



Citation for published version:

Lattanzio, S, Newnes, L, McManus, M & Dunkley, D 2016, 'Combating Decision Support Tool Performance Decay' The Institute of Asset Management Conference, Edinburgh, UK United Kingdom, 20/06/16 - 22/06/16, .

Publication date:
2016

Document Version
Publisher's PDF, also known as Version of record

[Link to publication](#)

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Combating Performance Decay of Decision Support Tools

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Abstract

Businesses are dynamic environments. If decision support tools do not evolve in line with the organisational requirements they risk suffering from performance decay. This may present as a decline in their use, or a reduction in the value they offer. In collaboration with National Grid we address this challenge. Our research proposal is that decision support tools should be evaluated for the risk of performance decay. The results of this risk assessment should be used to develop management strategies. Where sustained performance of the existing decision support tool is the preferred solution, a quality management system approach incorporating continuous improvement should be taken.

The Challenge

Tools which support making the optimum asset choice are being designed for use within industry. However, it is often not the creation of tools which is the challenge but in sustaining their performance over time.

What do we know about performance decay of Decision Support Tool?

There are no academic studies which specifically consider what happens to the performance of decision support tools once they have been introduced within an organisation. However, we know from studies of other organisational initiatives that sustaining performance is a challenge.

A review of the literature across different initiatives types indicates that there are both hard (process) and soft (human / cultural) elements which will affect whether a tool sustains (fig. 1).

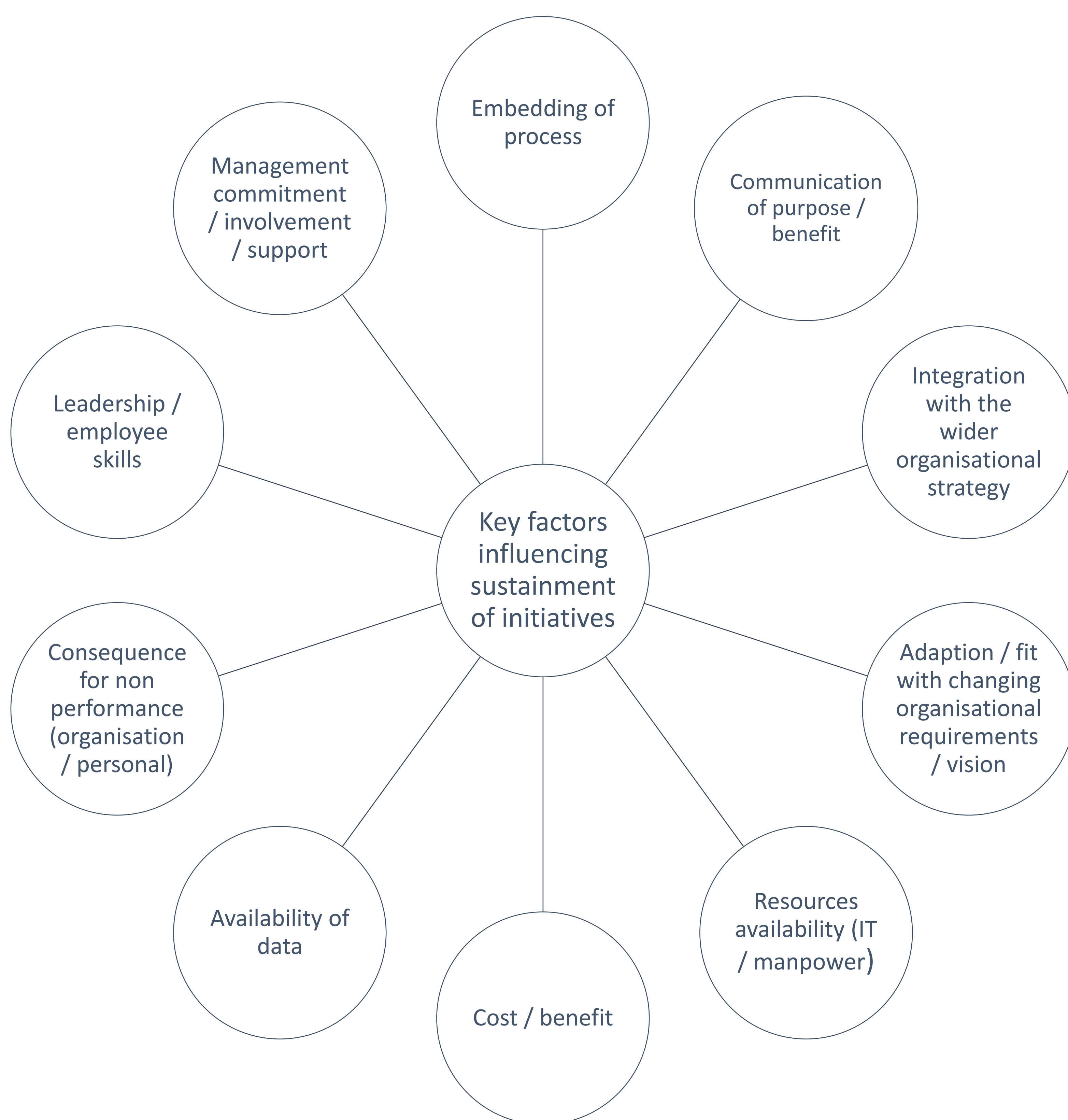


Figure 1. Key factors influencing sustainment of organisational initiatives

Next Step: Capture IAM member experiences of implementing decision support tools

Although there is no academic literature on what happens to the performance of decision support tools once implemented, we believe that IAM members will have valuable experience which is not yet written down. We want to capture that knowledge as a resource for the asset management community.

What are the implications of tool decay?

Scenarios we have created show that the impact of decay performance is context specific. The organisational implications will depend on a number of factors including: the cost of setting up and running the tool, the rate of performance change, the period the tool is in service, and the contextual nature of the performance to the organisation.

What do we propose?

Risk Assessment: The performance decay of decision support tools represents a risk to the business. Organisations should conduct a risk assessment to identify and evaluate this risk. Our research will define the key factors to consider when conducting this risk assessment.

Management Strategy: The results of the risk assessment should be used by organisations to support the creation of decision support tool management strategies. A review of academic literature and modelling of possible decay scenarios, has identified that sustaining performance of tools is not always the 'optimum' strategy. In some cases the preferred option would be to let the performance of the tool decline.

Quality Management System: Where sustained performance is preferred it should be recognised that tools do not operate in isolation, they form part of a system which is dynamic and influenced by human factors. As such they should be managed, evaluated, and reviewed to ensure they continue to reflect the requirements of the organisation. This thinking forms the basis of the process model found within the international standard for quality management, ISO 9001 (fig.2). Our research will use this model to define the requirements of an evolving decision support tool.

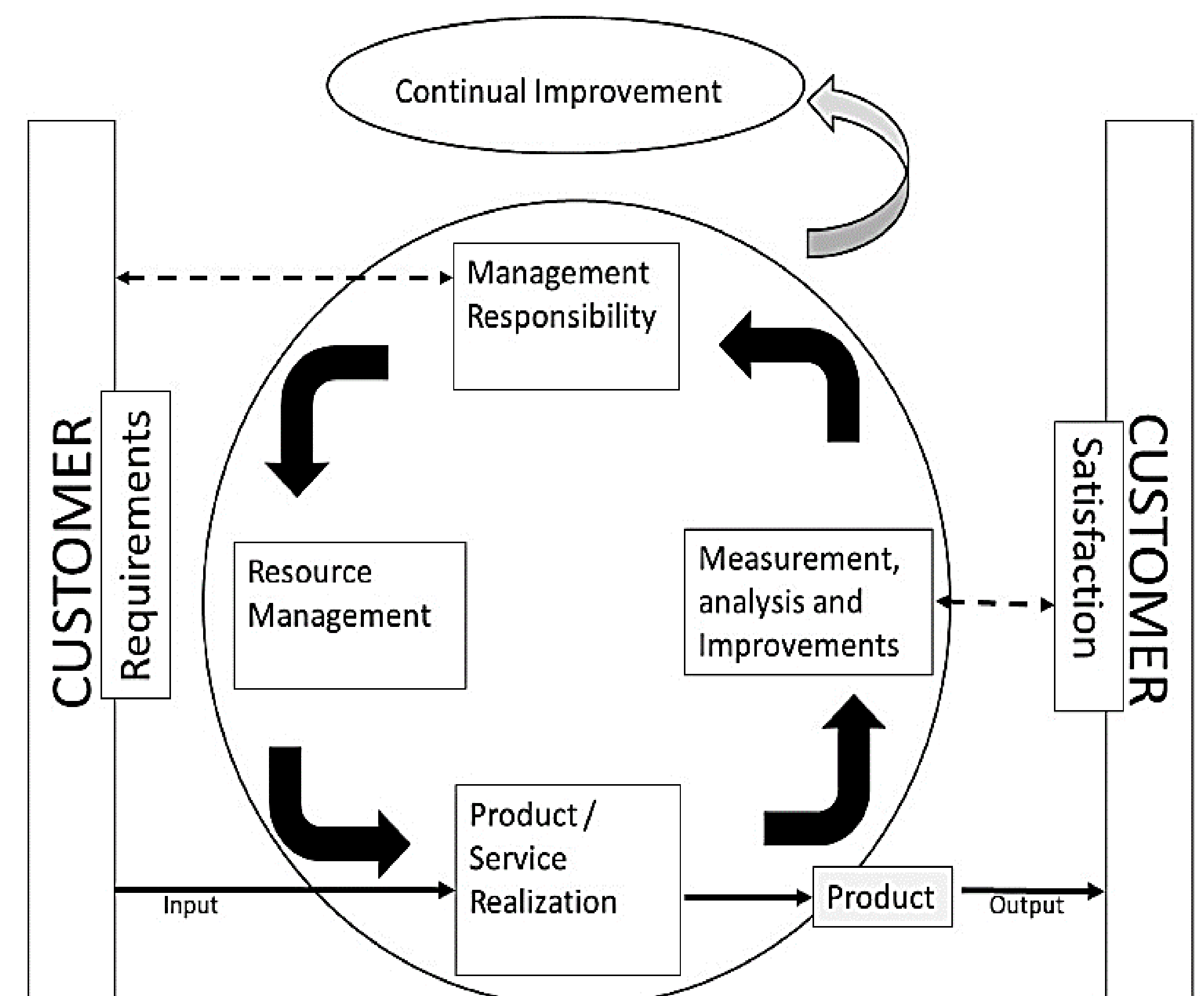


Figure 2. The ISO 9001:2008 quality management process model