Measuring Chain Digitisation Maturity:
An Assessment of Dutch Retail branches

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Extended Abstract

The purpose of this article is to develop a validated measurement model and typology for chain digitisation maturity, defined as the degree of interorganisational collaboration through ICT.

The advantages of interorganisational information systems (IOIS) seem to meet the challenges currently facing the (Dutch) retail sector, as becomes clear from many large-scale examples. It can be seen as an omission that there are fewer examples for smaller organisations. There seems to be no clear insight into which factors drive small businesses to adopt and deploy IOIS. We depart from the notion that without considering the organisational dimension, the deployment of technology (i.e. ICT) will be less useful and/or effective. The common notion is that technological and organisational systems reinforce each other, as evidenced for example by theory on business–IT alignment. At every scale and level, technology and management (or 'organisation') should be related.

Literature discussing the level of chain digitisation often focuses on one single organisation. As chain digitisation exceeds the level of a single organisation, its maturity actually should be measured at the chain level as well. In this paper, we develop such a framework and validate the resulting measurement model at the level of interorganisational chains within a number of branches (i.e. sub-sectors of an industry).

We develop our integrated framework through a literature (meta) study, in which 22 existing maturity models are found and subsequently analysed. Our integrated framework (Fig. 1) incorporates the contents of many models as well as our specific findings with respect to model scope, domain focus, and the number of levels. We distinguish two dimensions: the level of technology and the level of organisation.
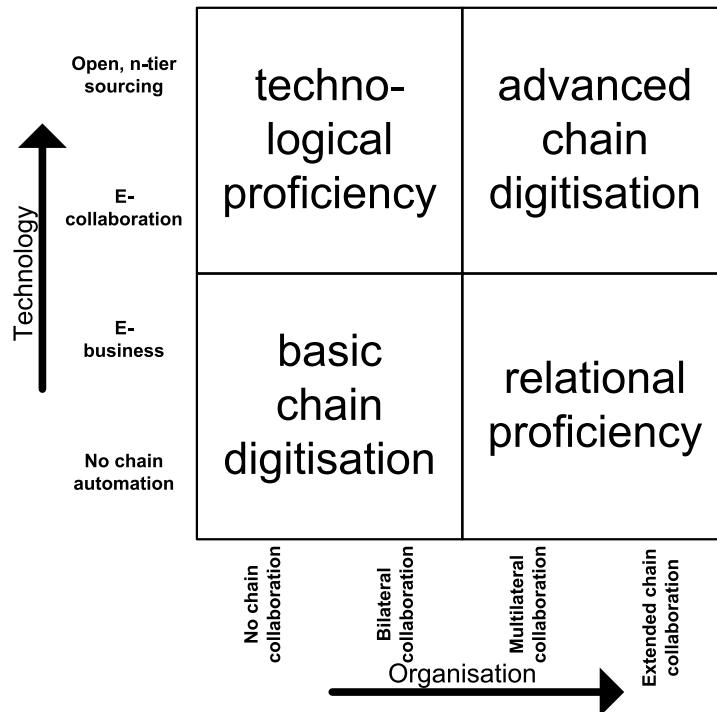
Fig. 1. A typology for chain digitisation.

We subsequently apply this typology to interorganisational collaboration within the Dutch retail sector (i.e. retailers and their wholesalers, manufacturers, customers, and trade organisations). The measurement model is tested by determining the chain digitisation level of 24 different retail sub-sectors (branches) through desk research, interviews, and surveys. Data are collected at the level of the branch, mainly through representatives of trade organisations.

As a result, the model appears to be applicable to describing the Dutch retail sector and comparing its branches, providing both expected and new insights. It is found that in general the level of chain digitisation of this sector – as of 2007 – is low: most branches are of the 'limited chain digitisation' type. Nevertheless, six branches are positioned within the 'relational proficiency' type.

The empirical application provides an extended view of the current situation of the (Dutch) retail sector with regard to chain digitisation. On this basis, a roadmap can be derived to support the adoption and deployment of chain digitisation among retail organisations.

Our framework for chain digitisation and the derived typology are of value to the SCM research community, as they are specifically developed and tested at the level of interorganisational chains. Here, the framework has been applied to the (Dutch) retail sector only. It seems suitable for application to other sectors as well.