

# **Managing change in performance measures: a case study on practice and challenges**

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## **Abstract**

The purpose of this paper is to outline how a large manufacturing organisation handles change in its performance measurement system (PMS) and the challenges associated with it. The empirics presented have been collected through a case study. The findings display that the organisation deploys two processes for handling change, one with the starting point in the business plan and the other within an operational development program. Several challenges are highlighted relating to the IT-system, culture and involvement. The paper concludes that even though the processes are theoretically sound, the scarcity of time and focus in practice derail their purposes.

Keywords: Performance measures, updating performance measures, performance measures in change

## **Introduction**

As a consequence of the paradigm shift from mass production to lean production in the field of operations management, the field of performance measurement and management (PMM) has undergone a shift towards a balanced view of performance. Moreover, a move has been seen towards vertical and horizontal alignment between measures and strategies with focus on usefulness for everyday decision making, amplified specifications, and an ability to adjust to market volatility and change (Ghalayini and Noble, 1996). Within the PMM field, consensus prevails that performance measures (PM) should reflect the strategy and business environment of a company (Keegan et al, 1989; Dixon et al, 1990; Kaplan and Norton, 1993; Neely et al, 1994; Hass et al, 2005; Lima et al, 2009). Strategies and business environments are dynamic in nature while existing PM are stable and predictable. The combination of strategies, working in a dynamic context, and PM, providing comparability, requires handling. Thus, in order for organisations to ensure that their PM are relevant over

time, processes need to be in place for handling the review and update of PM. During the last decade, several theoretical concepts and frameworks have emerged with the purpose of managing PM change and ensure that they remain relevant over time. However, as Bourne (2008) pointed out, extended collaborative research is necessary in order to understand how organisations maintain their fit with the environment in order to keep their PM up to date in what is becoming an increasingly faster changing and more volatile business environment. With this background in mind, the purpose of this paper is to present how a large organisation handles change in PM and outline the encountered challenges. The paper is divided into five sections. The first introduces the theoretical frameworks and concepts available today. The second section presents the applied methodology whilst the third presents the empirical findings. The fourth section discusses the theoretical and empirical findings whilst the fifth and concluding section discusses the need for future research and provides a summary of the paper.

### **Theoretical background**

During the 80s and 90s the focus of many academics was concentrated on the challenge of understanding what to measure and the designing of the measurement system. Consequentially, the field is now well-filled with guidelines and frameworks addressing this challenge, most notably the balanced scorecard (Kaplan and Norton, 1992). Then, attention was directed towards how to implement these approaches to the performance measurement system (PMS) design. At that point of time a considerable amount of organisations had PMS with a rigid financial focus. In the wave of transformation, going from financially focused PMS to balanced ones, focus was put on implementation. Once organisations had transformed their PMS, academic attention was directed towards understanding how to manage through these systems in order to reap the promised benefits. Finally, as conditions, strategies and environments shifted over time questions have aroused regarding how to keep PM relevant and updated over time. These four phases (design, implementation, management and evolution) are known as the PMS lifecycle (Bourne et al., 2000; Neely et al., 2002; Bititci et al., 2004; Searcy, 2011). During the last decade several approaches to keeping PMS updated as strategy and environments evolve have emerged, see below.

Dixon et al (1990) have developed a tool named the performance measurement questionnaire (PMQ) that is described as a process for changing performance measurements. In short, the PMQ consists of a questionnaire and an evaluation meeting. Waggoner et al (1999) have worked out a framework of impacting forces of PMS evolution and change. The framework is derived from a cross-disciplinary literature study involving the fields of operations management, social psychology, management accounting and organisational behaviour. Medori and Steple (2000) have emitted a framework consisting of six stages which of the concluding stage addresses the needs of periodic PMS reviews in order to guard against redundancy and obsolescence. Bititci et al (2000) have developed the integrated model with a clear focus on information technology as the mean for keeping PMS up to date. Wettstein and Kueng (2002) approached the challenge from a PMS framework maturity perspective. Their framework consists of four levels of maturity. As the level of maturity increases, the sophistication of the PMS also increases. Four forces drive the evolution of the system: rivalry amongst competitors, information need from managers, company-external requirements and IT capabilities. Arguably one of the most

comprehensive frameworks today was developed over three articles (Kennerley and Neely, 2002; Kennerley and Neely, 2003; Kennerley et al, 2003). Through the empirics, gathered from seven case companies, a wide array of enablers and barriers to the evolution of PMS were compiled and broadly categorised under four critical factors: culture, process, people and systems. Moreover, the originators argue that the evolution of a PMS is possible through execution of an evolutionary cycle consisting of three phases, namely reflection, modification and deployment. Najmi et al (2005) have developed a concept referred to as the PMS review framework. The framework consists of two categories of reviews, business performance and PMS performance. The category of business performance assesses the performance of the business and is divided into three frequency levels; ongoing, periodic and overall. In contrast, Ghalayini et al (1997) have emitted a framework labelled the IDPMS (Integrated Dynamic Performance Measurement System). IDPMS combines three existing tools to keep the PMS updated and integrate management, process improvement teams and the factory shop floor. Bourne et al (2000) address the challenge from a multiple process perspective. They argue that an organisation need to have: a process to review targets of current measures, a process to review current measures, a process to develop new measures and finally a process to challenge strategy. In converse, Searcy (2011) proposes a conceptual model for managing the evolution of corporate sustainability PMS (SPMS). The SPMS is made up of three phases namely: planning, conducting and following up.

### **Methodology**

In order to get an overview and understand how PM changes are managed, a case study has been conducted with three data collection components: analysis of archived data, direct observations and an interview study with 19 individuals. The case study was designed based on the principles of Yin (1994) and executed at a large manufacturing site within the complex component industry in Sweden. The choice of case company is motivated by two factors, it is considered to be representative of the Swedish component industry and due to access. The archived data collected consist of PMS instructions, process manuals, educational material, management system guidelines and performance results. The interview study covered people from five hierarchical levels in the organisation, from top management to shop floor personnel. The questionnaire consisted of open and semi-structured questions and was based on the interview methodology developed by Lantz (1993). The interviews were transcribed by a third-party and the content was analysed by the research team. The anonymity of the interviewees was kept at a very high level during the transcription process. Before the transcribed interview documents were analysed, the interviewees had a chance to validate them. The data analysis was divided into three phases. Firstly, relevant data was separated from irrelevant data. Secondly, the findings were clustered into common categories and thirdly the empirical findings were contrasted to existing theory. Once a pattern was established, the data considered as irrelevant in the initial phase was revisited in order to ensure that nothing vital had been disregarded. In order to validate the research results multiple sources of evidence were deployed and triangulated against each other as advocated by Voss (2009).

### **Findings**

From process material and direct observations it became evident that the organisation had the ambition of combining two processes for handling the review of the PM. The first process adopted a strict top-down approach and was confined to all the main strategic and

operational PM. In converse, the second process was designed as a bottom-up approach with organisational wide continuous improvement (CI) activities focused around one single but evolving strategic goal. Both processes are owned by the general manager of the case company and are discussed in more detail in the sections below.

#### *Business Plan & Goal Steering Loops*

Analysis of management system guidelines and interviews revealed that the first review process adopted a top-down approach and consisted of two loops, a business planning (BP) loop and a goal steering (GS) loop. According to executive management interviewees, the purpose of the BP loop was to ensure that the strategy of the organisation had been reviewed whilst the GS loop established to cascade the reviewed strategy and update all the PM scorecards over the organisation. Analysis of archived data highlights that the input to the BP loop was the current performance of the organisation and impacting internal and external issues. Further, the analysis of archived data underlined that the BP loop was limited to the executive management team. Executive management argued that the top-down approach enabled the organisation to be confident that all existing objectives and PM were supportive of the reviewed strategy once the process had been executed. According to mid-management interviewees and process manuals, the way of working (with both loops) was scheduled to be executed on a yearly basis with the output being ready before the start of a new year.

Once the executive management had finished their BP loop and updated the strategic material and main PM, the objectives and PM of the overall organisation was reviewed via the GS loop. The GS loop starts with the distribution of target letters from the general manager to his immediate managers. The target letters are based on the output of the BP loop and serves as input for the review and formulation of the PM and goals at the next managerial level. Moreover, once these PM and goals are decided upon, target letters are handed to the next hierarchical level. Process material attested that this mechanism is iterated throughout the organisation down to the first-line management (Figure 1). Interview findings from across the organisation underlines that the target letter and subsequent output becomes more specific the further down the organisation the exercise is drilled. Third-line management breaks the target letter down into a “four-blocker” consisting of the perspectives of quality, delivery, cost and people/environment to second-line management. Further, first-line managers makes it even more specific by assigning specific actions to their PM and goals and by developing local business plans. First-line management interviewees established that they did not have a coherent way of engaging their production teams in this process. Some first line managers described how they gathered all the operators for an afternoon in order to together create the business plan even though it affected the production schedule and output. In converse, other managers argued that they had no possibility to engage their production teams in the process due to the impact on production output. The GS loop was concluded once the whole organisation had reviewed and updated their PM and goals for the coming year. This approach created, according to second-line management, a clear connection and relationship between PM over the whole organisation.

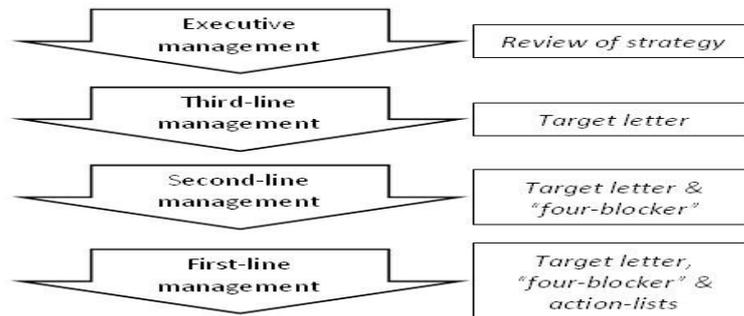


Figure 1: The BP & GS loops

### Operational Development (OD)

Analysis of interviews and archived data reveals that the second review process is executed within a program labelled operational development (OD). The OD program revolves around the notion that the organisation cooperatively concentrates on one strategic focus for a specific time period, usually six months. The key strength of the program, according to the obtained educational material, is the mutual focus from the whole organisation on one common challenge. In contrast to the BP & GS loops, OD is a CI-focused bottom-up approach. The program consists of two cornerstones, a structure and a process. Process material and interview analysis emphasize that both are needed in order to fulfil the goal of the program, performance results. The structure consists of roles, meeting structures, templates, PM, action plans, agendas, meeting techniques and support groups. The structure is essential for creating a common language and foundation, for resource allocation and for systematisation of the program. The second cornerstone is the process which consists of five steps (see Figure 2): why shall we do anything? What should we do? How shall we work? What are our results? What have we learned? The process is central for the development and maturity of the people involved and the creation of performance results.

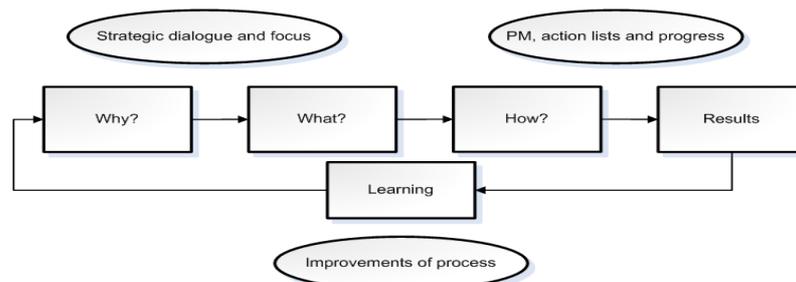


Figure 2: The OD process

Interview results illustrate that the first step of the process revolves around justifying for the organisation why action is needed. The executive management communicates the current state of affairs for the organisation and highlight market situation, threats, and opportunities. Process material displays that it is pivotal to relate the fate of the company to the fate of the employees and make sure to trigger a sense of reaction. The second step sets the direction of the company by creating and aligning the vision, focus and goals of the program. The first two steps are executed in an organisational-wide seminar every six months. The seminar consists of a strategic dialogue in which the general manager presents

the current state of affairs, why there is a need for action and the choice of one strategic focus for the coming time period. The organisation then has the opportunity to give the general manager feedback on the material in general and the strategic focus in particular. The notion of the second process step is to foster understanding and decide on one strategic focus. Interview analysis demonstrates that the chosen focus is always derived from the strategic goals in the business plan. Analysis of process material exhibits that once the focus has been set, the work within the next two process steps starts. Firstly, the focus is broken down to goals, PM and action lists within all OD teams. Secondly, the output and progress is monitored through revised action lists, recurrent OD team meetings and creation and finalisation of PM. During these two steps, the OD teams had full authority of creating the goals, PM and action lists that they wanted as long as it supported the strategic focus. It was believed by interviewees that all employees were members of at least one OD team. Moreover, archived manuals and interviewee responses established that it was pivotal to establish a commitment to the PM from the OD teams. This was believed to be done through creating PM that are relevant for the sake of team. One interviewee was explicit in his belief of this and argued that if it was to be dismissed then the PM would be neglected by the OD teams. Process material highlighted that the final step of the process revolved around reflecting and learning from both successes and failures. This final step of the process purposed to use gained insights as part of the input for the next loop of the process and to improve it. The OD program was repeated twice a year. Analysis of archived material and direct observations revealed that PM played several roles in the OD program. Initially, to ensure that alignment is enabled throughout the organisation and thus to maintain a common focus. Further, to make the focus meaningful to the OD teams by ensuring that they can affect it through their PM. Moreover, to encourage unconventional thinking, reinforce the need for change, and finally, to ensure the communication and visualisation of results. Within the OD program, PM were altered either due to change in strategic focus or progress within the individual OD teams. Interview analysis indicated that the strategic focus was generally, but not always, updated every six months. Thus, once the focus was replaced, the structure of PM build around the old one was largely abolished and a new one was created. Within the program, measures with short cycles were emphasized. One interviewee with the responsibility of handling the OD program at the case company further developed this:

*...our goal is to break down the performance measures so that they can be finalised every quarter. There are areas which has the same measure for a whole year, but that is not good. In those areas the sense of accomplishment is reduced and with it the energy to attack a new challenge. I always recommend creating four more precise PM and try to accomplish their goal targets on a shorter time horizon in order to nurture progress and success...short cycles generates success!*

Thus, in between the large scale changes, continuous PM change occurred on OD team level. When the OD teams progressed through the third stage of the process (Figure 2) they were encouraged to set PM that could be replaced within three months. Moreover, several interviewees highlight that when the teams changed their PM in between the strategic dialogues, their level of initial authority was sustained. Thus, no interference was made from other parts of the organisation as long as the new PM supported the strategic focus.

### *Context & Challenges*

The role and functionality of the IT system was emphasised by interviewees across the organisation. Executive management acknowledged that the IT system had its limitations and could not support the PMS fully. Moreover, it was believed that the data quality was not always fully reliable. Third-line management developed the thoughts on the limitations by stating that some PM can simply not be measured with the current IT system whilst others can be measured but not at the desired frequency. In contrast, second-line management was convinced that the IT system was fully sufficient and that any limitations are derived from lack of human competence. Most first-line managers also seemed to be satisfied with the IT system. However, a couple of first-line managers expressed frustration over not being able to extract some desired data from the system. Questions about the culture and the support that it lends to the PMS generate diversified answers. According to the executive management a culture existed in which people did not question, challenge or improve the operations. It was a culture characterised by reactivity, something needs to be dysfunctional in order to trigger an action. Third-line management emphasised that in order for the culture to support the PMS, there need to be an understanding for why PM exist. One third-line manager argued that the dialogue with the organisation is pivotal in order for fostering a PM supportive culture. In contrast, several blue collar respondents argued that the culture is associated with the constant necessity to measure but not to take any subsequent action. One respondent argued:

*...we on the shop floor are not interested in measuring anything. We know that they [the PM] are flavours of the month. We have so much fact that it is ridiculous but no actions are taken.*

Analysis of the interview material highlights that several challenges existed at the case company. Some first-line managers admitted that this was the first time in several years that they actually got a target letter. Others acknowledged that they received their target letters only after they had finished reviewing their PM and assignment of actions. The first-line managers that received the target letter perceived it as problematic that the upper management absorbed much time and thus reduced the time left for them. Consequentially, first-line management argued that the lag gave them a reason not to follow the process since there seemed to be no demand for it. Second-line interviewees underlined that production teams were not involved in the GS loop. This argument was further strengthened by blue collar interview output that indicated that they were not involved and some was not even aware of any PM. One blue collar interviewee argued that their involvement in the GS loop was low, but not because they did not want to but because they were not asked to join. Another blue collar interviewee highlighted that his production team was engaged once in the beginning. But since they never reached consensus with their manager it was ended, instead of getting involved, they now only received cost cutting demands. One manager summarised several responses by expressing:

*The hard part of this is to actually engage the workforce, deciding on the PM and goal levels are simple in comparison. The most important part of this process it to secure that we can reach them with this. In order to succeed I do believe that time is a central factor. It has become a bit easier with the years to involve them, it is not anymore only about doing*

*the operational tasks, but we still have a long way to go.*

A bonus system existed based on the operating profit and the cash flow. However, it was made evident through interview analysis that the bonus was associated with confusion. Few people knew that the bonus existed or how it was determined. The individuals that knew of the bonus were divided in their opinion of it. Several managers believed that it was too abstract and did not affect their motivation and incentives because they simply did not believe they could affect it. In converse, one manager perceived it to be appropriate because it eliminated sub-optimisations that arise by having bonuses tied to the functional and departmental goals. Finally, interview analysis underlined that the OD program had recently been disrupted due to a management decision to transform the production system from functional to lean. The CEO argued that the energy and resources were not sufficient to focus and a prioritisation was needed. The OD program was still active but had been severely reduced in terms of employees involved and scope. This decrease in utilisation had a distinct effect on the cost savings made from the program, from 4, 1 MUSD to 1, 9 MUSD.

## **Discussion**

Recalling from the theoretical background, several different approaches for handling PM change were proposed. Furthermore, no consensus seems to exist regarding how organisations ought to take on this challenge. However, several of these proposals revolved around a process based approach (Dixon et al, 1990; Bourne et al, 2000; Kennerley and Neely, 2002). The empirical findings presented in this paper support the notion of a process based approach. In fact, the organisation deemed it necessary to have two processes for handling the phenomenon. Moreover, both processes had their starting point in changing external and internal environments. The BP loop aimed to review and update the strategic material whilst the strategic dialogue purposed to choose (and thus change) a common focus for the organisation. This lends support to the overwhelming argument made in theory regarding the need for PM to reflect the strategy and business environment of a company (Keegan et al, 1989; Dixon et al, 1990; Kaplan and Norton, 1993; Neely et al, 1994; Hass et al, 2005; Lima et al, 2009). Hence, why and how these changes are handled in practice is aligned with what is advocated in theory. Moreover, the role and importance of IT and culture is highlighted in several theoretical approaches (Waggoner et al, 1999; Bititci et al, 2000; Wettstein and Kueng, 2002; Kennerley et al, 2003). Once again, the empirical findings strengthen the notion about their importance. The perception of the IT system seemed to be related to the organisational hierarchy. Top level management acknowledged restrictions and inflexibility whilst lower level management seemed to be satisfied but highlighted some inflexibility. The IT system seemed to play an influencing role by limiting the organisational measurement scope. This influence is arguably even more palpable in phases of PMS change where the measurement scope is in a fluid, transitional, phase.

In the case of the culture, the organisation seemed to be homogenous in its perception of the prevalence of a reactive culture. However, the effect of the culture was perceived differently. Top managers felt that it made the employees reactive in the sense that they did not act until something was dysfunctional. In converse, the shop floor employees perceived the effect to be management inertia in the sense that they did not act on PM results and

information. Regardless of the perception, the consequence was disengagement and disinterest of PM on the shop floor. Considering that both processes strived to engage and involve all employees, the culture clearly exerted a negatively impact. Indeed, involvement seemed to be the greatest challenge of the organisation. The scarcity of time and inability to prioritise between involving the production teams and production output cut the involvement short in the GS loop. Moreover, the decision to prioritise amongst the production system transformation and the scope of the OD program further limited employee involvement. These findings are interesting in the sense that they highlight that theoretically sound approaches with seemingly simple designs can become highly challenging in practice. Both processes are simple in the sense that the direction is updated by top management and then disseminated to the masses of the organisation. However, when deployed in practice, the realities of time scarcity, limited focus, IT system structure, bonus systems and cultural characteristics make their intended purposes hard to achieve. Another interesting finding is the relationship between the rigidity and functionality of each process. The GS loop (Figure 1) is designed in a structured and interlinked fashion creating a reality in which the different layers of the organisation becomes dependent on each other. In contrast, the OD teams are independent of each other with full authority as long as they support the overriding strategic focus. The difference in design had a distinct effect on the functionality of the processes. The organisation struggled in following the GS loop according to plan with target letter being either delayed or non-existent. In converse, the OD program did not experience the same type of problems. On the contrary, the cost savings dropped dramatically due to the decision to limit the program.

### **Future research**

More research is needed on how organisations handle change in their PM. As illustrated in this paper, a theoretically sound approach can have considerable limitations when deployed in practice. Researchers ought to focus on identifying and disseminating practically successful approaches. Furthermore, both the academic and industrial communities would benefit from amplified knowledge regarding what approaches to keeping PMS up to date are viable. The findings made in this paper are derived from one isolated case study. Even though the case company is deemed to be representative, replication of this case study on other companies both within and outside of the Swedish manufacturing industry is needed. Moreover, as the scarcity of time, focus and resources has an impact on the functionality of the approach, more research is needed on how much PM actually change over time. This would amplify efficiency by matching the approach to the scale of change. Further, investigating the impact that management, employees, IT systems and culture have on the long term viability of a PMS is an interesting challenge for future researchers.

### **Conclusion**

The purpose of this paper was to present how a large organisation handles PM change and outline the challenges associated with it. The findings made it evident that two processes were deployed in order to handle the change. The first one was focused on the main strategic and operational goals while the other revolved around one strategic focus. Several challenges were encountered related to the IT system, the involvement of the employees, the culture and the bonus system. It was concluded that even though the processes deployed are deemed to be theoretically sound, they have limitations when applied in practice. More research is needed in order to understand how organisations handle change in their PM.

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