

## The role of culture and leadership in lean transformation: a review and assessment model

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### ABSTRACT

This study investigates how the organisational culture and leadership influence the implementation of lean system in organisations. In doing so, organisational culture, leadership and internal issues concerning human resources are incorporated and discussed. The study further explains how an organisation can benefit from assessment of their culture by adopting Lean Culture Assessment Model (LCAM). The Critical Success Factors (CSFs) for lean system and internal as well as external organisational factors in Toyota's working culture that brings about positive impacts on lean implementation is discussed. It is found from the literature review that a number of factors such as top management commitment and leadership, empowerment and training of human resources, building relationship with suppliers and customers, enhancing departmental relations and teamwork need to be taken into account in order to implement a successful lean system.

The purpose of this study is to bring this system into organisations' attention and give them insight of evaluating their weaknesses and strengths by implementing the proposed LCAM.

The methodology for this study was based on secondary data that represents literatures referring to Toyota's culture, lean's CSFs and organisational culture.

The literature review establishes the importance of organisational culture, its leadership and the human resources in any organisations' success. Moreover, empirical evidence from the reviewed literature shows that an organisation cannot succeed in lean unless it has a healthy culture, skilled workers, the buy-in from the top management and a strong leadership. The key and essential part of an organisation was found to be the leaders who act as a cornerstone between top management and bottom line workers.

The LCAM would enable the organisations to assess their internal culture before implementing lean management. The model has been designed by systematically incorporating the lean values, philosophy, principles and Toyota's culture.

### KEYWORDS

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## 1 Introduction

In the pursuit of staying in a competitive business environment, companies in both service and manufacturing sector have sought to illuminate waste through implementation of lean management tools. While there are great deals of lean success stories, a significant amount of confusion on how lean manufacturing is best implemented still exists. This research study discusses the role of the organisational culture and leadership in implementing the lean system, furthermore it provide an insight of how to assess the organisational culture prior to implement lean and that by using LCAM.

In recent years, it was found that the lean system has been widely applied in both service and manufacturing sectors as this provides organisations with the ability of reducing cost by eliminating non-value added activities.

Despite its pervasiveness, there is an increasing concern in the corporate world about the implementation of lean in both large and small and medium sized enterprises (SMEs). One of the reasons of this is lack of understanding on Toyota's culture and the critical issues of lean implementation. Culture is a powerful, latent and often an unconscious set of force that determines both of the individual and collective behaviour. The present study addresses key issues that relate to lean implementation with special reference to the impact of cultural and leadership factors. And in order to understand the organisational culture, organisations ought to adopt LCAM prior the implementation of lean management.

It is believed that Lean is a systematic continual improvement philosophy to reduce waste. While reviewing literature, it was found that a great deal of organisations have experienced that a few of their activities do not add any value for the customer or to the business that mainly come from lean wastes namely; over production; waiting; transportation; inappropriate processing; inventory; unnecessary motions; and defects (Meier, 2001). The objective of any lean initiative is to satisfy the customers' needs to the maximum level by identifying and ultimately eliminating the wastes. Most of these wastes are attached to human factors and in order to eliminate these wastes, organisations need to give more respect and more empowerment to the human resources in the organisation by promoting favourable working culture and continuous improvement.

## 2 Literature review

### 2.1 Organisational culture

Lean system arose from Toyota Production System (TPS) and gained popularity as one of the best strategic practice in manufacturing sectors. Its tools and techniques have been widely used in both manufacturing and service sector regardless of size and activity. The proven success of Toyota has driven attention of many managers in all types of business to emulate and implement the system in their organisation (Emiliani, 2006). Although lean has been used in all over the globe, many authors and researchers have viewed lean in different angle, which proves that this system cannot be copied and emulated. Hence, serious attention needs to be paid onto the variables that might affect lean journey.

One of the most prominent factors that could impact directly on lean journey is the organisational culture and when organisational culture is talked about, the role of leadership cannot be ignored, as lean processes require a substantial leadership role from managers who fully understand the system and strive to gain benefits of it.

It is rare to come through lean articles without coming across top management commitment and leadership, people and the organisational culture. However, only a few if any have explained what sort of leadership is required for the lean implementation journey. According to Dahlgaard and Dahlgaard-Park (2006) many studies have focused on the requirements of lean in terms of training people in techniques

and tools but they paid less attention towards human factor and building the right culture that could support lean journey.

It is found in literature that the initial step for creating a lean culture should come from the senior and mediocre level management and the leader of an organisation. Mokhtar and Yosof (2010) believe that involvement and buy-in are key features of lean system to create the right working environment. In order to start this process, the senior management need to show full commitment and belief in providing the required support, adequate resources, budget and investment in employees training. Assigning appropriate tasks to the right manager and leader is also believed to be a key quality in the lean system (Mokhtar & Yusof, 2010).

Mullins (1999) describes that before trying to evaluate the organisational culture, it is important to examine what factors are affecting the culture as there are a number of issues which can have a direct impact on organisational culture. ; Mullins (1999) further outlines possible factors affecting organisational culture such as history, goal and objective, size, location, management and staffing, primary function and adjective; and finally the organisational environment.

According to Taleghani (2010), only 10% of UK companies have a successful lean system as they instituted the lean philosophy in a proper manner. Reasons behind the major percentage of failures are culture and management issues as Mejab (2003) stated these issues can cause real obstacles in lean implementation's path since the organisational culture and management are correlated to each other, he insisted that the top management got to show some dedications towards lean. Smilar to Talegani (2010), Mejabi (2003) advocates addressing these issues first and also stresses that each of these issues should be taken into account to avoid lean failures.

The organisational culture has been largely reviewed by researchers which reflect the importance of the system. It has been accentuated as a vital factor in implementing a successful strategy (Al-Swidi & Mahmood, 2011) such as lean management or any other quality management techniques. As these kinds of techniques require a long term strategy, only good organisational culture can cope with it and eventually sustain it.

As it is explained above that lean has its origin from Japanese culture and then imported to the rest of the world; it is therefore important to recognise that lean culture needs to be understood thoroughly for successful adoption and implementation. Due to globalisation, nothing seems to be exclusive to one country as lean and other quality management techniques have been shifted from Japan and western countries to different parts of the world such as Middle Eastern, Indian, Latin American, Eastern European and Asian regions (Lacksonen *et al.*, 2010). Each of these regions is different and unique in terms of organisational culture and national culture; therefore, in order to accomplish successful lean system, each region needs to have appropriate and feasible ways of implementing it in lined with its organisational culture and the Japanese corporate culture (Lacksonen *et al.*, 2010).

Rodner *et al.* (2006) explain that a continuous improvement in culture within the organisation, where the workers from all departments are willing to accept the initiatives, is one of the key factors for lean implementation. Considering the finding by Rodner *et al.* (2006), people are therefore the most powerful tool to help in changing the culture towards continuous improvement. Furthermore, they need to be engaged in the process from the very early stages to become more effective and motivated toward generating culture of continuous improvement (Radnor *et al.*, 2006).

## 2.2 Leadership

Culture and leadership work hand in hand as both of them are important for driving an organisation to succeed. According to Larsson and Vinberg (2010), success of an organisation is heavily reliant on the leadership behaviour. Leaders by their vision, who can lead by setting up example and inspire people by encouragement are proved to be a positive and influential factor in overall organisational performance (Larsson & Vinberg, 2010). This is exactly what expected from leaders and senior managers under the lean manufacturing system.

Leadership is envisaged one of the key successful factors for lean and other quality management tools that cannot be ignored as it has been acclaimed by many quality management experts (Nwabuezea, 2011). Nwabuezea (2011) describes ten crucial traits of leaders that need to be taken into consideration while dealing with subordinates and colleagues. The key traits are good commander, high level integrity, strong minded, good planner, good controller, good organiser, personality, good listener, hands-on and team player.

Accordingly, if any organisation, regardless of their activities and size, wants to achieve the desirable results, it needs to consider creating a healthy organisational culture by adopting triangle model of organisational set up – senior management, leadership and its people. Dahlgaard and Dahlgaard-Park (2006) assert saying appropriate culture cannot be compromised, and if a company wants to adopt lean it should have the right culture which starts from senior to middle management and eventually to shop-floor. Alongside, the organisation needs to have a strong leadership.

## 2.3 Toyota culture

It is important to understand the Toyota way of organisational management, and unveil the reasons behind their success in order to create a desirable lean culture in any organisation. Moreover, understanding the relationship in Toyota among their core people (workers, customers and suppliers) is also important in this regard. In addition, it is equally important to know what respect for people means in Toyota, knowing how the leaders lead and how the system works and finally understand how Toyota have achieved and sustained the continuous improvement in culture.

Moreover, it is important to be aware of the requirement of lean system by knowing the CSFs and the importance of people; as such factors are the key driving forces of creating the desired culture.

According to Liker and Hoseus (2010), a number of companies around the world, who are involved in lean system, see Toyota as a role model. However, most of the companies, who have tried to emulate Toyota model, have failed in incorporating the example due to the fact that they are ignorant towards the internal culture of Toyota (Spear & Bowen, 1999). According to Emilliani (2008), a few successful Lean transformations have been witnessed in the past years due to the lack of understanding about the lean system as a management system since most of them view it as purely manufacturing system. More importantly, most of those companies have failed because they couldn't understand the values and respect of people as Toyota does. In this research, the Toyota culture is taken as a benchmark for any organisation preparing to implement the lean system.

Liker (2004) explains that the underlying assumption of Toyota's culture is reliant upon two parts: the first part is external, which starts with customers; and the second part is internal that starts with respecting people and a continuous improvement in internal culture. Schein (1992) emphasises that the organisations' leaders need to focus on the core of the organisation (basic underlying assumptions). Without addressing the basic underlying assumptions; the organisation is unlikely to change or maintain their culture (Young, 2000).

### 2.3.1 What does Toyota culture look like

Liker (2004) describes the details of Toyota culture that makes it extremely strong. He highlights Toyota's endeavours to make their people feel part of Toyota and Toyota part of them (ownership) by mixing and socialising them into the different departments from early stage. Liker (2004) further describes that Toyota's leaders believe and have trust in their people, and understand that investing in people is the key to success of Toyota.

Marksberry *et al.* (2011) explain why Toyota is a successful firm, by stating that Toyota's culture offers long-term vision, incentives and rewards to help managers in encouraging people to participate greatly in ongoing activities undertaken in the organisation. The firm also believes in and accepts people's mistakes particularly in experiments as such belief leads to continuous improvement. Liker and Hoseus (2010) describe the importance of trust in Toyota's culture is distinctive. They describe that the trust in the firm has not come through words; rather through policy and daily interaction among members, which eventually encouraged them to feel a part of Toyota's family.

The strength in Toyota's culture relies on encouragement of managers for leading their colleagues by example, solving problems in collective way, making decision based on fact, raising their voice and being patient. Most importantly, Toyota tends to encourage its managers to view every action at the real working area rather than getting feedback from shop floor workers (Marksberry *et al.*, 2011).

Furthermore, Toyota amplifies management focus on the continuous improvement system by challenging people to look outside the box to identify innovative approach to improve the current system (Marksberry *et al.*, 2011). In doing so, the management system in Toyota put efforts in making sure that managers are creative and highly committed to attain the goals of the company.

The core competence of Toyota is the organisational culture, which is represented in respect for people and continuous improvement which has not changed since its origin (Liker & Hoseus, 2010). Similarly, Emiliani (2008) says that people including all such as employee, suppliers, customers, investors and communities are all inclusive in the organisational cohesive culture. The Toyota vigour came from its people and each employee in the company is called a team member. Each of them is aware of and involved in the annual plan and its future plan in order to achieve the desired success. Random movement or behaviours are not accepted, and each worker performs according to the company's philosophy and its principles (Liker & Hoseus, 2010).

Due to the fact that people are the key assets of the company, Toyota's approach is to wisely select people and to be patient in developing their capacity, which takes a long time, as it believes that people can drive the wheel of improvement that will lead the company to a competitive advantage, this principle is represented in Toyota's basic underlying assumption (Liker & Hoseus, 2010). Liker (2004) and Liker and Meier (2007) agree and say that the key driver for competitive competency of Toyota is their way of developing the team members. According to Young (2000), Toyota makes small but constant improvements in its plants in order to allow its workers to understand and be aware of the improvements. Such principles are crucial and significant for lean system.

Another distinctive character of Toyota is the "learning culture" which is linked directly to customer management. In doing so, they can cope with the fluctuations of customer demand swiftly (Young, 2000), and this may not be easy to imitate and represents particularly in a difficult circumstance for companies who would like to follow Toyota's steps or practices. According to Liker (2004) Toyota's success in maintaining a learning organisation environment came from their philosophy of understanding their people and being aware of the motivational factors of human resources in any manufacturing

organisation. This enables them to foster leadership, teamwork and culture that have helped Toyota to build a robust relationship with its suppliers.

Marksberry *et al.* (2011) describe Toyota as a distinctive example since it is recognised widely as a learning organisation, which keeps improving over time and strives to develop challenging environment for people in order to improve their current state. Moreover, it has the aptitude to react and respond to the market change. Sugimori *et al.* (1977) emphasise that the most distinctive feature of Toyota is the human element where the workers are respected and empowered as they are allowed to present and express their ideas for improving the process through active contribution.

Furthermore, Spear & Bowen (1999) confirm that Toyota is a learning organisation as it tends to encourage people to undertake innovation, learning novel skills and efficient performance. It is found in the literature review that in Toyota, every improvement tool such as problem solving, process improvement and machine/worker connection is according to the proper techniques/procedures. It is made a mandatory procedure and people at every level must adhere to the assigned procedures.

The literature review explains that a great deal of companies in various sectors has tried to imitate Toyota but due to lack of understanding the core principles such as organisational culture the attempts were unsuccessful (Spear & Bowen, 1999). According to Spear and Bowen (1999), there are four key rules for an organisation to be successful in manufacturing business. These rules are as follows:

- i) How people work;
- ii) How people connect;
- iii) How the production line is connected; and
- iv) How to improve.

It is found by Spear and Bowen (1999) that the four rules are the secret weapons of Toyota that have driven the company to be successful throughout the years. By these rules, Toyota has made clear to its people about the ways to work on a daily basis in order to avoid ambiguity and misunderstanding. According to Marksberry *et al.* (2011), Toyota achieves it by instilling the teamwork spirit in each employee, and applying a strategy called “Hoshin Kanri” that align the resources and explain exactly about the designed goals to be achieved; therefore, each worker works and contributes to achieve the same level of outcomes.

Spear & Bowen (1999) further examine and explain that nothing were found to be hidden in Toyota, and all workers are aware of the ideal production rate in order to perform accordingly and improve their approach if required.

Many traits and attitudes have driven Toyota to succeed and made Toyota’s workers different then other workers around the globe. Some of these prominent traits are a sense of fairness at work, willingness to improve, security at work as Toyota follow a lifetime employment policy, no barriers between senior management and shop floor worker and workers have the chance to be promoted to managerial positions. The attitudes and traits have consolidated senior management with workers, and made them a robust unit (Sugimori *et al.*, 1977). This has helped Toyota to execute its targets; however, a few of these traits are not easy to imitate. According to Briggs (1988), a number of traits and attitudes are not exportable commodities as it is consistent with the Japanese culture and values.

Another issue that makes Toyota exceptionally distinctive is their relationship with suppliers. Toyota believes the suppliers are the cornerstone of their production system and without a strong relationship with suppliers, lean is unlikely to happen (Vaghefi *et al.*, 2000). The strong relationships with the suppliers means involving them in the process and there is an institutionalised set of practice between both parties to help transfer knowledge, and to learn faster in engineering, designing and manufacturing

(Vaghefi *et al.*, 2000). Such practices are not easy to achieve by other companies unless they transfer their culture and values.

#### **2.4 Critical success factor (CSFs) for lean system**

The prime objective of lean system is to change the corporate culture from passive and defensive to open and pro-active, where people's involvement is essential, customer satisfaction is a priority and a continuous improvement is a daily job by the whole departments. Likewise leadership must be presented in a day-to-day basis (Dahlgard & Dahlgard-Park, 2006).

Moreover, it is expected from any organisation to be exposed of the critical factors of lean system in order to be able to understand how to create Toyota type of culture. As explained above, lean culture is about changing the mind-set, the organisational approach should be "outside in" which means concentrating on customers and making them feel on the highest priority. It is particularly about continuous improvement in working system, flat organisation with fewer barriers between senior management and workers, empowerment of people and proper utilisation of time undertaking the right assignment and activities. In a prima-facie, it seems as it is a common practice; however, in reality this doesn't found to be applicable everywhere.

Ohno (1988) states the objectives and key principles of Toyota are to eliminate waste and to enhance efficiency in production in addition to respect human resources. Meanwhile, respect for people requires intelligent leader who listens to the employees and transfers the organisational vision to them so as they can participate heavily in the process. Such practices are called a healthy organisational culture where each part of an organisation plays a major role towards the continuous improvement mission.

Cultural adaption is the key to successful lean implementation (Wong, 2007). The main condition for building and achieving an excellent lean enterprise is an organisational culture, which should be built on empowerment of people, partnership with stakeholders and continuous improvement manner where all employees participate in day-to-day decision making process. This helps a company to achieve customer satisfaction and to reap desired benefits from lean. It is believed that if the culture is built in this way leader would manage to get rid of the traditional management style gradually. Dahlgard and Dahlgard-Park (2006) describe that leadership, involvement of people, strong relationship with customer and suppliers plus cross functional management are essential to create lean culture; though, empowerment is the pre condition for creating the desired culture.

Schein (2004) defines the organisational culture as "a pattern of shared basic assumptions that has been learnt whilst solving problems, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems".

This definition is very consistent with the lean concept, as lean pursue perfection, and it is unlikely to attain unless organisations are ready to learn from their mistakes and develop habit of solving problem on a daily basis. Developing habit of problem solving may not be easy as this requires a great deal of sacrifices and continuous efforts not only from leaders and managers but also from the entire organisation. CSFs, therefore, is the key for lean implementation in order to know what type of culture any organisation needs adopt.

A great deal of factors and attitudinal approaches have been explored and explained by a number of researchers, which helps in promoting lean culture. The most prominent factors appeared in literature review, which may affect the lean journey in both negative and positive ways are; committed senior management, visionary leadership, dedicated employee involvement, clear vision and strategy,

empowerment and motivation of people, teamwork, incentive and reward, job security and communication. A majority of such enablers have been adopted by Toyota.

Achanga *et al.* (2006) explains that the CSFs for lean rely upon leadership, senior management, finance, organisational culture, skilled people and their expertise. Furthermore, Angelis *et al.* (2011) explain that commitment of employee is key driver for lean; however, employees will not be strongly committed unless they experience support, respect, fair treatment and involvement. In addition, realisation that they are central players in the organisation is also a crucial factor. Moreover, the employment stability creates a positive environment within any organisation, which eventually promotes a very promoting working culture. A number of researchers; for example, Womack *et al.* (1990, p. 99), Fullerton *et al.* (2001) and Schonberger (2007) support the argument and believe that employee involvement is vital while implementing Just In Time (JIM) and Total Quality Management (TQM).

Moreover Angelis *et al.* (2011) describe that a clear strategy from top management is crucial as the ambiguity in roles and responsibilities would lead employee to a negative impact and commitment towards lean.

Meredith *et al.* (1991) explain that the CSFs represent in commitment, involvement and support from top management. This reflects in having strong relationships with suppliers and customers with more open and cooperative approach. Moreover, strong leadership with clear vision, strategy and long term commitment result in building effective working culture. More importantly, having trust on people and providing learning opportunity to them may enhance sense of ownership among (Meredith *et al.*, 1991).

Zu *et al.* (2010) share the view and believe that top management support, strong customer and supplier relations and effective workforce management are the critical factor for a successful organisation.

The key to adopting lean culture are having clear top management strategies and focus on individuals in terms of involving people, empowering them and motivating them. These things are imperative for a company who wants to gain the benefits of lean (Höök & Stehn, 2008) asserted. Arumugam *et al.* (2011) conclude CSFs as a strong leadership is required, focus on customer as priority, provide training for workers, build a supplier relationship, process management and teamwork.'

### 3 Organisational culture models

There is a great deal of cultural models found in research literature such as (Hall's model, Hofsted's model and Hampden-Turner & Trompenaars's model). Amongst those models, Schein and Denison organisational culture models that proved to be powerful in understanding and measuring the organisational culture.

Schien's model helps in understanding the organisational culture at different levels such as artifact, espoused values and basic underlying assumptions by fully describing the organisational behaviours as norms and relationships between group members. It is found to be more about observing than collecting data. An organisation could be judged by observation of people and their dress code; however, such examples may not be scientific to understand the lean culture. The author believes adopting Schien's model solely wouldn't be enough to know how far the organisation is from lean.

On the other hand, Denison's model, which is considered to be a pragmatic model, depends on feedback from the whole organisation. This enables leaders to identify what's going wrong in the organisation before implementing any change. This model also enables leaders to measure their organisational weakness and strengths before attempting looking for any solution or change. According to Denison and Mishra (1995) organisational culture is measureable and can be related to the organisational outcomes. It can be measured based on four variables namely involvement, consistency, adaptability, and mission

(Denison & Mishra, 1995). However, this model may not be efficient enough by itself to understand the lean culture, as it is important to know the variable that can affect lean implementations and tackle it before attempting change.

Both, Denison and Schien are commendable; however, it is believed that understanding an organisational culture is not easy unless a model for measuring culture and its impact is developed.

### 3.1 Lean Culture Assessment Model (LCAM)

The proposed Lean Culture Assessment Model (LCAM), still to be empirically proved, has been developed based on critical enablers that made Toyota's culture very strong. In order to know if the organisational culture is helping lean transformation, a few dimensions are developed to enable understanding it in a better way. These dimensions are developed from Denison's work but the predictors from Denison have been altered, which is believed to be helpful in understanding or creating the lean culture. The four dimensions (involvement, adaptability, mission and consistency) are believed to have great impact on the core organisational culture. LCAM may help companies to face their basic underlying assumption and to know how far they are from a lean culture.

As it is explained, Schein and Denison models are proved to be acceptable; however, author believes that these models are not effective enough as far as lean is concerned. Schein's model may help organisations to know how their culture is formed based on artifact, value and assumptions. This model, therefore, particularly be useful to look carefully at the culture. It is more like understanding the culture and identifying the ways it has been evolved over the period of time. On the other hand, Denison's model may help organisations in benchmarking themselves against other companies and to measure the performance with other companies. In other word, it is for measuring the organisational effectiveness (Guidroz *et al.*, 2010). Both models may not help in understanding the culture in lean perspective.

LCAM helps organisations to look more closely to the culture qualitatively and to quantify it by measuring the certain dimensions, which believed to relate directly to lean and to know if the culture is healthy enough to cope with lean by knowing the weakness and strength of the culture.

Furthermore, LCAM would help organisations to understand the factors that make their culture. More precisely, it is important to see if these factors could be aligned with lean principles or further modifications needed to make it ready. This model therefore is inspired by Schein's model in understanding the culture and from Denison's model to measure the culture. Therefore, the prime objective of the LCAM is to allow leaders to know how far their organisation is from lean.

LCAM consists of four dimensions namely adaptability, mission, involvement and consistency sees Figure 1. Each of these dimensions has predictors that would enable organisations to know their attitudes towards lean. The culture's dimensions in the proposed model plays against 8 most prominent lean critical factors that appear in literature and in Toyota's culture. The 8 elements are; top management, leadership, empowerment, strengthening customer and supplier relation, training, departmental relation and teamwork. These elements are believed to be the most critical factors, and are essential in Toyota's culture. If these elements are addressed properly, it is believed that an organisation can create the required culture of a learning organisation, high commitment from employee and continuous improvement. This should enable an organisation to implement lean system and eventually sustain it.

Young (2000) highlights an important point by saying that artifacts and value can be replaced and modified but the basic underlying assumption is the key. Unless it is addressed properly, an organisational culture is unlikely to succeed in change process. In this context, LCAM model may be

suitable for both companies that desire to implement lean and/or for those who have failed in implementing lean.

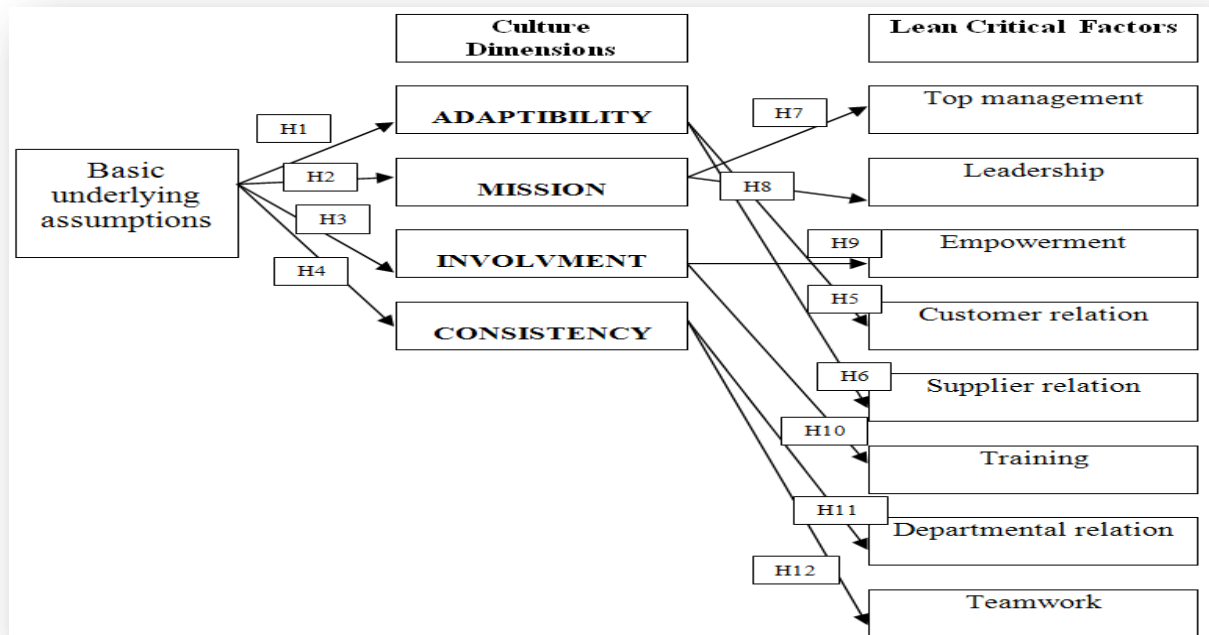


Figure1: Lean Culture Assessment Model (LCAM)

### 3.2 Lean Culture Assessment Model's (LCAM) components

- i. Mission: "A mission illustrates purpose and meaning by defining a social role and external goals for an organisation" (Denison, 2000).

From literature review, it is found that Toyota is a very strong in its mission as it has defined the roles and principles, and consistently works internally to achieve the prime objectives of the company.

It is believed that this dimension can be measured on the level of top management and leadership. It is, therefore, important to evaluate the organisation to examine whether employees are aware of the company's direction in terms of the clarity about their strategy, mission and direction of work.

Moreover, it is again important to verify if the organisational goals are clear and agreed upon by employee, if the goals set by leaders are achievable and realistic. Whether there is a key indicator to show how far the company is from achieving their goals and to verify if the people involved are apprehended of what needs to be done in order to achieve the goals.

Finally, it is also required to verify whether vision is explained explicitly to its people, and know if it is clearly broken down in short and long term goals. In addition, whether these goals can be attained without compromising with organisational vision?

Such questions need to be asked in order to verify whether the organisational culture is healthy in lined with its mission statement.

- ii. Adaptability: "Organisations hold a system of norms and beliefs that support the organisation's capacity to receive, interpret, and translate signals from its environment into internal behavioural changes that increase its chances for survival, growth and development" (Denison, 2000).

It is established from the research literature that Toyota is an adaptable organisation as it found to be responsive to the fluctuations in market. Toyota is a learning organisation and customers are always given the highest priority.

In order to measure adaptability, it is required to look at 2 predictors, which are customer and supplier relation. From this dimension, it is aimed to know the ability of an organisation to respond to its customer fluctuation and market demand, whether the organisation has flexibility, whether there is cooperation among departments in an organisation particularly when change is needed.

Furthermore, there are various points to be raised. For example, if an organisation pays attention to its customer, if it understands customers' need, if it collects feedback from customers, if employees are aware of customers' need. In addition, to verify whether there is a strong relationship with suppliers in terms of sharing knowledge and involving them in product design, and how flexible the companies are with their suppliers.

iii. Involvement: "strongly encourage employee involvement and create a sense of ownership and responsibility" (Denison, 2000).

Literature review established that Toyota is extremely strong in terms of involving people (workers, suppliers and customers). This seems to be the key to Toyota's success, as a number of authors have emphasised that people's involvement is crucial in order to achieve lean's culture, Dahlgaard *et al.* (2011) describe this factor as a key to a successful lean implementations.

In order to measure the Involvement, it is required to look at 2 predictors; empowerment and training. Involvement is one of the keys to successful implementation of lean culture. An organisation requires achieving people's involvement in the entire manufacturing process to be able to implement lean system. This dimension shows the extent of people's involvement in their work. A number of questions could be asked in order to measure involvement. For example, where the decisions are made in department or come from top management to down? Is information easily and timely available to people? Do employees believe on themselves for making positive impact on company? Do people get involved in business planning?

Most importantly, to see whether the organisation has the capability to a learn organisation, do they encourage people to come up with innovative ideas in order to achieve desired objectives. An organisation should always strive to learn from failure. In addition, there should be a system of incentive and reward so as to promote people coming up with novel ideas.

Furthermore, in order to measuring an efficient management at the top level, a set of questions could be asked. For example, it could be asked if a company encourages and motivates people to socialise and work with different departments. If team work is envisioned as an important approach within company, in order to achieve collective success. Whether workers accept their daily tasks aligned with the key objectives of their company.

Finally, there could be a few more points to raise, such as if there is provision of training for staff capacity building, if a company allocate funds for its human resources development and if a company organises exposure trips for acquiring new ideas.

iv. Consistency: "Consistency provides a central source of integration, coordination and control" (Denison, 2000).

It is found to be another strong factor in Toyota's culture, as it is discovered from literature that Toyota works hard to instil a team work spirit and encourage people to work with different department in order to come to a shared agreement.

In order to measure consistency in various aspects of organisations' actions, it is important to look at teamwork and inter-departmental relation. This enables critics to measure consistency in organisations' approach. For example, it can be seen whether or not a company translate their principles in practice. Furthermore, an appraisal is required to see whether organisations are consistent in solving problem, ways of dealing with any disagreement occurred within a particular department. How an organisation demonstrates consistency in its principles and practice. How various perspectives are collaborated into a common goal?

### 3.3 Hypotheses

Lean Culture Assessment Model (LCAM) needs to be empirically tested to prove the hypothesis and to validate the model. 12 hypotheses have been developed in order to test in the subsequent research, these hypotheses are;

- H1: Basic underlying assumption is positively related to adaptability.
- H2: Basic underlying assumption is positively related to mission.
- H3: Basic underlying assumption is positively related to involvement.
- H4: Basic underlying assumption is positively related to consistency.
- H5: Adaptability has a positive effect on customer relation.
- H6: Adaptability has a positive effect on supplier relation.
- H7: Mission has a positive effect top management.
- H8: Mission has a positive effect on leadership.
- H9: Involvement has a positive effect on empowerment.
- H10: Involvement has a positive effect on training.
- H11: Consistency has a positive effect on departmental relation.
- H12: Consistency has a positive effect on teamwork.

## 4 Conclusion

Organisational culture and leadership are recognised as vital and critical aspects for implementation of lean and other quality systems. This research study offers a hypothetical framework, which can help organisations to assess their working culture before implementing lean system. In addition, the key traits for a leader to have in order to implement and sustain the lean system are highlighted. The LCAM is developed based on Toyota's culture and CSFs of lean as well as Denison's cultural model.

Empirical evidence from literature review shows 8 vital factors that companies must pay attention to, these factors are: top management, leadership, empowerment, training, suppliers and customer relations, departmental relations and teamwork. Toyota and other companies who have implemented lean successfully were found to be strong in these areas.

The literature review describes that lean management is more philosophical than technical; and it can't be construed to the plug and play system. Therefore, companies ought to comprehensively understand the lean system before its implementation. Most importantly, a conducive environment must be created within an organisation by employing right people with clear vision in order to achieve expected outcomes from lean. Culture is also found to be an important factor, which needs to be promoted in an appropriate manner.

It is verified by researched literature that organisations can't succeed in lean unless they have a healthy culture, skilled workers, the buy-in from the top management and a strong leadership.

## 5 Future work

In the future, an empirical study will be carried out in order to test the LCAM in Kuwaiti organisations to validate the model and to prove the hypothesis. Furthermore, the significant role of culture and leadership on the lean transformation journey will be explored.

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## Appendix

### Questions for each predictor

#### Part 1: Company Background Information

<b>TYPE OF PRODUCT PRODUCED</b>				
<input type="checkbox"/> Paper	<input type="checkbox"/> Plastic	<input type="checkbox"/> Steel	<input type="checkbox"/> Metal	<input type="checkbox"/> Cartons
				<input type="checkbox"/> Cement
<input type="checkbox"/> Aluminium	<input type="checkbox"/> Chemicals	<input type="checkbox"/> Oil related	<input type="checkbox"/> Electrical	<input type="checkbox"/> Brick
<input type="checkbox"/> Sponge	<input type="checkbox"/> Rubber	<input type="checkbox"/> Food	<input type="checkbox"/> Others (please specify)	

<b>NUMBER OF EMPLOYEES</b>			
<input type="checkbox"/> <10	<input type="checkbox"/> 10-50	<input type="checkbox"/> 50-250	<input type="checkbox"/> > 250

<b>QUALITY/BUSINESS MANAGEMENT SYSTEM IMPLEMENTED</b>			
<input type="checkbox"/> ISO 9000	<input type="checkbox"/> Lean	<input type="checkbox"/> Six Sigma	<input type="checkbox"/> TQM
<input type="checkbox"/> Benchmark		<input type="checkbox"/> Others (please specify)	

<b>IMPLEMENTATION LENGTH IN QUALITY/BUSINESS INITIATIVES (YEARS)</b>		
<input type="checkbox"/> < 3	<input type="checkbox"/> 5-10	<input type="checkbox"/> > 10

<b>NUMBER OF SUPPLIERS</b>	
<input type="checkbox"/> <3	<input type="checkbox"/> 3-5
<input type="checkbox"/> > 5	<input type="checkbox"/> We don't have specific number

<b>ARE YOU AWARE ABOUT LEAN MANUFACTURING SYSTEM</b>	
<input type="checkbox"/> Yes	<input type="checkbox"/> No

#### Part 2: Respondent Background Information

<b>JOB POSITION/ CURRENT TITLE</b>	
<input type="checkbox"/> CEO/ managing director	<input type="checkbox"/> Quality control manager
<input type="checkbox"/> Production manager	<input type="checkbox"/> Inventory manager
<input type="checkbox"/> Supervisor	<input type="checkbox"/> Other (please specify)

EDUCATION LEVEL	
<input type="checkbox"/> Masters / PhD	<input type="checkbox"/> Bachelor Degree
<input type="checkbox"/> High School	<input type="checkbox"/> Others (please specify)

**PLEASE USE THE FOLLOWING SCALES**

*1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree & 5= Strongly Agree*

Adaptability					
<b>Customers relationship</b>					<b>5</b>
1. Customers' comments and recommendations often lead to changes.					
2. Customer input directly influences our decisions.					
3. All members have a deep understanding of customer wants and needs.					
4. We encourage direct contact with customers by our people.					
5. The plant has customer feedback on quality and delivery measurements.					
6. New and improved ways to do work are continually adopted to meet customer demands.					
7. We respond well to competitors and other changes in the business environment to keep our customers.					
<b>Suppliers relationship</b>					<b>5</b>
8. There is a supplier partnership programme.					
9. Our suppliers are involved in product design.					
10. We often receive on time delivery from					

suppliers.					
11. Items we receive from suppliers are mostly defect free.					

**PLEASE USE THE FOLLOWING SCALES*****1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree & 5 = Strongly Agree***

<b>Mission</b>					
<b>Top management</b>					<b>5</b>
12. Our vision creates excitement and motivation for our employees.					
13. There is a clear mission that gives meaning and direction to our work.					
14. There is widespread agreement about goals.					
15. We are able to meet short-term demands without compromising our long-term vision.					
16. We have a shared vision of what the organization will be like in the future.					
17. People understand what needs to be done for us to succeed in the long run.					
<b>Leadership</b>					<b>5</b>
18. We continuously track our progress against our stated goals.					
19. Learning is an important objective in our day-to-day work.					
20. Leaders have a long-term viewpoint.					
21. Leaders set goals that are ambitious, but realistic.					
22. Work is organised so that each person can see the relationship between his or her job and the goals of the organisation.					
23. The leaders and managers "practice what they preach."					

**PLEASE USE THE FOLLOWING SCALES*****1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree & 5 = Strongly Agree***

<b>Involvement</b>
--------------------

<b>Empowerment</b>					<b>5</b>
24. Most employees are highly involved in their work.					
25. Information is widely shared so that everyone can get the information he or she needs when it's needed.					
26. Everyone believes that he or she can have a positive impact.					
27. Business planning is on-going and involves everyone in the process to some degree.					
28. Authority is delegated so that people can act on their own.					
29. We have an employee suggestions system.					
<b>Training</b>					<b>5</b>
30. There is continuous investment in the skills of employees.					
31. The capabilities of people are viewed as an important source of competitive advantage.					
32. Each employee has had training.					
33. The capability of people is constantly improving.					

**PLEASE USE THE FOLLOWING SCALES**

*1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree & 5= Strongly Agree*

<b>Consistency</b>					
<b>Departmental relation</b>					<b>5</b>
34. There is a clear and consistent set of values that governs the way we do business.					
35. There is an ethical code that guides our behaviour and tells us right from wrong.					
36. When disagreements occur, we work hard to achieve "win-win" solutions. It is easy to reach consensus, even on difficult issues.					
37. People from different parts of the organisation share a common perspective.					
38. There is good alignment of goals across whole departments.					
39. Our approach to doing business is very					

consistent and predictable.					
<b>Teamwork</b>					<b>5</b>
1. Cooperation across different parts of the organisation is actively encouraged.					
2. Different parts of the organisation often cooperate to create change.					
3. People work like they are part of a team.					
4. Teamwork is used to get work done, rather than hierarchy.					
5. Teams are our primary building blocks.					