Aligning the Maintenance Strategy with the Business Context to eliminate hurdles in translating the Business Strategy

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Abstract

The alignment of the broad maintenance strategy with the overall business strategy brings in the strategic fit of maintenance activities with the overall business objectives. Many times there is a misfit between the maintenance objectives and the business objectives, and this creates fissured priorities at the operational level, which mostly suffocates and derails the maintenance or reliability improvement initiatives in many businesses. The overall impact derived from the strategic misfit is not only limited to the viability of maintenance operations, but this is translated to the entire business, with oftentimes detrimental effects to the entire business’ performance. Therefore, the strategic significance of maintenance activities need to be considered at business level, and be linked to the overall business strategy to eliminate any conflicting priorities in the operation of the business as a whole. This study was undertaken to examine the ways in which maintenance strategies are formulated and interlinked to the overall business context, and the means that can be established to eliminate any hurdles that may impede the strategic translation process.

Keywords
Alignment, strategic fit, strategy translation, hurdles

Introduction

Today’s competitive business arena calls for businesses to compete on various dynamics that include time, pricing, technological superiority, innovational leadership, quality, service-reliability, and data control, in the midst of all these factors, asset care and assets availability are vital strategic considerations that affect the business’ capability to strive in the market effectively. (Madu, 2000:937). Asset maintenance strategies are essential in the competitive running of business establishments nowadays, and with the escalating reliance on technological facets for the majority of operational facades, it is imperative that befitting maintenance and reliability strategies are developed to safeguard that these businesses are able to deliver suitable quality and appropriate service to their clients (Madu, 2000:938). The industrial maintenance scenario is characterized by the strategic significance of ensuring
The maintenance strategy is aimed at attaining the utmost availability and efficiency of physical assets and systems (Queiroz et al.: 2017:3189). The appraisal of maintenance strategies embraces the identification of the most appropriate maintenance strategy for diverse assets by exploiting the benefits through considering a set of constraints (Seiti, et al., 2017:274). The strategic fit of the maintenance strategy relative to the business strategy can be assessed in two different ways centred on contingency: whereby the bivariate-related model inspects the manner in which contextual factors are related to the structural aspects of business and relating this connotation with performance; and the systemic approach cogitates the manner in which various structural and contextual aspects associate in a multiplicity of means to increase performance (Ortega, et al., 2012:958). The selection criterion of the optimal maintenance strategy for each asset is crucial for asset intensive enterprises, and consideration of business goals linked to maintenance objectives need to be included within the context of varying operational constraints, safety facets and reliability aspects (Srivastava et al., 2017:2). Therefore, the business scenario calls for a direct link between business strategies and maintenance strategies, and business goals and maintenance goals.

2. The Strategic Significance of Maintenance to Business Success

Maintenance and its management are of strategic prominence to business enterprises (Fraser, et al., 2015:635). The continued existence of any business establishment hinges on its propensity to compete effectively (Madu, 2000:938). Generally, maintenance is augmented against different reliability and performance measures, which are dependent on the goals of the business, and the ultimate aim is to attain the optimum balance between costs and benefits, but while taking cognizant of crucial business constraints (George-Williams and Patelli, 2017:1310). Asset Maintenance is a requisite for the majority of multi-component set-ups, even though its benefits are habitually complemented with substantial initial costs (George-Williams and Patelli, 2017:1309). Maintenance carries a pivotal part in the increase and advancement of manufacturing and processing organizations, and it is leveraged for attaining desired levels of assets availability, reliability and performance that is linked with business profitability (Kirubakaran and Ilangkumaran, 2016:285). The suitability of a maintenance strategy is quantified by its ability to improve a business’ prowess to outpace others in the market, while also maximizing profits (Seiti, et al., 2017:274).

With the continued expansion and application of technology and the ever escalating complexity of contemporary systems in enterprises, the robustness of maintenance strategies in such highly competitive environments need to be in continuous check (Seiti, et al., 2017:274). The benefits generated from applying an efficacious maintenance strategy by far surpass the financial gains, as matters that include workers' safety, environmental impacts and the manufacturing performance are affected as well (Seiti, et al., 2017:274). Various enterprises recognize the significance of maintenance, but the process of determining the optimal or suitable strategy often present complex computations and decision reiterations that consider solid and vague aspects such as skillsets, organizational layout, manufacturing requirements, organizational situation and resources accessibility (Seiti, et al., 2017:274). Diverse maintenance strategies are applied in industrial setups, and it is common to interact with the likes of corrective (CM), preventive (PM), total productive (TPM), reactive (RM), predictive (PdM), reliability centred (RCM), risk-based (RBM) and time-based (TBM) maintenance strategies (Seiti, et al., 2017:274). It is prudent to say that the selection of maintenance strategies is a multi-criteria decision-making (MDCM) approach, as a multiplicity of criteria ought to be assessed while deciding on the optimal maintenance strategy amidst the numerous options (Seiti, et al., 2017:274).
An effective maintenance strategy improves the availability, manufactured goods quality, asset safety and reliability of physical assets, and so it acts as a profit contributor to the business and as an essential partner of enterprises to attain the global competitiveness (Srivastava et al., 2017:2).

3. **Aligning Maintenance Strategy to Business Strategy**

For businesses to succeed in their strategic thrusts, they need to construct an organizational culture that is fully supportive of enterprise-wide maintenance and reliability undertakings (Madu, 2000:938). The maintenance supportive aspects such as information management systems and data gathering, remain key to enhanced reliability and maintenance performance, therefore, they ought to be synchronized in a cohesive business approach (Madu, 2000:938). This calls for business common goal alignment, which ensures that maintenance strategic goals contribute to the overall business goals, and their management should reflect such (Madu, 2000:938). Even though the obligation of ensuring that every physical asset of the company is properly maintained and functional, lies with the maintenance function, it is the responsibility of every employee of the organization to certify that a highly reliable and dependable system is maintained (Madu, 2000:938). To realize this, information and ideas sharing should flow freely within the organization, and functional silos should be eliminated, or else sub-optimization will prevail and the organizational objectives will not be accomplished (Madu, 2000:938). The involvement of the entire organizational levels is the key to attaining improved cost effective maintenance performance (Madu, 2000:938). Therefore, the fine tuning of the strategic requirements like resources and technological support requires a business-wide amalgamation approach in order to attain optimality (George-Williams and Patelli, 2017:1309). Maintenance team sizing and operational considerations need to be derived from a business perspective, without isolating the maintenance function on its own (George-Williams and Patelli, 2017:1309).

The relational arrangement between the business and maintenance strategies need to follow a systematic approach with the vital settings, methodologies and performance trailing arrangements that entail easy management (Pinheiro de Lima, et al., 2013:525). An assortment of strategic management platforms have been developed from the strategic management literature, and the dominant frameworks encompass the likes of the balanced-scorecard (BSC) and the strategic-measurement-analysis-and-reporting-technique (SMART) (Pinheiro de Lima, et al., 2013:525). These platforms have the capability to link prominent measures like reliability monitors that cover Mean-Time-Between-Failure (MTBF), Failure-Rate (FR) and Mean-Time-To-Repair (MTTR) to the overall business strategy and objectives (Catelani, et al., 2015:140).

Ordinarily, effective strategic frameworks generate vital capability to congregate human and financial resources on particular physical assets in an industrial setup to propel the organization’s strategic intents, and this can be achieved by:

- assessing value generated by the maintenance activities
- authenticating investment in physical assets
- valuing resources portioning
- impacts on safety and environmental performance
- demonstrating data control and management
- fluctuating to novel developments in the industrial arena and maintenance strategies, and
enterprise’s organizational adaptations to strategic intents (Simões, et al., 2011:117).

The strategic frameworks like the balanced scorecard are dynamic and can manage maintenance performance effectively (Muchiri, et al. 2011:297). Additionally, the strategic frameworks permit a vital interlink between the business strategy and the maintenance activities on the shopfloor, and for that reason they embolden application and utilization of collaborative implementation of strategic intents (Muchiri, et al. 2011:298). The figure below illustrates the link between the business strategy and the maintenance strategy.

![Diagram of Link between Business and Maintenance Strategies](image-url)

Figure 1: Link between business and maintenance strategies (Muchiri, et al. 2011:297).

Presently, there exist an insignificant drive to link the business strategies to the maintenance strategies and objectives, and more so, a small number of firms utilize maintenance activities that are influenced by corporate objectives (Van Horenbeek and Pintelon, 2014:34). It is imperative that maintenance strategies/objectives are allied to the business strategy and objectives (Van Horenbeek and Pintelon, 2014:35). The business strategies vary from company to company, but
below is a generic strategic workflow from the corporate level and down to the maintenance operational level.

![Diagram](image_url)

Figure 2: Linking business strategy to maintenance operational level (Muchiri, et al., 2011:298).

During the implementation of the business strategy, there is need of establishing multi-level implementation schemes, bestowing a tiered interrelation between the business strategy and the maintenance strategy and its objectives, signifying the drive of the maintenance function to satisfy the business strategic intents in an inclusive manner (Parida, et al., 2015:15).

**Case Study – Eliminating Strategic Hurdles between Business and Maintenance**

A case study was pursued at a manufacturing organization in Johannesburg with the intent of establishing how it links its business strategies and maintenance strategies. The first port of call was to establish if any business strategy and objectives existed, and this was all witnessed by a displayed balanced scorecard that listed all the business objectives in the various areas. Four (4) areas of strategic focus were established according to the case entity’s balanced scorecard, and they comprised of the following subdivisions:

- Environment, Health and Safety
- Cost
- People
- Customers

A display of an extract of the balanced scorecard is shown in the table below.  
Table 1: Organizational balanced scorecard
The next assessment was to confirm whether there was any link between the business objectives and the maintenance objectives, and this was done through assessing the departmental objectives and plans for the maintenance function. The reliability development plan was assessed and it is as depicted below, which affirmed that the plan was in agreement with the business objectives under the COST section of attaining 98% assets reliability. The plan included reliability improvement projects for specific physical assets that were found to have low reliability. Below is a bridge graph that summarized the reliability improvement plan.
Figure 3: Reliability improvement bridge graph

The detailed reliability improvement plan was also tabulated in the table below detailing the projects.

Table 2: Reliability improvement plan
To further confirm whether there was a complete link between the maintenance objectives and the business objectives, the engineering department’s balanced scorecard was also assessed to identify if there was any point of departure from the business scorecard. All the business objectives were found to be addressed in the departmental business objectives as per the table shown below.

### Table 3: Departmental balanced scorecard

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#### ENGINEERING PERFORMANCE

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### Discussion of Results and Conclusion

The link between the business objectives as per the business balanced scorecard and the maintenance objectives as per the maintenance department’s balanced scorecard showed that in order to gain alignment of strategic intents, the functional objectives need to relate to the business objectives. This scenario removes the ambiguity of understanding the maintenance plans that need to be carried out in order to attain the business objectives. This further removes the hurdles in acquiring resources required by the maintenance function for them to meet their own objectives which are in alignment to the business objectives. The alignment of strategies and objectives removes the counterproductive debates and justifications for maintenance expenditures in the absence of concrete plans. The budgetary processes also need to follow the strategic derivatives which are generated from the maintenance plan that is put in place with the objectivity to meet the business goals.

### References

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**Biographies**

**Peter Muganyi** is a doctoral candidate in Engineering Management at the University of Johannesburg, South Africa and he is an Engineering Manager at Gyproc. His research interest covers the areas of Lean Six Sigma effectiveness, Strategic Maintenance Systems deployment and Business Process Modelling.

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