

Organisational Design: how TQM's strategy deployment tool can add pace and effectiveness to organisational change

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Abstract

Purpose: Amongst the many well-documented challenges of implementing total quality management (TQM) and models such as the EFQM excellence model, one of the practical issues is to align improvement and change with market focused requirements. Strategy Deployment (SD) methods have been developed to assist this process. The purpose of this paper is to explore application of SD principles and concepts from a people aspect to achieve appropriate, continuous and sustainable organisational development; acting as an alternative or enabler for established Organisational Design (OD) approaches by realising the propensity for reciprocal commitment of social actors that lie within the principles of SD.

Methodology: The paper is based on a review and synthesis of the literature on OD and SD to identify differences and commonalities that may influence firm performance. Through the perspectives of high performance human resource management (HRM) approaches and social theories such as the Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA) and that of Socio-Technical Systems (STS) theory, SD is explored to determine its relevance to organisational design activity. This is done through a systematic study of the linkage of SD to theory to identify the contributions and gaps.

Findings: Strategy deployment principles of TQM may be applied as an OD tool that contributes towards a higher degree of reciprocal commitment, social engagement and continuous market alignment and that these enablers are explained by social theories. The literature revealed an absence of the application of OD models within TQM, SD and OD literature reviewed in this paper; although the models may be employed by OD experts and champions external to the work-teams impacted by the change and are applied as infrequent change interventions with associated high complexity. This contrasts with SD related OD, where change is relatively incremental, expected to be continuous and is undertaken by those working 'in the process' who may have access to specialised OD resources.

Research Limitations and Implications: Research scope includes frameworks, models, theory and practice identified in American, European and Japanese archival literature from the mid 20th century to-date. There are implications for both the academic world and practitioners in the selection of OD models and participants within an environment of continuous improvement and strategy deployment.

Originality and value: Redesign of organisations in whole or part can often be seen as projects reacting to underperformance rather than an on-going incremental continuous process. While senior management in the business is responsible for setting and refreshing strategy, it does not have to follow that deployment of organisational change should also be pushed from above. An approach that harnesses engagement and reciprocal commitment through TQM's deployment catchball flow will generate a greater number of supportive people.

Keywords: TQM, Organisational Design, Strategy Deployment, Socio-Technical Systems, Theory of Planned Behaviour, Theory of Reasoned Action

Paper category: Research paper

1.0 Introduction

Organisations choosing to adopt and practice TQM in pursuit of strategic goals are faced with many challenges to bring about effective and sustainable implementation (Bateman, 2005; Dahlgaard-Park, 2009; Dahlgaard-Park, 2011; Oakland, 2010; Samuel, 2010). A strategic and operational challenge is to maintain alignment between market requirements and the organisation that is to deliver these requirements; TQM's Hoshin Kanri (HK) strategy management process has been developed to support this (Akao, 1997; Witcher, 2003). While HK practices built up over decades focus mainly on vision deployment, team, individual and cross-functional engagement practices appear to be tacit and inferred (Butterworth, 2001); in particular, the Japanese tacit cultural norms of Nemawashi (collaboration / 'catchball') and Ringi (subordinate / superior idea suggestion and development), ingrained within the style of Japanese management practice have few references in western strategy management literature. (ibid.).

This paper explores TQM and organisational design (OD) literature to surface how collaborative activities within strategy management processes are used to drive continuous and effective organisational change to align firms with their markets. We examine approaches to organisational design and re-design which have intrinsic employee commitment potential and also have shared values with TQM, such as worker involvement in change; literature relating to high performance HRM approaches and social theory is used to identify aspects of reciprocal commitment. Our findings commence with a thematic analysis of literature searches, then focus on four areas of analysis: HK and deployment of strategic objectives; theoretical perspectives; social enablers and barriers associated with deployment; deployment and organisational design. We reflect that while little can be found on organisational change within the HK and strategy deployment literature in the databases accessed to-date, there are significant opportunities to be had to improve effectiveness and sustainability of efforts aimed at aligning the firm with market requirements.

2.0 Methodology

A review and synthesis of the literature on OD, HK and SD was undertaken to identify differences and commonalities that may influence firm performance. Through the lenses of the Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA) and that of Socio-Technical Systems (STS) theory, HK and SD were explored to determine relevance to organisational design activity. This was done through a systematic study of the linkage of HK and SD to theory to identify the contributions and gaps. Literature relating to HRM practices, reciprocal commitment and socialisation was examined to provide references for social aspects of deployment activity.

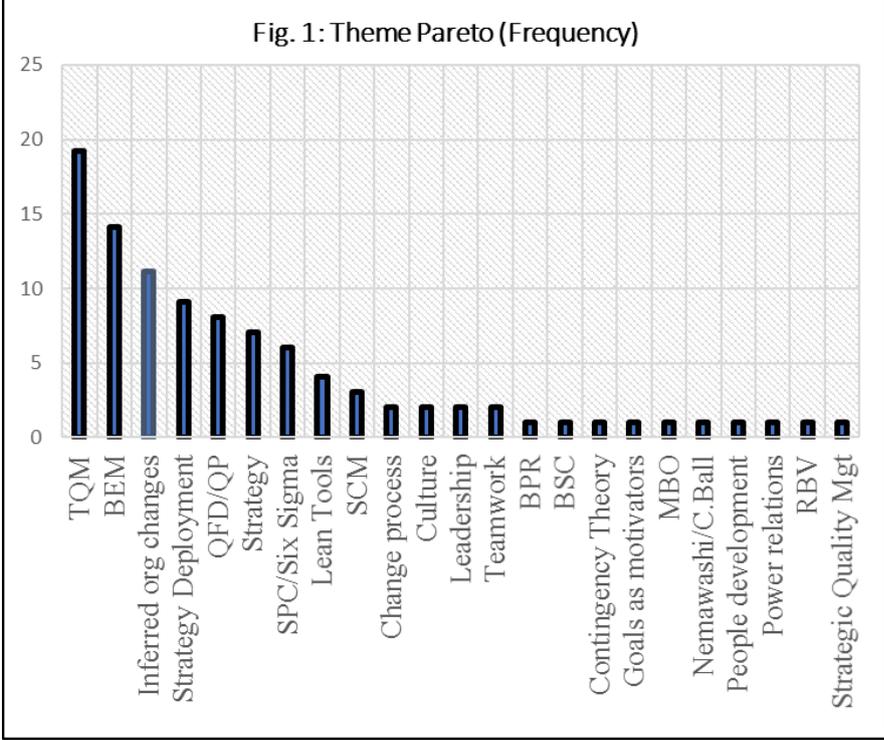
2.1 Search undertaken

Search terms applied were (a) "total quality management" AND "strategy deployment", and (b) "organizational design" AND "strategy deployment". Databases used to identify articles were Business Source Complete and Emerald Premier and tables (I) and (II) below show the literature identified. Additional key word searches were carried out to understand the apparent scarce OD literature landscape and these follow-up searches are detailed in the findings section.

Table I: Search for articles containing terms "total quality management" AND "strategy deployment". N=18	
Author(s)	Title
Anderson, M. and Sohal, A. S. (1999)	A study of the relationship between quality management practices and performance in small businesses
Chourides, P. <i>et al.</i> (2003)	Excellence in knowledge management: an empirical study to identify critical factors and performance measures
Crowe, T. and Cheng, C-C. (1996)	Using quality function deployment in manufacturing strategic planning
Edgeman, R. L. and Hensler, D. A. (2004)	QFD and the BEST paradigm: deploying sustainable solutions
Greenall, R. (1994)	The missing link
Jayaram, J., Tan, K. C. and Laosirihongthong, T. (2014)	The contingency role of business strategy on the relationship between operations practices and performance
Lee, S.F. <i>et al.</i> (1998)	Sun Tzu's The Art of War as business and management strategies for world class business excellence evaluation under QFD methodology
Leonard, D. and McAdam, R. (2002b)	The corporate strategic-operational divide and TQM
Leonard, D. and McAdam, R. (2003)	An evaluative framework for TQM dynamics in organisations
Leonard, D. and McAdam, R. (2004)	Total quality management in strategy and operations: dynamic grounded models
McCabe, D. (2000)	Factory innovations and management machinations: the productive and repressive relations of power
Miyake, D. I. and Enkawa, T. (1999)	Matching the promotion of total quality control and total productive maintenance: An emerging pattern for the nurturing of well-balanced manufacturers
Oakland, J. (2011)	Leadership and policy deployment: the backbone of TQM
Politis, J. D. (2005)	QFD, organisational creativity and productivity
Quazi, H. A. and Bartels, F. L. (1998)	Application of TQM Principles in the International Technology Transfer Process of Industrial Production Plants: A Conceptual Framework
Regan, S. and Dale, B.G. (1999)	Survival to success: the case of RHP Bearings, Blackburn
Smith, J. A. and Angeli, I. I. (1995)	The use of quality function deployment to help adopt a total quality strategy
Witcher, B. J. and Butterworth, R. (2001)	Hoshin Kanri: Policy Management In Japanese-Owned UK Subsidiaries

Table II: Search for articles containing terms "organizational design" AND "strategy deployment". N=8	
Author(s)	Title
Carpinetti, L. C. R. (2000)	A conceptual framework for deployment of strategy-related continuous improvements
Chan, Y. K. (2005)	A further development of TQM model: meeting organisational development needs.
DeFeo, J. A. and Janssen, A. (2001)	Why strategic deployment?
Goldman, E. F. <i>et al.</i> (2015)	Organisational practices to develop strategic thinking
Leonard, D. and McAdam, R. (2002a)	The strategic impact and implementation of TQM
Nautin, T. (2014)	The aligned organisation in McKinsey and Company The Lean Management Enterprise
Pires, A. R. and Alves, A. R. (2011)	Organizational change and design for strategy deployment.
Yuliansyah, Y. <i>et al.</i> (2017)	The significance of business strategy in improving organisational performance

The theme ‘Organisational change’ was ranked third by frequency, however, most references were inferred, and none contained reference to specific methods or models. This finding is discussed later in this paper and prompted further searches described below.



Further database searches were undertaken using alternative search terms ‘customer’, ‘transformation’ and ‘orientation’ to confirm possible HK+OD or HK+SD gaps in the literature; checking for ‘z’ versus ‘s’ was also undertaken. Results are shown below formatted in alphabetical order of search term (table IV) and by frequency (table V):

Table IV: Exploring HK and OD sorted by terms		Table V: Exploring HK and OD sorted by frequency	
Search Term(s)	Results	Search Term(s)	Results
Customer orientation	0	Hoshin Kanri	97
Customer orientation + organization design	2	Hoshin Kanri + organization	37
Customer orientation + organization transformation	1	Strategic orientation + organizational design	31
Hoshin Kanri	97	Hoshin Kanri + design	7
Hoshin Kanri + design	7	Strategy orientation + organizational design	4
Hoshin Kanri + organisational design	1	Strategy orientation + organisation design	3
Hoshin Kanri + organization	37	Customer orientation + organization design	2
Strategic orientation + organizational design	31	Strategy deployment + organisational design	2
Strategy deployment + organisational design	2	Customer orientation + organization transformation	1
Strategy orientation	0	Hoshin Kanri + organisational design	1
Strategy orientation + organisation design	3	Customer orientation	0
Strategy orientation + organizational design	4	Strategy orientation	0

The extensive literature review revealed various themes which emerged, and these are subsequently evaluated within the following sections. The work of Adler *et al.*, (1999); Ajzen, (2002); Angelis *et al.*, (2011); Cherns, (1976); Clarke, (2011); Dan-Shang and Chi-Lih, (2008);

Krafcik, (1988), Lawrence, (1969), MacDuffie and Krafcik, (1992); Nonaka, (1991); Ouchi, (1981); Passmore, (1988); Ouchi and Price, (1978), was identified from supporting literature searches to help explore the propensity that catchball may have for increased levels of reciprocal commitment.

3.2 Hoshin Kanri and strategy deployment

Hoshin Kanri (HK) is a change-enabling strategy management approach that engages team members in the 'how' of strategic and tactical change (Cowley & Domb, 1977; Witcher, 2003). Witcher and Butterworth, (2001) suggest the catchball aspect of HK varies between and within organisations, mostly applied piecemeal with little shop-floor involvement. Akao (1991) describes catchball activity involving only managerial levels with individual involvement specifically via non-directive quality circle activity outside of the deployment process. Jackson (2006) describes a three-level process for 'institutionalising Hoshin Kanri' that involves company-wide work for business processes, functional processes and their interactions (such as marketing and engineering), and functional sub-processes whose work is carried out at a shop-floor level by the first tier of leaders with their teams.

Witcher (2001) considers deployment to be a part of strategy management. He observes there is incomplete adoption of HK in western organisations (and also hugely adapted versions that do not adopt the key principles of HK); deployment in western practice has less Nemawashi (catchball) at team and individual level and there are questions around the depth of operator involvement even in UK subsidiaries of Japanese companies. Driving site-wide communication and consistency of process needs a top-level ownership and getting western trained managers to work with multiple objectives using Nemawashi-style collaboration is seen as a challenge. As Witcher (2001) suggests,

Hoshin Kanri changes as its management changes. Key conditioning factors are lean working and TQM, and how catchball (and Nemawashi) work.' (Witcher, 2001 p. 667).

Deployment of manufacturing strategy to the level of operational tasking can be achieved using models that employ the QFD matrix as a prioritisation tool. (Carpinetti et al. 2000). With this approach organisational change is considered to be one of the operational decisions required along with firm processes and resources.

Western strategy deployment practices through the 1960s and into the 1990s set a standard for specialist staff-led systems to avoid rather than engage with people in the business, leading to poor strategy and implementation (Mintzberg, 1994). The role of strategic planners should be to facilitate deployment from the outside-in rather than be active in analysis and strategy building (Mintzberg, 1994). It could be argued that OD needs to adopt Croll and Yoskovitz, (2013) principles to enable TQM strategy deployment; they suggested people are the major strategic source; strategy needs to be built upon a human resource foundation; '*today's managers are trying to implement third-generation strategies through second-generation organisations with first-generation management.* (Croll and Yoskovitz, (2013), p.35). They suggest that existing rigid chains of command need to be replaced by networks; that the officious systems need to be removed in favour of more adaptable processes. Furthermore, that management styles instead of being autocratic, need to become empowering and coaching. (ibid.).

Strategy deployment models that combine the approach of policy deployment with the quality function matrix have been developed, for example Carpinetti et al. (2000); Crowe and Cheng (1996). Such combined approaches consider ways deployment of strategic objectives can inform operational change and business processes, though social implications of change and enabling features of catchball appear absent in the literature. Carpinetti et.al (2000) consider policy deployment flow as vertical with no cross-functional alignment activity; other researchers have a contrary view whereby cross-functional alignment is as central to deployment as is vertical flow. (Butterworth (2001); Witcher (2003).

3.3 Theoretical perspectives

Theoretical perspectives evolved from the literature review which assisted in elucidating the literature sources by providing an overall framework.

Socio-Technical Systems Theory

STS theory and principles give insight into those who are contemplating change using Hoshin Kanri as a framework. For example, STS holds that organisational design should involve and belong to '*the members of the organisation whose working lives are being designed*' (Cherns, 1976, p. 791). Lawrence (1969) noted that when operators' skills and knowledge were respected, there was no resistance to change, change would be successful, and there would be an appetite for more change. However, when a specialist introduced a change in a 'tell' scenario, then the change would be unsuccessful with associated signs of resentment and lack of preparedness for further change. Catchball that is inclusive of operator levels may contribute towards the social environment needed to support lean operations. It has long been identified that reciprocal commitment is key to sustainable application of lean tools to achieve higher levels of customer service, product quality and lower costs. (Krafcik 1988), MacDuffie and Krafcik 1992).

STS theory holds that irrespective of how complex, autonomous, and technically advanced technical processes are, effectiveness of the enterprise will be subject to the influence of human resources. Maximum system effectiveness comes about when the needs of both technical and social systems are fully met; for example, decisions on how the workplace is laid out and how team members can engage in maintaining/improvement activities are as important as decisions about the type of equipment and methods to be applied (Pasmore, 1988), hence the importance of engaging key members of the workforce in the catchball process.

Theories of Planned Behaviour and Reasoned Action

The theory of reasoned action (TRA) and its successor the theory planned behaviour (TPB) suggest that social behaviour of individuals may become routinised, though remain influenced by behavioural, normative and control beliefs. (Ajzen, 2002). SD comprises activities that may become routine, for example within annual PDCA cycles of strategic priority setting, deployment, action planning, goal and task setting. Although annual policy frequency is low in comparison to task level, the frequency is much higher as strategy becomes operationalised within daily management activity. Hence routinisation may occur at frequencies ranging from annual, monthly, weekly, daily and even hourly where short interval control is practiced. Where individuals react to behavioural, normative and control beliefs in a positive manner, reciprocal commitment and willingness to share tacit knowledge behaviours become reinforced.

3.4 Linking social enablers and barriers to the practice of SD

The literature revealed various possible enablers and barriers which could be utilised to facilitate greater reciprocal commitment, and this is explored below.

Examples of SD Enablers to unlock reciprocal Commitment

Clarity of vision allows individuals to more easily decide deployment measures and means at any given time so that effort can be focussed on doing rather than on deciding what to do. (Nautin, 2014). However, there is a trade-off between early engagement of individuals with less concrete change proposals and late engagement where individuals have little input into proposals. A more optimal approach is to use pilot activity to test transformation and allow others to contribute and refine as individuals and teams. Metrics associated with corporate goals alone are unlikely to inspire individuals, rather, the message needs to resonate with teams and individuals. (Nautin, 2014).

Participation of teams and individuals in standards setting may also benefit the performance paradox trade-off between efficiency and flexibility, support organizational ambidexterity (the ability to both evolve and exploit) (Adler *et al.*, 1999); reciprocal commitment also increases sharing of tacit knowledge to support organisational learning (Nonaka, 1991).

Impact of management change and HR policies on SD

The significant impact HRM and culture proceeds to make towards an organisation's strategy is evident since the prevailing literature suggests nine of the top ten barriers to change are people related. (Clarke, 2011). Some contributors, for example Angelis, (2011) and also Storey, (1994), suggest that human resource managers fail to play their part in the strategic alignment of HR practices to TQM programmes.

Organisations that have completed their initial TQM transformation need to have socialisation activities for new members of management teams to induct them in the ways of SD. It could be argued that in general Western organisations need to apply more effort to maintain their TQM culture than Japanese competitors due to differences in employee churn rates. For example, Ouchi (1981) suggests that short tenure in role has created an '*aggregation of strangers*' rather than a desired '*community of employees*' (p. 40).; where USA inter-company churn being 24%, Western Europe 12% and Japan 4%. Ouchi and Price (1978) studied the work of Mayo, Argyris, McGregor and Likert and found a common concern with negative effects of organisational hierarchy: job alienation, over specialisation, a reduction in self-worth and psychological health. Cohesive group working tended to mitigate these negative effects which Ouchi and Price (1978), termed '*humanistically successful organisations*' (p. 34). Japanese organisations, though hierarchical in structure, were found to have fewer of the negative humanistic attributes of Western bureaucratic organisations (*ibid.*); due, in particular, to socialisation through stable long-term employment and slower advancement through the business. Likewise, efficient connections between the organisation's strategy and its HRM practices may improve the company's performance. (Dan-Shang and Chi-Lih, (2008).

Examples of deployment related blockers to reciprocal commitment

From a study of strategic quality planning, Leonard and McAdam (2002) found that strategy setting was hierarchical and lacking in flexibility and agility with very little evidence that team level 'how' considerations were feeding back to the 'what' level senior teams.

Studies of UK Japanese subsidiaries have raised questions around the degree of operator involvement in the catchball process and suggest that although adoption of hoshin and Nemawashi (catchball) concepts are not culturally exclusive to Japan, western managers have issues with their application and operator involvement is scarce. (Witcher and Butterworth, 2001).

3.5 Organisation Design

This section discusses the relatively few papers found linking OD with deployment. As none contained specific reference to design models such as Galbraith's star model and McKinsey's 7s, the current high-focus areas digital transformation readiness and agile project management were selected as areas to explore to check for gaps in the literature.

3.5.1 OD in the searched literature

Of the eighteen papers identified by the literature search terms TQM + SD, two contained specific content on OD, with a further four papers containing inferences to OD. Within the eight papers identified by searching for OD + SD, four contained inference to OD though only one contained specific content on OD approaches for strategy deployment. None contained reference to specific OD models. (See table (VI) below).

Table VI: OD identified in Literature Searches	
Author(s)	TQM + SD Organisational Design Content
Miyake, D. I. and Enkawa, T. (1999)	No models. Content focuses on approaches:- Heterogeneous TQM, TPM and JIT with enantiomorphic paired relationships. Deployment of paradigms and hybrid forms. Improvement adoption patterns. Outward and inward perspectives. Developing organisational capabilities.
Witcher, B. J. and Butterworth, R. (2001)	No models. Content focuses on approaches: Moving from function to process-led organisations. Combating organisational segmentalism. Organisational transparency
Author	OD + SD Organisational Design Content
Pires, A. R. and Alves, A. R. (2011)	Evolutionary: Process-level organisational change while main functional structures remain unchanged

Pires and Alves (2011) studied the work of Ansoff, Chandler, Galbraith, Keen, Lawlor, Lawrence & Lorsch, Lewis and Pires to understand how process-level organisational change can take place while main functional structures remain unchanged; questioning the 'usefulness

of an organisational structure to manage all the complexity that the [supply] chain requires.’ (p. 1006). This observation that organisational structures appear not to be subject to review resonates with our OD findings in general.

3.5.2 Further searches to link OD to SD

Since there appears limited information concerning strategy deployment and Hoshin Kanri as an approach in organisational development literature and a paucity of OD themes, the researchers have extended their scope and included digital readiness models in order to analyse to what extent the cyclical approach is addressed. This institutionalised feedback loop is a key element of that approach as the objective is to plan the future, not just react to it.

Digital readiness models originate mainly from consulting firms, they may not be scientific, however they represent a contemporary view of thinking and due to the lack of scientific models in this particular domain, they represent a valuable contribution to our research.

Table (VII) shows the models analysed for this study:

Author(s)	Title
Accenture, (2016)	Accenture digital readiness
Gill & VanBoskirk, (2016)	Forrester digital readiness
Jochmann, (2016a)	Kienbaum industry 4.0 readiness
Jochmann, (2016b)	Kienbaum digital readiness
Ernst and Young, (2016)	Ernst and Young digital maturity
Deloitte Digital Europe, (2015)	Deloitte Digital readiness check
Deloitte Consulting GmbH, (2015)	Deloitte Digital maturity model

Three models address the need to have a feedback loop to strategy; the level of intensity also varies in their approach. Recommendation range from continuously improving the corporate culture and operations to make sure they are in line with the strategy (Accenture, 2016) to making sure that new projects are directly synchronised with the overall strategy (Deloitte Digital Europe, 2015). Gill & VanBoskirk, (2016) suggest institutionalised feedback loops. The same author also recommends that every employee needs to understand the link to the strategy. However, most models suggest that the steering of those activities needs to be institutionalised and addressed as a separate task in order to ensure progress, therefore suggesting assignment of dedicated resources for this project in order to manage it. (Accenture, 2016; Ernst and Young, 2016; Gill & VanBoskirk, 2016; Jochmann, 2016b).

Lessons for SD learned from agile project management

Traditional project management approach has clear goals and clear solutions in mind but when the goal is clear though the solution is not, an agile approach is needed (Wysocki, 2014). A key element of an agile approach is the constant change with an incremental approach (Fowler & Highsmith, 2001); recommending that change should be embraced in favour of adhering to a static plan. Considering project process steps (Wysocki, 2014; Project Management Institute,

2017), it is evident that the steps are not different, but the frequency of the feedback loops is and agile institutionalises that feedback loop.

Another approach goes one step further and suggests that the time and frequency of feedback loops is a constant and the desired features are a variable, because they depend on the evolving findings and results (Agile Business Consortium Limited, 2017).

In summary, the agile transformation approach (Wysocki 2014) considers the existence an use of feedback loops essential for project success, a key aspect is to respond to change instead of just following a plan (Fowler and Highsmith 2001), which support the proposition that employee involvement is a key factor to transformation success of an organisation. That aspect is also supported by some contemporary digital readiness models, in particular where an institutionalised feedback loop is recommended (Gill and VanBoskirk 2016) in order to manage the change.

4.0 Conclusion

This paper has explored the process of strategy deployment through the use of team-level catchball cycles of Hoshi Kanri as a means of achieving alignment between strategic decision-making, organisational and operational change. The literature reviewed in this paper collectively provides an insight into the importance of Hoshin Kanri, but also points to a wide range of mechanisms by which the HK helps in both the decision-making process and in the management of change across all parts of an organisation. In particular, deployment of strategy involving team level catchball cycles of Hoshin Kanri appears to provide a strong basis for unlocking engagement throughout the business; realising the potential for reciprocal commitment, increased sharing of tacit knowledge, shrinking the performance paradox and increasing ambidexterity.

The academic literature within the review presented in this paper highlights the sharp contrast between a strategic approach to the adoption of TQM and the use of TQM tools in an operational manner (e.g. Leonard and McAdam, 2002b). Amongst many implementation challenges, there is a general consensus that successful adoption of TQM is more likely when a wide range of organisational practices are changed to support, or at least be compatible with, TQM behaviours and methods. In particular, one of the principle criticisms of many TQM initiatives is the lack of consistency between TQM and other strategic decisions, such as those related to market fit. A mechanism that achieve this fit is desirable but absent in many implementation attempts.

One of the key themes that emerges is the noticeable contrast between most Japanese and Western approaches to strategy deployment, especially in relation to the engagement of the workforce in this process. What might be loosely called the “Japanese” approach is one that harnesses the potential of the HK and catchball processes to spread consistent practice throughout an organisation. By contrast, most Western organisations appear to use a more hierarchically structured approach to strategy development that risks producing inconsistencies between operational practices and management style – producing the oxymoron of “autocratic teamwork”. The further penalty for this failure to loosen the organisational structure is a lack of dynamic capability to adapt the organisation.

One of the most significant gaps within the literature appears to be the dearth of papers linking organisation design and strategy deployment. While it could be argued that organisational design should be focused on delivering the organisation’s strategy, there appears little OD content within strategy deployment literature surfaced in this limited study of some literature databases. Hence further research is required in order to confirm the implication that mainstream TQM thinking can be bolstered through a closer focus that links strategy to organisation and structure. We believe this oversight provides a further indication that a key strength of TQM - the team-based cohesion it facilitates - has not been fully recognised by managers. There has not been sufficient recognition by those implementing TQM that its adoption normally requires significant OD change to retain consistency and yield the most benefit. Socio-technical systems theory would support this notion that TQM is most effective when the needs of technical and social systems are simultaneously met – and this implies a significant measure of change in OD when also making TQM-based technical changes. Considering the theoretical perspectives discussed, organisations which practice Hoshin Kanri with greater catchball activity may be at an operational advantage over those organisations which deploy strategy with less team involvement; people involvement is a key factor to success and needs to be considered and addressed, in particular by the management.

Given the high failure rates of TQM adoption seen in the literature, our final insight is that many of the potential barriers to TQM might be more easily resolved if the processes seen in catchball and HK are more widely adopted. HK is a mechanism by which “reciprocal commitment” might be better achieved, reducing the likelihood of resistance to the changes associated with TQM.

5.0 References:

- Accenture (2016). Digital Readiness Index Framework. Available at: https://www.accenture.com/t20160504T135912__w__/us-en/_acnmedia/PDF-16/Accenture-European-Financial-Services-Digital-Readiness-Report.pdf [Accessed: 1 January 2017].
- Agile Business Consortium Limited (2017). What is DSMS? Available at: <https://www.agilebusiness.org/> [Accessed: 22 June 2017].
- Adler, P. S., Goldoftas, B. and Levine, D. I. (1999). Flexibility versus efficiency: a case study of model changeovers in the Toyota production system. *Organizational Science*, Vol. 10, No. 1, pp. 43-68.
- Ajzen, J. (2002). Residual effects of past on later behaviour: habituation and reason action perspectives. *Personality and Social Psychology Review*, Vol. 6, No. 2, pp. 107 - 122
- Akao Y. (1991) (ed.). *Hoshin Kanri: Policy Deployment for Successful TQM*. Portland, OR: Productivity Press.
- Akao, Y. (1997). QFD: past, present, and future. *International Symposium on QFD 1997*, Linköping, pp. 1-12. Available:
- Anderson, M. and Sohal, A. S. (1999). A study of the relationship between quality management practices and performance in small businesses. *International Journal of Quality and Reliability Management*, Vol. 16 Issue 9, pp. 859-877.
- Angelis, J., Conti, R., Cooper, C. and Gill, C. (2011). Building a high-commitment Lean culture. *Journal of Manufacturing Technology Management*, Vol 22, pp. 569-586.
- Appelbaum, S.H. (1997). Socio-technical systems theory: an intervention strategy for organizational development. *Management Decision*, 35(6), pp. 452–463.
- Bateman, N. (2005). Sustainability: The elusive element of process improvement. *International Journal of Operations and Production Management*, Vol. 25, No.3, pp. 261-276
- Butterworth, R. (2001). Hoshin Kanri: an exploratory study at Nissan Yamato Engineering ltd. Durham theses, Durham University. Available: <http://etheses.dur.ac.uk/4234/> [Accessed 30th April, 2018]
- Carpinetti, L. C. R. (2000). A conceptual framework for deployment of strategy-related continuous improvements. *The TQM Magazine*, Vol. 12 Issue: 5, pp. 340-349.
- Chan, Y. K. (2005). A further development of TQM model: meeting organisational development needs. *Asian Journal On Quality*, Vol. 6, Issue: 2, pp. 116-130.
- Cherns, A. (1976). The principles of sociotechnical design, *Human Relations*, pp. 783–792. doi: 10.1177/001872677602900806.

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- Chourides, P., Longbottom, D. and Murphy, W. (2003). Excellence in knowledge management: an empirical study to identify critical factors and performance measures. *International Journal of Quality and Reliability Management*, Vol. 7 No. 2 pp. 29-45.
- Clarke, M. (2011). *Readings in HRM and Sustainability*. Prahran: Tilde University Press.
- Crowe, T. J. and Cheng, C-C. (1996). Using quality function deployment in manufacturing strategic planning. *International Journal of Operations and Production Management*, Vol. 16, No. 4. pp. 35-48.
- Croll A. and Yoskovitz B. (2013). *Lean analytics: use data to build a better start-up faster*. New York: O'Reilly.
- Dahlgaard - Park, S. M. (2009). Decoding the code of excellence - for achieving sustainable excellence. *International Journal of Quality and Service Sciences*, Vol. 1 Issue: 1, pp. 5-28.
- Dahlgaard-Park, S. M. (2011): The quality movement: where are you going? *Total Quality Management & Business Excellence*, Vol. 22 Issue: 5, pp. 493-516.
- Dan-Shang W. and Chi-Lih S. (2008) Will the strategic fit between business and HRM strategy influence HRM effectiveness and organizational performance. *International Journal of Manpower*. Vol. 29 pp. 92-110.
- DeFeo, J. A. and Janssen, A. (2001). Why strategic deployment? *Measuring Business Excellence*, Vol. 5 Issue 3, pp. 4-5.
- Deming, W.E. (2000). *Out of the crisis*. New York: MIT Press
- Deloitte Consulting GmbH (2015). Digital Readiness Assessment. Available at: <https://www2.deloitte.com/at/de/seiten/strategy/dienstleistungen/digital-readiness.html> [Accessed: 1 January 2017].
- Deloitte Digital Europe (2015). Digital maturity check. Available at: <http://www.deloittedigital.com/eu/digitalmaturity> [Accessed: 6 January 2017].
- Edgeman, R. L. and Hensler, D. A. (2004). QFD and the BEST paradigm: deploying sustainable solutions. *World Review of Science, Technology and Sustainable Development*, Vol. 2/1. Available: <http://www.inderscience.com/offer.php?id=6727> [Accessed 26th April, 2018]
- Ernst and Young (2016). The digital maturity check. Available at: <https://digitalreadiness.ey.com/> [Accessed: 1 January 2017].
- Fowler, M. & Highsmith, J. (2001). The agile manifesto, *Software Development*, 9(August), pp. 28–35. Available at: <http://www.pmp-projects.org/Agile-Manifesto.pdf> [http://andrey.hristov.com/fht-stuttgart/The Agile Manifesto SDMagazine.pdf](http://andrey.hristov.com/fht-stuttgart/The_Agile_Manifesto_SDMagazine.pdf) <http://www.pmp-projects.org/Agile-Manifesto.pdf>. [Accessed: 1 January 2017].
- Gill, M. & VanBoskirk, S. (2016). 'The digital maturity model 4.0', *forrester.com*, pp. 0–17.
- Goldman, E. F. et al. (2015). Organisational practices to develop strategic thinking. *Journal of Strategy and Management*, Vol. 8 Issue: 2, pp. 155-175.
- Greenall, R. (1994). The missing link. *World Class Design to Manufacture*, Vol. 1 Issue: 2 pp. 5-6.

-
- Jayaram, J., Tan, K. C. and Laosirihongthong, T. (2014). The contingency role of business strategy on the relationship between operations practices and performance. *Benchmarking: An International Journal*, Vol. 21 No. 5, pp. 690-712
- Jochmann, D. W. (2016a). Der People-Faktor im Rahmen digitaler Transformation: Kienbaum Digital Readiness Check. Available at: www.kienbaum.de.
- Jochmann, D. W. (2016b). Kienbaum digital readiness check. Available at: www.kienbaum.de.
- Project Management Institute, I. (2017). What is Project Management. Available at: <https://www.pmi.org/about/learn-about-pmi/what-is-project-management> (Accessed: 23 June 2017).
- Krafcik, J. F. (1988). Triumph of the lean production system. *Sloan Management Review*, Vol. 30/1, pp. 41-52.
- Lawrence, P. R. (1954). How to deal with resistance to change. *Harvard Business Review*, May-June pp. 49-57
- Lee, S.F., Roberts, P. and Bhattacharyya, S. K. (1998). Sun Tzu's The Art of War as business and management strategies for world class business excellence evaluation under QFD methodology. *Business Process Management Journal*, Vol. 4 Issue: 2, pp.96-113.
- Leonard, D. and McAdam, R. (2002a). The strategic impact and implementation of TQM. *The TQM Magazine*, Vol. 14 Issue: 1, pp51-60.
- Leonard, D. and McAdam, R. (2002b). The corporate strategic-operational divide and TQM. *Measuring Business Excellence*, Vol. 6/1 pp. 5-14.
- Leonard, D. and McAdam, R. (2003). An evaluative framework for TQM dynamics in organisations. *International Journal of Operations & Production Management*, Vol. 23 No. 6, pp. 652-677.
- Leonard, D. and McAdam, R. (2004). Total quality management in strategy and operations: dynamic grounded models. *Journal of Manufacturing Technology Management*, Vol. 15, No. 3, pp. 254-266.
- MacDuffie, J.P. and Krafcik, J.F. (1992). Integrating technology and human resources for high-performance manufacturing: evidence from the international auto industry. In *Transforming Organizations*, Eds Kochan, T.A. and Useem, M. New York: OUP.
- McCabe, D. (2000). Factory innovations and management machinations: the productive and repressive relations of power. *Journal of Management Studies*, Vol. 37 No. 7, pp. 931-953.
- Mintzberg, H. (1994) 'The fall and rise of strategic planning', *Harvard Business Review*, January, pp. 1-19.
- Miyake, D. I. and Enkawa, T. (1999). Matching the promotion of total quality control and total productive maintenance: An emerging pattern for the nurturing of well-balanced manufacturers
- Nautin, T. (2014). The aligned organisation, in McKinsey and Company *The Lean Management Enterprise*, pp. 136-142. Accessed 25th March 2018. Available at: <https://www.mckinsey.com/~/media/mckinsey/business%20functions/operations/our%20insights/the%20lean%20management%20enterprise/the%20aligned%20organization.ashx> [Accessed: 1 January 2017].

-
- Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review*, (November-December), pp. 1–21.
- Oakland, J. (2011). Leadership and policy deployment: the backbone of TQM. *Total Quality Management*. Vol. 22, No. 5, May 2011, pp. 517–534.
- Ouchi, W. G. (1981). Organizational paradigms: a commentary on Japanese management and theory Z organizations. *Organizational Dynamics*. Spring, pp. 36-44.
- Ouchi, W. G. and Price, R. L. (1978). Hierarchies, clans and theory Z: a new perspective on organization development. *Organizational Dynamics*. Autumn, pp. 25-44.
- Pasmore, W.A. (1988). *Designing effective organizations: the sociotechnical systems perspective*. New York: John Wiley and Sons.
- Pires, A. R. and Alves, A. R. (2011). Organizational change and design for strategy deployment. *Organizational Excellence in Services Conference proceedings*, Sept 2011, pp. 995-1008.
- Politis, J. D. (2005). QFD, organisational creativity and productivity. *The International Journal of Quality & Reliability Management*, Vol. 22 No. 1, pp. 59-71.
- Quazi, H. A. and Bartels, F. L. (1998). Application of TQM principles in the international technology transfer process of industrial production plants: a conceptual framework
- Regan, S. and Dale, B.G. (1999). Survival to success: the case of RHP Bearings, Blackburn
- Smith, J. A. and Angeli, I. I. (1995). The use of quality function deployment to help adopt a total quality strategy. *Total Quality Management*, Vol. 6 No.1, pp. 35-44.
- Storey, J. (1994). *New wave manufacturing strategies: organizational and human resource management dimensions*. London: Paul Chapman Publishing.
- Witcher, B. J. (2003). Policy management of strategy (Hoshin Kanri). *Strategic Change*, Vol. 12, pp. 83-94.
- Witcher, B. J. and Butterworth, R. (2001). Hoshin Kanri: policy management in Japanese-owned UK subsidiaries. *Journal of Management Studies*, Vol 38-5 pp. 651-674
- Witcher, B. J. and Chau, V. S. (2012). Varieties of capitalism and strategic management: managing performance in multinationals after the global financial crisis. *British Journal of Management*, Vol. 23, pp. S58-S73.
- Witcher, B. J. (2014). Hoshin Kanri. *Perspectives on Performance*, Vol.11 No.1, pp. 16-24.
- Wysocki, R. K. (2014). *Effective project management: Traditional, agile, extreme*. 7th edn. Indianapolis, IN: John Wiley & Sons.
- Yuliansyah, Y., Gurd, B. and Mohamed, N. (2017). The significance of business strategy in improving organisational performance. *Humanomics*. Vol. 33 No. 1, 2017 pp. 56-74.