was needed to explain the fundamental principles on which the model is founded. Using findings from previous studies (Coetzee *et al.*, 2019b; Coetzee, 2019), the improved Respect for People framework is presented (Figure 3). The framework explains that two value streams are required to achieve a leaner system: the traditional product value stream (depicted by the lower process arrow in Figure 3) and the people value stream (the parallel upper process arrow in Figure 3). Although Liker and Hoseus (2008) already agreed that when these two value streams are connected, they produce the DNA of the Toyota culture, making it possible to implement and *sustain* the Toyota Way, this is the first time that these two value streams are presented graphically in conjunction with the other lean elements and also illustrating the importance of the sequence in which the value streams are implemented.

The two value streams are connected using a specific problem-solving process (at the centre of Figure 3 and explained in Section 6.10.1), as the product value stream is designed to bring problems to the surface. The people value stream is required to deliver people who can solve these problems. This process is required, as continuous improvement can only occur if problems are identified and solved. A crucial element of the problem-solving process is mutual trust between workers and managers. This should be at the centre of the problem-solving process, as it is key to creating an environment that encourages identifying problems and motivates people to solve them. Therefore, the final RFP model aims to develop a leaner system by developing a product value stream that highlights problems and a people value stream that can identify and solve these problems. In other words, a company-wide problem-solving culture. However, to achieve such a problem-solving culture, people must first be empowered to solve problems. Therefore, a lean implementation should start with developing the people value stream (and not improving the product value stream). Implementing lean by focusing primarily on the product value stream often leads to resistance to change. This can be overcome by first focusing on the people value stream, as workers will see the benefits of lean implementation for them as employees (empowerment

Table 2. Design requirements traceability matrix for the RFP model

Design requirements (DR)	1. Implementation frameworks	2. Lean philosophy	3. RFP themes (Japan and SA)
1. Structure			
(a) The model should be simple in structure (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
(b) There should be coherence between the different elements of the model (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
(c) The model should form an all-inclusive approach towards lean implementation (Ohno, 1988, Liker, 2004, Liker and Hoseus, 2008)		X	
2. Usability			
(a) Employees at different levels of an organisation should be able to understand and use the model to take part in a lean implementation (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	x		
(b) The implementation sequences should be logical, systematic and easy to understand (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
(c) The model should represent a road map and a planning tool for implementation (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
3. Effectiveness			
(a) The model should have a means of providing feedback on whether the desired outcomes have been achieved (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
(b) The model should address most lean implementation barriers (Deros <i>et al.</i> , 2006, Anand and Kodali, 2010, Nordin <i>et al.</i> , 2012, Langley et al., 2009)	X		
4. Completeness			
(a) The model should include the required lean implementation principles (Ohno, 1988, Liker, 2004, Liker and Hoseus, 2008)	X	X	
(b) The model should include all RFP themes identified during the study (refer to Table 4)			X
5. Applicability			
(a) The model should apply to most SA industries			X
Source(s): Authors' own creation			

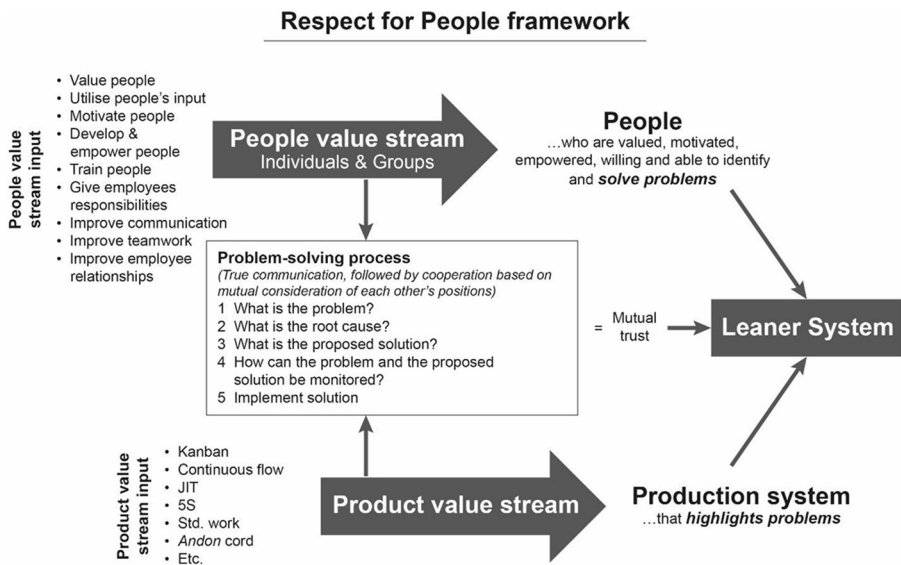


Figure 3. The respect for people framework indicates the interaction between the two value streams and the organisational problem-solving process

Source: Coetzee (2019)

and skills development). An effective people value stream will result in an efficient product value stream. Similarly, improving the people value stream will improve the product value stream. In other words, when implementing lean, the emphasis should be on improving the people value stream, after which an improved product value stream will follow.

6. Findings – the Respect for People model for lean implementation

The novel RFP model for lean implementation in the South African context was designed based on the RFP framework (Section 5) while ensuring that the design requirements (Section 4) were adhered to.

To the best of our knowledge, this represents the first people-centred lean implementation model explicitly tailored to the South African context that integrates and emphasises both the Japanese RFP principles and the additional South African RFP principles. Furthermore, this study marks the first instance where a practical RFP model is graphically conceptualised and systematically combined with the Plan-Do-Study-Act (PDSA) cycle in a manner that delineates the implementation steps.

The model consists of elements (as indicated in Table 3 and Figure 4) explained in the following sections.

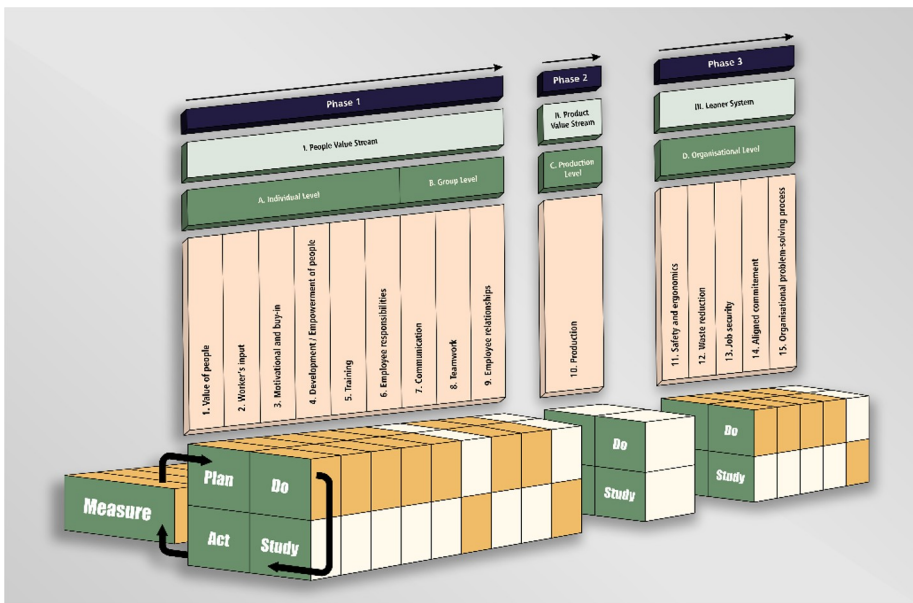
6.1 The different value streams and organisational levels

The RFP model consists of 3 value streams: the people value stream (I), the product value stream (II) and the leaner systems (III). The people value stream needs to be applied at two organisational levels: the individual level (A) and the group level (B). First, people are trained and empowered in different aspects of lean and problem-solving at the individual level. Then, at the group level, teamwork, communication and employee relationships are improved.

Table 3. Elements of the RFP model

Elements in the RFP model	Explained in section
The different value streams (I, II and III)	Section 6.1
The different organisational levels (A–D)	Section 6.1
The adapted PDSA cycle	Section 6.2
The RFP themes identified throughout the study (1–14)	Section 6.3
The different PDSA steps to be taken for each RFP theme	Section 6.4–6.10

Source: Authors' own creation


Figure 4. The RFP model for lean implementation in South Africa

Source: Authors' own creation

Only then is the focus moved to development and improvement at the production level (C) of the product value stream (II). Finally, the fourth level, the organisational level (D), is improved to deliver a leaner system (III). This corresponds to the implementation sequence in Figure 3.

6.2 Measure and plan-do-study-act

Dr Deming's PDSA method (Moen and Norman, 2010) was used as the cyclical baseline of the implementation model. However, the cycle was adapted to add an additional step before the PDSA cycle. Before an organisation can implement lean, it must determine its current state regarding the overall problem(s) it experiences. It must *measure* the current situation to plan actions in the next phase. Only by diagnosing the "illness" correctly can the correct "medicine" be prescribed during the PDSA cycle(s). Figure 4 shows the adapted PDSA method, including the *measuring* step, creating the novel M-PDSA cycle.

The organisation starts at the Measure phase for each RFP theme within each level. The purpose is to determine the status quo of the relevant theme within the organisation. The organisation then progresses through the rest of the PDSA cycle for that theme. Only once the desired results are realised during the *Study* phase does the organisation move on to the next theme (starting again at the *Measure* phase for the following theme).

An organisation will not necessarily use the measure step during each PDSA cycle. The PDSA cycle is viewed as short-term operational steps to follow. In contrast, the M-PDSA cycle is considered the long-term strategic step.

6.3 The Respect for People themes

During the study, the RFP themes (Table 4) were identified using a systematic literature review (Coetzee *et al.*, 2019b) and exploratory interviews with participants in South Africa (Coetzee *et al.*, 2019a).

The identified RFP themes (numbered 1–15 and indicated in orange in Figure 4) were segregated into different levels (individual level, group level and organisational level). Furthermore, the different RFP themes within each level were arranged in a specific order so that the last RFP themes are always used as the *study* and *act* steps (of the M-PDSA cycle) to measure the effectiveness of the previous RFP themes.

6.4 Individual level (measure-plan-do)

At the individual level, *measuring*, *planning* and *doing* are realised using the following RFP themes:

- Value of people;
- Workers’ input;
- Motivation and buy-in;
- Development/empowerment of people; and
- Training.

6.4.1 Value of people. Employees often do not feel valued, although they are best positioned to offer suggestions for improving their work efficiency. Therefore, before a lean implementation

Table 4. RFP themes

Themes	Japanese sub-themes	South African sub-themes
Individual level	1 Value of people	1 Value of people
	2 Worker’s input	2 Worker’s input
	3 Motivate people	3 Motivation and buy-in
	4 Develop people	4 Development/empowerment of people
	5 Training	5 Training
	6 Employee responsibilities	6 Employee responsibilities
Group level	7 Communication	7 Communication
	8 Teamwork	8 Teamwork
	9 Employee relationships	9 Employee relationships
Organisational level	10 Assess ‘people’s safety	10 Ergonomics and safety
	11 Remove waste from ‘people’s daily tasks	11 Waste reduction
	XXX	12 Job security
	XXX	13 Aligned commitment
	12 Develop a problem-solving process	14 Organisational problem-solving process

Source(s): Authors’ own creation

can commence, the organisation's leadership must realise the important role that employees play in the organisation. They are the people who do the work and see the problems (and solutions). Many initiatives managers try to implement fail because they do not attach sufficient value to people's key role in processes. Developing a culture that encourages the involvement of everyone in the organisation is critical for implementing lean, as lean works best if driven by all employees, not just the senior management, specialists or improvement facilitators.

6.4.2 Worker's input. Once management has realised the importance of people in the organisation, a system should be created through which people can give their input into the systems, changes and improvements. Although workers often know more about the process than the managers, their opinions are not taken seriously enough. Management should respect a person's physical abilities, as well as their minds and experience. It may be considered disrespectful if people cannot use their minds and experiences to solve problems.

6.4.3 Motivation and buy-in. Once the importance of people and their input has been established, it will be easier for workers to be motivated to participate in the lean implementation. An organisation cannot implement lean practices without employees' buy-in. If changes are forced upon them, there is the risk that they will find a way to sabotage it. Therefore, buy-in is required from the workers, management and the workers' unions.

The work environment must be a place where employees feel appreciated as individuals (Cardon and Bribiescas, 2015). Motivation comes from giving people some autonomy so that they have control over their job. Challenging targets, constant, appropriate and aligned measures, feedback on progress and rewards can also assist with motivation.

6.4.4 Development/empowerment of people. At many organisations, the most underutilised resource is their people. The number one asset of these organisations is also their people. People are among the few appreciating assets of an organisation (as opposed to depreciating assets). This appreciation comes from developing and challenging people's abilities.

By analogy, if there are techniques and systems to improve the production side of an organisation, there should be techniques and systems for developing and empowering people to realise their full potential, both at work and at home. RFP is shown by managers' commitment to developing subordinates as part of a manager's responsibilities, especially in developing a person's problem-solving or decision-making capabilities. As early as the job application phase, HR managers should identify key personal characteristics to help managers appoint the correct employees to the correct positions. Then, once a person has been appointed, there should be a focus on developing the individual (adding value to the people value stream).

Developing and challenging people are important in lean engagement. Implicit in this principle is the understanding that if a manager challenges an employee to improve his operation, there is a tacit acknowledgement that the manager truly believes that the employee can realise the improvement. This step is vitally important for successful lean implementation and for showing respect to people in the process. The growth of each employee will also contribute to the business's success.

6.4.5 Training. Before (and during) a lean implementation, employees must receive training on things such as the lean philosophy and safety issues. Training is crucial for showing Respect for People. A key to lean implementation is the philosophy of "learning by doing" to avoid unused or forgotten training inputs.

6.5 Individual level (study-act)

The final theme of the individual level (employee responsibilities) is used to *study* and *act* on the effectiveness of implementing the previous themes of the individual level.

6.5.1 Employee responsibilities. For an organisation to be successful, it must fully use its people's abilities and capabilities as effectively as possible by entrusting them with more responsibility and authority, in combination with providing them with guidelines (e.g. standard operating procedures) for making decisions. Once employees have been developed, trained and empowered, it is possible to show further respect by authorising their assumption of greater responsibilities; for example, by authorising people on the shop floor to stop the production line. Management will then follow up with why it was necessary and how they (management) can assist in solving the problem.

People's capabilities are thus displayed by delegating the authority and responsibility for running and improving the workshop themselves. The advantage of doing this is that people feel that they have ownership. They then improve and develop further.

This RFP theme is used in the *study* and *act* phases of the PDSA cycle, as entrusting people with more responsibility and authority will make it possible to determine if the previous RFP themes were implemented/executed effectively. In other words, the extent to which people (1) feel valued, (2) see that their input is valued, (3) feel motivated and have buy-in, (4) are developed, and (5) are trained, will reflect in the extent to which they take responsibility in the workplace.

6.6 Group level (measure-plan-do)

At the group level, *measuring, planning and doing* are addressed using the following RFP themes:

- Communication; and
- Teamwork.

6.6.1 Communication. Respect for people is shown in the way people communicate with each other. Communicating disrespectfully with people and not understanding their problems will hinder successful lean implementations.

6.6.2 Teamwork. Teamwork is used to share opportunities for development and maximise individual and team performance. When working in teams, members must feel like they matter in the company. The best way to achieve this is for each individual to understand their contribution to the organisation and to respect other members' contributions. There should be a balance between individual excellence and team effectiveness. Teamwork is critical but will never make up for a lack of individual excellence. Excellent individuals are required to make up teams that excel. If teamwork is made the organisation's foundation, individual performers will be committed to making the company successful.

6.7 Group level (study-act)

The final theme (employee relationships) is used to *study* and *act* on the effectiveness of implementing the previous themes at the group level.

6.7.1 Employee relationships. Communication and teamwork are used to build relationships between employees. The effectiveness of employee relationships can, therefore, be considered a measure of the effectiveness of communication and teamwork within an organisation. Managers should respect their employees by interacting with people at all levels and not only working through the chain of command. Managers should also understand their employees beyond their role as operators. They must even begin to understand their family situations so that when they have problems at home that impact their work, they will understand and be able to assist them.

6.8 Production level (*measure-plan-do-study-act*)

At the production level, the production theme is used to complete the M-PDSA cycle.

As explained, the purpose of the product value stream is to highlight problems so that they can be solved to improve the organisation. Lean techniques such as *kanban*, continuous flow, JIT, 5S, standardised work and the *andon* cord can be used to expose problems that might not have been seen otherwise. Problems can also be exposed by continuously measuring pre-determined key performance indicators (KPIs). However, exposing problems creates difficulty if nobody can solve them. For example, if an organisation implements Just-in-time (JIT) and *kanban* “today”, they will run out of inventory “tomorrow”. This is only good if the organisation sees problems as opportunities to improve. However, suppose these problems are pointed out without anyone to solve them. In that case, they will only create frustration and negativity towards lean. Therefore, the people value stream must be developed before the product value stream to deliver people willing and able to identify and solve problems.

6.9 Organisational level (*measure-plan-do*)

At the organisational level, *measuring, planning and doing* happen using the following RFP themes:

- Safety and ergonomics;
- Waste reduction;
- Job security; and
- Aligned commitment.

6.9.1 Safety and ergonomics. Ergonomics is another way for an organisation to show Respect for People, as it is considered disrespectful if you let people work too hard physically or perform dangerous tasks.

6.9.2 Waste reduction. Lean literature explains the eight forms of waste. Although these principles pertain primarily to technical production, removing waste from people’s everyday lives can also be seen as Respect for People. For example, letting someone stand and do nothing (idle time) may be considered disrespectful. It is also a form of waste, as the organisation is paying him/her for doing nothing.

6.9.3 Job security. People should never lose their jobs because of a lean implementation. An organisation should provide job security to employees, especially during a lean implementation. Failure to do so will prevent effective implementation and cooperation from employees. When people see that nobody has lost their jobs because of a lean implementation, they will be more likely to take part and provide valuable input.

6.9.4 Aligned commitment. Lean implementation can only be successful if the commitment between the company, union representatives, the organisation and the employees is aligned. They should all have the same vision. People within the organisation should also have the same goal. If there is respect between colleagues and co-workers, there will be progress for the workers and the organisation.

6.10 Organisational level (*study-act*)

The last theme (organisational problem-solving process) is used to *study* and *act* on the effectiveness of the lean implementation process.

6.10.1 Organisational problem-solving process. As explained, the RFP model aims to establish a company-wide problem-solving culture. This is achieved by developing a product value stream that highlights problems and a people value stream that delivers people who can

solve these problems. Thus, if the organisational problem-solving process operates effectively, the implementation can improve the organisation.

The organisational problem-solving process that should be implemented is as follows:

- The first step is for the manager to ask the employee about the problem that the employee is experiencing. This discussion aims to determine the *real* problem, not just the *surface* problem.
- The employee is then asked what causes the problem to determine the root cause. The employee should provide evidence from the workplace to investigate the problem in collaboration with the manager.
- The employee is then asked to propose a solution and provide a reason for the specific solution instead of other alternatives.
- The employee is also asked how they (the employer and employee) will know the problem has been solved. How can it be monitored?
- Once an agreement has been reached on the correct course of action, the employee will implement it.

This problem-solving process represents the highest form of respect. Managers admit they cannot solve a problem alone, as they are not close enough to know all the facts. Moreover, the manager respects the employees' knowledge and dedication to finding the best answer to an issue. On the other hand, employees cannot always solve a problem alone, as they are too close to the problem to see the broader context and might not ask sufficiently critical questions about their work. However, a crucial element of the problem-solving process is mutual trust.

Mutual trust should be central to the problem-solving process because it is critical to creating an environment that encourages identifying problems and motivates people to solve them. Without trust in their employers, employees are reluctant to admit to problems and learn that it is safest to hide them. Mutual trust means that management and employees have confidence in each other. Both parties should realise that they have different jobs and responsibilities in the company, which should be emphasised during and emerge from the process.

6.11 Continuous improvement

Lean is a philosophy and an organisational culture. Therefore, a lean implementation is never complete. The organisation will continue to follow the spiral process through the RFP model for lean implementation. Once the last block is reached, the organisation will start again from the first block, following the spiral process towards the back, continually improving the organisation.

7. Verification and validation – Delphi technique

The RFP model was evaluated using the Delphi technique, a process used to collect and distil the judgements of experts from the industry (as explained in Section 3.2.3). The questions were designed to verify whether the model fulfils the initial design requirements (verification) and effectively addresses the research problem, demonstrating that it is fit for purpose by providing a novel and innovative design (validation).

7.1 Verification

Using the design requirements (Section 4) as guidance, the participants agreed that the structure of the model was accepted as simple, the different elements of the model form a unity and the model follows an all-inclusive approach towards lean. It was suggested that the

impact of technology be included and that a service element or service processes be added to the product value stream.

Consensus was reached on the general usability of the model. However, some participants disagreed with this section's detailed elements. Some participants believed that workers (literate and illiterate) would perhaps be unable to understand the model. Although the model offers a simple pathway, a concern was raised about whether the people, especially leadership, will understand how to address the challenges that will inevitably arise during deployment.

Although results indicated consensus on the effectiveness of the RFP model, there was general concern about questions that directly involved management. *The starting point will be to get senior and middle management to commit and drive the RFP model* (Participant 1–8). *The model alone will not deliver management commitment [...] unless they are absolutely dedicated to making it work* (Participant 4–26). The RFP model was initially designed for organisations where management commitment is present. Therefore, it was not the purpose of the RFP model to increase this commitment or buy-in from management. However, these results support the importance of such commitment.

The results showed there was consensus that the model includes all the required lean implementation principles, such as Respect for People, continuous improvement, teamwork and waste reduction. The qualitative feedback, however, indicated that the list is not exhaustive. There were suggestions that the list should include, for example, a governance system and an external coach to help senior leadership figure out the way through problems.

There was consensus that the model applies to South African industries. Only one concern was raised about the municipality in the public sector, as it is “grossly overstuffed” (Participant 2–16).

7.2 Validation

Validation was used to judge whether the model was fit for purpose and whether it was a novel design. The validity of the RFP model was determined by asking participants to rate the following statements on the Likert scale:

- The RFP model could increase the success rate of lean implementation in South Africa.
- To the best of your knowledge, would you consider the construction and integration of the RFP model for lean implementation an original design (as opposed to just duplicating other previous work)?

The data indicated consensus on the model validity. Participants agreed that the model had an original design (as opposed to duplicating previous work) and that the RFP model could increase the success rate of lean implementation.

8. Contribution

The study developed a people-centred model for lean implementation in South Africa that simultaneously focused on Continuous Improvement and Respect for People. Most notably, this is also the first study to incorporate the true meaning of RFP into a practical lean implementation framework for the South African context. Using the DSR contribution framework (Gregor and Hevner, 2013) in Figure 5, the contribution of this study is classified as falling primarily in the top left “improvement” quadrant, providing a new solution for a known problem. Research in this quadrant aims to create better solutions in the form of more efficient and effective products and processes, services, technologies or ideas. In other

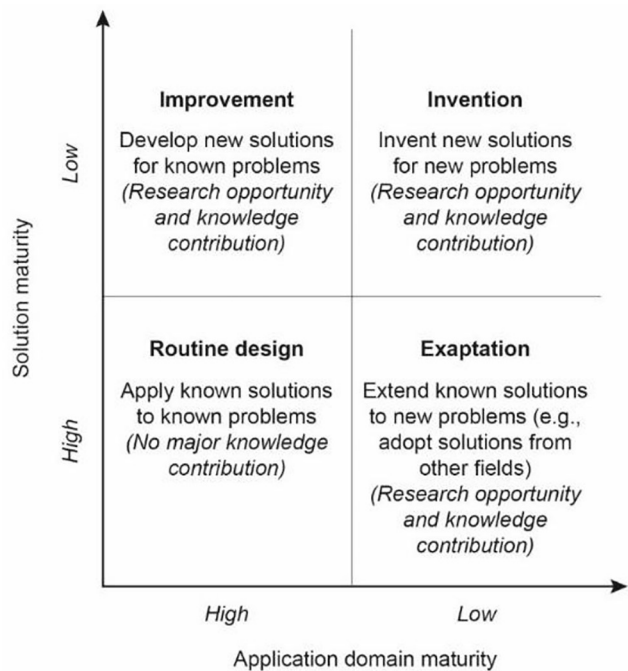


Figure 5. Design science research contribution framework
Source: Gregor and Hevner (2013)

words, a thorough understanding of the problem environment was used to build an innovative artefact to solve an important problem.

Continuous improvement within an organisation can only take place when problems are solved. In addition, problems can only be solved if they are visible and there are people to solve them. The newly designed RFP lean implementation model consists of two value streams: the traditional product value stream and the people value stream. These two value streams are connected using a specific problem-solving process to bring problems to the surface and help develop individuals who can solve these problems. For the first time, a South African model provides practical guidance on including people during the lean implementation process to continuously improve processes.

This study contributes to the literature body of knowledge by providing the following:

- a comparison of the Japanese and South African RFP principles (Table 4);
- the design requirements for a people-centred lean implementation model (Section 4);
- an RFP framework explaining the true, original meaning of *Respect for People* (Figure 3); and
- the Respect for People model for lean implementation (Figure 4).

For the individual in an organisation, a successful lean implementation depends on a supportive organisational culture due to psychological factors during change, such as fear of

failure, breaking with routines, lack of confidence, fear of change, fear of job loss and the fear of receiving more responsibilities (Ramadas and Satish, 2018). Also, as most employees experience negative emotions such as shock, fear, anxiety and depression during an organisational change, they become resistant to continuous improvement processes, such as a lean implementation. The model suggests a new means of creating a supportive organisational culture by involving all employees (not just senior management). It allows employees to provide suggestions for improvement in the work that they do every day. Therefore, the RFP model can guide managers in implementing lean and provide the necessary psychological support during the lean implementation organisational change management process. In other words, the RFP model demonstrates practical Respect for People during lean implementation by helping organisations have a more balanced focus between the lean tools and techniques and the human side of lean management, ultimately assisting employees to have a less negative and stressful organisational change experience.

In support of the greater societies around South African organisations, the problem-solving skills taught during the lean implementation can improve the employee's home and/or community, thereby addressing broader social issues.

For the organisation, the RFP model enables the benefits of the lean philosophy, which can only be achieved through a comprehensive, all-inclusive approach, with buy-in and cooperation at all levels of an organisation. The study found that leadership buy-in is required to provide direction to and enablement of employees. On the other side, employee buy-in is required to help access the valuable input acquired from employees' performance of daily tasks. This information is not new, but the RFP model now supports and enables this two-directional buy-in within a South African organisation.

It was concluded that an effective and sustainable lean implementation could occur only by valuing employees' knowledge, experience and insight and developing their skills. The RFP model enables an improved people value stream to lead naturally to an improved product value stream, contributing to more successful lean implementations in South African organisations.

9. Limitations and recommendations for future research

The study provided a lean implementation model with 15 RFP themes that should be addressed during a lean implementation. The PDSA steps were applied to each RFP theme, but more details are required on *executing each PDSA step*. For example, more detail is required on exactly how to *measure, plan, do and study* motivation, training, communication, teamwork, employee relationships and aligned commitment.

The RFP framework refers to people who are "team-minded, competent, motivated, willing and able to identify and solve problems". Further research is required to develop and measure these qualities of an individual in the problem-solving environment.

The eADR method within the DSR paradigm was followed to address the research problem. The research continuum was entered at the first (*problem diagnosing*) stage, followed by four iterative concept design stages. This created the opportunity for future research to focus on the *build and implement* stages of the eADR method and to implement and test the model in a real-world situation.

During the Delphi process, participants used qualitative feedback to suggest further model improvement. Participant (2–18) pointed out that *the impact of technology is largely ignored*. Participant (3–22) suggested that *service elements or service processes be included in the product value stream*. In addition, some of the Delphi participants believed that shop floor workers (literate and illiterate) could not understand the model. Future research could,

therefore, focus on how to make the model (or aspects thereof) more understandable for shop floor workers.

This study was conducted in *industrial engineering*, focusing on human factors engineering and management systems, which is supported by knowledge of *psychology* and *organisational behaviour*. Future research could further explore the knowledge areas of psychology and organisational behaviour to address the psychological impact of change. Studies could, for example, include an investigation into how to use emotional intelligence and participative management during organisational changes and should investigate how to include the human resources (HR) department in implementing the RFP model. Lean principles should be included in the HR department from the recruitment phase and through every PDSA cycle of the RFP model.

10. Conclusion

The benefit of the lean philosophy cannot be achieved by merely implementing a selection of lean tools and techniques. A comprehensive, all-inclusive approach is required, with buy-in and cooperation at all levels of the organisation. Leadership buy-in is required to provide direction and to enable employees. Employee buy-in is required to provide valuable input based on their daily tasks. Effective and sustainable lean implementation can be achieved only by valuing employees' knowledge, experience and insight and developing their skills. *An improved people value stream will naturally lead to an improved product value stream.* The novel RFP lean implementation model provides this guidance for the South African context.

References

- Anand, G. and Kodali, R. (2010), "Analysis of lean manufacturing frameworks", *Journal of Advanced Manufacturing Systems*, Vol. 9 No. 1, pp. 1-30.
- ASSADEJ VANICHCHINCHAI (2022), "The relationships between soft and hard factors of the Toyota way: a socio-technical perspective", *Operations Management Research*, Vol. 16 No. 2, pp. 768-779.
- Bhasin, S. (2012), "An appropriate change strategy for lean success", *Management Decision*, Vol. 50 No. 3, pp. 439-458.
- Cardon, N. and Bribiescas, F. (2015), "Respect for people: the forgotten principle in lean manufacturing implementation", *European Scientific Journal*, Vol. 11, pp. 1857-7881.
- Carnall, C. (1991), *Managing Change*, (1st ed.), Routledge, doi: [10.4324/9781315122779](https://doi.org/10.4324/9781315122779).
- Coetzee, R. (2019), "Development of the respect for people model for lean implementation in the South African context", PhD, North-West University.
- Coetzee, R., Jonker, C., VAN DER Merwe, K. and VAN Dyk, L. (2019a), "The South African perspective on the lean manufacturing respect for people principles", *SA Journal of Industrial Psychology*, Vol. 45.
- Coetzee, R., VAN DER Merwe, K. and VAN Dyk, L. (2016), "Lean implementation strategies: how are the Toyota principles addressed?", *South African Journal of Industrial Engineering*, Vol. 27 No. 3.
- Coetzee, R., VAN Dyk, L. and VAN DER Merwe, K.R. (2019b), "Towards addressing respect for people during lean implementation", *International Journal of Lean Six Sigma*, Vol. 10 No. 3, pp. 830-854.
- Deros, B.M., Yusof, S.R.M. and Salleh, A.M. (2006), "A benchmarking implementation framework for automotive manufacturing SMEs", *Benchmarking: An International Journal*, Vol. 13, pp. 396-430.

- Dondofema, R.A., Matope, S. and Akdogan, G. (2017), "Lean applications: a survey of publications with respect to South African industry", *South African Journal of Industrial Engineering*, Vol. 28 No. 1.
- Erazo-Rondinel, A.A., Rivera-Nalvarte, C.C., Villar-Vasquez, J.A., Melgar-Morales, M.A. and Giménez, Z. (2024), "Respect for people and lean construction: good practices, benefits and barriers", *Proceedings of the 32nd Annual Conference of the International Group for Lean Construction (IGLC32)*, Auckland, New Zealand, p. 12071218.
- Gao, S. and Low, S.P. (2015), "Toyota way style human resource management in large Chinese construction firms: a qualitative study", *International Journal of Construction Management*, Vol. 15 No. 1, pp. 17-32.
- Gregor, S. and Hevner, A.R. (2013), "Positioning and presenting design science research for maximum impact", *MIS Quarterly*, Vol. 37 No. 2, pp. 337-355.
- Gundlach, T. (2024), *Lean Empowerment and Respect for People*, Routledge.
- Holweg, M. (2007), "The genealogy of lean production", *Journal of Operations Management*, Vol. 25 No. 2, pp. 420-437.
- Jadhav, J.R., Mantha, S.S. and Rane, S.B. (2014), "Exploring barriers in lean implementation", *International Journal of Lean Six Sigma*, Vol. 5, pp. 122-148.
- Kauppi, K., Salmi, A. and You, W. (2018), "Sourcing from Africa: a systematic review and a research agenda", *International Journal of Management Reviews*, Vol. 20 No. 2, pp. 627-650.
- Kracfik, J.F. (1988), "Triumph of the lean production system", *Sloan Management Review*, Vol. 30, pp. 41-52.
- Langley, G.J., Moen, R.D., Nolan, K.M., Nolan, T.W., Norman, C.L. and Provost, L.P. (2009), *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*, Jossey-Bass.
- Liker, J. (2004), *The Toyota Way - 14 Management Principles*, McGraw-Hill.
- Liker, J.K. and Hoseus, M. (2008), *Toyota Culture - The Heart and Soul of the Toyota Way*, McGraw Hill.
- Ljungblom, M. and Lennerfors, T.T. (2021), "The lean principle respect for people as respect for craftsmanship", *International Journal of Lean Six Sigma*, Vol. 12 No. 6, pp. 1209-1230.
- Linstone, H.A. and Turoff, M. (1975), *Delphi Method: Techniques and Applications*, Addison-Wesley Publishing Company, Reading.
- Magnani, F., Siadat, A., Caillaud, E. and Gaudichau, O. (2024), "Defining lean experts' roles and behavioural competencies during lean adoption: a case study of Groupe PSA", *The TQM Journal*, Vol. 36 No. 4, pp. 1054-1073.
- Miller, S., Brom, M. and Houge, J. (2001), "Building a lean enterprise culture", *Institute of Industrial Engineers Lean Management Solutions Conference*, St. Louis.
- Moen, R.D. and Norman, C.L. (2010), "Circling back - Clearing up myths about the Deming cycle and seeing how it keeps evolving", *Quality Progress*, Vol. 43, pp. 22-28.
- Mullarkey, M.T. and Hevner, A.R. (2015), "Entering action design research", *Desrist*, Springer International Publishing, Switzerland, pp. 121-134.
- Nordin, N., Deros, B.M. and Wahab, D.A. (2011), "Lean manufacturing implementation in Malaysian automotive industry: an exploratory study", *Operations and Supply Chain Management*, Vol. 4, pp. 21-30.
- Nordin, N., Deros, B.M., Wahab, D.A. and Rahman, M.N.A. (2012), "Validation of lean manufacturing implementation framework using Delphi technique", *Jurnal Teknologi*, Vol. 59 No. 2, pp. 1-6.
- Nwajiuba, C.A., Igwe, P.A., Binuomote, M.O., Nwajiuba, A.O. and Nwekpa, K.C. (2020), "The barriers to high-growth enterprises: what do businesses in Africa experience?", *European Journal of Sustainable Development*, Vol. 9 No. 1, p. 317.
- Ohno, T. (1988), *The Toyota Production System: Beyond Large-Scale Production OR*, Productivity Press.

- Olu-Lawal, K.A., Ekemezie, I.O. and Usiagu, G.S. (2024), "Lean manufacturing in industrial engineering: a USA and African review", *GSC Advanced Research and Reviews*, Vol. 18, pp. 225-233.
- Pakdil, F. and Leonard, K.M. (2014), "Criteria for a lean organisation: development of a lean assessment tool", *International Journal of Production Research*, Vol. 52 No. 15, pp. 4587-4607.
- Pieterse, E., Parnell, S. and Haysom, G. (2018), "African dreams: locating urban infrastructure in the 2030 sustainable developmental agenda", *Area Development and Policy*, Vol. 3 No. 2, pp. 149-169, doi: [10.1080/23792949.2018.1428111](https://doi.org/10.1080/23792949.2018.1428111).
- Ramadas, T. and Satish, K.P. (2018), "Identification and modelling of employee barriers while implementing lean manufacturing in small- and medium-scale enterprises", *International Journal of Productivity and Performance Management*, Vol. 67 No. 3, pp. 467-486.
- Sein, M.K., Henfridsson, O., Purao, S., Rossi, M. and Lindgren, R. (2011), "Action design research", *MIS Quarterly*, Vol. 35 No. 1, pp. 37-56.
- Sinkamba, F., Matindana, J. and Mgwatu, M. (2023), "Towards lean manufacturing in developing countries: research gaps and directions in Tanzania", *Tanzania Journal of Engineering and Technology*, Vol. 42 No. 1, pp. 26-45.
- Skulmoski, G.J., Hartman, F.T. and Krahn, J. (2007), "The Delphi method for graduate research", *Journal of Information Technology Education*, Vol. 6, pp. 1-21.
- Stewart, J. (2011), *The Toyota Kaizen Continuum: A Practical Guide to Implementing Lean*, Productivity Press.
- Sugimori, Y.K., Kusunoki, K., Cho, F. and Uchikawa, S. (1977a), "Toyota production system and Kanban System; materialization of just-intime and respect-for-human system", Fourth International Conference on Production Research, *Tokyo*.
- Sugimori, Y.K., Kusunoki, K., Cho, F. and Uchikawa, S. (1977b), "Toyota production system and Kanban System; materialization of just-intime and respect-for-human system", *International Journal of Production Research*, Vol. 15 No. 6, pp. 553-564.
- You, W., Salmi, A. and Kauppi, K. (2018), "Integration of African firms into global value chains", *Critical Perspectives on International Business*, Vol. 14 Nos 2/3, pp. 252-281.

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