Standardization and differentiation in the publishing industry

emma Conference 2014, June 12-13, Tallinn & Tartu, Estland

Svenja Hagenhoff
University of Erlangen-Nuernberg
Professorship for E-Publishing and Digital Markets

BUCH
WISSEN
SCHAFT
ERLANGEN

Outline

1. **Motivation**
2. Basics
   a. Key terms and concepts
   b. Basic strategic patterns
3. Cases
   a. Production of newsletters
   b. Cross media publishing
4. Finis: identifying a research topic

Motivation

›Standardization‹ is connected to **factory** production

Volkskundearchiv der volkskundlichen Kommission für Westfalen

Publishers often feel as a part of **creative** industry

Kultur- und Kreativwirtschaft in der Europäischen Metropolregion Nürnberg

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Products of publishing houses are **unique** ›intellectual‹ products

(Vaihinger 2005)

Stiftung Buchkunst. Die 25 »Schönsten deutschen Bücher« 2014

Vaihinger, D.: Verlag. In: Schütz, E. (Ed.): Das BuchMarktBuch. Der Literaturbetrieb in Grundbegriffen. Hamburg 2005, p. 364–369.

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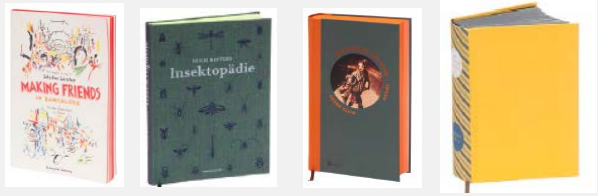
Widespread diffusion of type based media was and is essential for societies:

Media need to be **cheap**

Bible printery in China
http://www.livenet.ch/themen/gesellschaft/international/asien/239219-2013_faellt_die_100millionengrenze.html

Products of publishing houses are **unique** ›intellectual‹ products



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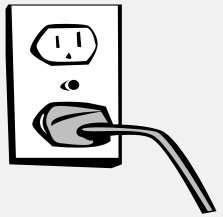
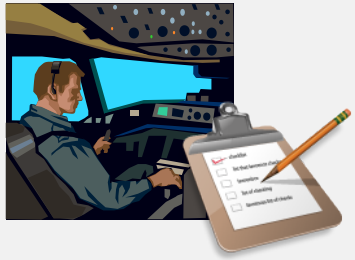
Types of standards

- Property standards
  - aim at the properties of a product
  - guarantee a constant quality of the product
  - ensure that solutions are compatible with each other



- Process standards
  - aim at work steps and their order
  - of great importance in the case of safety-critical processes



- Communication standards
  - aim at the simplification of communication
  - play a big part for automation (data exchange)

http://blog.bildungsdoc.de/interkulturelle-kommunika-tion-bei-internationalen-begegnungen/ [02.06.2014]

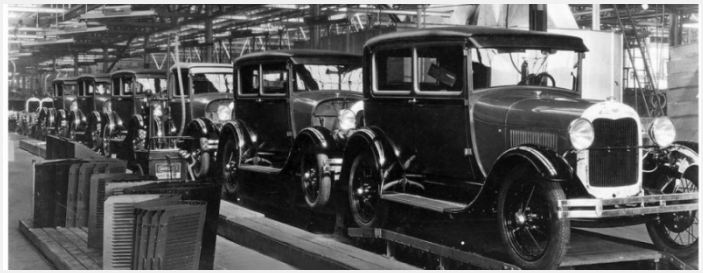
Basic strategic patterns (M. Porter)

Cost leadership

- Cost advantages towards competitors
- Economic idea: demand depends on price
- How to attain the goal:
  - Cutback or limitation of diversity
  - High level of **standardization** concerning products and processes
- Precondition: mass marktes

Differentiation

- Attributes of output have different characteristics
- Economic idea: customers do have different preferences
- Challenge:
  producing **individual solutions** will result in a high level of **complexity**
  (-> costly production)



Focus Online, 24.04.2013 [08.11.2013]

Baier, A.: Prozessoptimierung und Automatisierung. Vortrag: World Publishing Expo Berlin 2013

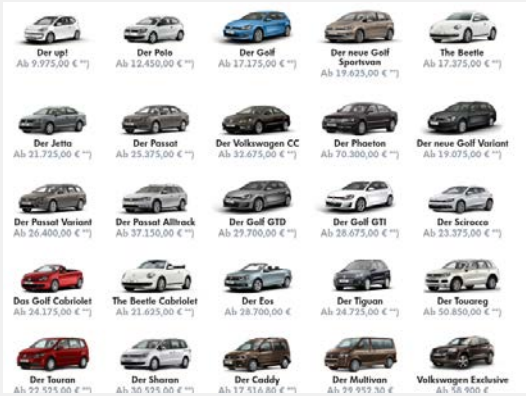
In between: mass customization

- Oxymoron made of: ›Mass Production‹ und ›Customization‹

- **Combines differentiation** as customer individual satisfaction of **needs by conditions of mass production**

- »Mass Customization of markets means that the same large number of customers can be reached as in mass markets of the industrial economy, and simultaneously they can be treated individually as in the customized markets of pre-industrial economies.« *(Davis 1987, S. 169)*

- Possible because of
  - Progress in ICT
  - Modern principles of manufacturing **variants**



www.vw.de

Davis, S.: Future Perfect, Reading 1987

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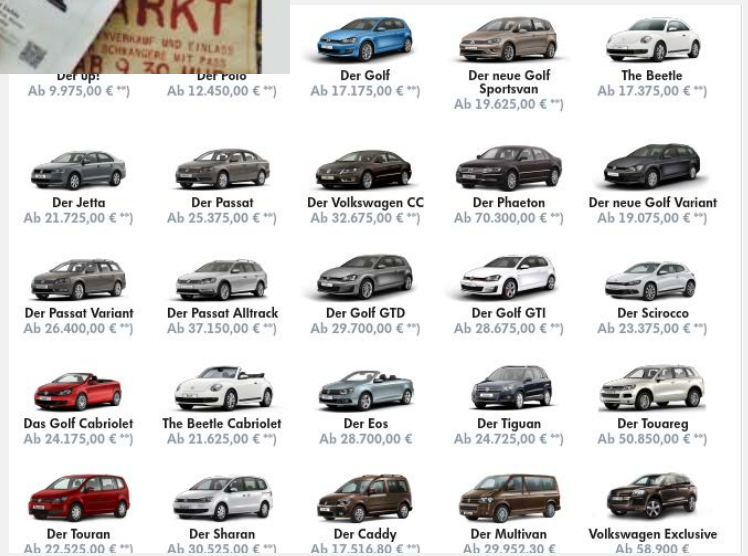
Case 1: production of newsletters (›Blättle‹)

- German midsize publishing house
- Product: newsletters for councils (›Blättle‹)
- **Business Model:**
  - **Corporate publishing**
  - 100 % user generated content
- **Number of newsletters:** **239**
- **Number of content providers** in the councils: **17.000**
- Circulation per week
  - Smallest 135
  - Biggest 30.000
- Number of printed exemplars per week 800.000
- Suppliers 237.000
- Advertisements per year > 400.000
- Printed pages per year
  - Edited content 190.000
  - Advertisements 80.000

Data documented at : Nussbaum, B.: Prozessoptimierung und Automatisierung. Effiziente und integrierte Prozesse von der Redaktion bis zum Leser. Presentation WAN/IFRA Berlin 2013.

239 different products?

www.nussbaum.de



Starting position – restructuring – results

Starting position

Processes

- A lot of **different processes**
- The more different ›Blättle‹ the more processes

IT infrastructure

- Heterogeneous
- Less automation
- Media disruptions

Restructuring

Processes

- Identification of **cross product synergies**
- **Standardization** of processes

IT infrastructure

- Implementing a homogenous infrastructure
- Realizing a higher level of **automation**
- Implementing a **multi-client capable CMS**

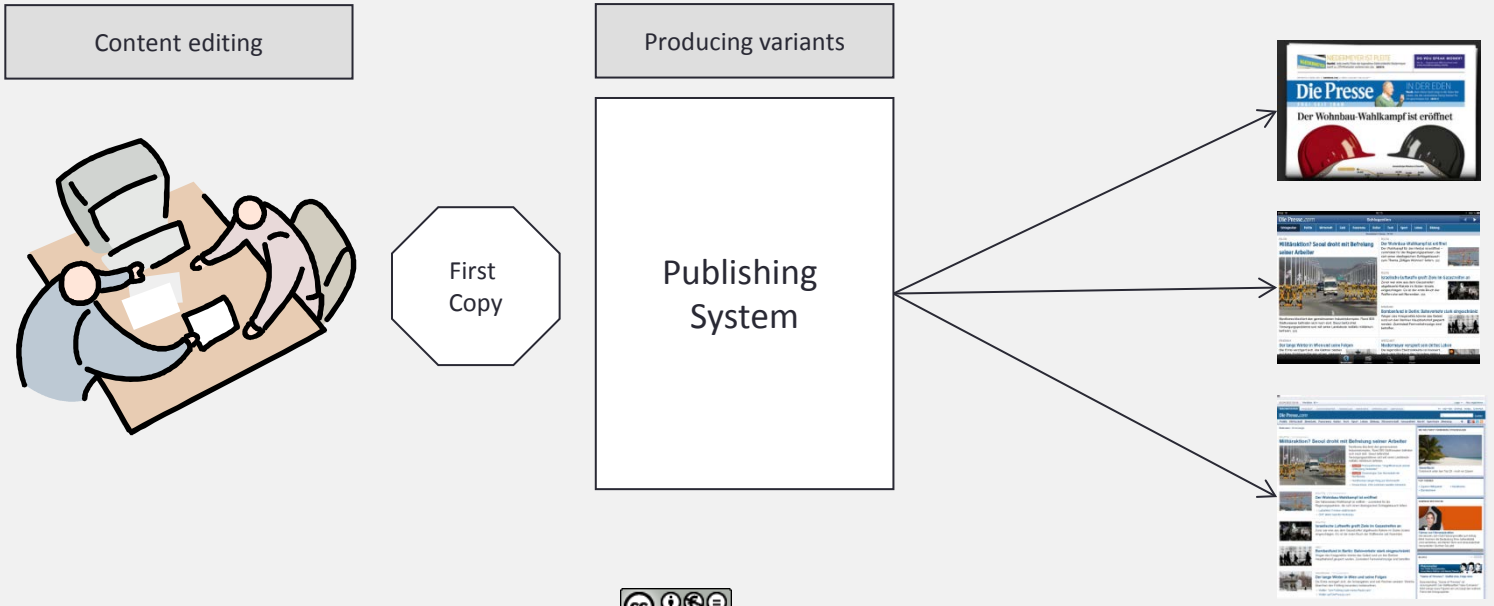
Result

- 1.665 hours in production
- 230 hours in field offices
- 240 hours in administration

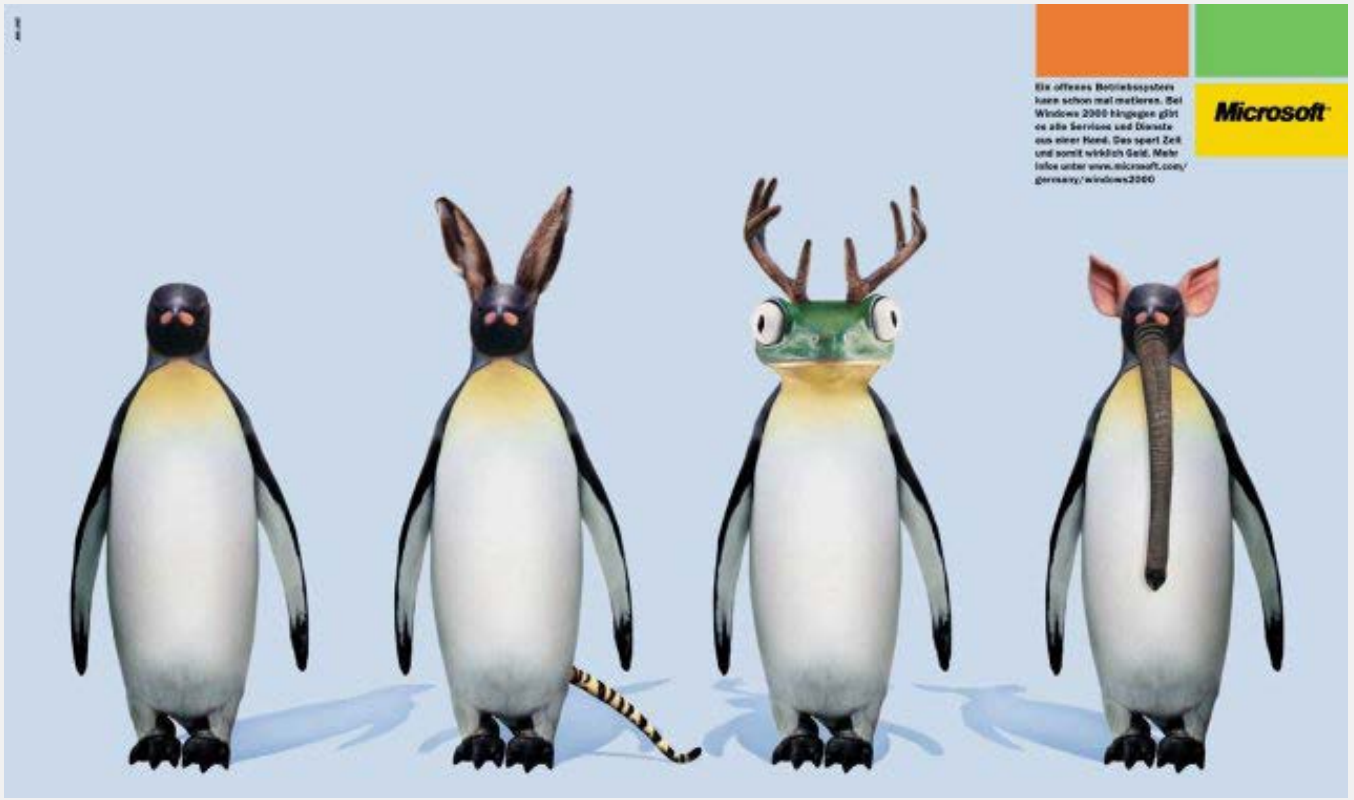
Data documented at Nussbaum, B.: Prozessoptimierung und Automatisierung. Effiziente und integrierte Prozesse von der Redaktion bis zum Leser. Presentation WAN/IFRA Berlin 2013.

Case 2: cross media publishing

- Empirical study concerning cross media publishing and usage of content management systems in Germany
- Focus: special interest publishers
- Done in 2011
- Quantitative empirical research: written survey among 441 specialist publishers
- Response rate: 17 % (73 usable records)

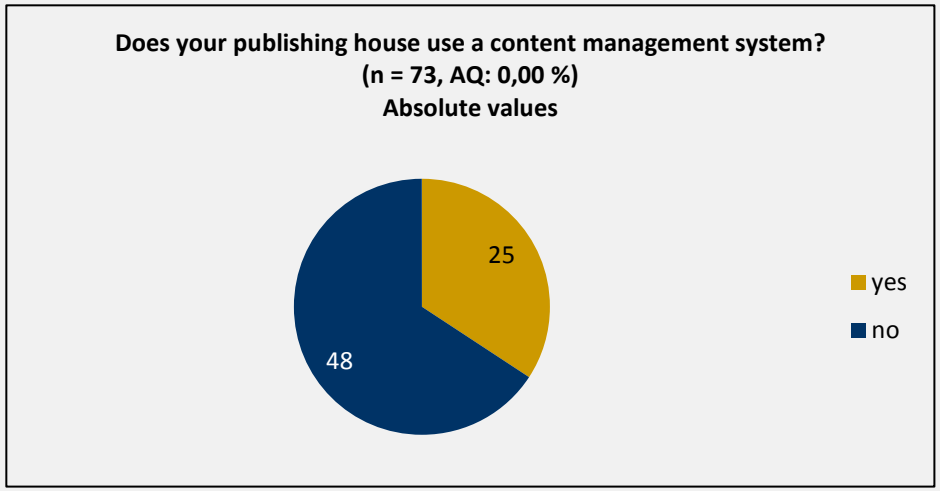


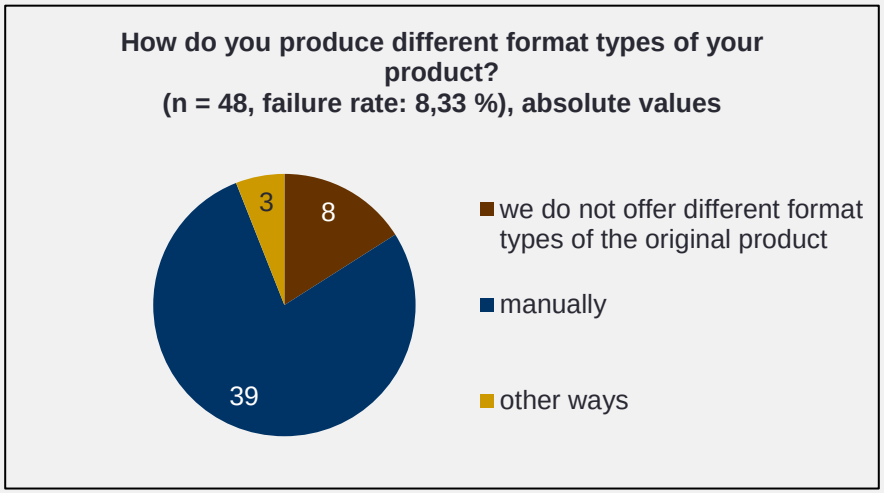
Producing variants….

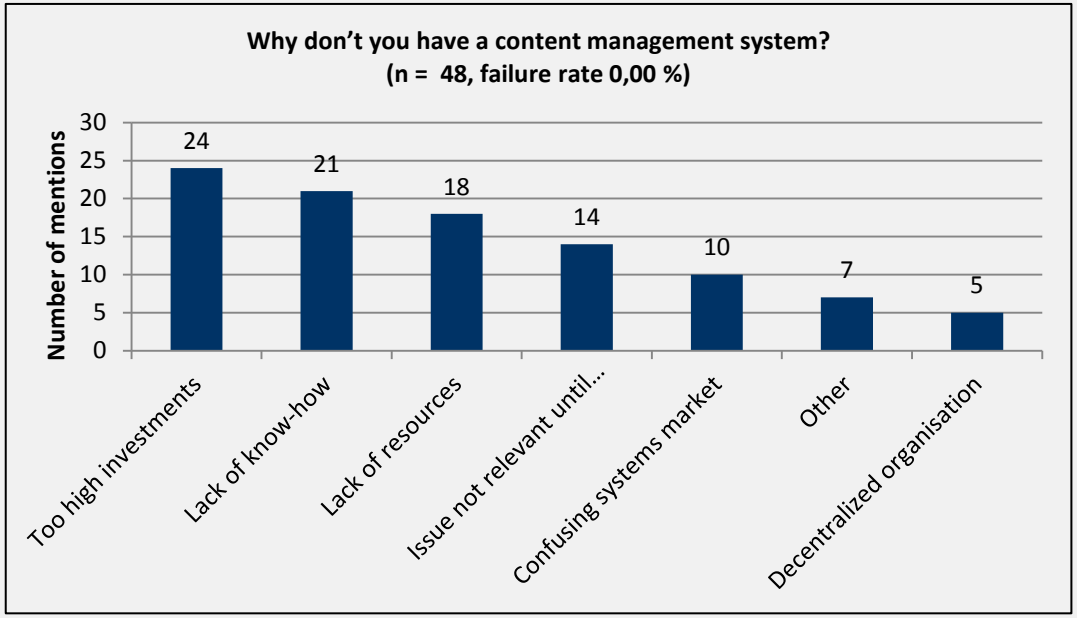


http://www.heise.de/altcms_bilder/123114/10_hires.jpg [08.11.2013]

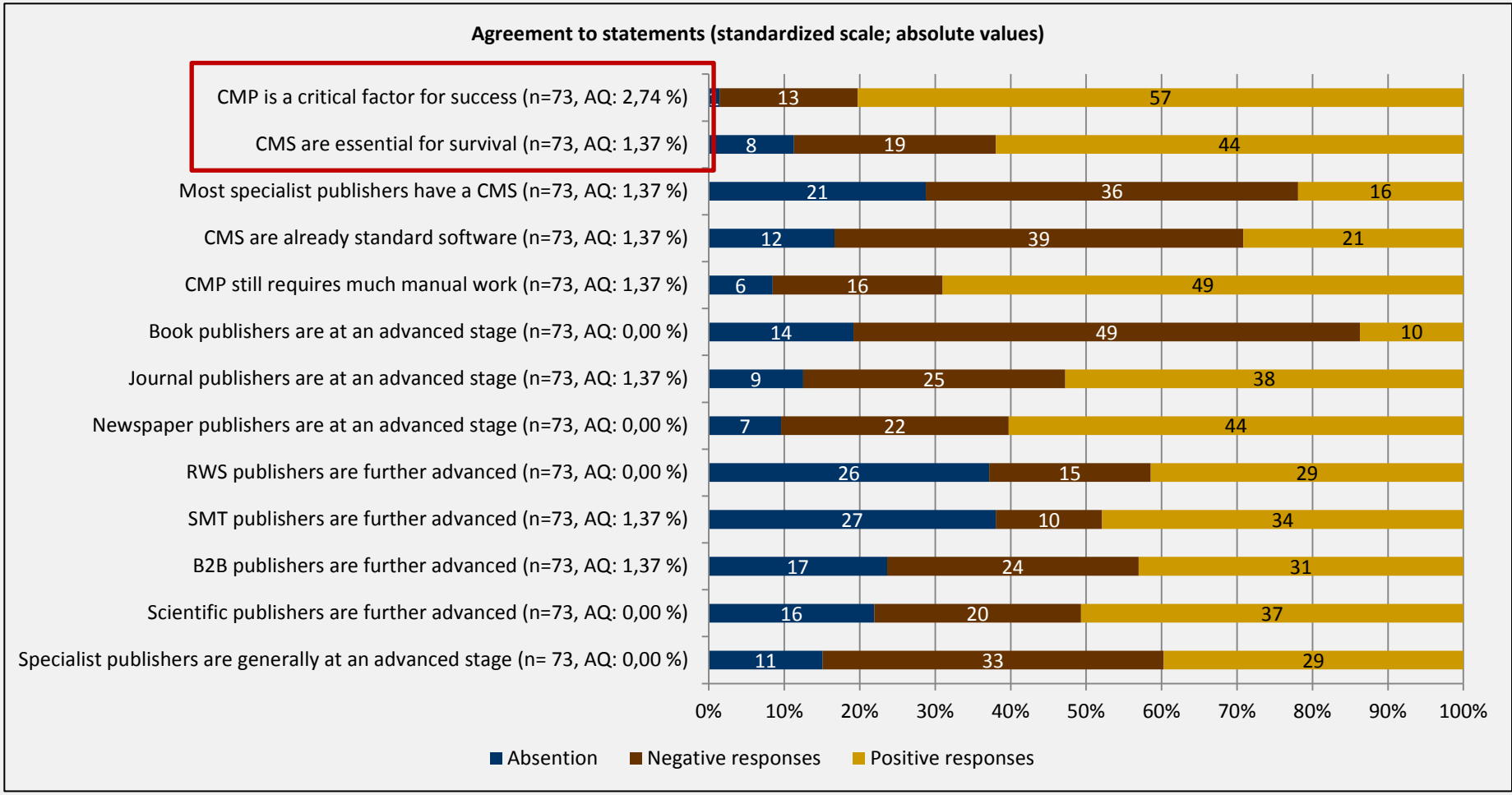
Usage of content management systems







But…


Agreement to statements (standardized scale; absolute values)
CMP is a critical factor for success (n=73, AQ: 2,74 %)
CMS are essential for survival (n=73, AQ: 1,37 %)
Most specialist publishers have a CMS (n=73, AQ: 1,37 %)
CMS are already standard software (n=73, AQ: 1,37 %)
CMP still requires much manual work (n=73, AQ: 1,37 %)
Book publishers are at an advanced stage (n=73, AQ: 0,00 %)
Journal publishers are at an advanced stage (n=73, AQ: 1,37 %)
Newspaper publishers are at an advanced stage (n=73, AQ: 0,00 %)
RWS publishers are further advanced (n=73, AQ: 0,00 %)
SMT publishers are further advanced (n=73, AQ: 1,37 %)
B2B publishers are further advanced (n=73, AQ: 1,37 %)
Scientific publishers are further advanced (n=73, AQ: 0,00 %)
Specialist publishers are generally at an advanced stage (n= 73, AQ: 0,00 %)
13
57
8
19
44
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16
20
37
11
33
29
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Absention
Negative responses
Positive responses

Results & challenges

Process design

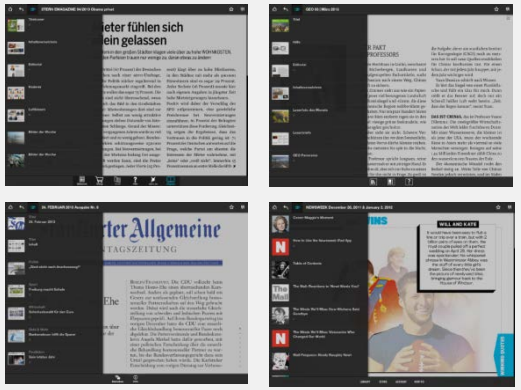
- **Low level of standardization** within the sector
- Domination of **individual** working methods of the companies:
  »Our books are completely different from the books of other publishers «
- Production processes are designed for defined starting products (» still thinking in print«)
- => not a good basis for providers of standard software
- => not a good basis to achieve efficiency improvements

System support and software market

- Many different software products
- A lot of **custom software** (in-house developments)

Possible effects of standardization

- Tool standardization can result in standardized products
- What will happen to the USP?
  (anyway: what was the USP?)



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Learnings

- The newsletter case shows
  - the cost potential of **standardizing processes**
  - the cost potential of **standardizing** a product concerning its structure
  - that the customers **nevertheless get individual** products
  - The basis of success: well organized processes, well-structured content (content is the asset!), powerful multi-client capable content management system

- The cross media publishing case shows that
  - in the publishing industry **individual processes** are dominating (at least in parts of it)
  - there are difficulties in implementing or using (expensive) IT-systems supporting publishing processes
  - using standard tools can also result in standardized products, not knowing yet if this is bad or good

There is a lack of knowledge within both the branch and science concerning the question:

When is differentiation **useful** and a **well-advised approach** and
when working on standards has to be recommended?

Svenja Hagenhoff, Jörn Fahsel

Standardization and differentiation in the publishing industry

Svenja Hagenhoff, Jörn Fahsel

University of Erlangen-Nuernberg, Germany

Institute for the Study of the Book

Professorship of the Study of the Book, esp. E-Publishing and Digital Markets

Katholischer Kirchenplatz 9

91054 Erlangen

Germany

{svenja.hagenhoff; joern.fahsel}@fau.de

Abstract

This article aims to examine the area of tension between the phenomena of ‘standardization’ and ‘differentiation’ in the publishing industry. This industry often feels like a creative industry where standards do not belong and, limit authors’ and editors’ freedom. Nevertheless, both historically and today, standardization has led to progress in the industry. It is also evident that magazine and newspaper publishers have been losing revenue for years, and book recipients often do not wish to pay very much money for ebooks. In addition, recipients want access to information via different media: the product portfolio of publishing houses is increasing while markets are fragmenting and circulation numbers are decreasing due to the number of product variants. The question arises as to whether publishing processes could be made cheaper in a fourth phase of industrialization.

This paper explains different approaches to the term ‘standard’ and presents basic strategic patterns as a theoretical framework for the phenomena ‘standard’ and ‘differentiation’. Furthermore, examples of existing standards in the publishing industry are identified. Two case studies are presented from which we can learn both about the potential of standardization and about its difficulties and challenges.

Keywords: standardization, differentiation, automation, industrialization, mass customization, publishing industry

Introduction

The term standardization is usually connected to industrial processes and goods, but not to the publishing industry, which often sees the creative author or editor as the center of its actions. Media are products of creative processes; hardly any object is (allegedly) similar to another, which is what (allegedly) differentiates this industry from others. The limitation of degrees of freedom with regards to the design of products, but also to the production flow of these products, due to standardization is often unavoidable (cf. Zweitwerk 2014). The development and differentiation of devices that are suitable for the reception of digital content (tablets, smartphones, but also both desktop and mobile internet) also leads to the product portfolio of publishing houses becoming more and more heterogenic. Today, content is usually distributed across media channels. Content that has been created once is made available simultaneously via different media channels, both electronically and in print. A substantial differentiation of the product portfolio effectively happens where the whole (mass) market is divided into several smaller submarkets. While in the past publishing houses in the 'analogue world' have focused on a single product in vast numbers and circulations, mostly due to economies of scale, today publishers focus on product variants.

Von Berg (2011) argues that the amount of differentiation and heterogeneity that has arisen should lead to publishers implementing standardized processes in order to achieve reliability and to use resources in an objective manner. This allows for better controllability of efforts. Additionally, it can be argued that even processes in a creativity-oriented environment do not exclusively consist of processes that require creativity, but also include non-creative processes (Seidel 2012) which require a great amount of stability. Looking at practice also shows that there are in fact examples that not only processes but also products of the affected industry can possess a large amount of standardization. Book series, for example, which can often be found in the form of travel guides, non-fiction books or magazines, are characterized by their identical structure, which can restrict creativity in individual cases.

This article aims to examine the area of tension between the phenomena of 'standardization' and 'differentiation' in the publishing industry. For the purposes of this research the 'publishing industry' will be defined, and the central terms 'standardization' and 'differentiation' will be explained and placed in the context of economic theories and concepts. The literature review shows the current state of research. Chapter four addresses

the identification of present standardization phenomena in the publishing industry. In chapter five we present two practical examples from Germany, by means of which the issues that have been discussed on a theoretical basis earlier will be examined and differentiated. Chapter five addresses the desiderata and identifies possible areas for further research.

Basics

Specification of the objects of research

The object of consideration is the publishing industry, seen as the industry that has until now produced solely print products. Books, newspapers and magazines, but also maps, postcards, posters or sheet music are included in this category. All products have in common that they encode data, information or messages in the form of static sign systems. These are decoded by the recipient in individual contexts through reading (letters, musical notation), or sometimes through viewing (images), and are transferred into an individual construction of meaning (Kuhn & Hagenhoff 2014). It is irrelevant whether the sign system is applied on paper as the writing surface, or if it is made visible on a display in the form of electronic impulses. For this reason, the previous print economy is seen as the industry which produces media which can be read, where the term 'reading' is understood as the process of the perception and recognition of static signs. Besides books, magazines and newspapers, the products of this industry also include their digital equivalents, as well as desktop and mobile websites on which edited information is provided.

Key terms and concepts

The term standardization refers to unification or homogeneity. The goal of using standards is to make processes more controllable and efficient and to create products more cheaply by reducing diversity and therefore complexity. Standardization is a requirement for automation as well as for specialization and division of labor (following figure, Hagenhoff 2010).

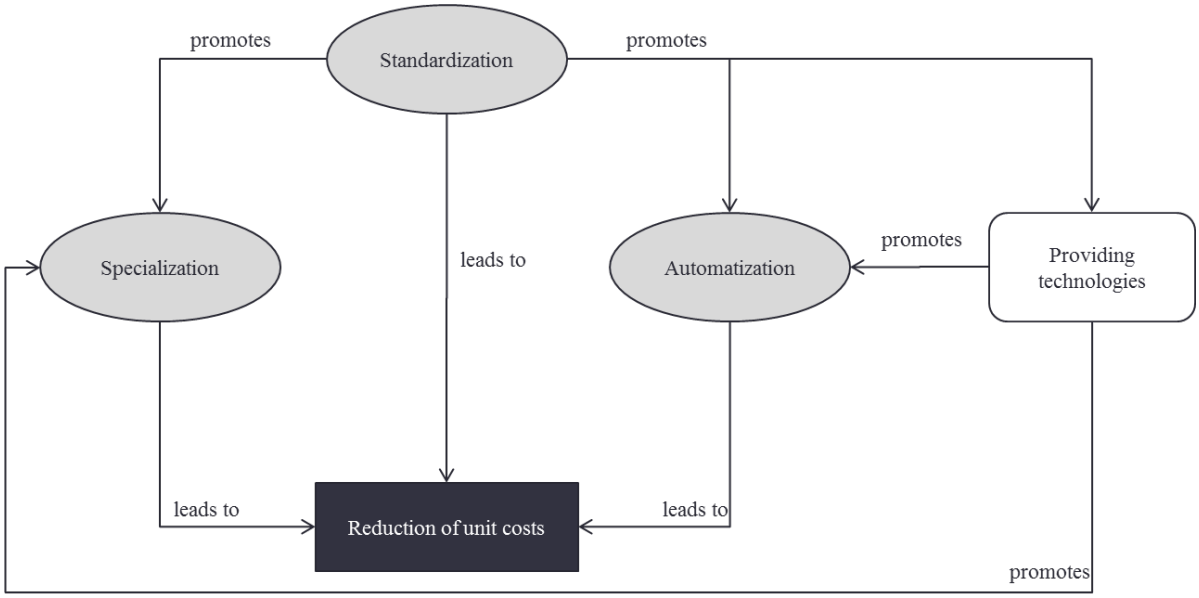

Figure 1: Consequences of standardization

A distinction must be made between three types of standards:

Property standards concern the properties of products and their components, as well as work equipment and objects. On the one hand, standards guarantee consistent product quality. On the other hand, they ensure that solutions or parts of solutions are compatible with one another.

Process standards concern work steps and their order. They are of great importance in safety-critical processes, for which the consequences of processes that are not proceeding adequately are serious.

Communication standards concern the simplification of communication. Such standards play a considerable role in automation. Data that have to be exchanged from business to business are transferred directly from application system to application system. In order to do so the data must be interpreted by the sender and the recipient in the same way. To achieve this there are standards for inter-company data exchange in which the structure of the data sets that are to be transferred, as well as the meaning of individual attributes, are determined and specified with the help of a suitable language.

With regards to the level of standardization efforts, the enterprise level can be distinguished from the industrial level. Industry standards are to be understood as standards that have been defined and published by an industry, and that the businesses within the industry apply voluntarily. At the enterprise level standards are unifications within a single organizational unit. Such decisions are made at the strategic level.

The direct opposites of standardization or standards are differentiation or individualization and heterogeneity. Both constructs refer to otherness, inhomogeneity or discriminability. At the level of property standards tailor-made suits or shoes would be examples of such a strategy.

Basic strategic patterns

In addition to several other authors (e.g. Miles & Snow 1978 or Wilde & Hax 2001), Porter (1980) has explained basic competitive strategies with the cost leadership and the differentiation strategy.

The principle of cost leadership aims at gaining cost advantages over competitors within value creation. The idea is based on the fact that the demand for goods is dependent on the price: the inverse demand function declines depending on the price elasticity at different angles. In order to achieve the goal of cost leadership, the diversity of products and processes in a business has to be reduced, and a high degree of standardization has to be accomplished. The quality of products or processes is orientated towards the anticipated 'average customer' (see following figure, left part). Examples of such a strategy can be found in the German food industry, where discount supermarkets such as Aldi or Lidl have a highly reduced assortment of goods compared to other supermarkets.

The differentiation strategy aims to achieve solutions with varying characteristics. Since customers have heterogenic preferences, artificial market sectors can be created that allow a quasi-monopolistic scope for pricing. In extreme cases the batch size of a product or a service amounts to one (see following figure, right part). The theoretical foundations of these considerations can be found in the industrial economics of the 1930s, as well as in the works of Toffler (1970). One challenge of this strategy is the fact that the implementation of individual solutions increases complexity as well as production and transaction costs.

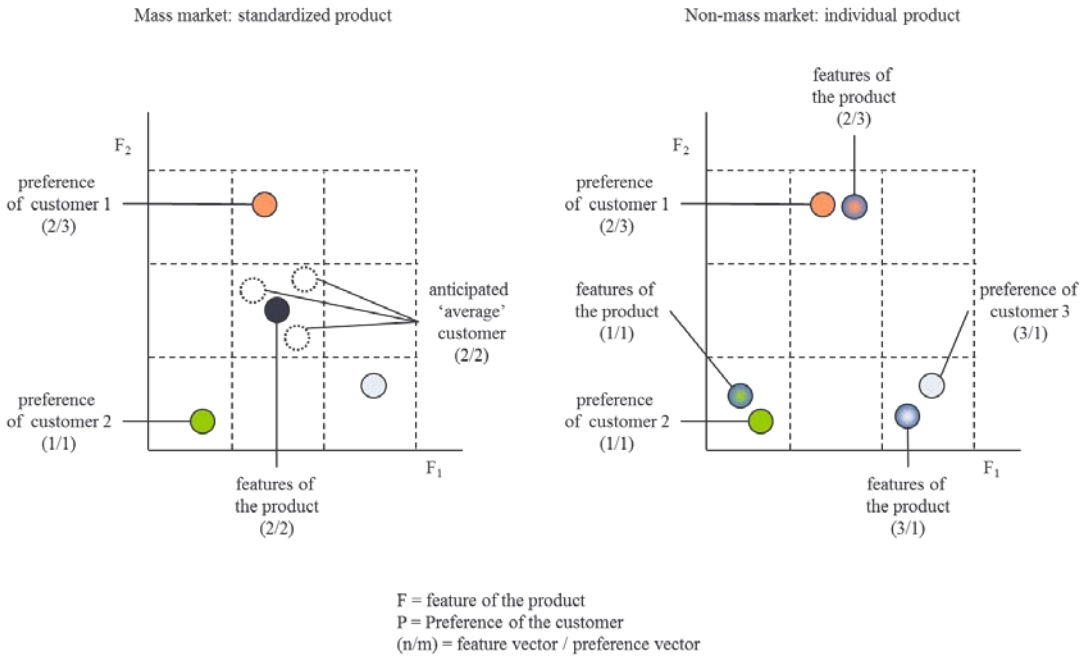

Figure 2: Standardized products vs. individual products

The concept of mass customization combines both approaches. The origin of this strategy is described by Davis: "Mass Customization of markets means that the same large number of customers can be reached as in mass markets of the industrial economy, and simultaneously they can be treated individually as in the customized markets of pre-industrial economies." (Davis 1987, p. 169). This in-between strategy can be implemented thanks to progress in information and communication technology (Choi, Stahl & Whinston 1997, p. 325; Pine 1993, p.11), as well as modern principles of flexible variant production (e.g. Jiao 1998, p. 7; Lackes & Schnödt 1998, p. 28).

The core challenge of producing variants, and therefore also of the concept of mass customization, is the trade-off between external and internal variety (Anderson & Pine 1997, pp. 45-46). External variety aims to contribute a product or process to the solution for a specific problem. The goal therefore is to create diversity; it is a maximization task (satisfaction of needs, degree of problem solving). Internal variety, on the other hand, is centered around production and distribution processes. The goal is to reduce diversity, and it is a minimization task (reduction of costs). This dilemma can be dealt with using modularization and platform concepts (e.g. Pimmler & Eppinger 1994; Erixon 1998; Blackenfelt 2001). The architecture of a product needs to be understood in order to do so. Functional decompositions of a product need to be done to provide an answer to the

questions of which function is fulfilled by a component within the system (product) and where it is in the system. Variants of a product are produced by re-using components with standardized interfaces but different characteristics in terms of properties which provide an individual solution.

Literature review

The literature review focuses on articles that involve standardization and elements that are relevant for it, such as process design, software use or product quality within the publishing industry. The research has been conducted both forwards and backwards (Webster & Watson 2002). The forward search was conducted through the search engine Google Scholar, the database Springerlink and the Gemeinsamer Verbundkatalog GVK-Plus[1] (collaborative union catalog). 'Standard' or 'standardization', '(business) process', 'reference model' and 'software', in combination with the terms 'publishing house', 'print', 'creative' and 'creative industries', 'media' and 'media management' in their German equivalents served as central search keywords. For the backward search, selected articles in the bibliographies of the works that had been found were pursued. The literature research should be seen as a work in progress; English literature in particular still has to be researched structurally.

In this way 22 publications were identified and deemed relevant in the beginning. Thematically the works can be grouped together as follows (works may be assigned to more than one category):

Four works directly relate to standards, standardization or industrialization in the affected industry in their titles: Hess, Grau, Rauscher & Eggers 2007; Benlian & Hess 2009 and 2010; Hagenhoff 2010; Schäfermeyer, Rosenkranz & Holten 2012.

Eleven works can be assigned to the topic of designing business processes and reference models. These articles focus on publishing houses (Tzouvaras 2003; Delp 2006; Benlian & Hess 2009 and 2010; Hagenhoff 2010), creatively intense actions or industries in general (Seidel 2012; Voigt, Bergener & Becker 2012), the printing industry (Malsbender, Ortbach, Plattfaut, Voigt & Niehaves 2014; Thielen 2003; Reiche 2008), and the trade-off between

[1] The GVK is an extensive database of all Northern German libraries and libraries of the Stiftung Preußischer Kulturbesitz (Prussian Cultural Heritage Foundation). With more than 70 million title data sets, the GVK is the largest cataloging database in Germany.

the benefit and the expense of process standardizations in general (Schäfermeyer et al. 2012).

Six works come under the topic of product architecture, modularization, and re-utilization of components: Kreulich 2002; Kamin 2004; Schulze 2005; Köhler 2005; Hess, Grau, Rauscher & Eggers 2007; Rauscher 2008. The majority of works focus on reusing content in order to produce new products cost-efficiently or distribute content (single source, multiple formats) in different forms (electronically instead of in print). While the work of Kreulich (2002) is related to engineering-, all others are studies are economics-oriented. Typically they consistently ignore challenges due to semantic and narrative dependencies between a media company's content modules. An exception here is the work of Kamin, which focuses on educational material and therefore on the didactic connections between content objects.

Four works have been found on the topic of software use and IT infrastructures in the relevant media sector. Two of these works focus on XML technology (Rawolle 2002; Benlian, Reitz, Wilde & Hess 2005), one work describes the state of the art of software use in the German publishing industry (Meyer et al. 2010) and two works cover the topic of content management systems (Rawolle 2002; Hagenhoff & Pfahler 2013).

Standards in the publishing industry

In publishing houses the dominant view is that processes and products are divergent and differ from publishing house to publishing house or even from title to title within a single enterprise. Nevertheless, standards and standardization can be found within the publishing industry:

One of the oldest property standards of the industry is the script. The characters of alphabets have been standardized for hundreds of years. Calligraphic and typographic standards are the basis for the legibility of texts as well as for the diffusion of information and knowledge with the help of books and newspapers.

Another standard that must be mentioned is the ISO standard 12083. It describes the structure/construction of documents (e.g. books, articles, serials) regardless of the specific content or activity. It lists the elements a certain document should consist of and specifies how different elements relate to one another. A similar approach is the DocBook document format which is XML-based. It defines a document format for book production in the technical and scientific fields (Schraitle 2004). Furthermore, the sizes of books, newspapers,

and magazines are standardized in order to reduce printing costs. Another example of standardization is book series, which can be found in the form of travel guides or non-fiction books. Series are characterized by their identical structure, which can restrict creativity in individual cases.

One approach to process standardization research from von Berg at 'Berliner Werkstatt Herstellung'. Based on the belief that publishing houses differ from each other only in about 5% of all activities the study aimed to find cross-company similarities in production editing processes. Ten core processes were identified and applied in practice (e.g. Störrle & von Berg 2007).

An example of a communication standard in the publishing industry is ONIX (online information exchange). This industry standard facilitates the exchange of product data between publishing houses, book traders and libraries. It was developed by the international EDItEUR group and is based on XML. Communication from application to application is also supported by commercial identifiers such as ISBN, ISSN or DOI. A more recent standard is the international standard text code (ISTC) which was published in 2009 by the International ISTC Agency. It allows texts to be identified independently of format. This standard has not yet become widely established in the publishing industry.

Case studies

Production of newsletters

The topic of standardization and production of variants of printed works will be illustrated through the example of a German publishing house that produces newsletters for councils. These newsletters ('gazette'), contain official announcements but are usually complemented with non-official notifications from the councils or from private individuals. The newsletters are printed with offset machines on newspaper paper (and are often also provided electronically as PDF files). The publishing house has almost 240 such newsletters in its portfolio. The weekly circulation of each newsletter lies between 135 and 30,000 copies; the total number copies produced per week is approximately 800,000. Almost 240,000 subscribers are provided with 190,000 text pages and 80,000 advertisement pages per year.

The media company which produces the newsletter collects content from an individual council, does the editing and printing, and communicates the content back to the council.

The business model is corporate publishing. All of the content is user-generated. The number of providers of the editorial content amounts to approximately 17,000 people. The content providers include for example council representatives or people from unions, working committees or other council initiatives.

Superficially, a high degree of differentiation can be observed in the product portfolio of the publishing house. Each community receives its own individual newsletter, and may even be provided with only an extremely small number of copies if necessary. For a long time, the production of the newsletters was characterized by processes that had developed over time, cross-product heterogeneity and non-transparency in the workflows. Furthermore, a heterogenic IT infrastructure characterized by inefficient changes of media was a problem. In all, a low amount of automation was present in the parts of business processes that come before the actual printing stage. A comprehensive product process and system analysis has identified cross-product synergies and has led to standardized processes that cover all newsletters. The IT environment has been homogenized so that overall a higher degree of automation within the newsletter production has been achieved. Altogether approximately 2,200 hours of work were saved through the identification of cross-product similarities and the resulting standardized processes, as well as the improved IT infrastructures. This is equivalent to approximately a third of the hours required for the newsletters' production from content acquisition to the finished printed work. A data flow diagram of the pre-printing part of the processes is shown below.

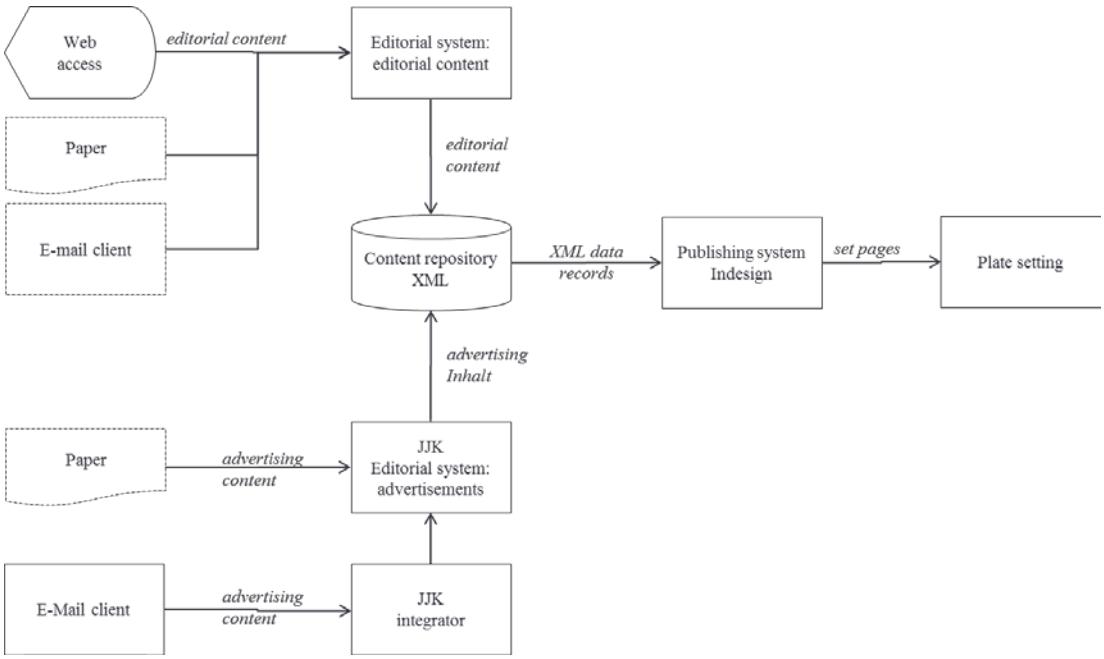

Figure 3: Data flow diagram for the newsletter pre-print production stage

The dotted lines show communication channels that are an exception. Almost all editorial content arrives in the content management system via a web interface: the several thousand content providers enter the data up until the editorial deadline. Advertising content is predominantly sent by e-mail and converted into standardized structures by an integrator module in the publishing software JJK. All content is XML based which allows the newsletters to be set more or less automatically. Manual layout corrections for the newsletters are still needed in the case of widow lines and orphan lines, or if several advertisements have the same background color and this would have a negative impact on the design. Other manual adjustments are also made in difficult to define exceptional application cases, but not in precisely describable and illustratable routines. This conforms to the image of 'rational full automation' (Mertens 1995). The content management system is multi-client capable, which means that each newsletter is modeled as its own entity. This way product variants are possible on the one hand (maximization of external variety) and processes and tools can be standardized (minimization of internal variety) on the other.

In order to portray all products within one CMS and to merge newsletter-specific processes into one process, a functional decomposition of the 'newsletter' product must be carried out. A relatively rough example of such a decomposition is shown below. Each module is the carrier of a specific function in the form of a precisely defined communicative role. Therefore, at first a distinction must be made between the possible components of a newsletter: official announcements and personal notifications. Official announcements can in turn be subdivided into official announcements about topics with disclosure requirements (dates of council meetings, enacted laws, dates for compulsory auctions, etc.) and further announcements of public concern (for example emergency services provided by doctors and pharmacies). Private notifications include announcements on the one hand (advertisements, family status announcements), and reports from community life on the other. The modules differ from product to product with regards to content but not in their communicative role and their function, as they shape the media type 'newsletter' (product class) precisely through the latter aspect, while characterizing the specific product that is individual to each council (the entity) through the first aspect (their specific content).

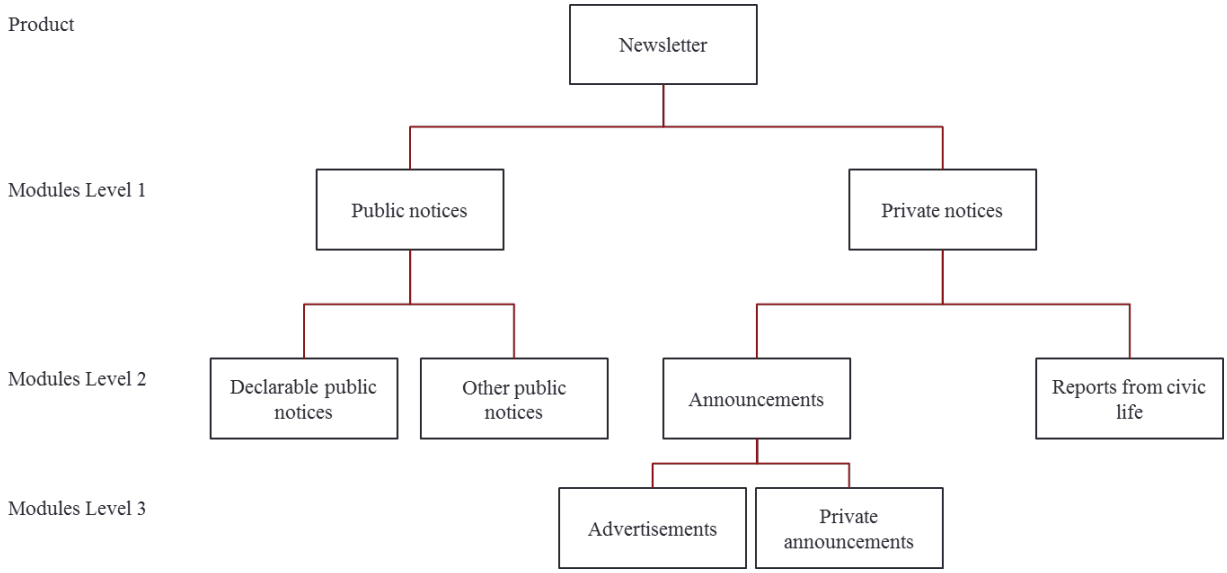

Figure 4: Functional decomposition of the 'newsletter' product

Cross media publishing

At the beginning of this paper it was argued that progress in the development of mobile devices leads to reading materials having to be processed in different variants in order to serve different situations of reception. This idea is described by the term cross media publishing (single source, multiple media). In order to do this, it is necessary to support the publication process with a suitable application system, a content management system. How intensely such systems are currently used in the German publishing industry was the topic of an empirical survey carried out in 2011 (Hagenhoff 2014). Specialist publishing houses, understood as publishers that process content for specific industries, were surveyed. The specialist publishing industry consists largely of small and medium-sized enterprises, which is also reflected in the sample: more than 75% of the sampled publishing houses (n=73; response rate ≈ 17%) are microenterprises and small-scale enterprises according to the definition given by the European Union.

The majority of those surveyed are cross media publishers which process content in different forms of media (print, stationary internet, mobile internet). However, this mostly happens without the support of a content management system; instead the editing of content is predominantly manual. When asked for their reasons for not making use of the support of an application system, the publishing houses stated too high investment costs, a lack of expertise and a lack of resources, among other things. In the publishing houses that use application software, software developed in-house is used more than standard

software. According to the estimations of representatives of publishing houses, the use of application systems to support cross media publishing in specialist publishing houses is not yet common practice. However, the publishing houses explicitly stated that cross media publishing – even if it still requires much manual work – is critically successful. Supporting application systems are seen as essential for survival. Challenges within cross media publishing are still seen in the structures that are orientated towards print products, a lack of revenue models and the high amounts of investment required, among other things.

The situation permits the following considerations: the processes that serve cross media publishing have a small cross-company degree of standardization. Instead, company-specific operating principles are present, which are still geared to a primary product. Product variants for other channels or media are created by extracting content from the primary format and converting it into variants for other channels or media. Payable IT standard solutions cannot be developed on the basis of such processes. Here it would be important to introduce organizational changes in businesses by developing more efficient, largely media-neutral operating principles that can then be supported by standardized processes and tools.[2] It is worth considering whether and how this can be done across companies. One reason for this suggestion is that the amount of time available for publishing processes is becoming less, and that automatized processes and the required standardizations (cf. above) are therefore absolutely necessary (von Berg 2009). In an industry that consists predominantly of small and medium-sized enterprises, businesses cannot continue to act as lone fighters and to promote isolated applications with regards to technological solutions. Collaborating and establishing cross-company resources and technological expertise can be a meaningful, strategic alternative to isolated work. The tax accounting and auditing sector in Germany serves as an example for the functionality of such a strategy. In the mid-1960s, the sector found itself in a situation where the accountancy processes in tax consultants' offices had to be changed to electronic data processing due to a change in law. In the absence of sufficient resources and expertise in the typically small offices, the decision was made to establish common interests and to found DATEV. The purpose of this association is to provide its members with IT products and services in administrative areas such as accounting or human resources management. DATEV also provides specific solutions that are implemented in the immediate value-

[2] The case study above illustrates the principal practicability.

creating process, such as software for tax declarations or tools for auditors' financial statements. As a sector service provider, DATEV currently has more than 6,000 employees and sales of EUR 800 million.

However, with regards to the publishing sector, further research projects must analyze whether cross media publishing and the formal quality of the resulting products pose a hygienic factor within the industry, meaning that the underlying processes must proceed as efficiently as possible and must therefore be cost efficient, or whether there is a strategic potential for differentiation, which can only be sustained when company-specific processes lead to company-specific products. An example in support of the differentiation theory is the apps of newspaper and magazine publishers, for which highly different control concepts are realized. The usability of these products differs considerably between objects; this was shown by a recently completed survey of authors. The quality of the properties of a publishing house's product – in addition to the content – could become a factor for success in the digital world (cf. von Berg 2009). In this case, maintaining company-specific software for the production of digital reading media can be recommendable; a market for standard software will not emerge permanently. The consequences of the use of standard software for the creation of digital reading media can be seen in the following figure. It shows four magazines and newspapers from three publishing houses, which were all created with the same app generator. Standard software clearly leads to products that are at least partly standardized, here with regards to the navigational environment and the initial look and feel. This situation benefits the reader, since their efforts to learn how to use digital reading media are reduced if a high degree of cross-product standardization exists (see usability engineering, e.g. Nielsen 1996; Foley, van Dam, Feiner & Hughes 2005). As was argued above, it has to be analyzed whether the advantages for the providers that result from well-engineered standard products for the support of production processes, or the disadvantages that result from the loss of a unique design or a specific usability of the respective medium prevail.

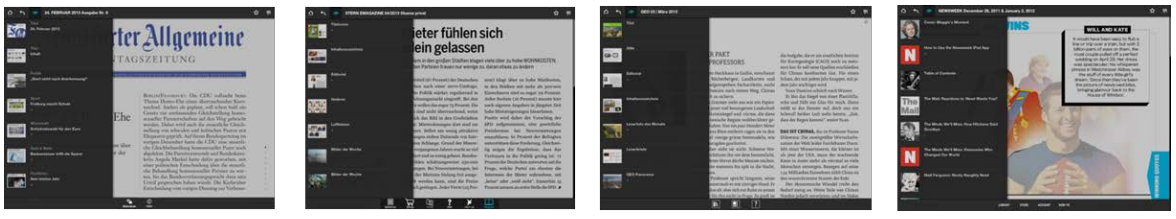

Figure 5: Digital versions of Frankfurter Allgemeine Sonntagszeitung, Stern, Geo-Magazin, Newsweek

Results and desiderata

This paper set out to discuss the field of tension between standardization and differentiation strategies in the publishing industry. This industry – like the media industry in general – is often seen as a creative industry; standards seem out of place in such industries. Nevertheless, magazine and newspaper publishers have been losing revenue for years, and book recipients often do not wish to pay very much money for ebooks. Furthermore, recipients want access to information via different media: the product portfolio of publishing houses is increasing while markets are fragmenting and circulation numbers are decreasing due to the number of product variants. The question arises as to whether publishing processes could be made cheaper in a fourth phase of industrialization. The first phase took place after the transition from handwritten reproduction of information to media printed with the help of machines (industry 1.0) using moveable type. The following phase of industrialization was determined by the division of labor and mass production enabled by steam power (industry 2.0). The rapid press invented at the beginning of the 19th century by Friedrich Koenig was the first step towards automating the printing process. The third phase was the use of electricity and information technology to promote automation (industry 3.0). Desktop publishing and digital printing are examples from this period. Industry 4.0 is characterized by carrying forward the idea of mass customization in an intense manner. Combining individuality of solutions and small batch sizes, as in the customized markets of pre-industrial economies, with effects of standardization (division of labor and automation) would result in cost efficiency on the one hand and satisfaction of readers as publishing houses' customers on the other.

The case of the newsletters described above shows the cost potential of standardizing processes as well as of standardizing a product in terms of its structure. Nevertheless, the customers still receive individual products. In addition to well-organized processes, well-structured content – which is an asset for a publishing house – and a powerful multi-client capable content management system are the basis of success.

From the cross media publishing case we can learn about the difficulties in implementing or using IT systems to support publishing processes. We learn that using standard tools can also result in standardized products, a lack of individuality and a lack of differentiation from product to product, not knowing yet whether this is adequate or not for the publishing industry and its readers.

Media management research should examine the field of tension between standardization and differentiation in the publishing industry. There is a great deal of preliminary work which could be exploited:

- For many industries the topic of using standard software or individual software has been discussed in academic literature as well as in case studies. The arguments should be collected and transferred to the publishing industry.
- Many forms of media today are digital goods (apps, epapers etc.). Their properties are close to those of software. After years of the software industry developing and selling standard software successfully, its customers want more customized solutions today. The publishing industry could learn from new concepts of developing software and from architectures of such kinds of products for its future in the digital world. Computer science is the academic discipline required as a partner for collaborative research projects in this area.
- Many industries have experience in using platform concepts, thinking about product architecture and modularization. These approaches from engineering-oriented disciplines could be transferred to the publishing industry (‘media engineering’ vs. media as a creative branch).
- We can learn about the consequences of inventions and stages of industrialization resulting in standards, new workflows, new jobs and new needs concerning organization of labor from the disciplines of media and communication history.

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