Reference Syllabi

Association for Information Systems (AIS)

Retail Information Systems
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Background

Retail is one of the most important sectors in today’s economy. Since the year 2000, the global trade volume has almost tripled from 6.4 trillion Euro to 18.4 trillion Euro in 2012.1 Of course, this enormous amount does not arise out of nowhere but involves thousands of companies with millions of employees.2 Based on this, complex structures arise due to various links between and within companies. Therefore, it is necessary to have a look at the whole supply chain as well as the value chain within companies. Whereas the supply chain allows several types of retail which can differ in terms of, for instance, invoicing or the goods delivery between companies, the value chain of a company focuses on internal company processes.

Although the application of the processes differs from company to company, their underlying structure is similar. Retail companies comprise departments for their supplier and customer relationship management, their order management and selling, their logistics and their accounting. The value chain of a retail company is a large cross-functional process from purchasing through selling products instead of a simple series of functional executions. The departments fulfill subprocesses of the overall process. The integration of the processes and the data often depicts one of the most difficult barriers to overcome. At this point, retail information systems can provide a remedy as they integrate processes and data from different departments for an efficient process execution. Thus, it is necessary to have an integrated process perspective on the company and to understand how integrated retail information systems can help to efficiently support the company’s business.

purposes and Objectives

In order to provide the understanding of the integrated process and data perspective of the retail business as a basis for retail information systems, reference processes can be utilized. Reference processes for the retail business depict the basic processes which a retail company needs to execute its business. For gaining an overall view of a company and for understanding not only the single processes but also the links between the processes, a reference model should be used. Thus, the Retail-H is recommended as a basis for structuring the course. The Retail-H combines the core processes, the management processes and the support processes that a company executes in order to fulfill its business. These processes are structured in a hierarchical way from an aggregated level (framework and main processes) to a more detailed level (detailed processes) for addressing a

2 https://www.destatis.de/DE/ZahlenFakten/Wirtschaftsbereiche/BinnenhandelGastgewerbeTourismus/BinnenhandelGastgewerbeTourismus.html
strategic as well as an operative view. Furthermore, it provides – in addition to the processes – reference data models, also from a highly aggregated to a detailed level.

This approach is beneficial to provide participants with a broad understanding of how retail business is conducted. The objective of the course is not to focus on a special part of retail but to give an overall insight into the operations in the daily retail business. This way, the participants are enabled to resort on this basic knowledge and to adapt this knowledge for particular companies. This allows a versatile application spectrum of the learned knowledge.

Structure

INTRODUCTION

Overview

Retail is a very large business sector with a broad variety of types how retail is conducted. In this section, the importance of retail is explicated to the participants at the beginning (for instance, by providing appropriate figures). In order to create a common knowledge base to describe the complex structures in retail, different definitions of retail are discussed and general forms of the “classical” retail as, for instance, the wholesale or the e-commerce are considered and contrasted. Furthermore, possible adaptions of the “classical” business model as, for instance, central settlement, central clearance or drop shipping are confined and the corresponding reference model adaptions are shown.

Learning Outcomes

After the unit, the participants are able to
- Understand the importance of retail for the economy
- Define retail from different point of views
- Explain different types of how retail can be conducted
- Have a basic understanding of main processes, support processes and management process as well as their links
- Know a reference model and possible adaptions for structuring the processes

Material


PROCESS AND DATA MODELING

Overview

The processes and the data are the key constructs in retail for an integrated retail information system. Thus, basic modeling knowledge is indispensable for understanding these constructs. In this section, fundamentals of process modeling and data modeling are taught. Starting with definitions of a process and central elements of process models and data models, the application of process modeling languages like Event-driven Process Chains (EPC), Business Process Model and Notation (BPMN) and icebricks as a new approach which covers more semantics are exercised with the participants. Furthermore, Entity Relationship Models (ERMs) are created for representing data structures by using examples. Eventually, the guidelines of modeling (GOM) are explained on the basis of exemplary process models and a possible tool support.

Learning Outcomes

After the unit, the participants are able to
- Use different modeling languages for representing business processes
- Depict data models by creating Entity Relationship Models
- Know the guidelines of modeling and how they can be realized during modeling and possibly within a software tool

Material

SUPPLY SIDE

Overview

Alongside the execution of the typical retail business and the structure of the Retail-H, the supply side and its main processes are discussed in this section. Thus, all links of a retail company with its suppliers are regarded (except the logistics which are focused on in a separate section). It is necessary to have a clear understanding which factors play a role during the purchasing of trade products since the purchasing is one of the key factors for the success of a company. The supplier relationship management (SRM) comprises the maintenance of supplier master data, article master data, supplier conditions and contracts. In these processes, relevant actions and data structures are shown. The order management as the second main process includes the demand planning, forecasting of necessary purchases and the handling of particular purchase orders. The invoice auditing and the accounts payable complete the supply side by introducing ways of invoice recording, checking and booking as well as the maintenance of supplier data relevant for accounting (creditor master data).

Learning Outcomes

After the unit, the participants are able to
- Name main processes of the supply side of a company
- Describe the necessary (sub)processes and the data for purchasing articles
- Name several factors that may lead to a high complexity in the supply of articles
- Know how the supply of articles can be supported by retail information systems
- Adapt the provided reference processes and data models for real companies within a case study

Material
DISTRIBUTION SIDE

Overview

In contrast to the latter section, the customer is focused on here. The distribution side contains all contact to the customer and all processes and data in which the customer is engaged. As equivalent to the SRM of the supply side, the customer relationship management (CRM) is introduced. In here, the maintenance of the customer master data and the possible contact points with the customer are included. This also comprises the necessary processes and data for the planning and listing of goods as well as the appropriate choice of assortments for different shops. In addition, the execution of promotions and advertising campaigns is discussed. As second main process, the actual selling of articles contains the handling of inquiries and the subsequent creation of offers, the processing of customer orders and further processes as complaints or the sales force management. The billing and the accounts receivable are also to be seen as counterparts of the invoice auditing and the accounts payable processes of the supply side. While the billing includes all activities and relevant data for creating a delivery note, a customer bill or possibly a credit or debit memo, the accounts receivable process administers the maintenance of accounting-relevant customer master data (debtor master data), financial postings, the dunning as well as the credit management.

Learning Outcomes

After the unit, the participants are able to
- Name main processes of the distribution side of a company
- Describe the necessary (sub)processes and the data for selling articles
- Name several factors that may lead to a high complexity in the sale of articles
- Know how the distribution of articles can be supported by retail information systems
- Adapt the provided reference processes and data models for real companies within a case study

Material


LOGISTICS

Overview

In the logistics section, the goods receipt from the supplier, the storage of goods in a warehouse and the goods issue to the customer are explained. Firstly, ordered goods have to be planned in terms of their arrival and their handling during the goods receipt. The process continues by checking and accepting the delivered goods and further recording the goods. The storage planning and the valuation of the goods are succeeding subprocesses. All of these subprocesses can be supported by an integrated information system. The digitalization of the information is a key factor to efficiently process received goods. The storage of the goods in the warehouse is the second main process. It contains subprocesses like the maintenance of warehouse master data, inventory keeping and checking and the packaging. In addition, the relocation or repos of goods as well as value added services like labeling are part of this main process. The goods issue is the last main process of the logistics. Here, the tour planning of trucks, the picking process of the goods and the actual delivery of the goods are included. Again, it is explicated how retail information systems can support every subprocess by, for instance, using RFID scanners or automated systems within the picking of goods.
Learning Outcomes

After the unit, the participants are able to
- Name main processes of the logistics of a company
- Describe the necessary (sub)processes and the data for the logistics execution
- Know how the logistics execution can be supported by retail information systems
- Adapt the provided reference processes and data models for real companies within a case study

Material

MANAGEMENT AND SUPPORT

Overview

The management processes (as “roof” of the Retail-H) and the support processes (as “fundament” of the Retail-H) along with the corresponding data models round off the overview of the retail business. The management processes deal with the controlling of the main processes, the business intelligence to consolidate data and the strategic plan for a company based on managerial decisions. In this section, possible data structures for a data warehouse, dimensions, and possible measures for the same processes are discussed. The support processes work as a basis for a smooth processing of the main processes. They deal with the general accounting, the asset management, the cost accounting and the management of human resources.

Learning Outcomes

After the unit, the participants are able to
- Name management and support processes of a company
- Describe the necessary (sub)processes and the data for these processes
- Know how management decisions can be supported by retail information systems
- Know how support processes can serve as a basis for a smooth flow of the main processes
- Adapt the provided reference processes and data models to real companies within a case study

Material

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