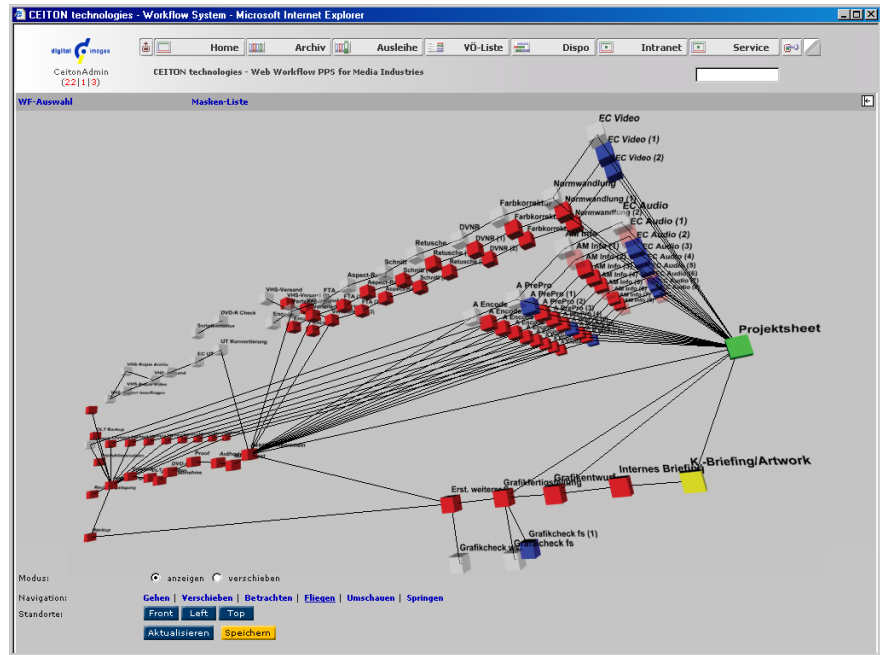


Workflow – everyone talks about it. But what does it actually mean? An introduction to that topic, an innovative solution and an experience report from one of the largest DVD producers in Europe.



Workflow of a DVD production at runtime

Workflow Management for DVD Producers

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The Know-how is inside the process

At the beginning of every production there is an order. At the end is delivery and, of course, billing. Everything in between differs from one company to the next. Over the years each company develops their own work process and working methods to create product for their customers from the initial assets.

The specific flow of that work process in connection with the concrete activities is the know-how of each and every company. Therefore the focus moves from the individual functions (e.g. encoding or authoring) to the relationships between all functions and the interdependencies between

them. You cannot use an airplane that has been taken apart into its components. Only when the components are put into a useful relation is it more than the sum of its components.

This so-called "System Thinking" originates from biology and was absorbed through sociology into economics. The aim of this theoretical consideration is to get a final product with defined quality and with the most effective use of employees, machinery and time.

The perfect workflow is, however, very rare. One reason is that the processes and working methods are growing, meaning they develop over time. For instance, a stable working method can be established but with a changing framework like increasing cost

pressure, higher order volume or growing complexity it may prove inflexible.

The technology-driven media industry in particular changes its flows, requirements and business models constantly. What is known as DVD Mastering today might tomorrow be called Media Streaming.

So what does that mean for the actual work? At first you have to understand the processes themselves, i.e. you have to know approximately who is doing what, where, why, and how.

In the majority of cases DVD production consists of working steps like order acceptance, postproduction, encoding, design and authoring and

permanently parallel running jobs like arrangements, carrying out quality checks and integration of suppliers. These activities are usually supplemented with distribution or administration tasks.

When a company produces some hundred titles a year, there will be thousands of tasks to do, all of which have to fit in perfectly with each other without a mistake.

Beyond a certain degree of volume and complexity, this kind of effort can only be steered and controlled with additional help. The smallest mistake can jeopardize a whole production process. From that moment on, productivity and quality will suffer and self developed forms and Excel sheets will hit their natural limits.

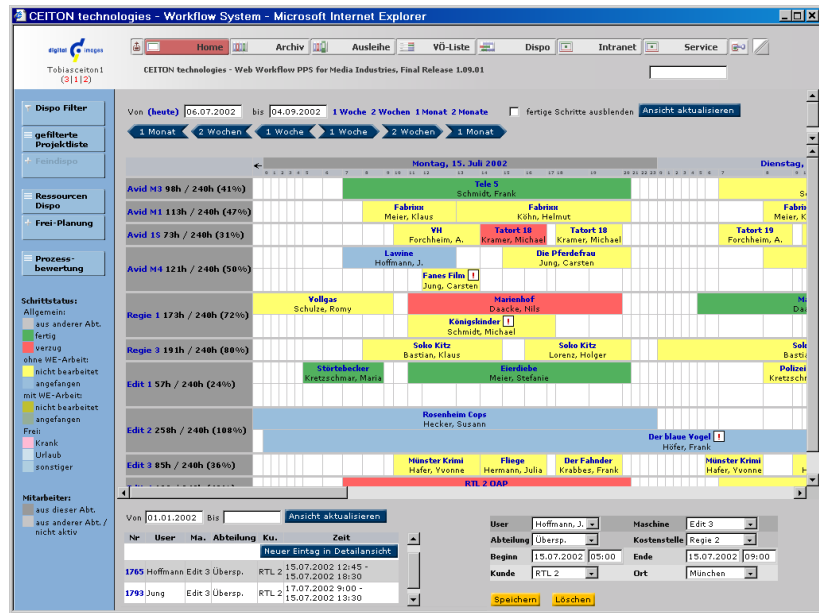
Technology is the basis

At this point companies usually consider the introduction of a software solution that is able to support and relieve. There are a couple of solutions that put different functions like making quotes or dispatch management at the company's disposal – be it modular, like a PPC (production planning and control system) or a little bit smaller as a scheduling system.

In many cases the expected requirements differ considerably from the offered functions of that standard software. In-house solutions are often created to better fit the company-specific workflows.

These solutions very often have some very unpleasant side effects: the development is time consuming, expensive and has to be permanently adopted.

Given this dilemma between standardized and individual software, the company CEITON technologies was looking for a new solution.



Picture 2 – Signature: Arrangement of the jobs proposed by the system

The task at hand was to develop software that can completely show the different requirements of the media industry and that especially can support workflows and collaboration between employees and companies.

Realizing that, of course, not every future requirement of the users can be foreseen and be implemented, it was logical to first develop an abstract framework, a general nonspecific software with which the user can create programs and functionalities.

Such frameworks also exist in other industries and with customizing they allow an adaptation of the basic off the peg solution.

Thus, extreme flexibility is made possible, but in the end it is still a functional solution. The business processes as such are neither directly supported nor improved, but functions such as scheduling and order administration are put at the company's disposal.

In the banking and insurance industry there are Workflow Management Systems, connected with Document Management, which steer the working processes. For instance, these programs receive a loan

application from a customer and process it digitally from one employee to another and the results of the handling will get back to the customer in the end.

The Workflow Management System ensures that the right employee always gets the right task at the right time.

The idea for CEITON therefore was to combine the dynamic PPC Framework and its functionalities with a Workflow System which supports processes.

The challenge was to cover dynamic processes of a production like for example those of a DVD. Assuming that a particular DVD includes 1 main movie, 3 trailers and 5 interviews, it is necessary to carry out an entrance check, maybe some pre-processing and the final encoding. Additionally there have to be different audio tracks in different formats and the subtitles in different languages.

A music DVD production differs considerably in quality, quantity and also in the complexity from a costly special edition mastering of a blockbuster.

The workflow framework thus has to be able to create a specific workflow that perfectly supports the individual completion of a customer's order, from a more generically defined workflow.

Another crucial point for the design of the application was that the whole system had to be used on Windows, Mac or Unix without any installation, working just in a simple web browser without Java-Applets or ActiveX Controls. In fact, the browser technologies of CEITON are so good that many functions are superior to conventional client/server programs, for example the enhanced Drag and Drop in the scheduling and the 3D visualization.

departments to record all possible workflows, used documents and forms.

Workflows and functionalities were subsequently created based on the reality. Attention was paid to not change processes and forms too much in order to make it as easy as possible for the users to get used to the new system.

Work was simplified even more by many helpful functions e.g. pre-filled fields, finished selection fields, dynamic lists and the blinding out of non-relevant information.

After the item and content data was taken to the data archive, the project management was the first step of the workflow that had to

an offer - depending on which type of DVD, which content etc. should be used.

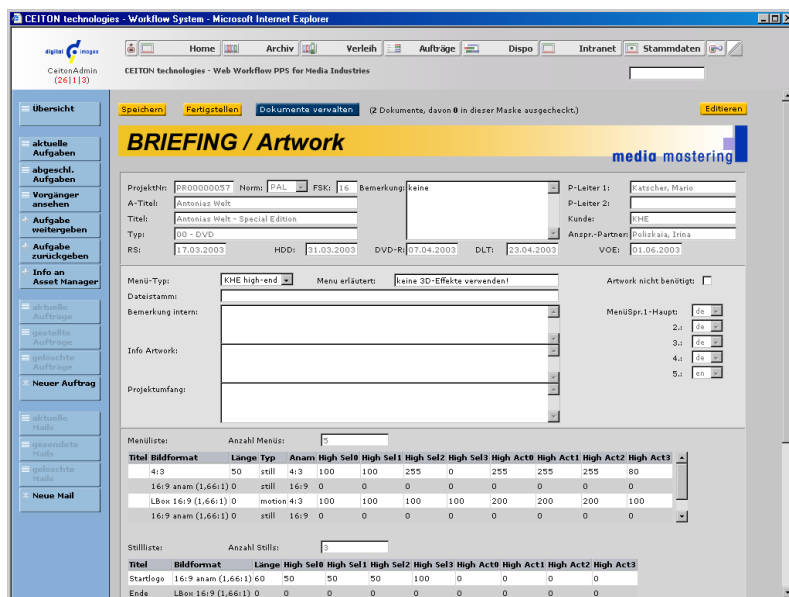
Out of this data a detailed flow chart in the form of a Visio file will be created for the customer. Parallel to this, the engine configures the best-fitting workflow, checks the necessary archive data for existence, quality and format and – if needed, starts the first working steps.

In that way employees get specific tasks in forms on their home screen with detailed information about their work, e.g. which menus have to be created. Further data will be recorded during work and after successful completion the next employee will get his tasks – e.g. after the Encoding and the Artwork the Authoring follows.

Thus it is ensured that without any misunderstandings, mistakes and permanent coordination that each and every employee and contractor gets the right task to finish the project correctly at the publishing time.

The recorded data is available at all times to management and the scheduling is presentable in different views to make a short response-time possible and also to allow long-term planning. For the employee it means more transparency, security in planning and, most importantly, the freedom to concentrate on their actual tasks.

The system actively supports the process of more effective coordination and collaboration and at the same time permits the improvement and adaptation of functionalities to new requirements.



Picture 3 – Signature: Every mask can be created individually

Smooth Production

When digital images GmbH decided to implement CEITON's system to improve productivity in the middle of 2001, the first step was to record and analyze all processes. It was not possible to resort to already defined workflows since the project was the first of its kind. A person was appointed to examine all

be taken into action. Whereas Excel lists for orders and manually created project sheets were previously used for the order configuration, the workflow system now manages this in a centralized and automated way.

A dynamic tree was created as the project-sheet to collect information about the customer's wishes to present him or her with

Results of past implementations	
Before	After
Decentralized forms and word documents	Centralized and standardized basis for all kinds of data
Costly manual arrangements in Excel and Outlook	Transparent, supporting and partly automated scheduling
Continuous coordination of projects with all employees	Workflow system takes over the exact coordination
No systematic Quality Management (QM)	QM and Tracking is an integrated part of processes
Non-standardized archive in Access	Data is available for research anywhere
Costly and error-prone coordination with customers	Standardized language by visualization
No complete and up-to-date information	Production is absolutely transparent in every little detail
Changes in the work process are connected with costs and errors	Even bigger changes can be implemented without any problem
Installation of different programs on Client-PCs	A simple web browser is sufficient to work on the server
No systematic backup exists	Centralized and simple backup for all data and documents