

Environmental control for process improvement and process efficiency in supply chain management – the case of the meat chain

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Abstract

Integrated process management has to deal with economic, quality and environmental aspects and link them to management decisions on the organization, control and improvement of processes. The incorporation of quality and especially environmental aspects into established economic management approaches is a complex step towards the formulation of an integrated process management concept. The consideration of environmental aspects asks for an extension of management initiatives from an enterprise orientation to a supply chain orientation. However, there is still little experience in the transfer of theoretical concepts into an approach, which is suitable for the management of processes in individual enterprises, and the coordination of activities throughout supply chains. The paper integrates environmental management into a principal management loop for integrated process management and translates the management loop into a management strategy suitable for implementation in chains with a lower (first) level of coordination intensity. This scenario is typical (but not exclusively) for most agri-food production chains which are under heavy pressure to move towards integrated process management systems. The principal management strategy is demonstrated for meat chains which had been analyzed in a number of case studies on the implementation of environmental management concepts in industry. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Stricter policy rules on environmental issues, changes in consumer attitudes towards the environmental effects of food production, and increasing regulations and competition regarding the quality and efficiency of production force agri-food industry to formulate management concepts

and management systems which extend the traditional focus on economic efficiency to

- (a) incorporate quality assurance and quality improvement and
- (b) reduce the use of natural resources and the negative impacts of production and trading activities on the environment.

These aspects are a response to the objectives of different interest groups, which have an influence on the strategic positioning and

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the operational success of agri-business industries. They involve

- (a) the enterprise itself with its interest in *economic* sustainability and success,
- (b) the consumers (the ‘market’) with their interest in *quality* characteristics of products and services, and
- (c) the society as a whole with its interest in *environmental* sustainability.

Management activities, which attempt to assure a reliable and efficient realization of these objectives, are usually grouped accordingly into

- (a) business management activities with a prime focus on the enterprises’ economic interests,
- (b) quality management activities with a prime focus on the consumers’ quality interests, and
- (c) environmental management activities with a prime focus on the society’s environmental interests.

They build on a process oriented management approach which views economic success, quality of products and environmental effects as outputs of business processes which can be influenced through appropriate process organization, process control and process improvement activities. The implementation of all three types of management activities represents the core concept of the current view on integrated process management.

However, the extension of enterprise objectives from economic considerations towards quality and environmental issues is linked with major increases in management complexity. It increases the need for

- (a) an integrated view of supply chains in business management and
- (b) the incorporation of qualitative and ‘soft’ criteria into monitoring and evaluation routines of management activities.

While this applies to all types of businesses, it is especially true for enterprises of agri-food supply chains and, first of all, the meat chain. The meat chain extends from the breeding industry through,

a.o., agriculture, the feed mix industry, slaughterhouses, meat processing and trade to food outlets where it reaches the final consumer.

Economic considerations are based on the quantification of well-defined and accountable events in any stage of the supply chain. The ‘economic history’ is one of the measurable characteristics of a product at any stage as well as at the end of the chain.

In contrast, quality objectives of consumers may relate, at any stage of the supply chain, to characteristics of process activities (e.g. animal treatment), which might be difficult to quantify and which, in addition, might not be measurable at the final product. This asks for

- (a) a chain oriented management approach,
- (b) the development of a chain-encompassing information flow on quality characteristics, and
- (c) the development of trust in its reliability.

Environmental considerations follow a similar approach but require, in addition, the delineation of an appropriate scope of analysis and the identification of environmental targets, which build on aggregates of environmental characteristics, which may be difficult to formulate.

It is in line with the stepwise increases in complexity, that present developments in industry concentrate on the first step, the integration of traditional business management with quality

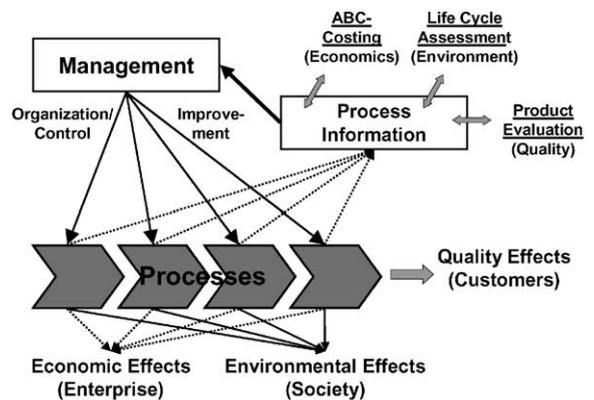


Fig. 1. Management loop.

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