

Chapter 11

An Examination of Standardized Product Identification and Business Benefit

Douglas S. Hill
University of Southampton, UK

ABSTRACT

This chapter goes on a supply chain journey where humankind attempts to make sense of its complex world through the application of numbers and associated data carriers. The trading world is famously becoming increasingly globalised and has had the effect of extending supply chains and subsequently making them more complex and prone to risk. To offset these risks, standards are being developed and applied in supply chains to identify and manage products as they travel along the physical supply chain. The following pages introduce the reader to the concepts of standardised product identity and data management. Both of these elements have been found to be foundational and enabling prerequisites when offsetting supply chain risk. The systems mentioned within the chapter are discussed through the lens of the GSI system and have all been tested in manifold implementations. They are intended as best practices, patterns of application for supply chain managers, and thought leaders alike, which are proposed as a launch pad for improving organisational capabilities using standards.

INTRODUCTION

Foreword

Simplification is the ultimate sophistication!

The words are from Leonardo da Vinci but could well be the tag line for the application of instance level product identification. The con-

cept is straightforward; simply apply a unique, standardised number to a product so it can be controlled and tracked and traced from its source to the ultimate customer. However, implementing the item identity for both the physical product and the digital dataflow in networks is not as simple as one may expect. Product identification requires planning and forethought to best leverage the business benefits across the whole value chain, after all, if there are product visibility holes in the supply chain, control is compromised.

DOI: 10.4018/978-1-4666-2625-6.ch011

This chapter seeks to demonstrate some uses of standardised identification that are applied in supply chains. It highlights the relationship between numeric product identity and data carriers such as barcode symbologies and their electronic counterparts and offers a rationale as to why these elements need to work in tandem.

Finally, the concept of transparency management is introduced and the role of product identity is discussed as one factor enabling supply chain processes that allow for higher rent generating operations. Transparency management is a pragmatic approach to managing product data in an increasingly networked supply chain environment which uses numbers to make sense of a complex world.

Background

The mathematicians of Europe looked out over the universe, noted its appalling clutter and determined that on some level there must exist a simple representation of the world, one that could be coordinated with a world of numbers. (Berlinski, 1995)

The World of Numbers Symbols and Structured Data Flow

Making sense of our chaotic world has long been an intellectual and philosophical challenge of humankind that has searched for a simplified expression, an abstraction, of the real world in which we live. In doing this, civilisations have often used structured systems, such as numbers and symbols to rationalize the complexities and chaos of both the natural and business worlds.

Around 530 BC, Pythagoras of Samos went a great deal further than just applying numbers to explain his world and where his disciples' slogan was, "God is integers!" (Uppal, 1987). Perhaps Pythagoras' students were a little too bold with their claim, nevertheless, Pythagoras' main thrust was that numbers are the key to all knowledge and there is nothing that exists that cannot be expressed

by numbers. This thought is something that can possibly be more readily agreed upon and is a line of enquiry that can be developed to include types of data carriers used in commerce such as, barcodes and electronic product identification.

Use of Structured Numbers

Within the supply chain, the use of numbers is not a new concept in modern business and there are manifold competing, and sometimes complementary, systems in play (Dun and Bradstreet, 2010; GS1, 2010c; ISBN, 2010). The current attempts to rationalise the business world through numbers has lead to innovative data carriers being developed, stepping away from pure integers, towards automated data capture formats. These solutions have manifested themselves as associated symbologies such as the GS1 barcodes (2010b), or the digital, cyber, formats such as the ones represented in GS1's Electronic Product Code (EPC) tag data specifications (2009).

The rules of the traditional paper based supply chain game are beginning to change through technological, legal instruments, (Lutter, 2006) and economic related factors (den Butter & Linse, 2008; Hertz & Hultman, 2008; IBM, 2009; Iskanius & Kilpala, 2006). These aspects could make the sheer volume of product numbers and their reported event occurrences a managerial challenge. It is precisely in this growing 'number-chaos', specifically in a networked world, where instance level product number standardisation is required. Unique product identity facilitates order in global supply chains, enabling data filtering and gives the product a far greater potential to be read by all stakeholders in the supply chain, a key pre-requisite to maintaining product visibility.

The Increase in Information Data Flow

Numbers and their associated data carriers are used in every imaginable business scenario and

23 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/examination-standardized-product-identification-business/73335

Related Content

Distribution and Inventory Planning in a Supply Chain Under Transportation Route Disruptions and Uncertain Demands

Himanshu Shrivastava, Andreas T. Erntstand Mohan Krishnamoorthy (2019). *International Journal of Information Systems and Supply Chain Management* (pp. 47-71).

www.irma-international.org/article/distribution-and-inventory-planning-in-a-supply-chain-under-transportation-route-disruptions-and-uncertain-demands/229049

Causes of China's Low Consumption from the Perspective of Local Governmental Competition

Yaling Zhuand Huifang Zhang (2020). *International Journal of Information Systems and Supply Chain Management* (pp. 15-31).

www.irma-international.org/article/causes-of-chinas-low-consumption-from-the-perspective-of-local-governmental-competition/246054

A Closed-Loop Logistics Model for Green Supply Chain Management

A. H. Basiri, A. Shemshadiand M. J. Tarokh (2013). *Technological Solutions for Modern Logistics and Supply Chain Management* (pp. 318-333).

www.irma-international.org/chapter/closed-loop-logistics-model-green/72854

Performance Estimation of Firms by G-L-A Supply Chain under Imperfect Data

Anoop Kumar Sahu, Nitin Kumar Sahuand Atul Kumar Sahu (2020). *Supply Chain and Logistics Management: Concepts, Methodologies, Tools, and Applications* (pp. 999-1031).

www.irma-international.org/chapter/performance-estimation-of-firms-by-g-l-a-supply-chain-under-imperfect-data/239313

Theory and Practice of the Post-Audit of Capital Projects: Evidence From the Czech Republic

Jaroslav Kovarnik, Eva Hamplovaand Frank Lefley (2022). *International Journal of Applied Logistics* (pp. 1-19).

www.irma-international.org/article/theory-and-practice-of-the-post-audit-of-capital-projects/286161