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Change Management Approaches for Successful Lean Adoption

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Lean adoption is unsuccessful because employees do not reach a consensus on adoption novel ideas, and employers do not precisely understand the value of the lean approach. Hence, a study is vital to formulating the necessary industry approaches for facilitating a supportive system to make lean implementation successful. This study aims to assess barriers concerning lean acceptance for company employees, devise the required techniques to allow employees to adopt the lean approach, and create a change management-based environment for lean implementation success. This study emphasises the employee perspective considering different levels in an organisation. The study questionnaires had a 0.84 Cronbach's Alpha metric, over the 0.70 threshold level, indicating questionnaire reliability. The sample comprised 100 employees, and the response rate was 79%, indicating 79 study candidates. The collected data were processed to determine the average index and conduct a frequency assessment. Subsequently, the data is employed to formulate novel approaches to facilitate lean adoption success, creating a new and versatile medium. Lastly, Jick's change management technique is used to demonstrate that promoting change builds awareness and facilitates change execution. Changes are communicated timely before implementation; moreover, the change management team must devise the guidelines vital to prevent unacceptable work, create standard operating procedures, and implement changes using the genuine working approach to incorporate lean practices in business operations.

Key Words : Change Management, Lean Failure, ADKAR Principle, Jick's Change Management, Lean Manufacturing

1. Introduction

Management comprises administering and collaborating on actions aimed at fulfilling common goals. The processes include assessing business strategy and resource collaboration to fulfil business objectives recognised across the organisation. Listing objectives, organisation, and facilitating collaboration are fundamental management aspects [1]. The lean approach focuses on enhancing customer value by reducing waste [2,3] Hence, it aims to eliminate waste without impacting customer value concerning product or service consumption [4]. Businesses following the lean approach give due consideration to customer value and focus on continuously enhancing vital processes [5]. Consequently, management systems comprise continuous enhancement approaches that benefit the complete organisation.

Therefore, it is vital to devise an acceptable approach that regulates internal resources and maximises responsiveness to ensure that business objectives are fulfilled without fail. Change management techniques must be developed using a process- and knowledge-based framework that integrates strategy execution and status assessment [6].

This research addresses the following research questions:

- What barriers prevent employees from adopting the lean approach in their work ethic?
- What approaches can be used to handle failed lean adoption attempts?
- How to implement strategies to help organisation employees?

The following are the three fundamental research objectives:

- To evaluate barriers preventing employees from embracing the lean methodology
- To devise the necessary techniques to promote lean adoption among employees
- To use change management fundamentals to facilitate an environment supporting the lean approach

This research emphasises organisation employees' perspective, and the survey targets company employees, specifically psychometric, cultural, behavioural, and working environment aspects.

2. Problem Statement

Change management encompasses processes and approaches used by businesses to implement external and internal changes and mentor and train company employees.

The alteration is implemented to formalise the fundamental improvement processes, evaluate actions to validate proper execution and work towards the new goal, or the speed specified and agreed upon by the institution's management team [7]. In contrast, asserted that the change plot uses the research by Dr Alfred Kubler-Ross, a Swiss-American psychiatrist who spearheaded the advancement of behavioural modification study, it specifies the intrinsic emotional aspects witnessed by individuals undergoing transition and change [8]. Specific aspects like cognitive capability and environmental change acceptability guide individuals. Other viewpoints help explore the effect of the impact.

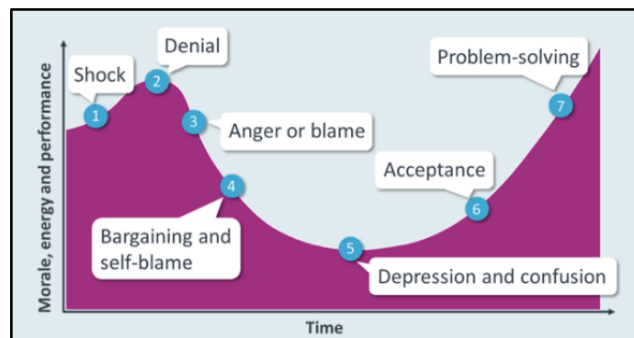


Figure. 1: The Kubler-Ross Change Curve [8]

Hence, environmental changes guide changes in an organisation based on how decision-makers perceive such adjustments. Change resistance is a critical roadblock for organisations. Individuals resist change because of its ability to create personality clashes, reduce control, and create fatigue. Drivers responsible for change resistance are listed in Table 1 [6].

Table 1: Change Resistance Drivers [9]

Factors	Description
Disrupted Habits	Change can influence a person's ingrained habits, resulting in resistance because the individual is accustomed to the old manner and finds it difficult to follow the new notion.
Personality	Every person's risk tolerance varies, and this is influenced by the individual's self-concept.

<i>Feelings of Uncertainty</i>	People are stressed as they have the impression that the future is uncertain.
<i>Fear of Failure</i>	The worry individuals feel as a result of the new and unfamiliar scenarios that will occur, as well as the fear they feel that the new alterations may damage their performance.
<i>Personal Impact of Change</i>	Lack of experience and understanding has resulted in a personal impact that will prevent change from taking place.
<i>Perceived Loss of Power</i>	People are concerned about losing their influence or ability to control conditions as a result of the recent changes.

Several academicians have indicated that millions of businesses have benefitted by transitioning to the lean model; however, numerous organisations are yet to adopt the framework. The 2006 data suggests that fewer than 10% of the enterprises recognised by the United Kingdom fulfilled the specified objectives using lean adoption [10]. Information indicates that less than half of all aerospace organisations are happy with lean adoption. Moreover, in the healthcare and medical domain, enterprises without lean adoption had a 54% respondent satisfaction rate [11]. Moreover, in healthcare sector, the employee and the stakeholder acceptability were responsible for 62% of all failed lean implementations. Such failures and associated disappointment concerning the results are not significantly associated with inadequate improvement or financial support; instead, most organisations fail to adequately address the vital success factors for lean implementation like leadership involvement and direction and employee and supply chain vendor communication. Successful lean adoption projects focus on how to adopt than where to implement [12]. Considering the hierarchical correlation-specific model for assessing the Critical Failure Factor (CFF), there are several classes: managerial and economical, learning and information specific, business-specific, technological, environmental, social, and extrinsic, responsible for lean implementation failure. It also considers inadequate attention to sustainability concerning the selected lean instruments, inadequate stock owner support, cultural resistance, imprecise cost and time determination, inadequate international and safety recommendations, market competition, and unpredictable events like pandemics. Moreover, the critical failure aspects like inadequate dedication, involvement, and lax attitude of the leadership team has been the top critical failure factors in most of the organization. The leadership must ensure that all prerequisites are fulfilled for every department and the business operates normally. The critical issue here is that training cost is considered a significant expense incurred when all other options are exhausted. Moreover, incorrect identification and prioritisation of lean approaches exacerbate the issue, which most significantly contributes to lean adoption failure. Inappropriate lean instruments might cause complete failure because there would be a misalignment, time, and schedule issues. Moreover, the research determined that inadequate leadership ability and supportive vision, not considering human aspects properly, and a lack of clarity concerning future vision have a critical role in ensuring successful lean implementation for the enterprise in order to fulfil the objective of reducing water, increasing efficiency, and coordinating for lean-based success [13].

3. Methodology

This study implements a four-step approach to building questionnaires: considerations, question content, verbiage, response specification, question order and layout, initial tests, pilots, and revisions. Figure 2 depicts the questionnaire building flowchart. The review questionnaire is built using the ADKAR framework comprising five aspect as display in Table 3 below: Desire, Ability, Awareness, Knowledge, and Reinforcement, in order to comprehend change handing considering an individual viewpoint. An individual might witness positive changes when these five aspects are implemented optimally, motivating the team through positive signals and behaviour, aligning with the predetermined aims and goals [14].

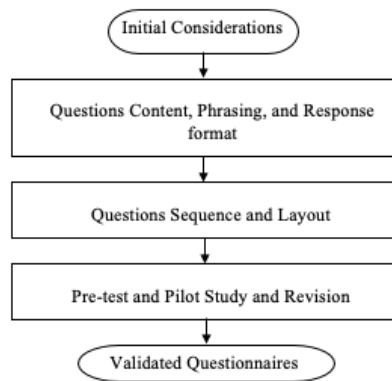


Figure. 2: Flow Chart for Questionnaires Building

When used to change management plans, processes, gap assessment, devising corrective measures, and obtaining leadership support from supervisors and managers, this framework helps implement change smoothly from an organisational management perspective.

Table 3: ADKAR Framework Specification

A	AWARENESS of the need to change
D	DESIRE to support and participate in the change
K	KNOWLEDGE of how to change
A	ABILITY to implementing required skills and behaviors
R	REINFORCEMENT to sustain the change

4. Results and Discussion

4.1 Cronbach's Alpha

Cronbach's Alpha measures reliability or internal consistency, determining the degree to which tested elements have a similar notion. The obtained alpha, in this case, would be weak considering the low correlation between variables and elements, requiring multiple reject-and-update cycles for the questionnaire. The most straightforward technique for identifying imperfect correlations is determining the correlation for every tested element against the overall test score and removing items with close-to-zero correlation. A very high alpha level indicates item redundancy, indicating similar questions using several forms.

The expression for Cronbach's alpha and the thumb rule is specified below:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}} \quad (1)$$

where,

N denotes item count, \bar{c} denotes averaged item-pair covariance, and \bar{v} represents the average variance

Table 4. Cronbach's Alpha value and corresponding reliability [15]

Cronbach's Alpha Value	Reliability Coefficient
$\alpha > 0.9$	Excellent
$\alpha > 0.8$	Good
$\alpha > 0.7$	Acceptable
$\alpha > 0.6$	Questionable
$\alpha \geq 0.5$	Poor

4.2 Average Index Assessment

The average index is computed to evaluate survey data used for fulfilling study goals. Five indices are used using a Likert-scale implementation. Index values for every option are computed based on the specified rating method and a similar category.

Average index formula:

$$\text{Average index, } I = \frac{\sum (a_i \cdot x_i)}{\sum (x_i)} \quad (2)$$

Where a_i is the weight constant for element i , x_i denotes parameters having a response rate i , while i represents the five-point scale (1-5).

4.3 Lewin Kurt's Change Management Framework

This approach considers three primary aspects that must be fulfilled: unfreezing, change, and refreezing, as depicted in Figure 3 [16].

Unfreezing is primarily conducted to create physical and mental preparation to allow individuals to be receptive to change. Unprepared employees have a high failure likelihood because, during functioning, the stated objectives might not be adequately comprehended.

Conveying the plan is critical to facilitating that the proper communication is received precisely. Establishing leadership communication with employees on the proposed changes is expected to raise adoption and derived value.

During change, novel ideas are implemented frequently, and support is offered. Managers must build on and celebrate quick wins and appreciate employee effort. This step might raise the likelihood of employees embracing the change. Subsequently, the final refreeze phase comprises creating a lasting impact by fully implementing new changes. New thinking, performance characteristics, and behaviours must be commonplace; change reinforcement and assessment exercises should be continued. Organisations should recognise employee effort and publicise better outcomes in order to create enduring change. When the change is implemented, the present state is unfrozen, and the subsequent change is implemented using a top-down approach. Subsequently, the emphasis is on freezing the change or making it more enduring.

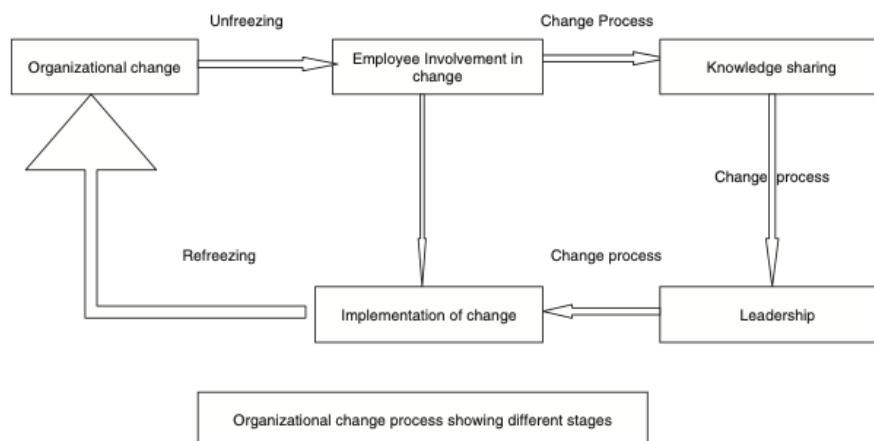


Figure. 3: Lewin's Three-Point Strategy [16]

4.4 Jick's 10-Step Change Management Framework

In the application domain, there are 10-step change management framework was formulated to directly implement

significant organisational change, as depicted in Table 5 [17]. The framework offers a plan to create change so that effort is assessed comprehensively using progress indicators since change handling is a continuous improvement effort than a discrete event.

Table 5: Jick's 10-Step Change Management Framework [17]

Steps	Description	Action Proposed
Analyze the Organization and the Need for Change	Assessing the specific organizations and its actual need for change	<u>Circulate a questionnaires, survey, observations, and measurement or the checklist</u> for every terms in a year or in a specific timeframe so that the employees' satisfaction and the output assessment such as by using the lean matrix from time to time
Create a Shared Vision and Common Direction	Creating a shared vision and a common direction that drives the change	<u>Conduct a holistic meeting</u> with every layer in the organizations acknowledge the employees' personnel vision to be comprehend into the organisations' goals
Separate from the Past	Indicating the important of separating current change initiatives that have been undertaken in the past	<u>Provide training & coaching</u> the new skills require by the changes
Create a Sense of Urgency	Creating urgency around the vision and separation achieved from the previous steps	<u>Promote the changes</u> widely thus, create a high awareness that the changes will be executed by circulate the advertisement months before the changes be executing
Support a Strong Leader Role	The moral and physical support to the change-oriented leader that execute every change planned	<u>Select a role model</u> that can live up the change clearly select a person or a team that can display how the changes are being executed no hidden information from different hierarchy level <u>Provide counselling</u> that ensure the mental health of every employees
Line Up Political Sponsorship	Emphasizes gaining buy-in from senior management and key factors that influenced the change initiative	<u>Pitch the changes and offer</u> a collaboration with other industry player such as suppliers, customers, competitors, and government
Craft and Implementing Plan	The leader needs to secure the expertise change planned	<u>Develop a clear change</u> structure that is transparent and accessible for every employees <u>Send the change team leader</u> to gain external and more extensive training regards the changes <u>Shorten the term</u> of office for every leader position to ensure the credibility and integrity

Develop Structures	Enabling	Captures activity around to enable the change structures, facing and handling the obstacles that might be hinder the progress of the change	<p><u>Develop</u> a monitoring system that is fair and transparent in giving out critics and improvement</p> <p><u>Create</u> a more clear and easy working flow that free from bureaucracy such as a simple paperwork to deliver any request and information</p> <p><u>Provide a unified and standardize portal</u> for the employees to share the work documentation that can be accessed by every hierarchy layer in the organizational</p> <p><u>Develop a transparent & efficient suggestion and complaint</u> by assigned a specific teams that will carry out the action in the organizations</p>
Communicate, Involve People and Be Honest		Involves disseminating an honest message amongst the change agents and the recipient of change	<p><u>Use a universal language & terms</u> for every working system and workplace</p> <p><u>Build a two-way communication</u> among every employees by having a suggestion box</p> <p>teamwork in any job scope that free from judgement that has a wide and transparent way of deliver any information</p> <p><u>Enhance the arrangement of the office layout</u> to be in open area instead of having each personnel room</p> <p><u>Involve the employees</u> into the decision making in any solution by having an open meeting as example broadcast the meeting online so that every employees can access and understand the content of the meeting</p>
Reinforce Institutionalize Change	and the	Reinforcing the actual change initiative and upon completing, institutionalizing the change can be maintained well after the actual change has been executed, and ensuring sustainable to be kept in the company.	<p><u>Continuous improvement</u> by provide incentives and reward every employees that successful implement the changes</p> <p><u>Observe any attitudes</u> and behaviour of every employees resulted from the changes from time to time</p> <p><u>Document</u> every progress made by the organizations as well as the response from every aspects include the behaviours changes, complaint received, and survey done from time to time for further references</p> <p><u>Develop</u> an online system that record in every detail of every movement on the changes execution as example a portal that record every attendance of the employees on each specific changes strategies.</p>

Nevertheless, the leadership and senior management must also prioritise and commit to the transformation journey, applaud employees for good performance, and implement new behavioural aspects arising from the change to fulfil change management objectives and align with company goals. Change management is not a discrete event; it is a

challenging continuous phenomenon requiring more effort to handle aspects like information and skill, emotions and actions, and environment and culture that need to be enhanced to overcome challenges faced by teams and the organisation [18].

5. Conclusions

Considering the information from this review, it is understood that the change management approach is identified to enhance lean adoption success in enterprises. Handling change is a critical enabler for organisations to manage and motivate employees to fulfil the objectives concerning lean framework implementation. Moreover, considering a post-pandemic world drifting towards normalcy, change management processes will facilitate recovery and prevent slowdown due to the unprecedented disruption to the global economy. The new systems can be more human-centric, systematic, and objective, considering the change management frameworks emphasise human behaviour and cognition. Consequently, we expect the approach to result in a systematic, controlled, and peaceful scenario for employees following lean systems.

Nevertheless, the current perspective also provides critical learning opportunities regarding change resistance and its contribution to lean failure. Transitioning from a familiar and set environment to a novel system creates different emotions that the company might find challenging to handle. Hence, it is vital to carefully specify the emphasis points so that all stakeholders across levels have a clear view of organisational objectives that drive lean method implementation. Furthermore, more aggressive aspects of the change adaptation approach like why change should be considered build urgency among employees and political and financial stakeholders to facilitate lean adoption, create a systematic plan and motivate and systematise change.

Hence, all organisation levels must view change comprehensively; the objective must be to secure commitment aimed towards creating the required business environment conducive to change so that objectives are met, benefitting the organisation.

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