

MISCONCEPTIONS OF LEAN: WHY IMPLEMENTATION FAILS

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ABSTRACT

Successful implementation of lean strategies is more than an overall acceptance of ideology, tools and practices; it is about acceptance of the changing culture. Culture drives implementation through the adoption of best practice principles providing the organisations with a sense of achievability. To date research in the field has provided companies with a false sense of implementation security; promoting many social, financial and cultural benefits without the acknowledgement of the overall challenge – knowledge. Utilising the action research method this paper explores the concept of knowledge and its application in lean implementation within a leading Australian construction company. The paper highlights a need for the streamlining of lean knowledge at the core of implementation strategizing. The paper proposes that developing an awareness of knowledge in a theoretical context will assist in challenging cultural behaviours within the practical application.

KEYWORDS

Implementation, lean construction, misconception, organisational culture.

INTRODUCTION

Existing interpretations of lean promote social (process inputs), financial (savings outputs) and cultural (attitude outputs) benefits of lean implementation without the full acknowledgement of the overall journey. Key to this journey is the transfer of knowledge between what is known, what is conceived, what is not known and what can we learn.

Knowledge whether through the development of education (Hirota & Formoso, 1998; Alves, Milberg and Walsh, 2010), leadership (Orr, 2005) or open collaboration with others (Howell, 1999; Buch & Sander, 2005; Erikson, 2010) allows individuals to develop confidence in their ability to bond and advocate lean (Chesworth, London and Gajedendran, 2011). The advocating of lean through open collaboration, communication and integrity of working groups allows the streamlining of ideas, process and maturing of cultures (Chesworth, London and Gajedendran, 2011).

Theoretically, knowledge is simply the development of skills and retention of facts and information through education and experience. Practically, knowledge is more about relationships, learning from others, and the application of learning and comprehension of failure. To understand why implementation fails implementation contexts need to be defined.

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LEAN IMPLEMENTATION CONTEXTS

SOCIAL

Social contexts (process inputs) are best understood by understanding why organisations first make the decision to implement lean (Chesworth, London and Gajedendran, 2011). Research within the lean community has moved beyond the defining of processes to explore more detailed social agendas such as the relationship between implementation and skill (Simonsen and Koch, 2004), emerging social construction networks (Silvon, Howell, Koskela and Rooke, 2010; Priven and Sacks, 2013) and lean behaviours (Fauchier and Alves, 2013). Nonetheless a sugar coating of implementation suggesting a holistic acceptance of ideology with immediate benefits and neglecting the true journey still underpins a large proportion of research (Chesworth, 2013).

- Implementation outputs from a social perspective can include:
- Standardisation of the organisation's workflow (Howell and Ballard, 1998, 1999; Morrey, Pasquire and Dainty, 2010);
- Elimination of non-value add activities and/or processes (Howell, 1999); and
- Improving supply chain performance and collaboration (Erikson, 2010).

Although there has been some discussion on social relationships within the context of lean implementation; how we as individuals and in teams utilise knowledge is not clear. How we interact, teach, learn and transfer knowledge will assist in further understanding perceptions of lean implementation failure and assist in providing a holistic understanding of implementation best practice.

FINANCIAL

Financial contexts (saving outputs) are representative of the implementation productivity gains such as workflow stabilisation (Ballard and Howell, 1994; 1997), waste minimisation or elimination (Alarcón, 1994) and process streamlining (Cox, Ireland and Townsend, 2006). Typical characteristics of existing financial implementation contexts include but are not limited to:

- Percentage improvements or achievements in workflow (Marosszeky and Karim, 1997) ;
- Specific financial gain over the life cycle of the project or overall cost savings for the organisation (Cox, Ireland and Townsend, 2006); and
- Promotion of the value chain concept (Akinci, Fischer and Zabelle, 1998; Lindfors, 2000)

Issues relating to long term commitment, time and financial burden are limited in their representation in current interpretations. Key to understanding the failure of implementation is linked to the relationship between implementation inputs and outputs developed through strategic planning. Understanding this relationship will further assist in determining implementation best practice.

CULTURAL

Cultural contexts (attitude outputs) are often presented with an overarching implementation acceptance or rejection (Chesworth, 2012). Idealistic cultural

representations further sugar coat implementation by suggesting implementation immediately leads to:

- Open collaboration and cooperation (Coffey, 2001; Arbulu and Zabelle, 2006);
- Open lines of information sharing (Orr, 2005; Buch and Sander, 2005);
- Empowerment amongst the workforce (Buch and Sander, 2005; Ballard, 2014)
- Total commitment across the whole organisation (Dainty, Moore and Murray, 2007).

Green (1998; 1999), Green and May (2005) and Winch (2003) suggest the emergence of organisational distrust directly linked to lean implementation. Despite conflicting interpretations the relationship between implementation and knowledge is not defined. This is particularly prevalent in understanding how we learn, why we learn and what we do and do not know and the impact these concepts have on an organisation's ability to successfully implement lean.

THE PROBLEM

The problem that is prevalent within current lean implementation literature is that there is not one true way to successfully implement lean. Rather lean implementation is representative of social, financial and cultural contexts that seek to provide implementation bias representative of misconceptions without acknowledgement of the true lean journey. The aim of the paper is to understand the application of lean, the misconceptions that emerge during implementation and overcoming implementation set-backs. The research question is therefore:

“What are the misconceptions of organisational lean implementation?”

METHODOLOGY

The research aims to identify and understand why lean implementation fails and how a lack of innovation knowledge leads to the presence of underlying misconceptions. A qualitative methodology is used, with the investigative narrative guided by constructivist principles (Bryman, 2008; Denzin and Lincoln, 2011). A constructivist approach provides a framework to explore and understand present misconceptions aligned to implementation failure rather than quantifying implementation failure.

Action research is an applied research approach *“that treats knowledge as a form of power and abolishes the line between research and social action”* (Neuman, 2006: p.28). Action research provides an opportunity to explore the implementation journey of an organisation through active participation; by advancing knowledge and increasing the awareness of lean. In participatory action research the researcher typically assumes an active role in the formulation, design and carrying out of the research (Stoecker, 1999). However due to the structure of Organisation ABC a consultative action research approach (Neuman, 2006) is undertaken. In consultative action research the researcher takes a consultative/collaborative role, assisting with but not having complete control over the research process (Neuman, 2006).

As the research involves differing perceptions and site needs the theoretical framework will be guided by the principles of thematic analysis. Thematic analysis provides a framework to identify and understand similar trends, themes and

awareness of the core misconceptions emerging within the investigation (Boyatzis, 1998).

The results are presented in a case study format. Utilising the case study format provides the opportunity to analyse holistically the literal and theoretical replication between “that is or may be” present across the organisational sites (Flyvbjerg, 2006; Yin, 2013).

ACTION RESEARCH STRATEGY

Location of the selected sites impacted the intended consultative approach; further impacting strategy was the proposed timeframe. Organisational senior management provided a 2 year window to address feasibility as well as early rollout of principles across the selected sites. Table 1 Organisation ABC Action Research Strategy provides an overview of the data collection strategy.

Table 1: Organisation ABC Action Research Strategy

Element	Approach
Observation	6 month period; spending approximately 5 weeks per site; Identification of site change agents
Strategic direction development	1 month period; tailored made to each site; alterations made by senior management to reflect organisational requirements
Training programme development	6 month period; developed with consideration towards the educational needs of the workforce; training in tooling included time and motion studies, visual management training and specialised lean six sigma project training.
Transition to site run implementation	Hand-over of site implementation to identified champions
Ongoing Visitation	12 month period; ongoing site visitation, further coaching and mentoring of the organisation and progress monitoring

RESULTS

Data was collected over a 2 year period. The results and analysis has been condensed to highlight changing attitudes, knowledge development and the emergence of lean misconceptions over the implementation time period aligned to the action research strategy. The organisation will be presented first.

THE ORGANISATION

Organisation ABC is a large multi-national construction contractor employing over 5,000 people across four (4) regions including Australia, Africa, the USA and Europe. In the last 3 years the organisation has been severely impacted by significant economic downturn across the infrastructure, manufacturing and mining sectors with workforce cuts over this period of 40%. Other significant factors impacting the organisation and further influencing the decision to implement lean included:

- Increasing business overheads;
- Operating system failures due to inefficiency and delayed roll out of updates;
- Increased client focused QA/QC of goods and services;

- High employee turnover;
- Increased safety incidents across key sites; and
- Decreasing win:loss ratio in successful tender bids.

Within 12 months of the economic downturn senior management made the decision to investigate the feasibility of lean principle application within selected Australian sectors of the business. Implementation was focused on five (5) sites as described in Table 2.

Table 2: Organisation ABC Sites

Site	Employees	Services
QLD 1	450	Regional location; Provides functional support for site operations; functional support include HR, legal, procurement, marking and WHSEQ
QLD 2	50	Brisbane CBD location; involved in EPC projects (Engineering, Procurement and Construction) to the value of \$600million
NSW 1	125	Regional location to save on costs; overhaul and repair of construction equipment; workshop, engineering and service sub-divisions
NSW 2	32	Regional location to save on costs; on-site construction equipment servicing
NT	57	Manufacturing division; specialised construction equipment

ORGANISATION BIAS

Within Organisation ABC there is a presence of implementation bias particularly among the satellite sites regarding the adoption of lean principles. Known bias emerged during initial site consultation and is present due to at the time recent employment of individuals with lean qualifications and/or knowledge. The presence of bias has impacted the study due to multiple individuals implementing strategies without full awareness and understanding of the contextual impact of their actions; particularly the transfer of knowledge.

OBSERVATION

Complexity in structure and locality of Organisation ABC sites impacts overall knowledge not only in existing organisational systems but also the acceptance of change. The structure of Organisation ABC is representative of operational capabilities managed by individual general managers reporting to a CEO. Communication lines rarely extending beyond the operations silo (except at a senior leadership level).

Time zones have a significant impact on the operability of the organisation. Within the Australian branch sites operate across four (4) time zones the majority of the year (on average time-zone differences are between 1-2 hours); which further impacts management.

Overarching site governance is an integrated management system (IMS). The IMS dictates business policies, processes and procedures. Despite the presence of the IMS satellite sites including temporary project teams (TPT) experience high levels of communication breakdown, in part due to a lack of system awareness and input in key business decisions.

Morale is generally higher at satellite sites than at QLD 1 (head office) site as these sites are run as independent businesses focused on delivering specialised services to elite clients. These sites are also managed charismatic leaders who are more open to serving the needs of clients rather than running completely to a corporate agenda.

STRATEGIC DEVELOPMENT

The complex management style of Organisation ABC was present in the strategic development phase of the study, particularly in the influence of QLD 1 in ensuring all sites set and achieve similar goals. QLD 1 tended to ignore the individual requirements and needs for satellite sites in favour for the development of a high level approach aimed at ensuring acceptance at a senior level rather than a site level.

All satellite sites were keen to become actively involved in the implementation process; however the attitudes of senior leaders shifted immediately preceding the discussion of the strategic plan and aligned site goals. Satellite sites felt the development of the strategic plan at a corporate level set unachievable and unrealistic expectations; many senior site managers suggesting the setting of a corporate agenda with implementation at a site level deliberately sets that site up for failure.

TARGETED TRAINING PROGRAMMES

Although satellite sites were excited about beginning the lean journey time and cost allocation for appropriate training programmes was limited due to the high levels of work and location of TPTs. This trend was consistent across all sites.

Due to levels of work, satellite sites were provided specialised on the job training through the use of specific tooling. Sites NSW 1, QLD 2, NSW 2 & NT had prior to the study been in some form implementing lean principles to varying degrees via 5S. Implementation at these sites was being driven by individuals who had been exposed to lean previously however implementation had occurred with without the development of a specific or specialised strategic direction. NSW 1, NT & NSW 2 were in addition implementing lean to an extent via guidance from recent external audits conducted at the sites; a stance that QLD 1 endorses as an additional avenue for activity improvement.

Site champions were easily identifiable at NSW 1, NSW 2 & NT; however specialised training with these champions was difficult due to existing attitudes towards organisational requirements of the organisation and conflict with their existing knowledge. Discussions with champions were ongoing regarding tool use and application at each site; despite initially resistance, champions saw the benefit early on. Early acceptance allowed an ease of improvement project identification and management.

TRANSITION TO SITE MANAGEMENT & CONTROL

All sites were positive that they could maintain control of implementation at a site level as driven by the selected site champions.

ONGOING VISITATION

QLD 2 and NSW 2 were the only sites that maintained ongoing commitment to the QLD 1 development strategic direction for the implementation of lean. QLD 2

maintained a high level of commitment and thrived due to an overall need to improve their existing systems.

Implementation in NSW 1 & NT was affected by a high employee turn-over particularly those employees identified as site champions. Furthermore, NSW 1 was influenced by an ongoing trend of everyone thinking they were already continuous improvement team with experts, trained in the use and application of lean principles. In NSW 1 there was no commitment to the developed direction with many within this division of the organisation implementing lean to benefit individual departments.

Sites cited process standardisation, corporate agenda strategizing as well as a lack of organisational system knowledge to be underpinning implementation failing within the organisation. Although present the impact on Organisation ABC was identifiable more so from a lack of awareness of the overall implementation purpose than a lack of system knowledge.

A DISCUSSION ON MISCONCEPTIONS

Three (3) misconceptions of lean emerged within the organisation. The three misconceptions are reflective of a lack of knowledge not only of lean but also of the organisation's longer-term commitment during implementation. The discussion is focused on these three misconceptions to provide an examination of organisational trends.

MISCONCEPTION 1: STANDARDISATION IS ESSENTIAL FOR SUCCESS

Standardisation is a core ideal of the lean movement (Womack and Jones, 2003; Liker, 2003). Within the organisation implementation standardisation was thought to be required to align the overall operating systems as well as a requirement to maintain quality, safety, environmental and manufacturing certification. Process standardisation emerged due to certification compliance and maintenance activities which underpin the organisation's ability to operate within specialised industries. Process standardisation is approached as a way of controlling the communication of information across the organisation and emerges as a result of the organisation experiencing financial and time constraints that ultimately impacts the implementation commitment.

Guiding process standardisation are organisational champions (supported by the WHSEQ function) who push as part of standardisation a corporate agenda focused towards compliance. This agenda is representative of the organisation attempting to streamline product delivery across all sites which require the same systems and processes. This is misguided particularly in this organisation as each site is so characteristically different that many of the current systems do not already readily comply with the needs of satellite sites. This lack of awareness and knowledge of organisational operations influences misconception 3.

Sites that have succeeded with lean implementation utilise to a degree the standard operating systems; however have adapted some processes to be driven by client needs and requirements.

MISCONCEPTION 2: CORPORATE AGENDA DRIVEN IMPLEMENTATION

Lean implementation is driven by a need to change and is directed in most organisations from senior leadership (Chesworth, 2013). Within the organisation

implementation is championed by key WHSEQ representatives (based in QLD 1) with minimal buy-in from senior leadership. Implementation management by WHSEQ representatives' forces the presence of misaligned agendas driven by corporate functional needs, such as overarching compliance and certification. The positioning of implementation representatives within a corporate environment contaminates the journey as acceptance at satellite sites is less likely to occur as individual site needs are neglected.

The organisation already struggles with negative personnel attitudes towards head office, an attitude heightened when lean was first introduced into the organisation. The majority of satellite sites saw the initial decision as a way of further controlling site specific processes, policies and procedures; this is particularly prevalent in current document control standardisation.

Frame-working implementation to the individual needs of satellite sites enables reflection on the overarching corporate direction while providing an opportunity to establish site specific goals and objectives. The overarching corporate agenda was almost entirely eradicated within the organisation when satellite sites took control of implementation during site transitioning.

MISCONCEPTION 3: SUCCESS WITHOUT A STRATEGIC DIRECTION

The organisation has experienced high levels of rejection during early phased implementation due to believing success can be achieved without a strategic direction. This attitude transcended satellite sites as implementation was driven by individuals without formal training, but had been exposed to principles in previous employment. At these sites implementation occurred without set objectives and recognition of the true commitment required to maintain commitment.

The structure of the organisation and locality of sites negatively impacted employees' confidence in their own skills and knowledge of lean and continuous improvement. Strategic planning and developmental awareness applied through lean tool education and mentorship provided satellite with basic skills to commit to a tentative direction early on in the implementation journey.

From an implementation perspective early education whether tool application or training provides individuals and teams with the confidence and ability to challenge implementation champions throughout the journey. Though, through active participation employees were able to overcome many of their fears; particularly those linked to the inability to put themselves out of their existing comfort zones.

CONCLUSION

Awareness of implementation misconceptions provides organisations with the ability to prepare for potential lean failure, particularly at satellite sites. Lean failure should not be the ultimate goal of implementation rather it the understanding of how and why individuals, teams and sites react to and utilise knowledge to overcome implementation set-backs.

Identifying implementation misconceptions early assists in organisations to develop the relevant knowledge and skills, particularly for those who are not lean trained but are still required to participate in implementation. The sharing of knowledge provides organisations with the skills and tools to challenge organisational status quo; in turn creating a culture that is empowered to continually improve.

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