

Lean Practices, Empowerment and Sustainability: the moderating role of Competency Mapping – Development of a Conceptual Framework

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Abstract

The implementation of Lean methodology can be traced back to the 1960's with Toyota's implementation of a production system, known as Toyota Production System (TPS), which eliminated wastes in Toyota plants. The successful implementation of lean practices not only led to reduced costs, but also to improved profits resulting from an integrated partnership in the value chain and supply chain, which led the way to sustainable development. While lean is about eliminating wasteful, non value adding activities from the system; sustainability is all about preserving the scarce resources for the future generations. Apart from manufacturing; lean is being extended to all the activities of the organization for the best results. The present paper is aimed at developing a conceptual model linking lean practices, employee empowerment and competency mapping to form a sustainable model for Human Resource Management. The proposed model can be subject to further empirical testing and validation.

Keywords

Lean practices, Learning Organization, Employee Empowerment, Competency Mapping, Sustainable Development

Introduction

The profitability of an organization is directly linked to the revenue it generates. This statement would be incomplete without an addition that the profitability is also dependent as much on its ability to save costs; direct as well as indirect. Even if it calls for an investment in cost reduction, it can be justified in the long run profitability of the organization. The management of organizations has been devising various strategies to keep costs at a minimum in the different functional areas of management. Cost cutting basically involves switching off the lights and fans for saving electricity, to investing in methodologies that help in saving costs in the long run.

One such strategy is the integration of minimizing waste into the system. Broadly known as lean technology, the system is built in a way so as to

minimize the wastes in the system and adding value for customers, thus improving the profitability of the organization. The implementation of lean strategies started in the manufacturing domain, with emphasis on waste reduction and continuous improvement. Here, it was the people who were involved in suggesting ways of improving. This paved the way for the efforts towards continuous improvement in organizations.

There is, on one side, a compelling need to build lean into the organizational practices while on the other side, there are the people, who are working with the resources and who are those responsible for implementing lean practices. Thus, more than a technology, lean is a culture that has to be built in the minds of the people. With lean practices, the organization quickly adapts to the changing environment, thereby being flexible. This is because a lean organization does not have piled up inventory which incurs heavy costs to the organization in times of changing demands.

So, does lean apply to tangible assets alone? The answer is a definite no because a rigid mindset of

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one single employee makes an organization impossible to adapt to changes. Thus, it is not the tangible assets alone, but the intangibles too, that determine the leanness of an organization. The intangible factors are, but not limited to, skills, attitudes, leadership style, marketing, partnering with those in the supply chain, etc. Thus, it would not be wise to forget the human assets, who possess the intangible factors in them, to implement the lean practices.

Speaking of human assets, they are people with a different set of skills, experiences, attitudes, behaviours, etc. It would not be wise on the part of the management to expect replicable results from them, unless they are robots who can be programmed to have the same set of skills, attitudes, behaviours, etc. Hence implementing lean practices in any organization would certainly depend on the awareness, willingness and the competence of the employees to adopt these practices.

An effective and efficient implementation of lean in an organization calls not only for aligning the employees to the lean, but also empowering them to suggest ways for continuous improvement. The lean implementation has been hinged upon employee empowerment, since its conception at Ford, as cited by (Kovacheva, 2010), by soliciting employee suggestions for improvements in the process. Since it is the employees who are on the job, it is only logical that they come out with suggestions and solutions to implement lean practices, of course within the framework of the values and beliefs of the organizations and aligned with the organizational strategy. For this, it is imperative that the values, beliefs, objectives, vision and mission of the organization be defined clearly to the employees in clear and measurable terms.

For realising the organizational objectives, it is important that the employees have a set of desired functional and behavioural skills in order to meet the organizational objectives. This calls for definitions of the desired level of these skills in advance. Combined with the right attitude, the organization will have competent human resources for meeting its objectives. The process of stating the desired levels of functional and behavioural skills is termed as defining the competency levels. These levels can be used for the entire array of HR functions right from recruitment. The existing employees can be mapped to the competency levels and trained for any gap whereas new employees can be hired by mapping them to the defined levels in the competency map.

The next question arises as to who is responsible for defining the competency levels. Obviously, if the top management does this exercise, it is being thrust upon on the employees and the whole concept of employee empowerment disappears. So, it has to be the employees who should be defining the competency levels for each role in the organization.

The role of the top management is limited to defining the core competencies in tune with the vision and mission of the organization. The functional knowledge, functional skills and behavioural skills, needed for persons holding each role, is defined by the employees working in these different roles.

When implemented in the right way, the organization makes a big leap towards a sustainable model for effective management of human resources. The objective of this paper is to examine the literature of lean practices, empowerment and competency mapping in detail and an attempt to derive possible linkages between them. The framework, thus derived can be subject to future empirical studies. The implication of the model for organizations as well as challenges to the implementation of lean practices will also be discussed in detail.

The Lean history vs. Sustainability

In the pre-industrial era, goods were produced using the craft production system where goods were hand-produced using craft based skills. This type of production is characterized by high unit cost, which did not get reduced with higher production volumes. This was a great challenge to sustainable development, which is defined as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, p. 43). There was either over usage of resources or wastage of resources which led to higher costs as well as the decrease of resources. Craft production system also required highly skilled workers and the production was inadequate to meet the growing demands of the market since production involved a greater time. This situation was overcome with the automation of production process developed in the early 1990s.

The automation of the production process in an assembly line was first introduced by Henry Ford in 1908, marking the start of mass production, where the focus was on reducing costs by mechanizing simple and repetitive tasks. Automation lowered the wastages, but piled up larger inventory, which again did not fall in line with sustainability. On the other side, automation was eventually replaced by job rotation, which promoted team work. This improved the employee morale and resulted in improvement in quality based on employee suggestions for continuous improvement, giving rise to the concept of total quality management. The concept of mass production was accepted by the founder of the scientific management school, Frederick Taylor, since it involved high production volumes, lower unit costs, and lower production time and job standardization.

However, Taiichi Ohno of Toyota group noted that mass production was associated with piling inventories, need for a large amount of space, lesser quality of products and over standardization of

products, leading to less flexibility of the system. According to (Ohno, 1988), post World War-II posed many challenges like competition from bigger nations, lack of capital to make high investments, smaller domestic market, a smaller workforce and scarce resources. This led him to develop the concept of Toyota Production System (TPS), which focused on working efficiently and effectively with minimum resources, elimination of wastes – *muda*, quality at the source – *jidoka* and continuous improvement, *Kaizen*. TPS was aimed to improve processes, make them more efficient and to reduce defects in addition to managing the supply of materials and inventory. TPS worked in similar lines of sustainability, but did not focus on the availability of resources for the future generations.

According to (Womack et al., 1990), in “The Machine that changed the world”, mass production system was not a perfect system. According to him, the adoption of lean approach will “change almost everything in every industry- choices for consumers, the nature of work and fortune of industry by combining the advantages of craft and mass production”. The research of (Hines et al., 2004), emphasized on lean thinking and developing an understanding about the theoretical foundation of organization learning. Their work was based on the framework suggested by (McGill and Slocum, 1993) which emphasizes on cost-value equilibrium. The focus on continuous improvement paved the way to the need for a ‘*Learning Organization*’, where a continuous learning culture is developed which benefits a lean company by creating opportunities for future improvements and achieving sustainability in the long run.

Principles of Lean

(Liker, 2004) identified fourteen principles followed by TPS and classified it under four categories called the 4P model of Toyota. They are Philosophy, which refers to ‘defining customers’ value, formulate and communicate the value flow to all levels in the organization; Process, which refers to identifying the value chain and eliminating waste from the entire chain; People & partners, which refers to waiting for the customer to pull the product he wants; and Problem solving, which involves designing the system to find solutions to all perceived problems in the value chain. According to (Womack, 1990), lean can be applied not only in manufacturing context, but also in every organizational level. Thus, there is a shift in focus from lean production to lean thinking. In an article in Automotive News, (Chappell, 2002) interviewed Womack, who opined that lean thinking is applicable to all aspects of a business and positively impacts not just production operations, but the whole range of business processes including product development, design and sales.

(Womack et al., 1996) define lean thinking as a “multidimensional approach of doing business with the primary focus on waste reduction” and have identified 5 principles of lean implementation. First, is to define customer’s value, so that the right product/service is produced for the customer. Second, is to identify the whole value stream and eliminate waste, by defining the product correctly, managing the information for producing the same and physical transformation of the resources into the product. Third, is to make the product flow by organizing/re-organizing the plant layout, so as to organize work better and identify mistakes for rectification. Fourth, is to let the customer pull the product, so as to minimize the inventory. The final step is to pursue perfection in the production process. It is to be noted that all the above steps have to be considered together, and not one isolated from the other for successful implementation of lean.

Lean was seen as an activity that reduces costs by eliminating waste, introducing just-in-time (JIT) delivery, zero defects, continuous improvement, and the like. The concept of learning organization also evolved as a part of lean implementation. However, all of these were applicable more to, or applied mostly to the manufacturing activities. All the same, researchers and organizations were looking to adopt lean in every operation possible. Thus, the concept extended from mere manufacturing to lean thinking, which was defined as a “multidimensional approach of doing business with the primary focus on waste reduction”, (Womack et al. 1996). They also defined eight wastes to eliminate viz. mistakes, rectification, overproduction, unnecessary production steps, unnecessary movement or transport of employees, unnecessary movement or transport of goods, people waiting downstream, goods or services that do not meet customer needs. (Liker, 2004) supplemented the list with unused employee creativity as a major type of waste.

(Womack and Jones, 1994) further states that, when an organization implements lean in the internal practices, it is called as a lean organization, whereas when lean thinking is applied to all value adding activities inside the organization as well as integrated with its horizontal and vertical partners, then it can be called as a Lean Enterprise. According to them, “joining the value-creating activities can be realized through a new organizational model: *the lean enterprise*. Lean enterprise is a group of individuals, functions and legally separated but operationally synchronized companies.”

(Karlsson and Ahlstrom, 1996) define lean enterprise as “a firm that uses best practices in all functional areas and see it consisting of four different parts: lean development, lean procurement, lean manufacturing and lean distribution”. “It is important to involve the other organizational functions, so as to implement the continuous improvement plans

as a part of lean implementation”, (Panizzolo, 1998). The study emphasized empowering of the employees by giving them a strategic role in the human resources. The author also developed a research model which conceptualizes lean production as “consisting of improving programs and best practices characterizing different areas of the company – process and equipment, manufacture, planning and control, human resources, product design, supplier relationships, customer relationships.

(Czabke et al., 2008) developed the work of (Liker, 2004) and (Shah & Ward, 2003) further, to develop a conceptual framework of Lean Enterprise by extending the lean thinking to all value activities in addition to manufacturing and integrating horizontally and vertically. Five elements were identified as important for a successful lean enterprise. First, was defined as “lean philosophy”, which refers to the “appropriate leadership style and commitment of all management levels till the top management”. Lean philosophy focuses on perfection in meeting customer requirements, continuous improvement, learning and waste reduction.

The second component was an emphasis on human resource management, employee empowerment and involvement in lean implementation with a focus on “teamwork”. The lean principles have to be shared with the employees of the organization, so that the organization becomes successful. The third component formed the core operational functions which include the manufacturing as well as the non manufacturing support functions. While the implementation of lean in the manufacturing functions includes practices such as just-in-time (JIT), Total Productive Maintenance (TPM), Total Quality Management (TQM), etc.; the non manufacturing support functions include marketing, partnering with suppliers and customers, etc. where the lean practices can be implemented for better results.

The fourth level was a lean culture with a focus on problem-solving along with which continuous improvement and learning is also possible which supports the lean culture. “Culture is both a result and enables for sustainable and successful lean operations” (Liker, 2004). The last level is the end products of implementing lean practices, which are the success factors achieved by implementing lean. The results include the objectives of implementing lean – “high quality, low cost, shortest lead time, high employee morale, safety working issues and top business results, which give the company competitive advantage”, (Womack et al. 1990)

A research (Pius Achanga et al. 2006) based on a literature review and data collection from semi-structured personal interviews with managers and personnel in three large manufacturing companies and ten SMEs, all implementing Lean, identifies four key factors for lean implementation. They are financial capabilities for implementing lean culture,

leadership, to take on lean process implementation, organization culture, for accepting and implementing changes in a proactive manner and skill and expertise of people involved, in driving lean transformation.

According to a study by (Czabke, Hansen & Doolen, 2008), the key challenges faced by the companies in lean implementation, appeared to be, the communication of the vision and values of lean thinking to all employees. (Womack et al., 1990) identified support congruence, which enhances team activities involving all the employees in improvement activities. They also opine that feedback to the employees on performance will keep them informed of any deviations from the targeted performance. According to (Womack & Jones, 1994), the needs of individuals and localizing of employees at the right job position seem to be a major obstacle in creating a lean enterprise.

Lean HRM and Sustainability

It can be seen from the above discussions that the employees need to be oriented to lean processes. While motivating the employees to adopt the lean technology, the importance of implementing lean in HR functions cannot be over-emphasized.

According to a study by (Tracey and Flinchbaugh, 2006), companies have begun to realize that Lean is about people, culture and leadership. Lean HR is an approach comprising of methods for analyzing and streamlining HR functions and processes. Lean is the identification and elimination of Non-Value-Added steps in a process. Some of the wastes mapped to the HR context are overproduction (excessive screens like unnecessary proof of claim, etc.), inventory (unnecessary emails, pending requests, pending files for processing, etc.), transporting (carrying of paperwork from one location to another), waiting (waiting for superior’s approval, poor know-how, etc.), inappropriate processing (wrong technology, manual errors, etc.), unnecessary motions (unnecessary physical movements, searching for information, etc.) and defect (delivering wrong information, using obsolete databases, reworks, etc.). All of these work against sustainability, since there is a lot of resource wastage and time wastage and more so, when the same policies are carried down the generations, becomes a great threat to sustainability. Thus, it is important to devise policies that support sustainable development.

It is further stated in the work of (Tracey and Flinchbaugh, 2006) that lean improvement tools deployed for improving HR performance are performance scorecards, 5S visual workplace and process flow mapping. They also identified the steps in achieving success in lean practices as development of teams as a supporting structure by using a common language, principles and tools, creating a common drive provided by vision, goals

and metrics, designing the workplace to support lean, building capabilities and skills for self-management; calculation and communication of metrics by fixing ownership of scoreboard and relevant metrics that are more predictive than confirmatory, with management support, fixing of reviewers of metrics designed for reaching ideal state; communication across boundaries (departments & functions) by effective bottom-up and horizontal communication with clarity in impact and expectations of incentives and pay; communication to employees regarding their role and link pay to lean efforts and communicate the same; and acknowledgement and celebrations of successes by communicating and rewarding progress.

Thus, it is seen that Lean HRM refers to applying lean to the management of human resources as well as implementing lean in the human resource functions in an organization. Applying lean practices to human resource functions is no different than applying lean to other managerial functions. This calls for empowerment of the human resources so that they come up with ideas and suggestions for the improvement of different processes based on their knowledge, skill and experience. Empowerment is closely associated with the implementation of lean practices ever since the concept of lean was introduced in the Toyota Production System. Thus, employee empowerment can be considered as consequence of as well as a component in the implementation of lean practices.

Employee Empowerment for Sustainability

Empowerment is the authority given to the employees for taking decisions that directly relate to their work. Empowerment does not have a universal definition and is defined by different researchers based on the variables chosen by them for their study. The roots of the concept employee empowerment are closely linked with Total Quality Management (TQM), where, the key elements of a successful TQM programme were identified as “employee involvement, empowerment, top management, leadership and commitment” (Bowen, Siehl, & Shneider, (1989), Brower, (1994), Camp, (1989), Deming, (1982)).

However, empowerment has been defined on psychological and structural dimensions. (Conger and Kanungo, 1988) defined empowerment in the psychological dimension as, “a procedure of improving self-efficiency perception among the employees”. They further argued that “clear lines of responsibility and authority are related to perceptions of confidence.” Building on this, (Thomas and Velthouse, 1990) described the empowered employee as “feeling of performing with high endeavors and achievement that derived from the level of instinct motivation, obligation, dedication and commitment”. This extends a sense of responsibility and accountability to the employees to perform efficiently

with optimum use of resources, thus paving way to sustainability. (Campion, et al., 1993) define empowerment as “the employees’ ability to make business decisions and to accept responsibility for the outcome of those decisions”. Empowerment is also defined as, “transferring power and responsibility to employees so that, within specified limits, they will be able to provide the best possible customer service at their own discretion”, (Wynne, 1993).

The structural dimension was perceived as action from the perspective of the organization’s policies and structure. (Kanter, 1993) focused on the structural dimension in which empowerment is ‘a state of the organization that influence employees’ work related behavior’. According to him, the four structural factors that influence empowerment in an organization are involving empowerment activities in job description, easy accessibility of information to the employees, supporting employee’s job responsibility and, availability and accessibility of needed resources to perform a job. When given adequate empowerment, employees ensure to make optimum use of available resources, which in itself is a big step towards sustainability.

According to the definition of (Spreitzer, 1995), “employees’ empowerment is an intrinsic task motivation manifested in a set of four cognitions – meaning, competence, self-termination and impact; reflecting an individual’s orientation to his or her work role”. (Smith and Tesmer, 1995) viewed empowerment as “giving people the skills and the information they need to make good decisions and to take informed, deliberate actions so that organizational members can solve problems and manage change on their own”. (Claydon and Doyle, 1996) explain empowerment as ‘soft’ and ‘hard’ HRM systems. According to them, “the ‘soft’ aspect can ‘provide enhanced opportunities for involvement in decision making and employees will gain those feelings of control, personal efficacy and self-determination which constitute the state of being empowered. The ‘hard’ aspect of empowerment signifies the exercise of a sense of responsibility, and implies elements of monitoring and accountability”.

It is very difficult to measure the degree to which a manager empowers the subordinates in absolute terms, as it is intangible and differs according to the manager’s perception of empowerment. Hence, a single definition is not easy. According to (Grönfeldt & Strother, 2006), the different approaches to empowerment is a continuum, where employees are given limited empowerment, controlled empowerment or full license to act. In limited empowerment, the organization provides the rules and codes of conduct. The employee performs programmed responses and gives little feedback. In controlled empowerment, organization provides a framework and tools to act. The employees design and implement the solution. In full license to act, the organization provides a general direction and

reinforced the values. Employees analyze and identify the problems and tasks, design and implement the solution. The degree of empowerment that an organization decides to give should be, however, based on the skill and capability of the employee to make sound decisions that would lead to sustainability.

A study conducted by Cornerstone On Demand, (2010) recommended that it is important to have an empowered workforce because “empowerment increased the engagement of employees, resulted in higher performance and higher productivity and, aligned the empowered workforce to organization’s business goals”. Also quoted in the report was a study by Bersin and Associates, who found out that companies that empower their employees “achieve 26 percent higher revenue per employee, become 109 percent more capable of retaining high performers, are 92 percent better at responding to economic conditions and are 144 percent better at planning for future talent needs”.

Case studies were conducted by (Verhulst & Boks, 2014) in eight firms that implemented sustainability in product development. The studies suggested that among all factors considered, empowerment and communication are of prime importance to implement sustainability in product development. The dimensions of empowerment studied were those specified by (Conger and Kanungo, 1988; Karakoc, 2009; Spreitzer, 1995): authority, resource & information and self-determination; which were critical to the success of maintaining sustainability in product development.

On an examination of the literature on lean and empowerment, it is seen that it is important to empower employees in order to create a lean enterprise leading to sustainability. The emphasis is on teamwork and empowerment which aids in collaborative decision making for successful implementation of lean. However, the employees have a basic difference in their knowledge, skills and more importantly, attitudes; which is implicit in their behaviour. Hence, it is advisable to have a set of commonly agreed knowledge, skill and behaviours (collectively known as competencies) for each level of employees, in order to achieve the desired level of organizational performance. This is because, if there are no set of commonly agreed set of competencies, the employees may tend to deviate from the organizational objectives.

Once the set of competencies for the different levels of employees are agreed upon, the existing employees can be mapped to these competencies according to their level of competence. Referred to as competency map, the document serves as a guideline or a framework within which to carry out the activities related to lean implementation. This will ensure that the efforts are directed towards the common goal of the organization.

The competency map can be used for different human resource functions like recruitment, performance management, compensation and benefits, training and development, career progression and succession planning. When used for recruitment, an even workforce with similar attributes is ensured. Competency maps in other functions like performance management, training and development, etc. help the management to carry out an objective and fair human resource practices to all employees. In addition to all these, a well defined set of competencies serves as a transparent document to all the employees of the organization.

Competency mapping further contributes to reducing manpower costs due to incorrect hires, thus making the HR processes more sustainable in terms of costs to the organization. Further benefits include a competent workforce, better role clarity, in addition to contributing to a lean environment, with a lean workforce.

Competency Mapping for Sustainability

The origin of competency mapping can be traced back to the times of Arya Chanakya (4th Century B.C.), a well-known royal adviser and Prime Minister from Vedic India, who penned the famous book known as the Arthashastra, which is probably the first book on competency mapping. Chanakya has given a lot of thought to human resources development for the government machinery and has mentioned in Arthashastra, the qualities, *Mantris* (ministers) must possess, which are the qualifying standards for appointment as a *Mantri*. These qualities include the power of concentration, character, thinking capability, communication skills and observation/vigilance. In addition, he highlights the competencies that a *Mantri* must possess. These competencies are the same as the competencies advocated by the management gurus of the present times, namely, Knowledge, Skills and Attitude.

The foundation of competency builds on the work of (Benjamin Bloom, 1956) who, along with a team of educationalists identified educational objectives and there by defining the knowledge, attitudes and skills needed to be developed in education. A formal identification of competencies for the industry was pioneered by (David McClelland, 1973). McClelland's competency methodology can be summed up in two factors: "Use of Criterion Samples" or systematically comparing superior performing persons with less successful persons to identify successful characteristics and "Identification of Operative Thoughts and Behaviours that are Causally Relate to Successful Outcomes" or the best predictor of what persons can and will do in present and future situations is what they have actually done in similar past situations.

Later in 1996, a survey conducted by the American Compensation Association in 217 medium to large size organizations found that,

organizations use competencies for communicating valued behaviours and organizational culture, raising the bar of performance for all employees, emphasizing people (rather than job) capabilities as a way to gain competitive advantage and encouraging cross-functional and team behaviour.

While, a lot of researchers emphasized on defining competency, based on the variables identified by them, the studies in the decade following 2000, tried to link the competency mapping to organizational outcomes. “By linking human resources processes to desired competencies, organizations can shape the capabilities of its workforce and achieve better results”, (Donzelli et al., 2006) and “it may be possible for an organization to build ongoing snapshots of the overall knowledge capital and skills portfolio of its workforce”.

Further, organizations may be able to utilize this information to perform individual and organizational analysis, reduce education costs, improve hiring practices, improve retention, improve human resources performance and developmental planning processes, and deploy its human capital more effectively (Gangani et al., 2006). The findings of the study clearly points at the initial steps towards sustainability.

(Writenberg, et al., 2007) identified the contribution of HR to managing sustainability at the bottom line level as providing leadership development opportunities to build top management support, participation in strategy formulation; at the middle level as managing change process, inculcating values, developing competencies, supporting workforce engagement, managing talent, training & development and diversity; and for the top level as facilitating collaboration and holistic development. It can be seen that competence has a role in building a sustainable environment. Developing and measuring competencies required for creating a sustainable environment can be best achieved through an embedding sustainable vision and mission in the corporate strategy, setting goals leading to sustainability and measuring them. Competency mapping can serve as an aid to measuring the set goals against benchmarked performance.

A study conducted by the Society of Human Resource Management (SHRM) in 2011 found the key drivers for investing in sustainability as “contribution to society, competitive financial advantage, environmental considerations, saving money on operational costs, and health and safety considerations”. They further found the positive outcomes from sustainability initiatives as “improved employee morale, more efficient business processes, stronger public image, increased employee loyalty, and increased employer brand recognition”.

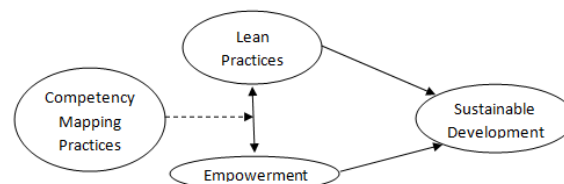
In their report (2010), HRM’s Role in Corporate Social and Environmental Sustainability, states that Human Resource Management can contribute to sustainable development by “identifying and

engaging with stakeholders affected by HR policies; selecting and prioritizing key HR issues relevant to supporting a sustainable organization; reviewing and revising all HR policies in line with sustainability principles; developing action plan, scorecard and metrics to establish measurable outcomes; and last by implementing, measuring and reporting HR impacts”. These can be better achieved through the process of competency mapping. Organizations today are very responsive to the concept of sustainability and strive to implement it through the workforce. Hence, it is very imperative to blend the objectives of sustainability into the vision and mission of the organization to make it as the core value. Thus, all these points to the need for setting performance indicators in the respective key result areas pertaining to sustainability.

Proposed Framework for the Study

The process of competency mapping involves the employees in constructing the same. Further, there are a lot of savings in cost with the proper implementation of competency map. There is emphasis on competencies, team work and also empowerment, which are components of lean practices. Including the requirements of competencies related to sustainability can help an organization to measure the performance and move towards sustainable practices. Based on these, a framework has been proposed by the researchers for further exploration, which is detailed in the following section.

The conceptual model which can be subjected to further empirical testing and validation is represented below.



Proposed model for further study

It can be seen from the literature scan that Lean HR is all about implementing a culture of learning in the organization and getting maximum output with the minimum possible resources. Empowerment is embedded, antecedent to, as well as consequent of lean practices. Competency mapping is an organizational intervention which can moderate the relation between lean practices and empowerment. The lean practices, competency mapping practices and empowerment can contribute to sustainable development.

Based on the literature review of the different constructs, the researchers propose that lean practices lead to employee empowerment and vice versa. This is because lean practices involve an element of empowerment and is perceived as an antecedent to, as

well as consequence of lean practices in the context of lean implementation. Competency mapping is hypothesized to moderate the relation between lean practices and empowerment, thus contributing to sustainable development in the organization.

The proposed model is expected to help human resource practitioners to gain insights into the double benefits of implementing lean practices and competency mapping for better sustainability and thereby better organizational performance.

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