

Improving the reliability of the customer order fulfilment process in a product identification company

T.J. Turner^{a,*}, K. Mendibil^a, U.S. Bititci^a, P. Daisley^b, T.H.J. Breen^b

^aCentre for Strategic Manufacturing, DMEM, University of Strathclyde, 75 Montrose Street, G1 2XJ Glasgow, Scotland, UK

^bDonprint, 4, Redwood Crescent, Peel Park Campus, G74 5PA East Kilbride, UK

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Abstract

This paper explains how the improvement of a key business process in a manufacturing company can be interpreted in terms of reliability engineering concepts. A case study is presented to illustrate how a label manufacturer went about improving the performance of the customer order fulfilment process to satisfy demands from major customers. The activities carried out in the improvement programme can be described in terms of a simple reliability engineering framework involving the three steps of risk analysis, risk assessment and risk management being applied to the business process. The paper goes on to suggest that using a similar framework with all key business processes in an organisation could improve the overall reliability of the business. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Organisations need to ensure that they continually monitor the changing demands of customers and then attempt to meet their customer's expectations in order to defend their market position against competitors. Successful organisations can quickly respond to a demand for a higher level of service from their customers by improving performance of key business processes. Management of business processes in this way has become

a prerequisite for business survival in the face of globalisation of markets in which rapidly changing business environments and seemingly insatiable increases in customer expectations have become the norm.

This paper describes how a manufacturer of high performance labels operating in the electronics sector went about improving the performance of the customer order fulfilment process to provide faster response to customer orders from major customers. The way in which this was done is analysed in the context of research being carried out, at the Centre for Strategic Manufacturing at Strathclyde University in Glasgow, on the application of reliability engineering concepts to business process management.

*Corresponding author. Tel.: +44-1415482588; fax: +44-1415520557.

E-mail addresses: t.turner@dmem.strath.ac.uk (T.J. Turner), kepa.mendibil-telleria@strath.ac.uk (K. Mendibil), u.s.bititci@strath.ac.uk (U.S. Bititci), pdaisley@donprint.com (P. Daisley), tbreen@donprint.com (T.H.J. Breen).

2. The company

Donprint is an international manufacturer of high performance, variable data label systems. Its main customers include leading electronic OEM's such as Compaq, IBM, Motorola, Hewlett-Packard and Nokia. The company was founded in 1979 and then acquired by the Jarvis Porter Group in 1984. Due to its outstanding business performance in recent years, in November 1999, the company was the subject of the biggest ever management buyout in Scotland involving two venture capital groups and the management team.

Currently Donprint has 340 staff world wide, 135 of whom are working in the manufacturing site in East Kilbride in Scotland where the business process improvement activity took place. Donprint's strategy is one of global expansion to locate their manufacturing operations close to major customer production units in order to provide rapid response to customer orders.

3. Background to the business process improvement programme at Donprint

Donprint prides itself on providing the best possible service to its customers in the fast moving electronics sector. In 1997 a decision was taken to embark on a business improvement programme to ensure that the business processes in Donprint were capable of continually meeting customer requirements. To assist in definition and improvement of their business processes, a research programme was initiated by embarking on a Teaching Company Programme in partnership with the University of Strathclyde. This gave them access to the research programmes being carried out at the centre for strategic manufacturing at the university. Of particular relevance was the ROPA programme, funded by the Engineering and Physical Sciences Research Council, on Active Monitoring [1]. The objective of this programme was the creation of a model for maintaining the reliability of a business process by the application of active monitoring techniques [2]. This programme led to the current research in the Centre on how reliability engineering concepts can be

used to interpret business process improvement activity in general, and more specifically within the simple framework of the three steps commonly used in reliability engineering of risk analysis, risk assessment, and risk management.

Although Donprint provided a very high level of service to customers, it recognised that this service could be improved if it increased the reliability of its customer order fulfilment (COF) process. Delays sometimes occurred before customer orders could be processed because of missing or incorrect data, and unavailability of machine capacity. Some orders had to be reprocessed, or further orders processed, because of excessive waste or lack of materials to process the full order. These problems had an impact on the ability for Donprint to deliver orders reliably to their customers within the lead times they knew would give them a competitive advantage.

The first year of the Teaching Company programme focused on improving the delivery reliability and response times of the COF process.

4. Reliability of a business

A reliable business can be thought of as a business that survives over time by satisfying the demands of key stakeholders of the business. The EFQM Excellence Model [3] suggests that key stakeholders include customers, suppliers, people working in the business, society on which the business has an impact, and the shareholders of the business. These demands will vary over time as customers demand improved performance from the product and better value for money, shareholders demand better return on investment, people demand improved pay and conditions, etc. Such a reliable business would need to respond to these changing demands from customers, suppliers and people while at the same time ensuring that shareholders are retained and legal and ethical requirements from society are met. In order to balance this dynamic situation in a proactive way a business needs to continually monitor the external business environment and then modify its internal operations to meet key

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