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Industrialization in the media sector: the new content management system at n-tv and its consequences

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Table of contents

1 Introduction	1
2 The background of the project.....	2
3 The project.....	2
3.1 The new content management system	2
3.2 The new content management process	4
4 ... and the findings from an industrialization perspective	6
Figures.....	III
References	VI

Figures

Figure 3.1/1: Architecture of the content management system at n-tv3

Figure 3.2/1: The process of news production and its sub processes.....6

Figure 4/1: Characteristics of industrialization matched in the n-tv project7

1 Introduction

In the 19th and the 20th century, industrialization has led to structural changes in the manufacturing industry. Among other engineering inventions, steam, tool making and transport machines were the main drivers of this development. By automating tasks, increasing standardization of processes and a stronger division of labor, considerable unit cost savings were achieved. Taylor's concept of scientific management and Fordian mass production of automobiles can be counted towards this period.

In the last years, the concept of industrialization is again being discussed, but now with a focus on services and driven by new information and communication technologies (ICT). In banking, this trend has already led to significant changes (see for example König 2002; Bartmann/Penzel/Petzel 2005). Many banks have made great efforts to standardize their processes and the corresponding ICT-based systems, to automate tasks such as credit enquiry and to found interbank clearing-centers. Main driver of change is the usage of package software and the outsourcing of ICT infrastructure in general. It remains to be seen, however, whether and if yes to what degree industrialization will affect the media industry, as significant cost advantages could be realized. Would it be possible to further standardize the editorial production process in a broadcasting station? Is it possible to outsource tasks to specialized service providers and can produced content be efficiently re-used? Or was the production of artists in the music and film industry already industrialized too heavily?

All these subjects have been not addressed in literature in depth.¹ Because of this we start our research about the industrialization of the media sectors driven by ICT with this explorative case study about an interesting project at n-tv, a leading German news station. In chapter two we describe the background of the project. Chapter three is a description of the results of the project. And in chapter four we compare the project with typical characteristics of industrialization and we examine the role of ICT as the driver for industrialization.

The data for this case study were collected in May 2005. As far as the participants are concerned, we met the overall relocation project leader and the technical relocation manager. The semi-structured interview took place in n-tv's Cologne offices and was tape-recorded. Later on we discussed the results with both of them and they released it.

¹ In issue 2/2005 of the German journal „Medienwirtschaft“ you find some statements of several managers from the media industry about the possibilities and boundaries of industrialization.

2 The background of the project

n-tv, founded in 1991 in Berlin, was the first specialized news TV broadcasting station in Germany. In line with the shareholders interests (both RTL and CNN hold 50% of the shares), n-tv's business is news production and broadcast with a focus on business and politics. The news section is complemented by political talk shows and sports and leisure magazine-style productions. Amongst the target group (14+ year olds), n-tv had a market share of around 0.8% in 2004 which summed up to 5.5 million viewers per day. The closest competitor, N24, held around 0.5% of the market. Running a DOS-based editorial system, TV news production at n-tv was labor intensive, highly disintegrated, inflexible – and expensive. When the shareholders decided to move n-tv from Berlin to Cologne in 2003, the opportunity arose to professionally address these issues.

The decision to move n-tv from Berlin to Cologne had three major drivers. First, Cologne hosts the German headquarters and production sites of n-tv's shareholder RTL, which can potentially facilitate synergy-projects. Second, the relocation opened new perspectives as far as reorganization and staff reduction was concerned. Finally, moving into new offices allowed a Greenfield implementation of an integrated content management system to redesign the core process of news production at n-tv.

The third goal was the major concern of the overall relocation project manager, Rudolf Matter: "We wanted to supply our editors with the best IT system available, so that efficiency and flexibility in the news production process can be guaranteed." Out of the 10 million € allocated by the shareholders for the relocation, 7 million € were spent on technological equipment out of which 5 million € went into the new information system alone. After the n-tv project team had defined the system specifications in the end of 2003, the system was implemented within less than six months and went on air on 30. August 2004.

3 The project

3.1 The new content management system

In general, content management systems provide functions for producing content, managing content and administrative support (see Rawolle 2002). The new content management system at n-tv supports all these functions: using one interface, the editorial system allows editors to produce, manage and finally even to publish TV news. All these content management functionalities are provided by one single content management system but through the integration platform NCPower.

If we have a look on the architecture of the system at n-tv we can see four major components: NCPower, VPMS, Vizart and Solo. NCPower is the integration platform which connects all software components, supplies the users with a single graphical user interface and handles sighting during the research phase. These three factors allow the editors to take full control over the TV news production process. VPMS is a video management software. When a video feed arrives, VPMS creates a low resolution version of the video feed. The low resolution version of the feed is then used for sighting. The editor places time marks for editing on the low resolution video; VPMS uses this information to edit the original high resolution feed. The graphics software Vizart allows editors to create still graphics (such as charts), animations and banners. Solo controls the telecast. As pointed out before, NCPower connects all these components and an additional interface for incoming feeds from news agencies. In Figure 3.1/1 you can see the complete architecture of the new content management system at n-tv. In this figure you can also see that XML is used as the integration technology.

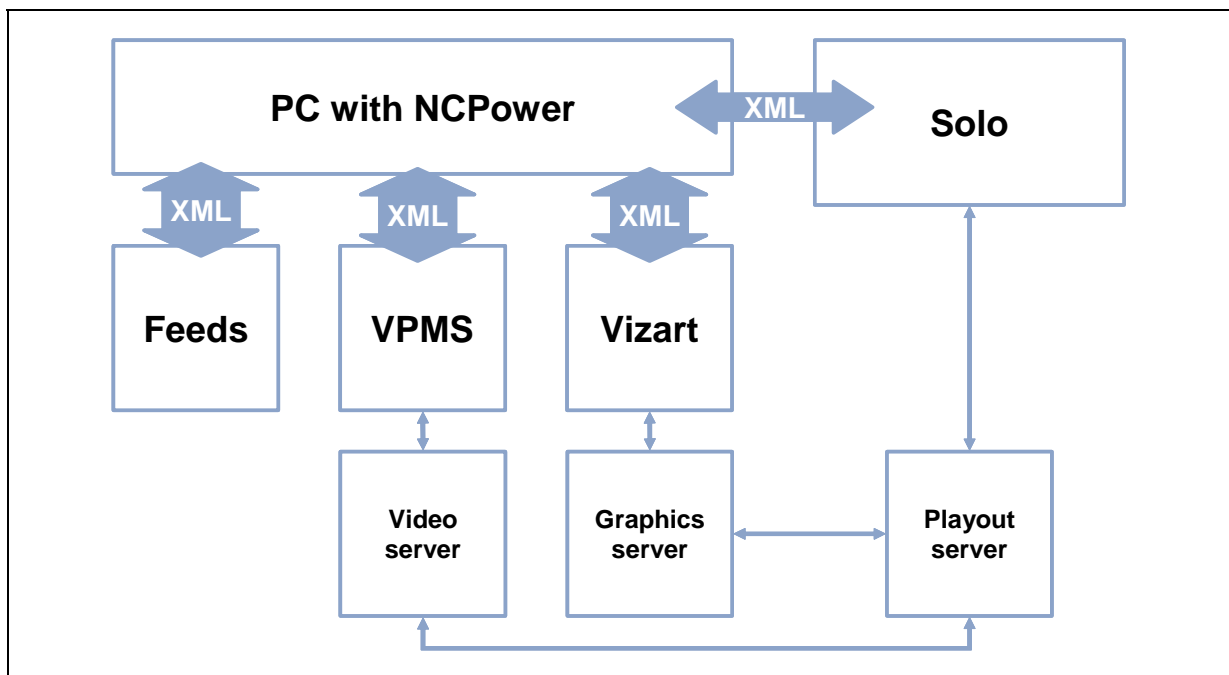


Figure 3.1/1: Architecture of the content management system at n-tv

N-tv used this open approach to be flexible in the future to add new servers and devices of specialized vendors to their system. Also it was not necessary to replace all servers and devices before starting the new system.

3.2 The new content management process

In general we can describe the use of content in a media company as a life cycle, beginning with the creating of pieces of content, going on with bundling of the pieces in product for the market and ending with deleting the pieces and products from the archive. To put this concept in a concrete form for news and following Pagel (see Pagel 2003) we can distinguish between five subprocesses: research, feature production, programme management, telecast, and archiving. The subprocesses from research to Telecast are in essence executed one after another. The archive is used by all other subprocesses as a support process. Figure 3.2/1 shows this logic and summarizes the main tasks of the subprocesses.

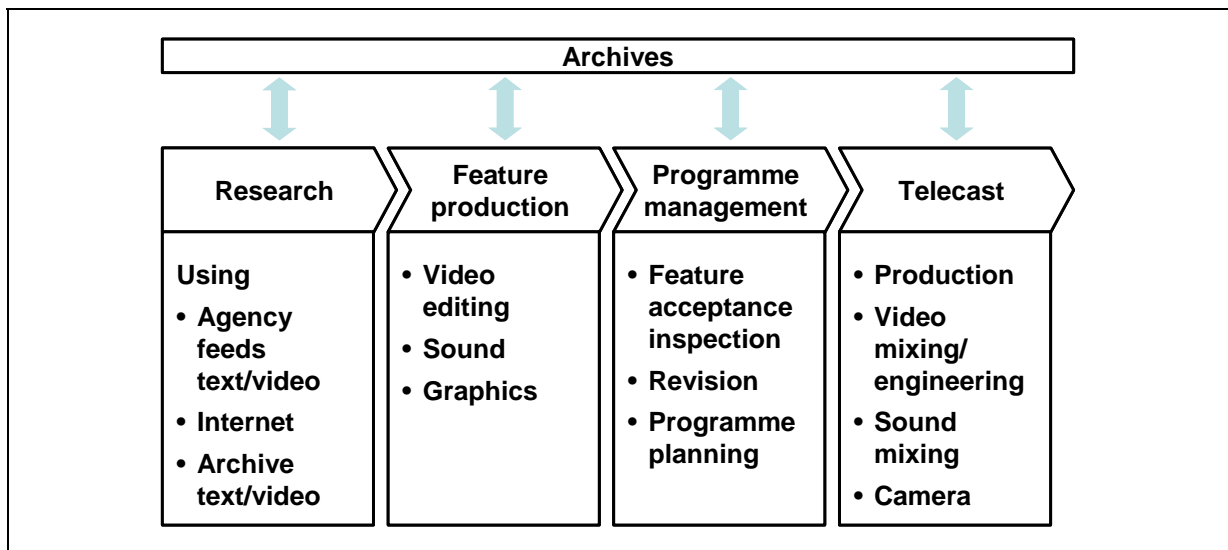


Figure 3.2/1: The process of news production and its sub processes

Now we turn to briefly describing the subprocesses and then show how the new content management system changed the tasks. Because of the overall target of this paper to highlight industrialization we give special attention to the three typical characteristics of industrialization mentioned in chapter one: more automation, more standardization and a higher degree of division of work.

Subprocess “Research”

The TV news production process starts with sighting relevant news and collecting information on that topic. Editors use a variety of sources for obtaining this information including agency feeds, the Internet, and other external and internal archives. Traditionally, visual agency feeds come in as tapes which have to be viewed on video display units. Text feeds are pushed onto specific software. Archives are often tape based and also require additional software.

The new research phase was designed to industrialization principles in two regards. First, both research process and incoming data were standardized as all relevant sources can now be viewed on one single graphical user interface. Second, it was automated as the video material to be sighted is automatically prepared to fit the editors' needs. Another important change was that editors now can handle all sighting without the help of a cutter. In the case of n-tv, 120.000 € are saved in production cost per year in this phase.

Subprocess “Feature production”

Feature production itself is characterized by 3 steps: editing video material, adding sound and adding graphics. Typically, an editor would note video time marks during sighting. According to these readings, a cutter would then finalize the video on a specialized editing place. After sound is added in an isolated compartment, commercial artists add still pictures, charts or animations to the feature.

The new system implemented at n-tv reflects a major change in the organization of the production phase. With the new software, editors can take on nearly all editing and graphics tasks themselves. This way, research and feature production melts together which represents a more efficient work organization. Within the video editing programme, an editing automation takes place. While the editor had before taken time stamps and the cutter had then produced the feature according to this information, the time stamps are now automatically transferred to an editing program which caters for high resolution video editing. Total savings in personnel and editing places amount to 1.500.000 € per year.

Subprocess “Programme management”

TV news must be highly up to date. Hence, desk editors must be free to dynamically switch or update features, change airing plans and to dynamically allocate airing slots. Also, one of his tasks is to regularly inspect the features to be broadcast.

In the new system, all features are stored in the archives and are allocated airing slots. Whenever work has started on a feature, it is automatically forwarded to the airing queue where the desk editor can easily check its current status. Also, as the telecast phase is integrated in the system, any changes to the airing plan take immediate effect on set. Finally, as features consist of a few, standardized components (video, audio and graphics), changing or updating features for a later airing is facilitated.

Subprocess “Telecast”

In traditional studio productions, the telecast phase of the production process is highly labor intensive. Typically, numerous producers, video and sound mixers and engineers and camera operators are needed to run a studio show.

At n-tv, most of these tasks are automated with the help of a numerical controller which is integrated into programme planning. In order to automate these jobs, standard settings and procedures had to be defined which the editors and studio controllers can choose from. Work is now organized more efficiently as editors can actively and flexibly take part in telecast design. This new organization also meets the project goal to leverage the editors' skills for all phases of the production process. On a monetary side, annual savings of 1.280.000 € were derived by these efforts.

Subprocess “Archiving”

During the TV news production process, different media formats such as video, audio, text and graphics are in use. Every production phase used to deliver a fixed output and aired features were stored in tape archives.

Now, all content produced or considered during the production process is modularly and digitally archived in one of two standard formats: video or graphics. The modularity of the archived information allows for sudden changes in the programme plan and facilitates re-use of components. From a monetary perspective, digitalization reduces the use of tapes by 90% constituting 270.000 € per year.

4 ... and the findings from an industrialization perspective

In total, n-tv benefits from industrialization effects in the amount of 3.17m € per year. On the other side, n-tv has additional costs of approx. 500.000 € per year for running the new system. If we take the initial costs of the project of roughly 5m € into account, we have break even (in a very simple calculation) after approximately 1.9 years. This means: in the eyes of n-tv the project is a great success. But from an industrialization perspective we have to highlight two additional questions: Is this project an industrialization project? And: was ICT the main driver for change?

The second question can be answered quickly and clearly: ICT was the main driver of change in this project. An integrated content management system opens the ability to use (and to re-use!) content in several devices in the production workflow.

To give an answer to first question is not so easy. If we sum up chapter 3.1 regarding the characteristics of industrialization we get figure 4/1.

	More automation	More standardization	Higher degree of division of work
Research	Video material is now prepared	Process and incoming data were standardized	-
Feature Production	Editing was automated	-	-
Programme Management	Inspection and revision was partly automated	Standardized media types	-
Telecast	Most tasks are now carried automatically	Standardized settings and procedures	-
Archiving	-	Standardized media types	-

Figure 4/1: Characteristics of industrialization matched in the n-tv project

We can see that in our case there are several efforts related with more automation and more standardization – but a higher degree of division of work was no point. It is a task of further research to decide whether this is enough or not. Also it should be addressed under which circumstances more automation, more standardization and a higher degree of division of work are useful.

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