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MELASCHUK-MEDIEN

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1st edition 2014
2nd edition 2015
3rd edition 2017
4. extended and updated edition 2019

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ISBN 978-3-00-063634-9
(print standard edition in German)

For the present English digital book
edition, parts of the German edition were
translated.

Digital book editions:
www.cross-media-buch.de (German)
www.cross-media-book.com (English)

Graphics, typesetting and layout:

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Proofreading:

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THANKS

My special thanks go to the following authors, who have enriched the book with their expert knowledge:

ROLAND BÜHLER

"Requirements for IT development projects", Kap. 2.4.2

PROF. DIPL.-ING. (FH) ULF GLENDE

"Data protection in media production", Kap. 4.5

RÜDIGER MAASS

"Media production 2030", Kap. 1.1

HAEME ULRICH

"Multi-channel publishing: WordPress and any output channels", Kap. 5.4

In addition, the following associations, organisations and companies contribute with advice and action to the success as well as to the spreading of the book with:

- Bergische Universität Wuppertal
- Beuth Hochschule für Technik Berlin
- Deutscher Drucker & print.de
- dmpi – Industrieverbände Druck und Medien, Papier- und Kunststoffverarbeitung
- drupa/Messe Düsseldorf
- Fachverband Medienproduktion e. V. (f:mp.)
- haemeulrich.com
- Hochschule der Medien Stuttgart
- Hochschule Wismar
- homann colormanagement
- rb omnichannel
- Schule für Gestaltung Zürich
- Verband Druck und Medien Hessen e. V.
- Verband Druck & Medientechnik
- Verband der Schweizer Druckindustrie (VSD)/publishingNETWORK
- Winter Consulting

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FOREWORD

Processes, methods and tools of cross-media media production are characterized by digitization - starting with the basis of data, which comprises more and more data types, up to the output into a multitude of media channels. Print products are struggling to survive in the face of the amount of digital competition, but are still able to hold their own thanks to their unique selling propositions and the opportunities they offer for combining with digital technologies.

The motivation for this book is to create transparency for an environment in which web-based systems can be used in a variety of ways and the boundaries are becoming increasingly fluid.

Companies that want to plan or optimize media production processes should be given the basics to be able to define their own requirements more clearly and to classify software or processes correctly. Ultimately, it is about maintaining competitiveness and using resources and investments as effectively and target-oriented as possible.

The target groups for the book are all companies across all sectors, such as industrial and com-

mercial enterprises, the public sector, agencies, publishers, media service providers and printers.

This fourth edition, like the previous ones, has been extended and comprehensively updated. The present English digital book edition has been partially translated based on the German edition.

The new topics include user acceptance, variants of system integration and project management that incorporates agile methods. In this context, the workflow of a system selection and the procedure models for system development, written by the new specialist author Roland Bühler, are described. Some experts have updated their contributions, including Rüdiger Maaß, Prof. Dipl.-Ing. (FH) Ulf Glende and Haeme Ulrich. I would like to take this opportunity to express my thanks to all of them for bringing in their expertise.

Important new content was also included in the chapters “Data Management” and “Cross-Media Workflows and Production Routes”. These include artificial intelligence with a focus on marketing and communication, personalization, and media management processes. Here an

overall view was created with all parties involved in classic and programmatic processes of media processing, since presentations known to me always only include partial aspects.

In the chapter “Communication Channels” there is for the first time a presentation that separates advertising material and media channels from each other and presents them in a matrix. This can help marketing departments to classify whether and how individual advertising media can be reused within a customer journey. The information on the individual media channels has also been extensively updated. I tried to include reliable sources and up-to-date data.

In the meantime, 16 associations, organisations and multipliers have contributed to the publication of this book with their support. I would also like to thank them for their trust and active support.

I would be very pleased about suggestions and comments (ira@melaschuk-medien.de) and wish you pleasure and many inspirations while reading!

Ira Melaschuk
Friedberg (Hessen), Germany in November 2019

1 TRENDS AND REQUIREMENTS

The most significant future changes in the context of digitization will take place in the field of artificial intelligence, which can also be assigned to the topic of industry 4.0.

Learning systems become standard

Artificial intelligence (AI) has already found its way into many areas of media production, such as the automated management of media and product data. However, AI is unbeatable above all when large, even unstructured amounts of data, for example texts from the internet, have to be analyzed objectively and quickly. In the area of customer communication, chatbots already take over the automated "processing" of user queries on websites and only forward these to service staff when required.

With AI, numerous new business models are possible. In many cases, however, processes that have already been digitized and automated are further optimized, such as marketing automation, programmatic advertising or media planning.

Although there are already impressive examples of AI applications, development is still in its beginning. However, the ever shorter development cycles should not be underestimated. In this context, labour market policy issues will also

become relevant and social solutions will be required.

Reorganization of IT systems

The digitalization brings in enterprises the necessity with itself to connect most different systems with each other, in particular to receive data for a central planning and analysis or commercial processes. In addition, users should no longer have to deal with many different systems, but rather operate a central platform with a single log-in. The task in many companies is now to consolidate a large number of isolated IT solutions that have developed over the years or to create interfaces (keyword: "best-of-breed").

So-called "headless" systems declare this necessity a virtue, as only one system core exists, mostly for data storage, and the media channels are externally controlled via interfaces.

Another variant is to map as many functions as possible within the system in order to standardize processes and data streams. In individual cases, the solution will lie in the individual weighing of requirements.

In addition, dealing with data from various sources, and above all their continuous main-

tenance, is a great challenge. If the database is incomplete or of poor quality, no valid results can be derived from it. For the personalization of communication channels, this is a central prerequisite and a task that companies have to face.

Digital services as a catalyst

Print products are asserting themselves, but digital channels are continuing to displace them. In the publishing sector, parallel offerings of books, newspapers and magazines are usually standard. Losses in sales attributable to the print sector can even be partially offset by revenues from digital offerings. In the area of advertisements, on the other hand, print is increasingly being replaced as an advertising medium by digital channels.

In view of the large number of media channels, the topics "Customer Experience", "User Experience" and "Usability" are the focus of interest for users. With regard to software, however, the implementation of technical functionalities still seems to be in the foreground of system development.

The professional application of norms and standards in the above-mentioned areas with the involvement of users should therefore be

demanding of clients. This is to ensure that the technical solutions meet the needs of the users and that strategic goals, such as a desired advertising effect, are achieved.

1.1 Media production 2030

INTERVIEW WITH RÜDIGER MAASS

Rüdiger Maaß (RM), Managing Director of the Fachverband Medienproduktion e. V. (Media Production Association, f:mp.), is an expert for developments in media production.

Ira Melaschuk (IM) interviewed him about current trends and the outlook for the coming years.

IM: What is the current situation?

Are all the changes already known or will there be things in 2030 of which we have no idea yet?

RM: A look into the future of media production reveals more than just a few changes. Basically, the industry is still undergoing a tremendous transformation, or rather a continuous development. The change is not subtle, because the constantly changing media usage behavior also changes consumer behavior. For example, the "Internet of Things" has found its way into everyday life almost unnoticed and further changes are imminent.

The communications industry will not be able to avoid taking this into account. Industry 4.0, Printed Electronics, 3D Printing, Augmented and

Virtual Reality are all in the starting blocks and waiting for their big appearance.

IM: What's the keyword "Industry 4.0" all about? Is there any connection at all with media and communication?

RM: Industry 4.0 is a vision that was developed by the German Ministry of Economic Affairs in cooperation with top representatives of industry and is now being launched. This vision includes a revolution in manufacturing and trade that will certainly have a significant impact on the media industry.

This begins with the company's own production processes, which must be increasingly automated and efficient. But it doesn't end at your doorstep. In fact, the development of Industry 4.0 is decisively driven by printing technology. How Industry 4.0 will change the publishing process is still a mystery. But here, too, the focus is on automation.

IM: What changes are we facing in our private and business lives?

RM: It is easy to calculate that Industry 4.0 also has to change some business models. This starts with the retail trade, which will soon only sell print materials instead of the actual product; print data and operating software are of course included. Advertising will benefit massively from this development. Since retail outlets will in fact be the place to influence purchasing decisions for many products, consumers will have to be led to the product in a completely different way. This is where creativity is required. Packaging and packaging printing, on the other hand, are becoming massively less important, since a considerable proportion of the goods will no longer be sold in stores.

In any case, the entire industry must adapt to the fact that production and products are becoming more and more virtual. Digital transformation opens up new processes and new business models based on digital information technology.

IM: Sounds like there's gonna be more and more black boxes. How can print hold its position in this environment?

RM: Today, the printing industry in particular is already demonstrating how digital technology can significantly increase the efficiency of production and distribution with the use of web-to-print applications, editorial systems, PIM and DAM applications. But an actual digital transformation is of course much more radical. It includes the digitization of all business processes of a company - from sales and order processing via the control of all business and production processes to the adaptation of the business strategy itself.

Trade has already experienced such a change. With Amazon and other online retailers, an originally purely analogue business model has been largely digitalized. This example illustrates the opportunities for opening up to digital technology: new market fields are emerging and massive competitive advantages are opening up. Amazon, for example, has already strongly lost market share to the stationary book trade in the early days. Shopping at home has become a matter of course for many products.

If you transfer this idea to the printing industry, then online printing will see golden times, while the medium-sized print shop can only survive if it critically questions its business model and is prepared to adapt to new ideas and visions.

A first and important measure is to make print products even more attractive and relevant, to specialize in multi-sensual communication, to realize a highly individual approach and to occupy sustainable niches with multi-channel applications. There are many ways to make print even more attractive using a wide variety of printing techniques and applications.

IM: Which concrete applications are there for Virtual and Augmented Reality (VR/AR)?

RM: It is very probable that augmented and virtual reality, i.e. the combination of virtual data and images with the surrounding reality, will have a major influence on media production in the future. In AR applications, for example, certain information is displayed on data glasses or a mobile device and merges with the environment. A current example is the game Pokémon GO. The same could be true for a walk through the furniture store behind the home VR glasses, with the added benefit that extended product information

is available at all times. In production, too, data glasses can offer considerable advantages in the future if orders, process lists, e-mails, support, progress reports or rendering software can be retrieved visibly at any time.

IM: How will omni-channel publishing change?

RM: In general, all tools for professional omni-channel publishing are available on the service provider side - and these tools are available in all price ranges. The challenge is that customers, advertisers and publishers need to know the overall communication requirements. This is not just about the media channels, but about the knowledge of the different touchpoints and the associated influencing factors on the customers. Each phase of a customer's interest is subject to different requirements and requires different media channels. These must control the associated content in such a way that the customer is not only informed, but that his expectations are satisfied.

And it's about the emotional involvement of the customer. The whole thing generally only works with new concepts, the use of technology and, of course, the use of personal data. In general, one-to-one communication works with all media

channels - including print. We only have to learn to use personal data sensibly and correctly - then it will work. Despite, or precisely because of, the GDPR.

IM: What other developments will be important in the future?

RM: Another major step in media production is printed electronics. On the one hand, the printing of electronic components contributes to cost-efficient production and Industry 4.0.

On the other hand, it opens up completely new goals for communication.

So far, electronic-in-print, the integration of classically produced electronic components in print products, has dominated the market. The use of printed electronics is mainly limited to counterfeit protection. For example, NFC tags with a printed antenna are integrated into the packaging of branded products in order to verify their authenticity via the smartphone. This also makes it easy to pick up the consumer and provide further information in a direct contact. There are also applications in the packaging market, such as bioluminescence to partially light up packaging or temperature trackers to indicate the shelf life of food.

Current roadmaps assume that by 2024 Printed Electronics will have reached a mass market price by improving production efficiency.

Moving image in the newspaper, as magically happens with Harry Potter, is not pure fantasy. Once low-cost and miniaturized batteries are advanced enough, it can become part of our everyday lives.

IM: What can media producers and marketing managers do to stay competitive?

RM: Every media producer should be aware that any missed opportunity represents a significant competitive advantage for another company. It's time to think outside the box as the world moves on. The technology is well advanced and every day new miracles come our way.

Many thanks for the interview and the "look beyond the box"!

RÜDIGER MAASS

Rüdiger Maaß began his career in the communications industry with an apprenticeship as an advertising merchant. With the additional training as "Geprüfter Medienproduktions-/f:mp." he discovered his heart for media production.

Rüdiger Maaß has been Managing Director of Fachverband Medienproduktion e. V. since 1998. (www.f-mp.de). Apart from this activity he works successfully as networker, specialized adviser, moderator, specialized journalist and advisor for the communication industry.

Rüdiger Maaß also founded the following industry initiatives:

PrintPerfection: www.PrintPerfection.de

Media Mundo: www.MediaMundo.biz

PRINT digital!: www.Print-Digital.biz

«go visual»: www.go-visual.org



2 SETUP AND OPERATION OF WEB-TO-PUBLISH SYSTEMS

SUMMARY

In this chapter, the arguments for the operation of web-based publication systems are first presented. They form the basis for the sensible use of individual requirements.

The presentation of the basic functionality of Web-to-Publish systems then takes place in transparent descriptions, which are extended by the topic of interfaces and the variants of system integration. Here it should also become clear that it is not about web tools for solving individual tasks, but about systems for multi-user operation.

For companies using cloud computing, market figures and requirements for secure operation are of interest.

The chapter on project management then deals with agile and classic processes for system selection and subsequent system development. This closes the circle from strategic considerations to concrete implementation.

2.1 Advantages and risks

The advantages

For marketing, communication and media production, the following advantages result from the use of web-to-publish systems and marketing portals:

- Products and services are available around the clock and can be used regardless of personnel and geographical conditions.
- Time and cost savings result from the central maintenance and administration of media objects (such as images, videos, audio), (multilingual) product data and texts as well as their cross-media multiple use. The quality is increased by the uniform reproduction of data in several media channels and legal requirements, such as compliance with license periods, can be secured automatically.
- The possibilities of automation during play-out in media channels shorten the “time-to-market” span, i.e. the fastest possible publication of products, marketing measures and publications.
- The provision of printed and digital advertising media can take place in decentralised companies for branch offices, branches, dealers or agents in accordance with corporate design.

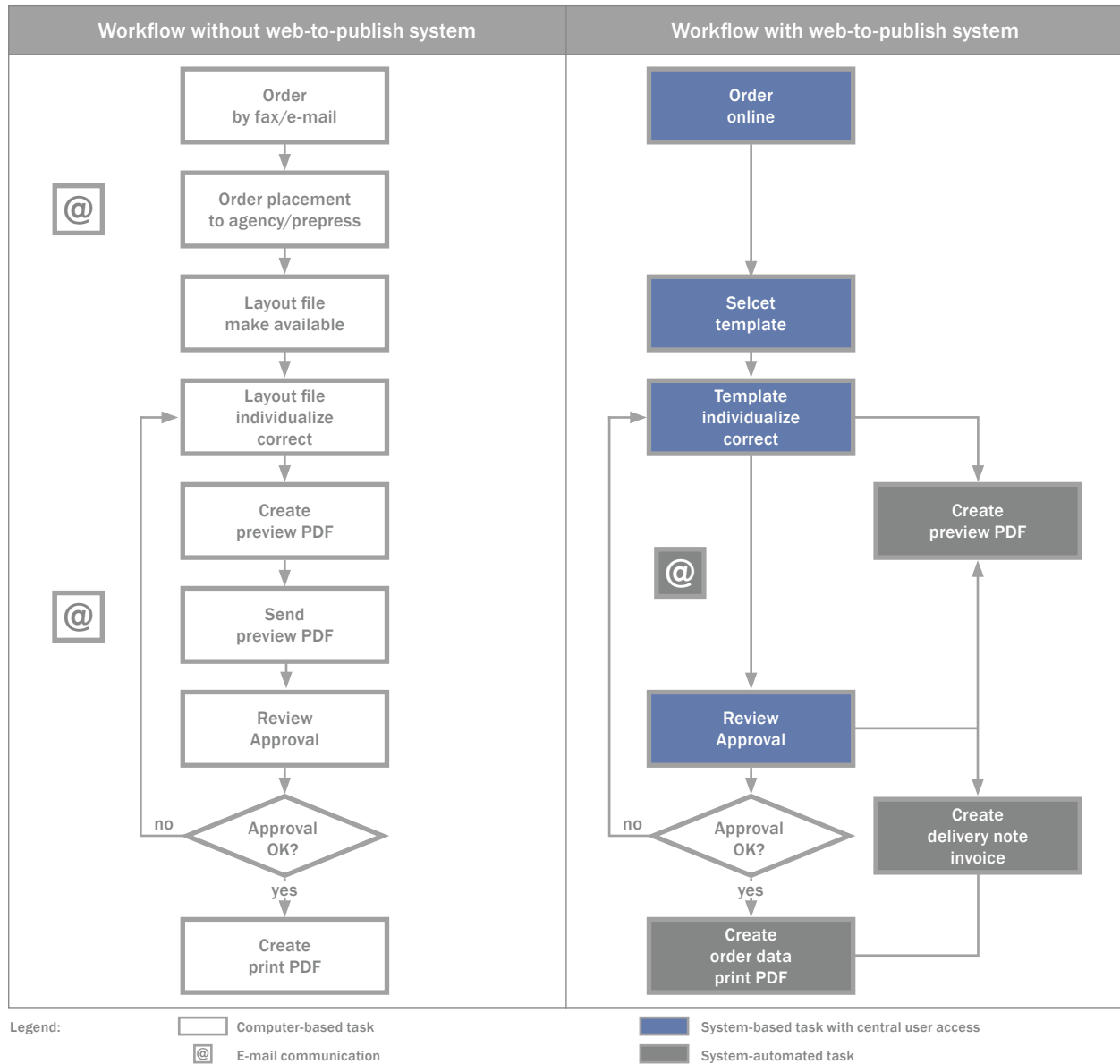


Fig. 2.1 Workflows without and with web-to-publish systems. © Melaschuk-Medien

- Especially with high order rates for templates with low adaptation effort, cost savings result from the system operator's own services and those of its sales partners.
- Time savings and quality improvements result from system-controlled, automated processes, such as PDF creation or e-mail message delivery (Fig. 2.1).
- Savings in costs for administration and commercial processing through centralized order processing for the entire company are possible. Printing and shipping costs can also be reduced by centralizing printing locations and logistics centers.
- Storage costs can be saved by the demand-oriented production of advertising material.
- Communication is fast and reliable between production partners such as graphic designers, translators, editors, agency staff, marketing and sales. It is independent of time zones.
- There are transparent control and steering possibilities regarding projects, campaigns, time, costs and activities.
- Content that is managed in independent IT systems, such as merchandise management, media database or web shop, can be merged.
- Legal requirements can be secured through change tracking, versioning, differentiated approval processes and user rights.

The risks

However, these advantages also face the following challenges:

- Companies often lack a uniform, cross-media channel, organizational and technical basis that needs to be designed and implemented.
- The conceptual effort for introducing a web-to-publish system should not be underestimated and may require the provision of personnel resources from various departments and external partners of a company.
- In the course of a system introduction, but also for the running operation, permanently new tasks can arise, e.g. for media administration, template creation, system administration or setting up an end user hotline.
- Costs are incurred for setting up, running and integrating the system into internal and external systems.

Data security, data protection and data ownership are other aspects that are important for companies and should be clarified when using a web-to-publish system. It is possible that internal company guidelines already exist which must be complied with.

The necessary standardization of work processes and advertising media should also be accepted in principle within the company. Because the one-time expenditure of the system installation is to be amortized by the savings in the current enterprise by means of the multiple use of standardized collecting mains and uniform operational sequences. Alternatively, it is possible to use the web-to-publish system for certain advertising materials only for correction and coordination purposes and to have the layout design carried out by external agencies and service providers outside the system in advance.

2.1.1 User acceptance

The frequently cited customer experience also includes the user experience, which describes the experiences made during contact or interaction with products, services or software. These are rightly important aspects, as the number of media channels and thus touchpoints with which consumers come into contact before making a purchase, for example, is increasing. In the context of software use, this includes usability, which significantly determines the extent of user acceptance. User acceptance is one of the most important success factors when using web-to-publish systems. If employees are

not motivated to use the offer of a web portal to order marketing material, there is a great danger that classical ordering channels will continue to be used. The affected employees should therefore also be involved at an early stage in the system concept. The increased provision of digital advertising channels is also increasing the need for information for users.

Negative influences on user acceptance

Some factors have a negative impact on user acceptance:

- Users have no financial incentive (e.g. through advertising subsidies).
- Users do not see any advantages compared to the usual processes.
- Users are not bound by the company's instructions to use the system.
- Users have connections to existing suppliers and bypass the system.
- Users find the operation of the system too complicated or difficult.
- Users are not very flexible or motivated in dealing with computers.
- Users rarely use the system and do not achieve a high level of practice.
- Users do not accept the standardized templates offered in the system.

Measures to increase user acceptance

There are a number of organizational and technical measures that companies can take or use to achieve the highest possible degree of utilization of a marketing portal or web system:

- Design the portal offer comprehensively and attractively in order to make the use of several portals and applications redundant.
- Use of a digital consulting assistant that guides users step-by-step to the right products or campaigns according to their needs.
- An automated ordering process with short click paths (automatic transfer of master data, direct transfer of products into the shopping basket).
- Organize and personalize the portal offering with various access options (selection of individual advertising media, themes, campaigns or actions).
- Providing attractive advertising media by combining standardized templates with individual design variants or layout functions.
- Combinable and storable search and filter functions.
- Providing supplementary information on the individual advertising media or options (text information, explanatory videos).

- Selection of advertising media on the basis of geodata (display of advertising media reach depending on locations) and market potential.
- Telephone consultation as part of an extended user hotline (first-level support).
- Training and information events for portal users.

Despite these requirements and risks, web-to-publish systems often make sense for companies to stay competitive. Only on a central technology basis can information be made available in ever shorter time, with current data simultaneously in several media channels.

2.2 Technical setup

Web-to-publish systems basically consist of a technical basis and the system modules. The modules comprise the areas of database, planning and control, media production and distribution (sales and distribution) (Fig. 2.2).

The technical functions provide the options for creating printed and digital media channels or advertising media. Users access the central system and act according to their authorizations and the defined workflows.

The applications are provided on a web server. The entire server structure can be configured individually. Web servers, database and file servers as well as other servers with special tasks, such as publishing, ad or mail servers, can be part of the overall system.

Media production

The basic functionality of the system is media production with a wide variety of focal points: Advertising material individualization, personalization for serial documents, print file upload (if necessary with data check), (automated) publication creation, translation management or also the administration of product and media data.

All settings that coordinate and control the technical and organizational processes are made in the administration area of the web-to-publish system, also known as the backend. This includes user administration, rights management, and workflow definition.

Workflows are processes in a logical sequence of steps that can trigger actions, such as sending e-mail notifications or transferring publications to other servers.

Users

Via the so-called frontend, the user interface, users access the system via web browser (Fig. 2.3), so that usually no additional application software has to be installed.

Offline applications that are not permanently connected to the system online are used, for example, in the areas of template creation or editing. Offline editors or applications can be installed locally and are used by graphic designers, editors or translators, for example for template preparation or content creation. If required, the synchronization with the web application or the access to databases takes place.

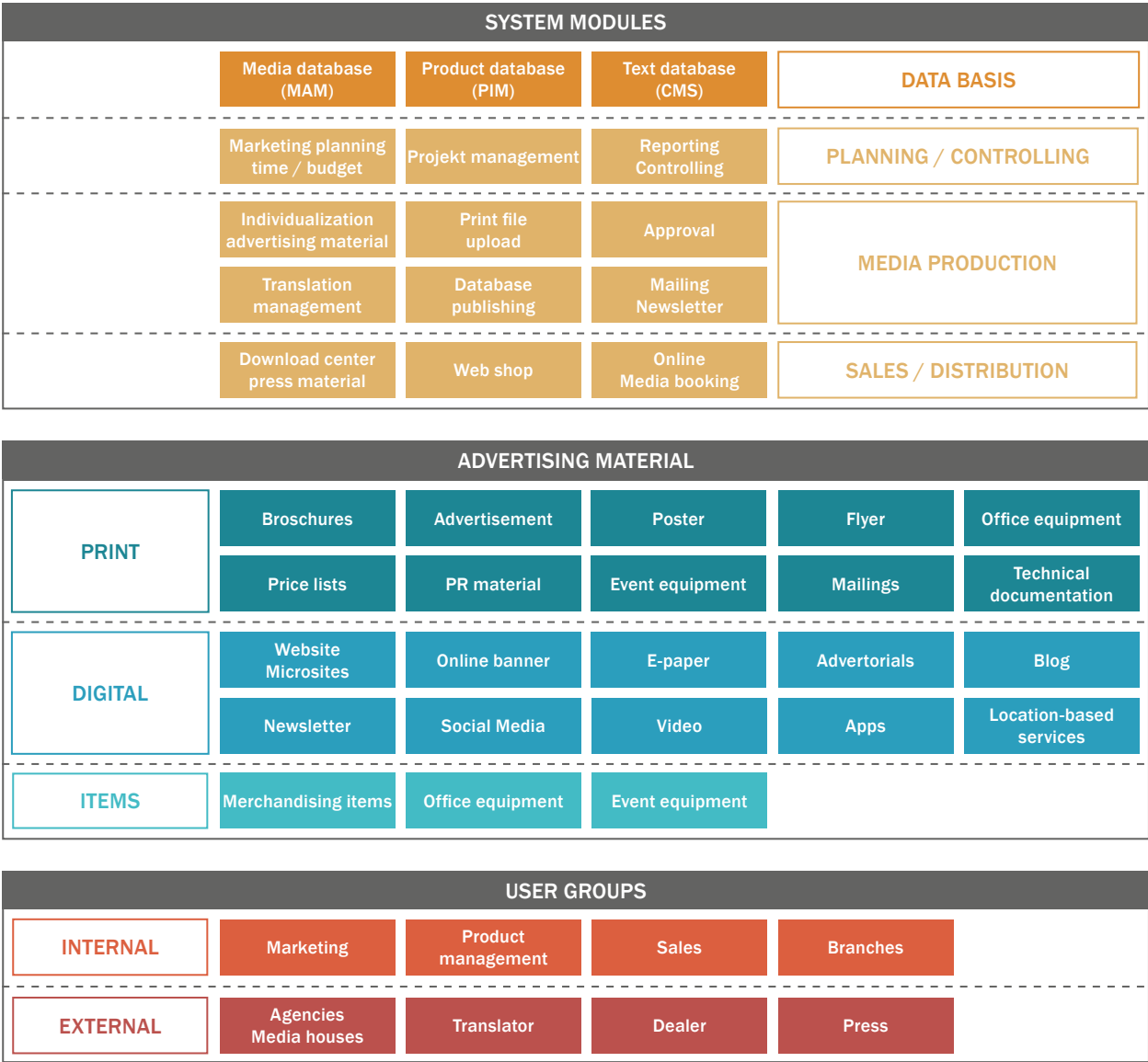


Fig. 2.2 Spectrum of potentially required system modules, advertising media and user groups using the example of an industrial company. © Melaschuk-Medien

Media channels

Media channels can be divided into the following areas:

Print:

Magazines and newspapers, books (especially: photo books), catalogs, price lists, technical documentation, advertising material (such as advertisements, flyers, posters), promotional items (such as textiles, pens), business equip-

ment (such as business cards, letterheads), packaging and labels.

Digital:

Websites, web shops, online ads, moving images, e-papers, e-books, apps, email or social media.

Classical media:

TV, Kino und Radio.

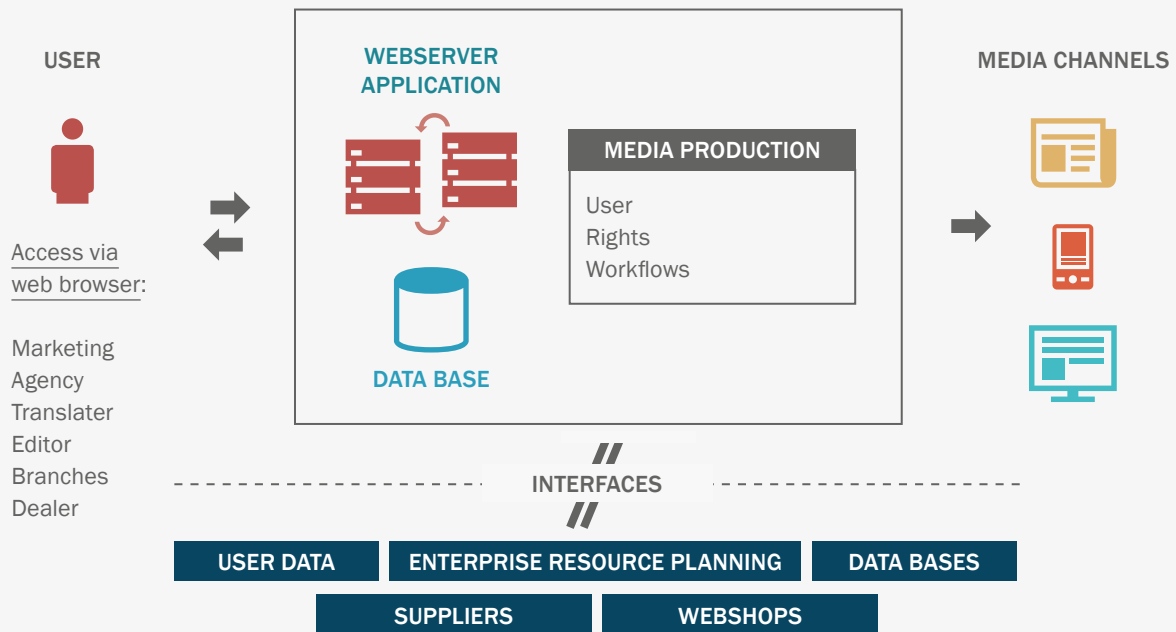


Fig. 2.3 Structure of a Web-to-Publish system. (© Melaschuk-Medien/skarin - Fotolia.com)

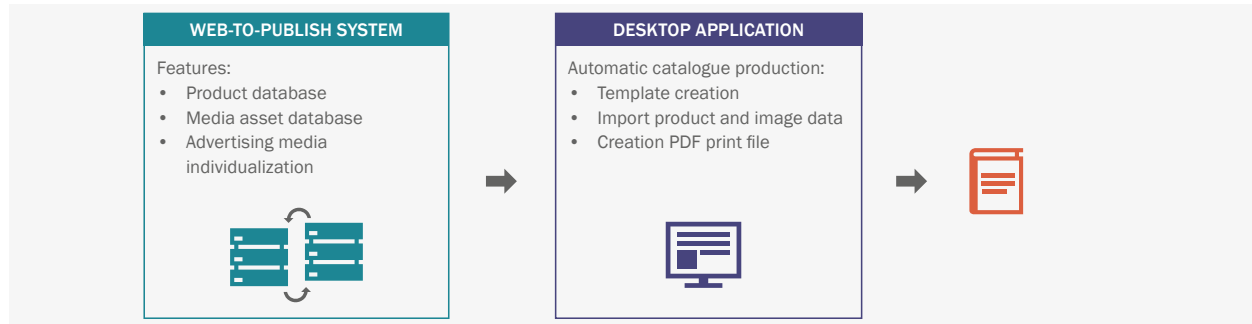


Fig. 2.4 Combination of a web-to-publish system with a local workstation. (© Melaschuk-Medien/skarin - Fotolia.com)

Variant with local workstation

In practice, combinations of web-based and local media production with desktop applications also exist when certain tasks can be performed by individual users at a local workstation (Fig. 2.4).

Example:

A company publishes an extensive main catalog for its products once a year. A product database is integrated into a web-to-publish system and is used to manage product and image data.

The product data and images are maintained and processed web-based by several employees of the company from the development, marketing and sales departments as well as by external agency employees. The catalog for the print channel, on the other hand, is created using a specialized desktop layout application at a local workstation.

In this local application, the templates for the catalog are created with integrated links to the product data and images.

An employee is responsible for this task, creating the catalog output with a large number of pages. For this reason, central access by several employees, as implemented within the web-to-publish system, is not required for catalog creation.

2.2.1 Interfaces

Web-to-publish systems can be operated stand-alone or connected to external systems via interfaces. In larger companies, for example, user data is imported in order to avoid double maintenance of the data. Single sign-on (SSO) interfaces are often used as part of integration into the corporate intranet to enable employees to log on to the network only once with password protection. This is to avoid employees having to log on to different systems and services several times.

Other common connections are to Enterprise Resource Planning (ERP) systems, product and media databases or web shops.

Integrated or best-of-breed systems?

Principally there are two different strategies to design a web-to-publish system. The first strategy is to meet as many requirements as possible with a single system. Interfaces are only created if they cannot be avoided. Often the goal is a “deep” integration, whereby users ideally do not even notice that they are moving within an external system. A further advantage of standardized solutions is the ongoing functional system maintenance from which all customers can benefit.

Updatability is given, maintenance costs are easily calculable and administration is uniform within the overall system.

The second variant is the so-called “best-of-breed” approach, in which independent systems or system components (also known as “micro-services”) are used for functional sub-areas and connected via interfaces. This means that the best possible solutions can be used for certain tasks and a high degree of flexibility can be achieved in the implementation of dynamically changing requirements.

In general, standard connectors, plug-ins, programming interfaces (API, Application Programming Interface) or data transfer based on XML or HTML are used to connect systems, data sources and output channels (Fig. 2.5). If data from several data sources are required as a basis, they can be merged within so-called API hubs and the interfaces thus centralized. With the OpenAPI initiative (OAI), the development of a vendor-neutral, standardized and open standard for interfaces is also to be pushed forward (*OAI 2019*).

The disadvantages of the best-of-breed concept are that the development effort for the inter-

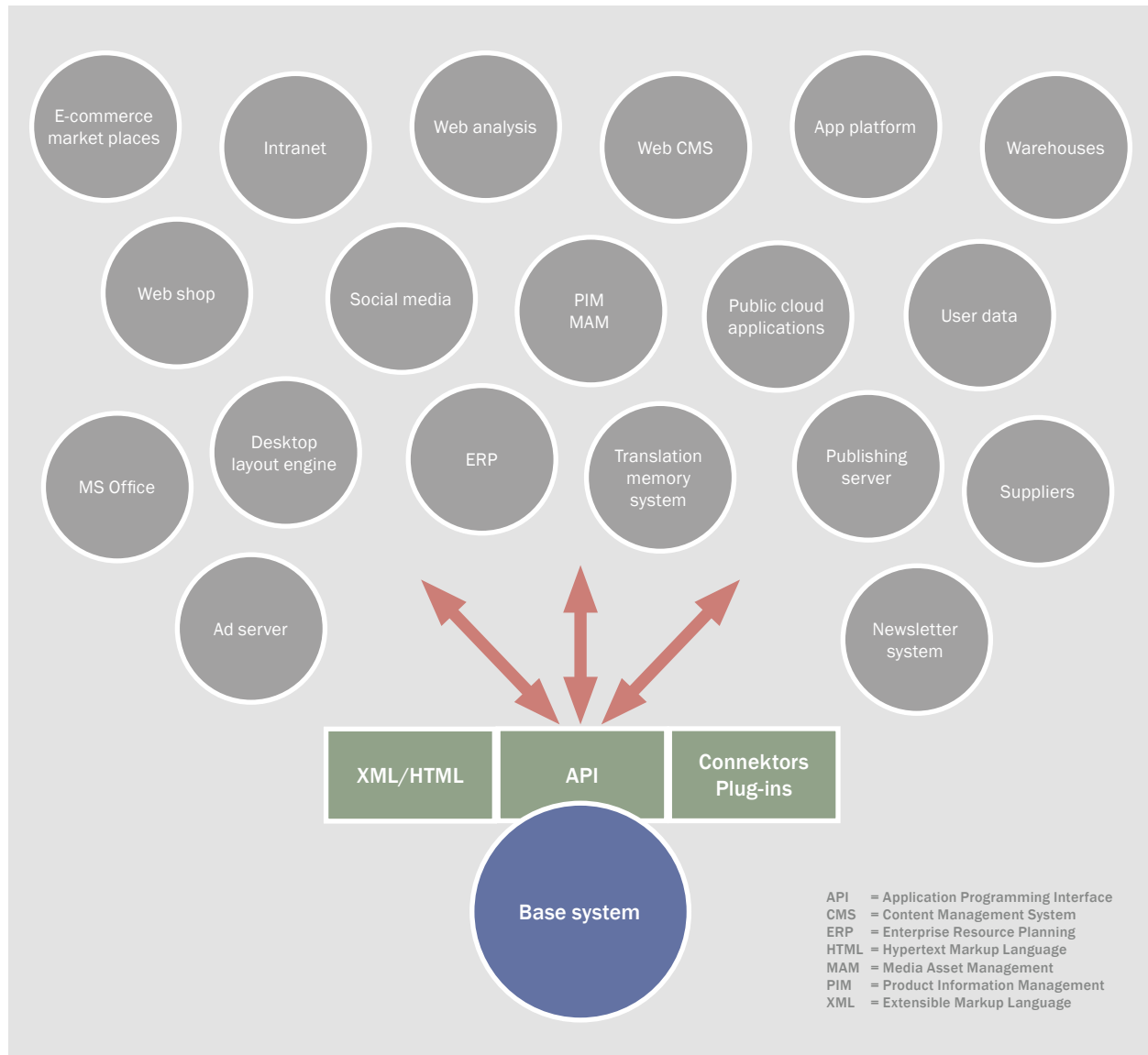


Fig. 2.5 Overview of interfaces. In the future, interfaces will become increasingly important for connecting systems due to a growing number of data sources and output channels. © Melaschuk-Medien

faces, the maintenance costs and the administration effort for the complex overall system are relatively high - due to the large number of individual systems and interfaces. Updates or upgrades of individual system components can lead to high adaptation costs for the connected systems.

However, in some cases it is unavoidable to operate specialized systems. Data from media and product databases, content management systems or web shops must be combined for publication processes.

In order to implement the best-of-breed approach and to be flexible in controlling a wide variety of media channels, systems are also currently establishing themselves that only have a slim system core, which is functionally different depending on the supplier. One example of this is “Headless CMS or shop systems”, which consist of a central system (CMS or shop) for content management and interfaces for controlling any output channels.

Interfaces in dialog marketing systems

In cross-media dialog marketing systems, interfaces are usually implemented between

customer relationship management (CRM), web analysis systems or e-shops.

Selected recipient data from the CRM system can be transferred to the dialog marketing system and used to execute the campaigns. The recipient and evaluation data added in the course of the campaign is transferred back to the CRM system and supports sales with a reliable database.

Data from web analysis tools can be included in reporting via an interface, for example to obtain data on visitor behaviour on websites, which in turn is incorporated into interest profiles.

In connection with e-shops, internal customer data is transferred to the dialog marketing system. Interesting is additional information about shopping basket dropouts or the purchased products. The content of the campaign can then be e-mail messages containing a voucher code for the e-shop and individual product information.

The subsequent campaigns are then reported back to the dialog marketing system.

These examples show that more and more data sources have to be combined intelligently in order to avoid multiple data captures and to meet the requirements for the output of target group-specific advertising media. This trend is also referred to as Master Data Management (MDM).

Transfer of electronic data records

If the development of interfaces appears to be too complex or is not desired, for example because a too close connection to an external system does not make sense, the export and import of data can be a practicable and quick solution. In contrast to interfaces, data updates do not take place “in real time”, but at defined points in time that trigger automatic or manual data transfer.

The transfer of electronic data sets is used in various areas:

- Export of product data collections from web-to-publish systems and import into merchandise management systems of customers, suppliers or dealers. This enables electronic data exchange within the supply chain.
 - Export of address data from CRM systems (Customer Relationship Management) and import into a Web-to-publish system for the creation of serial documents, such as e-mail newsletters or print mailings.
 - Export of data collections (such as images, product data) from web-to-publish and product database systems for linking to media channels such as catalogs, websites, web shops, electronic marketplaces or apps.
-
- Export of order and order data from a web-to-publish system and import into merchandise management, order processing, billing or logistics applications.
 - Import of data from internal enterprise resource planning systems into product databases within a web-to-publish system.

2.2.2 System integration

Over the past few years, many companies have installed system solutions in the areas of marketing and communications in order to meet certain requirements with a manageable amount of resources. These systems are, for example, promotional item shops, print shops, e-mail newsletter tools, POS TV systems, download centres or media and product databases (herein after referred to as “individual solutions”). Often there is no connection between these “isolated solutions”, for example for cross-system reporting, or users have to log-in into different portals several times in order to access the products and services.

There are now different methods to merge such a heterogeneous system landscape and to offer the users of IT portals an uniform environment as possible (Fig. 2.6). For example, two systems can be connected via interfaces, where one system provides the frontend like a shop system and the other system provides the backend, i.e. the ordering processes, order management and release procedures.

The basic approach for the following exemplary variants is to establish a central solution as a “control centre” and to integrate the individual solutions. This central platform should also cover

an essential part of the desired functionalities, such as marketing planning, individualization of advertising media and ordering options. The central Single-Sign-On (SSO), i.e. the one-time registration of users for all systems, should be aimed at in any case.

Variant 1: Consolidation

During consolidation, the entire range and functionality of the previous individual solution is taken over by the central platform. The individual solution is then completely replaced. The partial, successive takeover, in which the individual solution can still be accessed via SSO linking for a transitional period, can also be useful.

Advantages:

- Standardization of user interfaces.
- Central offers within one system and standard processes.
- Central data management and reporting.
- Higher user acceptance.
- Cost reduction for ongoing operations.

Disadvantages:

- Complex migration of data and functions.
- Possible adaptation of the central platform to the functional scope of the individual solution and new development of functions.

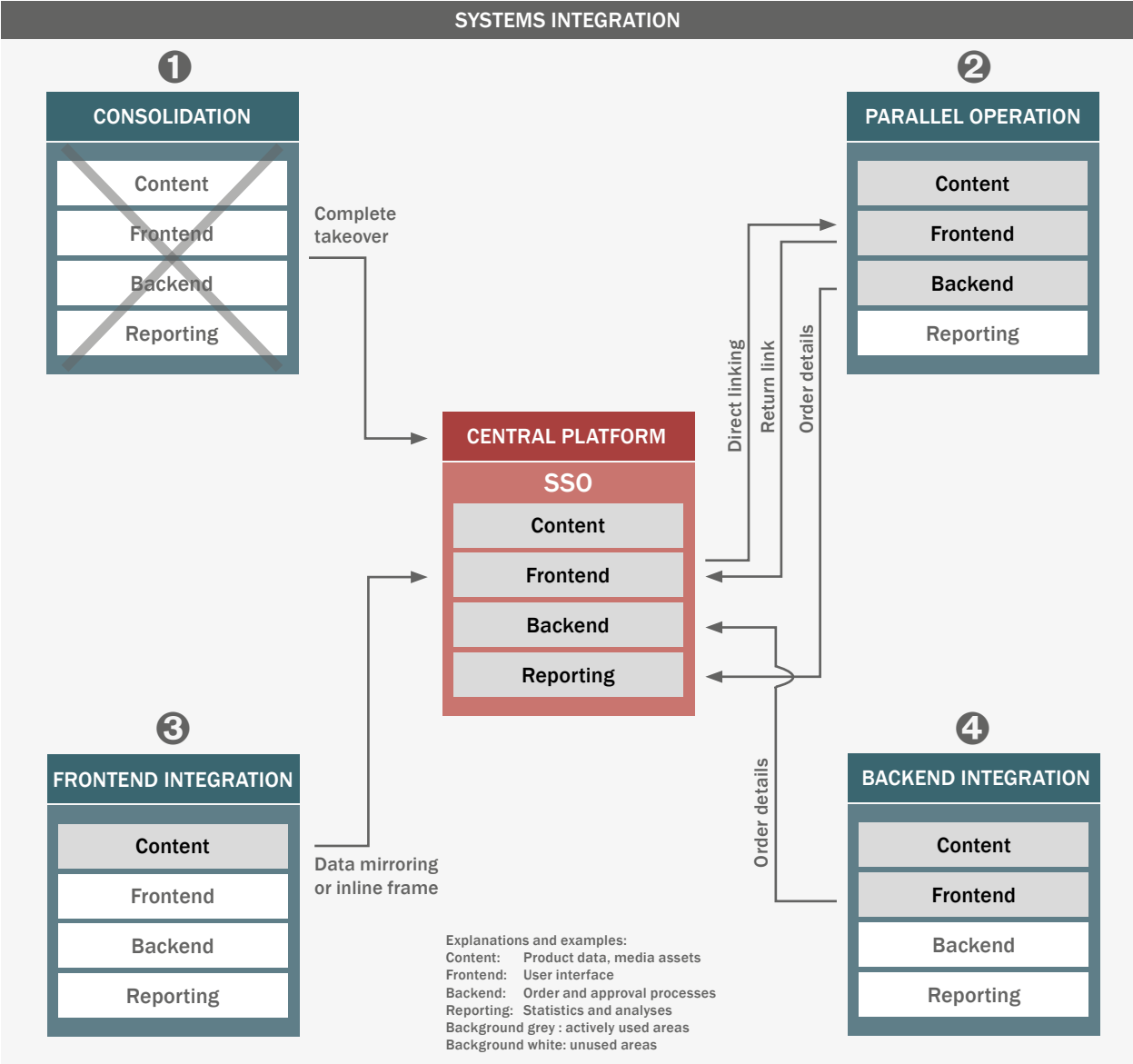


Fig. 2.6 System integration concepts. Four exemplary variants for the integration of individual solutions into a central platform. © Melaschuk-Medien

Variant 2: Parallel operation

In parallel operation, both the central platform and the individual solution are used by the users with the full range of functions. An SSO link should support the orientation over the existing offer and the connection alternatively in both directions. Direct links (“deep links”) can be used to refer specifically to landing pages offering the individual solution.

If shop and logistics functions are available in the individual solution, these will continue to be used. An automatic “return link” from the individual solution to the central platform can take place after the order process has been completed in order to facilitate user guidance. Information about system activities, such as order data, can be transferred to the central platform to enable evaluations across the systems.

Advantages:

- Low resources required to connect the systems.
- Consolidation of reporting data enables transparent evaluations.

Disadvantages:

- Different user interfaces in the frontend.
- Different workflows and functions.

- Cross-system process optimization is difficult.
- Multiple efforts for system administration and system maintenance.

Variant 3: Frontend Integration

With front-end integration, the offer contents, such as product and article data, are integrated into the user interface of the central platform via an interface. Data can be mirrored and displayed within the user interface of the central platform. Alternatively, the integration is implemented via inline frame (iFrame) and the representation of partial areas of the individual solution is made possible within the central platform. The back-end processes, such as the ordering process and subsequent release processes, take place within the central platform.

Advantages:

- Standardization of user interfaces (for data mirroring).
- Central offers within one user interface.
- Central and standard processes.
- Central reporting.
- Higher user acceptance.
- Cost reduction for ongoing operation through process optimization.

Disadvantages:

- Complex interface development for data mirroring.
- Standard user interface in the frontend is not completely implemented (for inline frames).
- Possible adaptation of the functional scope of the central platform and new development of special functions of the individual solution.

Advantages:

- Central and standard commercial processes.
- Central reporting.
- Cost reduction for ongoing operation through process optimization.

Disadvantages:

- Different user interfaces in the frontend.
- Complex interface development.

Variant 4: Backend Integration

With backend integration, the frontend of the individual solution is used for navigation and selection of products or content. Backend processes are executed from the central platform. If an order is triggered in the individual solution, this order data is transferred to the central platform (“punch-out process”). All products are collected in the shopping basket of the central system. All subsequent ordering and back-end processes are continued in the central platform. This can include commercial processing, release procedures or other individual processes. This variant is also frequently implemented in large companies, which purchase from different suppliers, but which are to carry out central commercial order processing in Enterprise Resource Planning (ERP) systems.

2.3 Hosting

The hosting of web-to-publish systems is carried out either by the system operators in their own data centers, in the customer's own data centers or by service providers in data centers that offer IT infrastructure as a service, also known as "cloud computing".

If the systems are only used by a defined group of users within a company, this is referred to as "private cloud". In contrast, services of a "public cloud" can be seen that are publicly accessible. These include the file hosting service Dropbox, Google Docs applications and various e-mail services. In hybrid applications, the applications of a public cloud are used, but data with higher security requirements is managed internally (*Fraunhofer 2019*).

Cloud computing increasingly in use

The main advantages of cloud computing are the relief of installation and maintenance tasks for IT departments, the automated adjustment of computing power when required (scaling) and the mobile and central, location-independent availability of software solutions or data.

Software offered as part of cloud computing is referred to as Software-as-a-Service (SaaS) (*Wikipedia 2019a*). Around 73 percent of companies with 20 or more employees use cloud computing in 2018. This represents an increase of seven percentage points over the previous year. 22 percent of companies also use the public cloud for the majority of their critical applications and workflows, 33 percent for critical business information (2017: 30 percent) and 47 percent even for personal data (2017: 38 percent) (*KPMG 2019*).

The types of hosting should be seen independently of software licensing, which involves commercial billing models such as renting, leasing or purchasing software. For example, there are constellations in which software is billed as a rental license and operated in the company's own computer centers.

Criteria and standards for the evaluation of data centres

When evaluating IT infrastructure services, the following criteria can be considered among others, which are contractually agreed within the scope of so-called "Service Level Agreements".

- Hotline with high availability and defined response times
- Regular import of system updates and security patches
- Scalability
- Monitoring at short intervals
- Monitoring of accessibility and system utilization
- Hardware monitoring (temperature)
- High availability and short-term elimination of system malfunctions
- Use of a firewall on special servers
- Integration of additional company-owned firewall solutions
- Data security during operation (Raid hard disk systems)
- Daily data backup (full and incremental backups)
- Data backup in separate data centers
- Integration of company-owned data backup and archiving solutions
- Fire protection measures

Data protection and data security in the focus

According to a KPMG study (*KPMG 2019*), the most important criteria for the selection of cloud computing providers for German companies are compliance with the EU Data Protection Basic Regulation (GDPR). Special requirements such as high availability and a transparent security architecture are the most important criteria when selecting a cloud provider.

Security concerns and the risk of unauthorized access to sensitive company data continue to be a priority for non-cloud users. Security-critical incidents are increasingly being reported in the company's internal IT (69 percent), but also in the public cloud (53 percent). 63 percent of the companies had downtimes in the past 12 months due to technical problems of the cloud provider. As a result, the demand for environments with high availability is increasing.

2.4 Project management

In the area of project management, the processes and procedures for system selection and development are considered. So-called classical and agile methods are compared and the sensible use is clarified.

2.4.1 Procedure for selecting a system

System selection is one of the components of IT projects whose relevance is generally accepted, but is to be increasingly reduced to a minimum. In this context, clients often refer to agile methods.

If the system is to be selected by applying agile methods, it is necessary to take a closer look at which project steps can be carried out agilely in the sense of “stepwise” and “compressed”. In principle, agile methods make sense in order to be able to react more flexibly to changing framework conditions and technological developments in the overall project. In this way, a limitation to basic requirements during the conception phase is also possible.

However, conceptual work remains necessary, which is also an important basis for later system

development or must be carried out at the latest within the scope of project implementation.

This includes, for example, the preparation of a project description. In addition, requirements – even if they are presented in compressed form - must always be validated, i.e. checked, in cooperation with the system providers.

The basic procedure for selecting a system is divided into the following sections (Fig. 2.7):

- Clarification of requirements
- Market research
- Provider evaluation

2.4.1.1 Clarification of requirements

At the beginning of the project a team has to be formed, which consists of employees in the company and possibly external employees. The objectives, requirements and procedures for the planned system are clarified in workshops. A project description can be derived from the results, which can also be used as a tender document.

It should be noted that the level of detail should only be increased step by step by structuring the requirements first roughly and then more finely.

This level of detail is also an important criterion for whether the agile or classic method is used (Tab. 2.1).

Classical method

With the classical method, a detailed requirement specification sheet (explanation see “Info-box”) is drawn up in which the requirements are presented as comprehensively as possible and formulated precisely in relation to individual functions. The prerequisite for the application of the classical method is that the requirements can be determined to a large extent completely and do not change substantially in the process of project setup. Costs and efforts should be estimated as accurately as possible.

Agile method

With the agile method, the requirements are defined in the form of a minimum scope and on the basis of important “core requirements” and described in a more general form than with the classical method. A disadvantage of the agile method can therefore be that certain detailed functions have not been clarified and must be implemented in the process of the project as individual customizations. On the basis of agile methods, costs and expenses can be determined

less accurately than with the classical method, but can be secured by cost limits.

Classical and agile approaches can also be combined, for example by choosing the classical method for certain system modules and the agile approach for others.

2.4.1.2 Market research

Based on the clarification of requirements, relevant providers are selected through market research and possibly the use of external specialists. The result of the market research is a list of providers which, depending on its scope, is referred to as a “longlist” or “shortlist”. As a rule, a shortlist is first derived from the provider evaluation (see following point) and then usually comprises two to three providers who are analyzed in more detail or invited to provider presentations. In individual cases, if clear exclusion criteria are available and the market is transparent enough for the decision-makers, a shortlist can also result from the market research.

When including service providers who subject systems and suppliers to a project-independent preliminary evaluation and promise a “quick”



Fig. 2.7 Procedure of a system selection including classical and agile methods. © Melaschuk-Medien

shortlist creation, it should be noted that often only a part of potentially relevant suppliers is represented, the market analysis may be incomplete and the information may be outdated. Since the market and software solutions are constantly evolving, in most cases all requirements must be project-specific, checked in real time and validated.

2.4.1.3 Provider evaluation

The requirements are processed by the longlist providers and the answers and responses

are evaluated. In many cases, it makes sense to carry out the requirements clarification in several steps. The suitability of the providers of the longlist is hereby checked with a relatively small number of requirements, possibly exclusion criteria. Relevant providers for the shortlist are derived from the result. Objectively measurable evaluation methods, such as a value-of-use analysis, should be used within the scope of provider evaluation.

Important for the provider evaluation are also provider presentations in which providers should

Classical system selection	Agile system selection
Comprehensive, detailed requirement description in a requirement specification sheet.	More general description of core requirements.
Requirements definition (specifications) and requirements validation are relatively time-consuming.	Requirements definition (core requirements) and requirements validation are less time-consuming.
Binding estimate of costs and expenses.	Definition of flexible cost and time frames, which are only concretized in the process of the project within individual implementation steps.
Clarification as to whether detailed functions are individual customization takes place in advance.	Detailed functions that were not clarified within the context of the core requirements must be implemented later, if necessary, as individual adaptations.

Tab. 2.1 Comparison of classic and agile system selection. © Melaschuk-Medien

realize so-called “Use Cases” in order to be able to evaluate the practical efficiency of the solutions comparably.

Other instruments include contacting reference customers, test or demo systems and credit checks. In all these measures, comparability should be ensured by appropriate specifications.

The requirements are then further concretized in a workshop with a final selected provider. The provider-specific project implementation is developed within the scope of the classical method as the basis for a performance specification (explanation see “Infobox”) and a binding offer. If the agile method is used, requirement descriptions and a cost framework are designed. Project schedules must be presented for both methods.

This is followed by contract negotiations and step-by-step project implementation, which will be described by Roland Bühler in the following chapter.

INFOBOX

LOGLIST

The longlist is an initial list of potentially relevant providers created as part of a system selection. The scope depends on the number of providers in the market segment, the requirements and market knowledge of the longlist producers.

SHORTLIST

The shortlist is a list of providers created as part of a system selection, which usually represents a selection of the providers on the longlist. The shortlist providers fulfil essential criteria and are subjected to further detailed checks.

REQUIREMENT SPECIFICATION SHEET

Within the scope of classical system selection procedures, a requirement specification sheet is a structured compilation of supplier- and system-independent requirement criteria which the customer creates.

PERFORMANCE SPECIFICATION

A performance specification is drawn up by a selected provider. In conjunction with a binding offer, it contains the provider-specific services that are to meet the requirements. The specifications can be drawn up on the basis of the requirement specifications.

2.4.2 Requirements for IT development projects

BY ROLAND BÜHLER

IT projects bring with them typical challenges, which in many cases are not part of the actual software development, but rather of project management.

In this context, it is first of all important to consider the characteristics of a project in general. Among other things, projects are characterized by the fact that – in contrast to processes – they are limited in time and unique and bring about changes. This often leads to uncertainties. A further special feature of projects is the fact that people, departments or areas often (have to) work together here who have no or only a few points of contact in day-to-day business.

Especially with IT development projects, uncertainties often lie in the exact recording and consideration of requirements, which are often unclear at the beginning of the project. Although requirements can be identified and sharpened in advance within the scope of analyses and discussions with all stakeholders, this is usually a theoretical process, as there is no practical

experience with the new software solution and the associated processes.

Another challenge in requirements management can be the fact that possibly contradictory requirements of different departments or areas have to be taken into account.

2.4.2.1 Waterfall model vs. agile procedural models

First, two fundamentally different procedural models are considered:

- Classical procedure models (waterfall model)
- Agile procedure models

Classical procedure models (waterfall model)

In the waterfall model, individual phases are processed linearly, building on each other. Each phase has a defined start and end point as well as a defined result. The use of a waterfall model therefore requires very precise planning; it is often only possible to respond to changes in the current project with additional planning effort. As a rule, requirements are specified in a specification sheet. Usable results (e.g. software) often arise at the end of the project when using the



Fig.. 2.8 Classical procedure model (waterfall model). © Roland Bühler

waterfall method, but then (ideally) completely and taking into account all planned aspects.

Agile procedure models

It often turns out (especially in the area of software development) that planning all aspects in advance is difficult, so that changes almost always occur in the current project. In addition, the test and use of the developed systems often result in further points to be taken into account that cannot be foreseen “at the green table”.

Therefore agile process models proactively take up the topic “change” and see this not as a disadvantage, but as an opportunity to successfully design a project based on “real” experience.

In the agile approach, requirements are often maintained in a dynamic “product backlog”. This

is a “stack” of individual requirements, some of which are only determined or refined during the current project – based on initial practical experience. In this context one also speaks of “backlog items”, which describe the individual requirements.

In addition, agile development works in iterations, i.e. step-by-step repetitions (called “sprints” in Scrum, for example). A part of the product backlog is implemented in each sprint. At the end of each precisely defined sprint, a “piece of software” is available that represents a potential release and can be used in real life or under real conditions. This in turn generates feedback from the user, which can be taken into account in further iterations. In this way, step by step, an ever better and more complete software is created.

The challenge when using agile process models is often the fact that all participants have to engage in agility. This also applies to the client, who must recognize the advantage that it is not exactly known in advance how the software will develop in the process of the project.

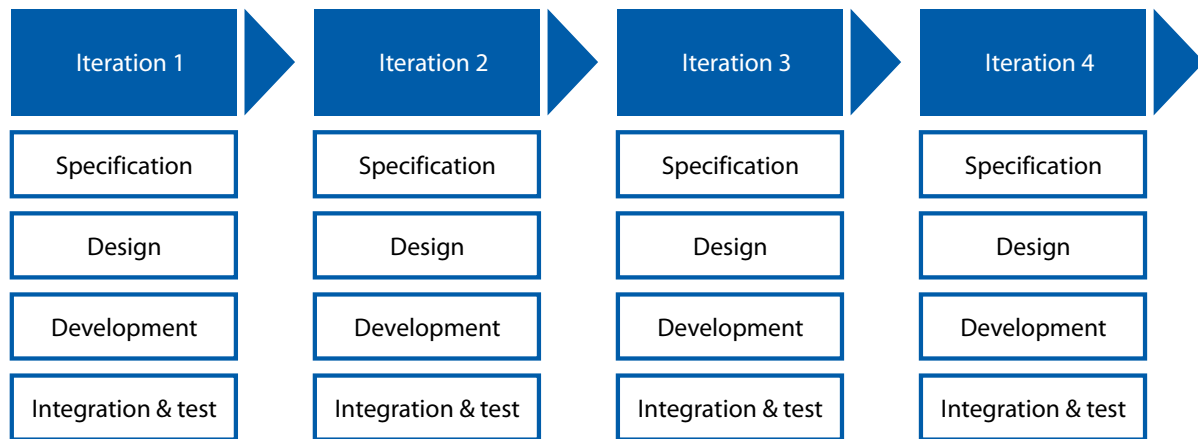


Fig. 2.9 Agile procedure model. © Roland Bühler

2.4.2.2 Example Scrum

Scrum is probably the most prominent agile process model. This chapter is intended to give an initial overview of Scrum, but of course cannot cover all aspects completely.

The Scrum team

Scrum provides clear roles and responsibilities. These are briefly described below:

Product Owner

The Product Owner is responsible for the properties and thus for the (economic) success of the software to be developed. He specifies and prioritizes requirements and thus fills the so-called “product backlog”, the list of requirements to be implemented.

The Product Owner is the interface between the developers and the stakeholders in the project. The latter can be customers, colleagues, employees - or users in general.

Development team

The development team is responsible for implementing the requirements specified by the Product Owner. The team takes care of all relevant activities: from software architecture

and programming to internal testing of the software, all within one sprint.

Scrum Master

At first you might think that the Scrum Master is a kind of “project manager”. However, this is not correct, because Scrum relies on very flat hierarchies. Rather, the Scrum Master is responsible for ensuring that the use of Scrum as a process model is successful. He helps to adhere to the Scrum rules and to remove disturbances during the use of Scrum.

Sprints and meetings at Scrum

Sprints

Sprints are defined periods of time in which an iteration is performed - for example, when additional features are added to a software. As mentioned in the previous chapter, the goal of a sprint is to create a “releasable piece of software” with which users can gain experience. A sprint at Scrum can be between one and four weeks long, but should always have the same duration within a project. For example, a project could be estimated with 10 sprints of two weeks each.

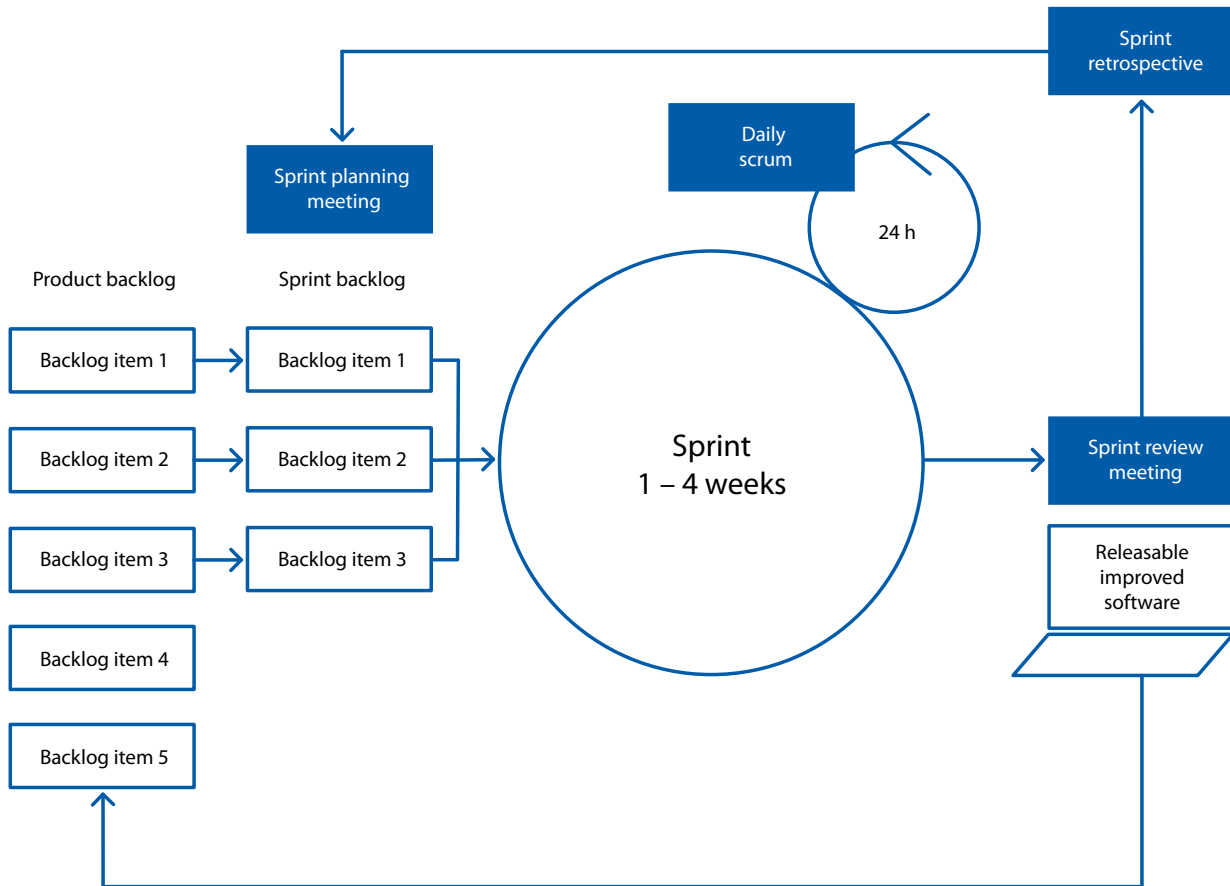


Fig. 2.10 Procedures when using Scrum. © Roland Bühler

Sprint Planning Meeting

Here the members of the Scrum team discuss which items of the Product Backlog will be processed in the upcoming Sprint. The individual topics to be processed are also discussed in detail and divided into fine-grained “tasks” so that the development team can get to work. The items to be edited from the Product Backlog are then transferred to the Sprint Backlog in order to be developed in the upcoming Sprint.

Daily Scrum

The development team meets in a 15-minute daily meeting. Each member reports what they have achieved since the last Daily Scrum, what they intend to achieve by the next Daily Scrum and whether there are any current obstacles or problems. Scrum Master, Product Owner or stakeholder can be present at this meeting, but the content participation is the responsibility of the development team.

Sprint Review Meeting

This is where the results of a sprint are presented and it is checked whether the targets set for the sprint have been achieved. It is important that stakeholders, such as customers or users, actively participate in the Sprint Review so that

feedback can be obtained to achieve improvements in subsequent Sprints.

Sprint Retrospektive

Sprint Retrospective is an internal meeting of the Scrum team at the end of a sprint to provide feedback and achieve continuous improvement in the way the team works. Here you can discuss, for example, what to do if the sprint targets are regularly not achieved.

2.4.2.3 Suitability and limits of agile procedure models

In this context, it should first be mentioned that Scrum can be easy to understand in theory, but demanding to implement in practice. Successful Scrum projects do not primarily depend on a schoolbook application of the Scrum Guide, which was published in the most recent version 2017 by Ken Schwaber and Jeff Sutherland. Rather, trusting cooperation and project culture are at least as important for successful, agile projects.

Among other things it should be mentioned that Scrum is very strongly focused on the actual delivery of the software. A superordinate planning and project management level is not planned

here. So it can be important to supplement this level especially with more extensive projects. A solution approach can be the combination with (classical) project management methods, such as PRINCE2 - then called PRINCE2 Agile. Topics that only implicitly play a role at Scrum, such as business case or risk management, are explicitly considered.

As far as purchasing processes and contracts are concerned, it should be noted that in an agile approach no trade can be defined in advance, because at the time of commissioning it is not yet known exactly what will be delivered. Many clients find it difficult to get involved in this situation, especially as it also raises legal questions. But here, too, there is now best practice through contract solutions that consider aspects of agile software development in a balanced way for both client and contractor.

Ultimately, the chosen method must fit the project and the company. How much agility is possible and meaningful depends on various factors, such as flexibility in product delivery, simplicity in communication (e.g. between departments involved), but above all on the “mindset” of the people involved.

2.4.2.4 Practical Example: Setup of a multi-channel PIM solution

Finally, the use of Scrum is illustrated with a practical example. In this specific case, an international company in the electronics industry has already been using a PIM system for several years. As part of a project, it was planned to supplement this PIM solution with additional functions within an internationally uniform media publication process. This included, among other things, extended workflow management and functions to simplify layout coordination. A best-of-breed approach was chosen to complement the existing PIM solution with other systems, including open source.

During the creation of a product backlog, process-oriented requirements were placed in the foreground. The use of so-called user stories, for example:

“As a product manager, I need an overview of which product information is used in which media in order to know which media are created when product information changes.”

With the help of such user stories, requirements could be formulated from the perspective of the

respective user. Aspects of technical implementation have consciously not yet been covered here.

At a more granular level, acceptance criteria were then created for the individual user stories in order to describe the respective requirements for implementation in more detail.

The Product Owner was on the one hand in dialog with different specialist departments in order to gradually sharpen the requirements in the project - and also partly to resolve contradictions in the requirements.

The development was implemented in several two-week sprints. After each sprint, three branches of the company were initially involved in the project in order to use the new functions and to generate feedback, which could then be taken into account in subsequent sprints, partly in the form of new user stories.

As is so often the case, here too it became apparent that not all requirements could be known from the beginning. In the process of the project there were also new findings regarding the underlying processes, which in turn

could be agilely taken into account in system development.

It is important for the success of such a project that all participants understand Scrum and regard change and agility as a positive aspect. If this principle is also lived by decision-makers and superiors, an agile project can be successful and ultimately lead to a better product with less effort.

Literature reference:

The Scrum Guide™, Ken Schwaber and Jeff Sutherland, 2017. <https://www.scrumguides.org>

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Roland Bühler founded rb omnichannel GmbH in 2017 - after leading positions at agencies and system service providers.

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3 APPLICATION AREAS

SUMMARY

The following overview describes the various application areas of web-to-publish systems in the form of typical practical scenarios. The application-oriented overview is divided into four main areas: marketing, e-commerce, collaboration and communication.

The scenarios should be an orientation and a source of ideas for your own projects when determining your position. The focus should also be on the user target groups, such as the central marketing or decentralized organizational units of a company in the area of marketing.

The respective benefits presented are to be seen from the perspective of the system operator, for example a publishing house or industrial company, and not from the perspective of the end user or a service partner providing the system (such as agencies or print and media service providers).

3.1 Focus marketing

The area “Marketing” contains web-based solutions which aim at the successful positioning of a company on the market. Advertising media and marketing service portals focus on the standardization of advertising media, while cross-media dialog marketing systems and multichannel production focus more on automation. Web content management systems, on the other hand, address websites as a central marketing module.

3.1.1 Advertising media portals of enterprises

Description

Advertising material portals of enterprises are offered for a closed group of users. There is an offer at printed or digital advertising material and business equipment.

This is provided by companies with a decentralized organizational and sales structure for branch offices, subsidiaries, branch offices, retailers or franchisees.

However, centrally organized companies with a large number of advertising materials also use web-based advertising material portals.

Benefit

Advantages result in particular from central corporate design-compliant templates, which ensure the appearance of brands and the quality of marketing materials. Savings can be achieved by reducing creative and design work, centralizing ordering processes and central printing locations with associated master agreements.

Examples

- Advertising media portal of a fashion brand company with retail stores.
- Advertising media portal of an insurance group with branch offices and agents.

See also chapter „5.5.1 Template-based systems“ on page 111.

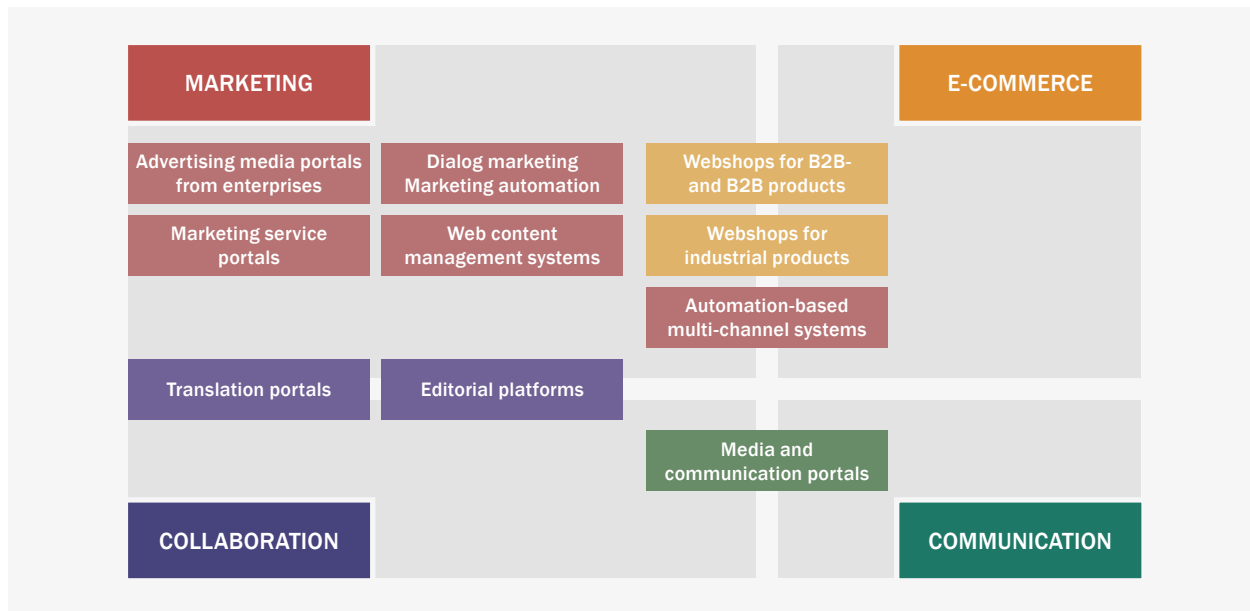


Fig. 3.1 The application scenarios of web-to-publish systems can be classified into the areas of marketing, e-commerce, collaboration and communication. © Melaschuk-Medien

3.1.2 Marketing service portals

Description

Marketing service portals are made available by industrial companies, associations or publishing houses for a closed group of users comprising their own business customers.

The offer contains printed or digital marketing materials for these customers (such as crafts businesses, doctors or booksellers), which

can be provided with individualized advertising material via the portal.

Benefit

The marketing service is intended to increase the competitiveness of a company's business customers. This can have a positive effect on the turnover of a company's own products and services. In addition, the goal of binding the independent business partners to the company

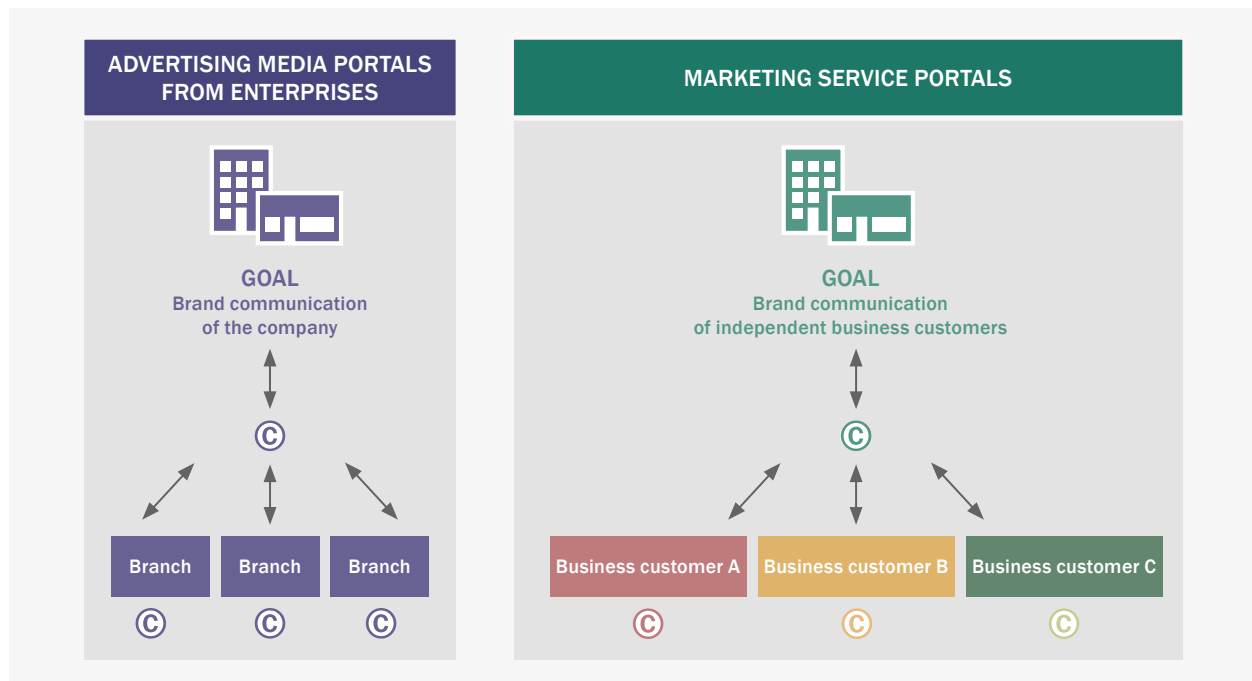


Abb. 3.2 Left: Advertising media portals of companies follow the goal of their own brand communication. Right: Marketing service portals are intended to strengthen the competitiveness of their customers. © Melaschuk-Medien

is followed. Advertising materials with informative content are often provided, which are individualized by the users and passed on to their end customers. The implementation of the corporate design of the system operator is in the background, as the individual brand appearance of the respective business customers is to be strengthened instead.

Examples

- Marketing service portal of a solar technology manufacturer for craft businesses.
- Marketing service portal of an insurance company for independent consultants and agents.

See also chapter „5.5.1 Template-based systems“ on page 111.

3.1.3 Dialog marketing systems

Description

In cross-media dialog marketing systems, also known as marketing automation systems, personalized marketing campaigns are implemented with several parallel active media channels that are networked with each other.

Typical combinations are print mailings, e-mail newsletters and landing pages with forms, for example for registrations, competitions or

vouchers. Customers and interested parties are reached and addressed directly by variable contact and content data. Variable data such as addresses, product information, personalized URLs (PURL) or QR codes are provided or generated in the campaign portal.

The user actions are reported back to the campaign portal, where they are analyzed and, if necessary, follow-up actions are triggered automatically, for example in the form of reminder e-mails. These work steps are configured in an internal workflow tool and executed automatically and time-controlled. This is where the term “marketing automation” comes from.

Benefit

Personalized advertising campaigns achieve higher response rates than unpersonalized marketing campaigns. The success of a campaign can also be measured, for example by recording clicks, orders or registrations that can be assigned to individual media channels. This makes it possible to evaluate campaigns, optimize follow-up campaigns and continuously improve the quality of customer data.

Examples

- Promotion of a training provider with e-mail newsletter and print mailing including PURL and QR code as well as landing page for registration.
- Campaign of a restaurant with print mailing including individual offers, personalized URL and coupon code, landing page with survey and coupon activation for redemption in the restaurant.

See also chapters „5.5.4 Cross-linking based systems“ on page 116 and „5.9 Dialog marketing“ on page 132.

3.1.4 Automation-based multi-channel systems

Description

Multichannel production systems are used for database-driven, automated output of product information in print catalogs and digital output channels such as web shops, websites or apps. Product information, including translations, is maintained centrally (via Product Information Management, PIM) and linked to media objects such as images (via Media Asset Management, MAM). Templates that are linked to the database information usually are available for the output

of the print catalogs. Within web pages, product information can be displayed in real time in web shops via an interface, or product configurators or product comparisons can be implemented. Apps that can be used offline for sales contain a link to the product data, which is updated as soon as the application is online.

Benefit

Product information is given a uniform appearance in all media channels. This strengthens the brand image and promotes the customers' willingness to buy. Product data can be derived in real time into digital advertising channels and (multilingual) print products can be produced in a relatively short time. This has a positive effect on the competitiveness of companies by shortening the time-to-market.

Examples

- Web shop, sales app and multilingual print catalog of a household goods manufacturer.
- Website with product configurator and catalog for technical industrial products.

See also chapter „5.5.3 Automation-based systems“ on page 114.

3.1.5 Web content management systems

Description

The main task of Web Content Management Systems (Web CMS) is the creation of websites for the “public” sector.

To be distinguished from each other are Web CMS, which exist as standard systems or open source solutions, and CMS functions in marketing or e-commerce systems, which are used for simple content maintenance for e-shops or closed marketing portals. In the context of cross-media production, Web CMS in the form of independent systems or functional modules that serve websites as a media channel and possibly other channels are of interest.

Benefit

Simple, user-friendly and brand-compliant creation of websites, also for decentralized companies or as campaign elements for marketing campaigns.

Examples

- Central web presence of a company including output of decentralized dealer websites.
- Creation of a landing page with a web form for a competition to be controlled via personalized URLs within cross-media campaigns.

See also chapter „5.5.2 Document-based systems“ on page 113.

3.2 Focus e-commerce

The e-commerce sector comprises internet-based platforms for procurement and ordering processes.

A distinction can be made between public web shops and closed business customer portals, so-called B2B (business-to-business) closed shops. Closed shops are only accessible to defined user groups, often within a company's intranet.

3.2.1 Web shops for B2C and B2B products

Description

Web shops for B2C and B2B products are “public” online shops of printing companies with a range of printed advertising materials and business equipment as well as printed promotional items. There are various ordering channels for private customers (business-to-consumer, B2C) or business customers (business-to-business, B2B). The ordering channels include the upload of print-ready documents or the individualization of design templates or promotional items.

Benefit

Orders via the online shop are intended to increase the utilization of the company's own printing capacities. The presence on the internet enables new customer groups to be developed and regular customers to order online as a service. Niche products or products with an increased need for advice can be included as services in the range and marketed via the internet sales channel.

Examples

- Web shop for standard printed materials, including flyers, business cards, brochures and promotional items such as pens.
- Web shop for photo prints, such as posters, wallpapers, photo books, decorative items.
- Web shop for mailings with calculation.

See also chapter „5.8 Web-to-Print“ on page 130.

3.2.2 Web shops for industrial products

Description

Web shops for industrial products belong to the “public” online shops of manufacturers of industrial products, which can be individually configured by means of variable parameters.

Users can also personalize products with their own text or images.

Benefit

The attractiveness and benefits of the product range are to be increased and new target groups and sales markets opened up with the goal of increasing sales.

Examples

- Web shop for configuring and ordering clothing with different features.
- Web shop for the individualization and ordering of food as gift items (such as cakes or beer bottles).

3.3 Focus collaboration

Collaboration solutions” (Fig. 3.3) are systems that support the collaboration of several participants. The subject of collaboration are central documents and content modules that are jointly created, edited and commented on. Functions for correction and coordination processes are often integrated.

See also chapter „5.5.2 Document-based systems“ on page 113 and chapter „5.7 Process variants print creation“ on page 122.

3.3.1 Editorial platforms

Description

Editorial platforms are used for the cooperative editing of documents for the output of print and digital publications. They are based on defined processes and user rights for the regulation of authorizations. The contents can be handled media-neutrally parallel to the creation of layout templates for print editions or HTML templates. Several users, editors or agency staff, work simultaneously on the same documents, even on individual pages.

Benefit

Time-saving production is possible through simultaneous content maintenance and creation of templates for printed and digital output channels. Content adjustments, such as text lengths, can be carried out directly by means of layout control and thus also enable updates. “at the last minute.”

Examples

- Editorial platform of a publishing house for the production of newspapers and magazines.
- Editorial platform of an industrial company for the production of in-house magazines, customer magazines and annual reports.

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BLOG vjoonity.com | VIDEO vjoon.tv

3.3.2 Translation portals

Description

Translation portals are platforms for the translation of multilingual publications, on which master documents are provided as a basis as well as language versions derived from them. The language versions can be accessed, translated and adapted from any location by translators or employees of national companies. Translation systems are also integrated, so-called translation memory systems,

Benefit

These web-based solutions are advantageous for companies because the translation processes can be handled on a central database independent of time zones.

The effort required for coordination and correction processes can be significantly reduced, since translations are carried out with simultaneous layout control. The documentation of versions and change histories allows compliance with legal requirements.

PUBLISHERS PUBLISHING	CORPORATE PUBLISHING	TECHNICAL DOCUMENTATION	WEB CONTENT MANAGEMENT
Newspapers Periodicals	Employee and customer magazines	Internal and external documents of technical documentation	Websites
Books	Business reports		
	Product brochures		
	Product catalogs		

Fig. 3.3 Collaboration solutions can be divided into four areas: publisher publishing, corporate publishing, technical documentation and web content management. © Melaschuk-Medien

Examples

- Translation portal for the creation of the product brochure of a pharmaceutical company for the international market.
- Translation portal for the catalog production of a refrigerator manufacturer and language adaptation by the national importers.

3.4 Focus communication

“Communication” is about portals that essentially serve the purpose of providing data and information. Profiles for user rights can also be used to control access options and authorizations.

3.4.1 Media and communication portals

Description

Media and communication portals are platforms in which media objects such as images, texts, video and audio files or documents are made available for central coordination, information, research, conversion and distribution. The portal also provides access to corporate news, corporate design documents and other internal resources.

Benefit

Media objects can be accessed centrally, independent of time and personnel. Version security is guaranteed and search times for media objects are reduced. At the same time, image license rights can be secured, for example by deactivating the files after the permitted period of use has expired. A uniform level of information for users is achieved.

Examples

- Media portal as press archive of a trade fair organiser.
- Portal of an industrial company for images, videos and corporate design documents for marketing, sales, agencies and the press.

4 DATA MANAGEMENT

SUMMARY

This chapter first introduces artificial intelligence as the most important “engine” for future developments and applications in the field of marketing and communication.

In addition, the diverse types of data sources as the basis for all variants of media production are explained and their use in the context of media-neutral data management and publishing from a single data source (“single-source publishing”) is clarified.

In further articles, the practical implementation of various aspects is examined in more detail: on the one hand, the methodology of analyzing data and its use in advertising campaigns and, on the other hand, colour management, which is responsible for uniform colour reproduction in different output channels.

A concluding consideration is given to current requirements that must be observed with regard to data protection when handling data.

4.1 Trends and Artificial Intelligence

In the field of data management, the constantly growing amount of data, which accumulates at an ever-increasing speed, must be made controllable and usable. Central, well-maintained data sources are becoming increasingly important in order to be able to manage growing data stocks, reduce multiple efforts when controlling several communication channels and use automation options. In addition to structured data from databases, unstructured data such as social media texts, images or videos are increasingly being added.

Ways to make databases more accessible are technologies, such as NoSQL and semantics, and the combination of different data sources, for example by means of programming interfaces, such as APIs (Application Programming Interfaces).

Above all, however, progress in the field of Artificial Intelligence (AI) plays a key role, which will be examined below for its effects on marketing and communication. The term AI implies that by means of artificial systems human intelligence with the ability to abstract thinking, to analyze complex contexts and to find solutions should be emulated.

The preliminary stage of AI systems includes solutions that are rule-based (Fig. 4.1) or knowledge-based. An example of rule-based systems are cross-media dialog marketing systems (marketing automation) in which campaign processes are controlled on the basis of event-driven workflows. This includes, for example, sending reminder e-mails after a certain period of time if recipients have not reacted.

Machine Learning and Deep Learning

AI in the narrower sense includes systems which, on the basis of so-called “machine learning”, are able to output results and recommendations

for action on the basis of a sufficient amount of training data, to evaluate them and to correct future processes, i.e. to “learn” as it were. “Deep learning” is a form of machine learning that functions by means of artificial neural networks. In particular, it can be used to solve tasks for which there is a small case-related knowledge base, such as text, image or face recognition. Overall, however, there are hardly any limits to the range of applications for AI.

Data Mining

In data mining, data is made commercially usable through AI and machine learning by

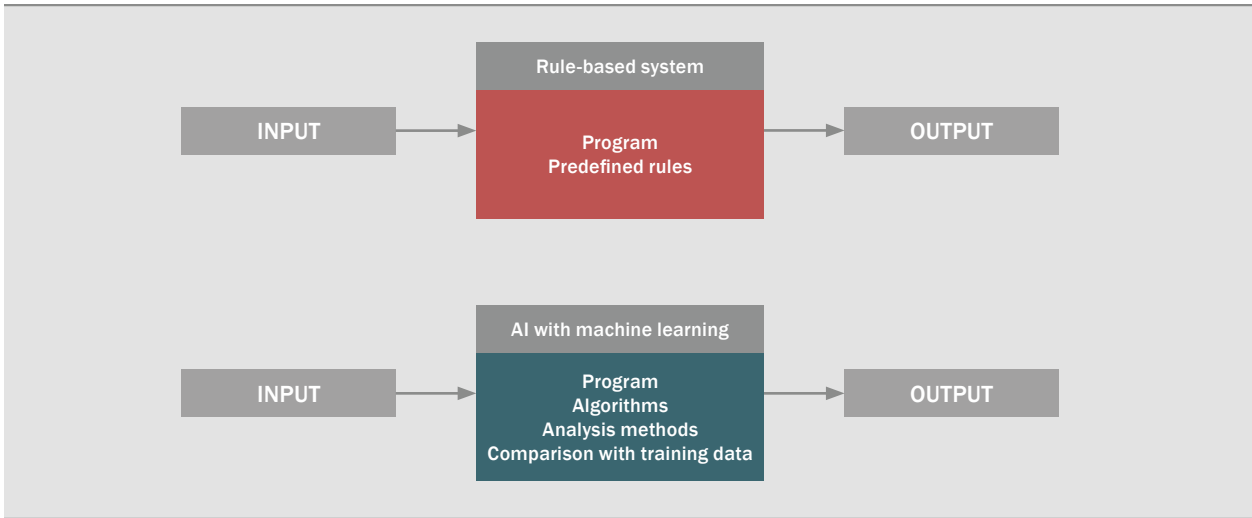


Fig. 4.1 Differences between rule-based systems and AI solutions based on machine learning.

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analyzing and evaluating it. Afterwards, concrete actions can be derived from forecasts. An example is the analysis of the buying behaviour of customers in an online shop and the subsequent display of products in a newsletter that are likely to meet with interest and are more likely to be purchased.

Natural Language Processing

Natural Language Processing (NLP) is the processing of spoken or written content. At Springer Verlag, NLP was used to create a fully automated chemistry reference book for which more than 150 research articles were selected, thematically arranged and summarized (*Springer 2019*).

In e-commerce, there is also referred to as “conversational commerce” when it comes to generating purchases directly from customer interaction. Language assistants play a central role here. In customer communication, it is chatbots that are used. In cases where the machine assistant does not know where to go, the forwarding to service staff should be either automatic or as required.

Compared to human intelligence, the limits of AI currently lie in the inclusion of experience and the correct classification of objects into a con-

text. One of the most important prerequisites for the successful use of AI is the quality and quantity of the fundamental data.

AI is already used successfully by several companies, such as Amazon for dynamic pricing, Netflix for personalized content, Facebook, Twitter and YouTube for content selection and advertising.

Further applications of Artificial Intelligence (AI) in practical use:

Product databases

- Automatic sorting of product data with a short description into predefined categories.
- Automatic creation of product descriptions based on structured information.

Media databases

- Image recognition of motifs and automatic creation of metadata.
- Automated generation of complex image masking and target resolutions.

Text creation

- Create machine-generated texts for sports and financial news or scientific books.

- Automatically generated translations in the form of initial translations.

Customer communication

- Advising website visitors on the supply of information or products via chatbot.
- Assistance with online contracts on websites.
- Support of customer service staff in the development of solutions together with customers.
- Generation of personalized newsletter advertising for new book publications of a media online shop on the basis of automated target group and product selection.

E-commerce and websites

- Display personalized content to website visitors based on online usage behavior.
- Dynamic price determination based on real-time data, such as weather, time of day or holidays, usage behavior, customer or machine data.
- Image recognition of any motifs taken by the user and display of similar products in the online shop.
- Complete purchasing process through communication with language assistants.

Marketing:

- Analysis of comprehensive market data, such as product evaluations on the internet and internal commercial data, such as sales figures or complaints. The goal is to achieve better customer understanding and optimized product development.
- Analysis and optimization recommendations for ongoing digital marketing campaigns with regard to advertising media used or target group parameters.
- Recommendation system in marketing portals for users who are not marketing experts to select suitable advertising measures depending on the objective.

4.2 Data sources

Different data sources are evaluated for the requirements in marketing and communication - either individually or combined. The results are used and optimized for future activities and publications. In marketing campaigns, user activity results can flow back into the respective data sources in order to update or supplement them.

4.2.1 Classification of data source

The data sources are differentiated into first party, second party or third party data depending on the type of source.

First Party Data:

This data is collected by companies themselves, for example in their own customer databases (CRM systems), or through the collection via web forms, a newsletter service or the surfing behavior of customers on their own website.

This type of data is subject to the greatest possible control with regard to quality, data security and data protection.

Second Party Data:

The data is purchased from a company that has collected the data itself as first-party data.

Through the purchase, this data becomes “second party data” for the company.

Third Party Data:

This data is acquired by professional data service providers who specialize in collecting and merging data from a wide variety of sources.

For second- and third-party data it is particularly important to clarify aspects of data quality, copyrights, data protection and data security in a comprehensible way.

In the following, common data sources are categorized (Fig. 4.2) and which data can be derived from them are described.

4.2.2 Internal databases and systems

More and more information from the entire value chain is stored digitally in internal company databases and systems. The advantage of central data management is that all parties involved have access to the same version of data and there is no need for time-consuming searches. This frees up resources for strategic tasks. Moreover, thanks to web-based, central access, employees in an international context are not only independent of time zones, but also

independent of persons who have sole access to data inventories.

Further advantages are the use of uniform terminologies and the avoidance of error sources through the multiple maintenance of data. The more media channels and language versions a company creates, the greater the benefits if updates and corrections only have to be changed once centrally and not manually in all derived variants and media channels.

Images, texts, documents, video and audio files including additional information, the so-called metadata, are centrally managed in a media asset management (MAM) database and used for use in various media channels. Metadata enables the execution of search routines, the flexible reuse of data and the control of application areas, for example the expiration of image rights.

Product Information Management (PIM) databases enable the finely structured management of product and article data. Media databases are often linked or integrated with this, for example to assign images to articles.

A customer relationship management (CRM) database is used to manage prospective and customer data that is available for all corporate activities, including sales and marketing.

Web analysis data can also be included. The visitor behaviour in web pages is recorded and evaluated, for example, which web pages and parts thereof were visited and which links were clicked on. So-called recommendation engines are increasingly being used as standard in web shops. These software solutions are integrated into online shops and analyse buyer and user behaviour. The results can be used to determine which products buyers are interested in and which products are likely to be of interest in the future.

Customer service data and knowledge bases contain structured collections of information about customers, products and processes that can be used for marketing, sales, service and development.

4.2.3 Online platforms and media channels

Online platforms are touchpoints in the form of media channels such as websites, web shops, apps or social media channels. Log-in data and

usage data can be collected to determine target group and reach data in this area.

Log-in data is personal dial-in data entered by users on websites, web shops, or social media platforms. Online platforms such as Google, Amazon or Facebook can use this personal data for advertising purposes within the context of

data protection settings in the legally permissible form.

In order to counterbalance the market power of the large online platform providers Google and Facebook, the so-called log-in alliances European netID Foundation (*netID 2019*) and Verimi (*Verimi 2019*) were founded, although they work

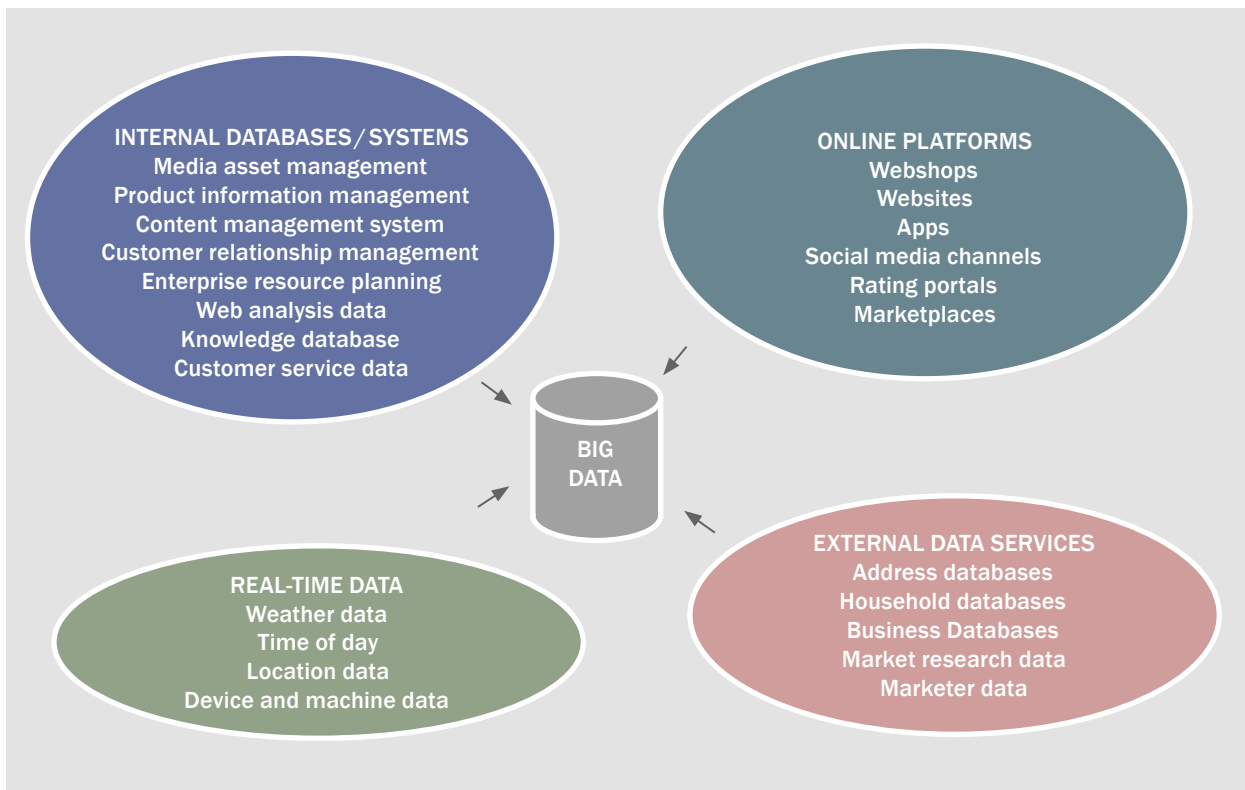


Fig. 4.2 “Big data” refers to data collections from various data sources that are evaluated and made available for economic purposes. © Melaschuk-Medien

independently of each other. A uniform log-in standard and Verimi's verified digital identity will enable access to the affiliated partners.

Usage data for media channels, including television and radio, is also generally collected by companies, associations and organisations to determine reach. The instruments vary depending on the medium and range from interviews to measurements or the collection of digital usage data.

Usage data includes click behaviour on websites, in an app, interest profiles from surveys based on web forms or actions in a web shop.

In this context, "cookies" are among the most important tools for recording the use of movements on the browser-based internet. A small text file, the cookie, is stored on the user's PC when the website is accessed. This file can contain various data, such as the date and time of access or other information, such as shopping cart contents. Websites can also read these cookies and thus track which activities the user has carried out.

The permissibility of the collection and use of cookies, which is to be regulated by the Euro-

pean e-privacy regulation, is still in the clarification process. The E-Privacy Regulation is not expected to enter into force before 2020, and its application is expected in 2022 (*BVDW 2019b*). Nevertheless, many website operators are already arming themselves by obtaining permission to use cookies when a website is accessed. In the mobile sector, cookies are of limited use. Alternatively, device IDs of the mobile devices can be read and used for measurement. In order to completely avoid the recording of cookies, advertising is played out in real time to suitable web content during so-called "contextual targeting".

Within the planning process, it is also defined which user actions are to be measured to monitor success. The measured data are so-called Key Performance Indicators (KPI). The measured data is recorded in real time and thus enables direct control and influencing of a campaign process.

Examples of KPIs:

- Newsletter subscription/unsubscription
- Clicks on links to PDF files
- Clicks on online versions
- Clicks on social share links
- Web form calls
- Website views
- Canceled shopping baskets
- Turnover of purchase actions

4.2.4 Real-time data

Real-time data is usually acquired via radio and sensor recognition. Real-time data, which are mostly context-related, such as weather, time of day, location, log or sensor data (of machines or devices), enable content to be played back according to requirements in a specific situation.

The positioning of users and consumers takes place in the area of WLAN networks, using GPS, mobile radio cells, Bluetooth or beacons as well as IP addresses. In the outdoor area (“out-of-home”), the positioning can take place in or around a shop or on posters. By coupling with apps, location and time-related advertising can then be played out to the consumer, for example when a customer is in the vicinity during the opening hours of a store. For the optical recogni-

tion of passers-by, cameras or sensors are also attached to digital advertising surfaces that identify the age or gender of people and play out suitable advertising.

The device and machine data include the device type, manufacturer, operating system or display resolution. In the context of the “Internet of Things”, this data is becoming increasingly important for marketing, sales and service.

4.2.5 External data services

Data from external sources are either freely accessible to the public or purchased. Addresses and company information can be purchased from external service providers and used for marketing campaigns. In addition to addresses, household databases also provide information on the interests and preferences of the target groups. Research institutions regularly collect data on media channels, products and target groups.

4.3 Media-neutral data management

The consequent separation of contents, structures and formats enables a working method in which the same contents can be output in different media channels in the respective media-specific formatting (Fig. 4.3).

Content:

Contents are marketing texts, product information and pictures. The contents can be administered and maintained in databases.

Structure:

The structure determines the structure of a publication, website or app.

The structural elements describe tasks such as headings, product descriptions, product images or article numbers.

Format:

The format determines the appearance of the content and is defined within layout templates and style sheets (page formats, chapter divisions, image sizes and font formatting).

In order to realize the basic principle of separating content, structure and format, data is usually managed in databases – either in data formats that allow multiple use, or in XML. XML is an important markup language for hierarchically structured data that consists of text characters and is primarily used for data exchange between computer systems, especially on the internet (*Wikipedia 2019b*).

Content is captured on the basis of a structuring rule (such as an XML schema) with structural elements (in an XML editor) and stored as an XML data stream or managed in a database. The XML data stream is then assigned to a media-specific template and output for the respective media channel, for example as PDF for the print area, HTML for Web pages, or EPUB for e-books. XML is used as standard for content management, especially in the publishing area.

There are also concepts that use HTML as the starting point for media-neutral data management, such as Web Content Management Systems (Web CMS). Since the structure elements for HTML are already predefined, their use is restricted to simply structured documents.

The decisive factor is the separation of the structure from the formatting, as this allows a single central source data set to be output in different media-specific format templates. If, on the other hand, the content, structures and formatting for each media channel were stored “decentrally” in a file, updates would have to be manually maintained for each individual media channel or content would be cumbersome to transfer, as the following example shows.

Example

A company produces printed product brochures. The text content is captured in Word documents, then transferred to Adobe InDesign documents and designed. Content from these brochures is also used on the company’s website. Text is copied from the InDesign document and pasted into the Web CMS. If the text changes, the update must be performed once in the InDesign document and a second time in the Web CMS.

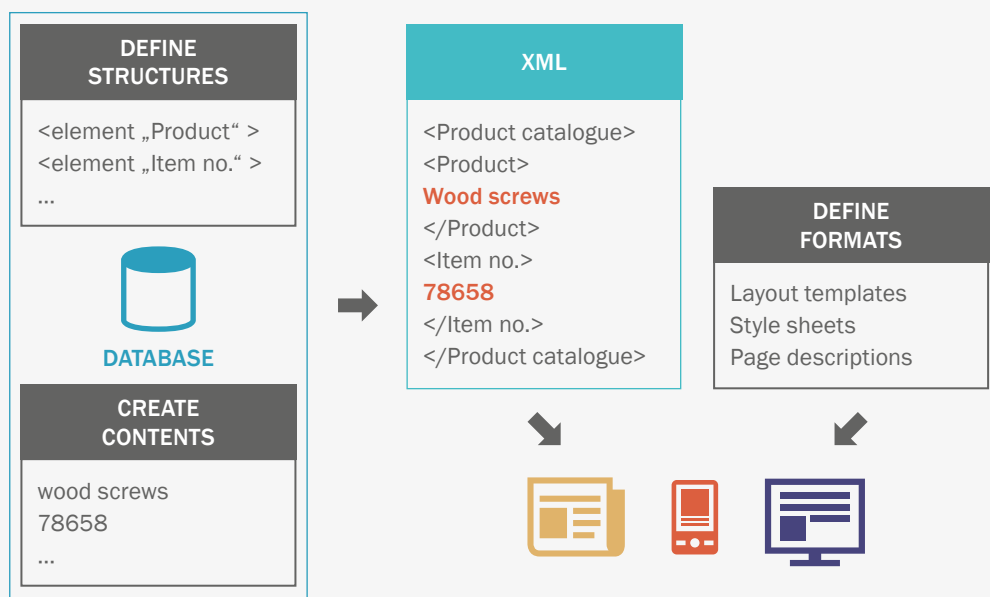


Fig. 4.3 The separation of structure, content and formats. (© Melaschuk-Medien /skarín - Fotolia.com)

4.4 Publishing from a single data source

Content management in specialized database systems offers even more possibilities, such as continuous updating of content and media channel-independent access to data.

This publishing from one data source avoids sources of error due to the multiple maintenance of data and enables the simultaneous, automated output of publications and information. This also implements the “Content-First” principle, in which central content forms the basis for media channel production (Fig. 4.4).

By means of the media-neutral mode of operation, very efficient production processes can also be realized. However, a relatively high conceptual effort is required. For this reason, solutions are also in great demand that enable the export of digital advertising media on the basis of existing print documents.

The goal: maintain content only once

With database-driven, media-neutral data management, the goal is to make changes and updates to the content only once and to transfer them to the templates or output media largely automatically. However, a “source file”, such as an image, cannot be used unchanged for all different media channels. Depending on the

output channel, individual technical parameters or content must be able to be used.

Examples:

- Images are required in various resolutions and data formats for print and digital editions.
- There are different combinations of product information for the printed catalog and the website.
- There are text variants for the print product, the website and the app.

These requirements must be taken into account when designing a media-neutral working method and setting up databases.

Media objects

For media objects, there are two possibilities of media-neutral management: Firstly, the linking of an original application file with variants that are saved including their media-specific properties. If the original application file changes, the linked variants are also changed.

The second option is to save the original application file permanently and only convert the media-specific variants on request. In this case, the variants are not stored permanently in the database. This option requires more computing power and a data transfer, but there are not

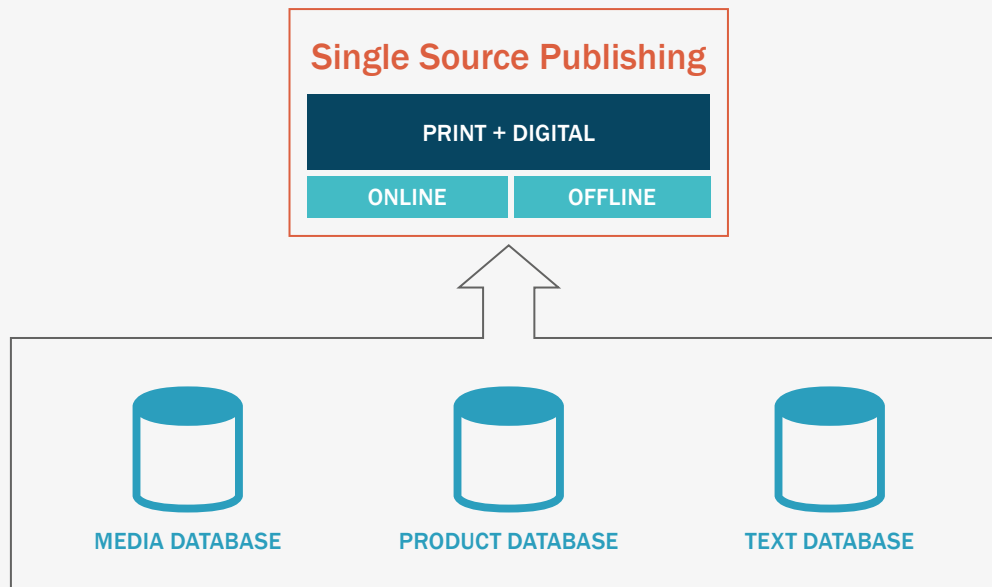


Fig. 4.4 Concept of Single Source Publishing. © Melaschuk-Medien

so many objects stored in the database, which could complicate the overview.

Examples:

- Original image: Colour space Adobe-RGB, resolution 600 ppi (pixels per inch)
- Print version: CMYK colour space, 300 ppi resolution
- Variant Website: Color space sRGB, resolution 150 ppi

Product data

Product data is stored in structured form with the possible properties of a product in individual categories and fields.

There must be a field for each product property that is required in the media channels. This also includes translations.

The structures within a product database can be very complex, as product data is made available for several business areas, such as product management, marketing and sales, customer service, or production and design.

Since companies often have other systems with product information, such as merchandise management systems, these are connected via an interface and the content is synchronized. This is to ensure that the information is only maintained once, at a central location.

Text data

The structured administration of text data in a text database is usually carried out within editorial systems in so-called content management systems, which are mainly used for periodical publications.

If there is a requirement to permanently manage text data for marketing materials, these are usually created and maintained within a product database. Variants of text content, such as short and long text versions for a product description, are stored within individual fields. These must then be maintained independently of each other. The possibility to store “source code” and to manage variants derived from it can be found, if at all, in the more editorially oriented systems (content management systems, CMS). Here there are special functions, like inheriting or even synchronizing text changes in linked variants.

4.5 Data protection in media production

BY PROF. DIPL.-ING. (FH) ULF GLENDE

Now the European General Data Protection Regulation has been in force since May 2018. If there is one positive side, it is that data protection has emerged from a shadow existence and has now found its place in the general consciousness. Of course, this was not entirely voluntary and has also brought with it many problems and uncertainties. The effort for the companies is enormous and few companies have already done everything that would be necessary to fulfil the legal, organisational and technical requirements. In the following we want to highlight the most important points.

Directory of processing activities

Art. 30 GDPR requires written documentation and an overview of processes in which personal data are processed. This directory of processing activities must contain the essential information on data processing, as well as the categories of data, the group of data subjects, the purpose of the processing, the data recipients and the legal basis.

Upon request, it shall be made available in full to the supervisory authority, and only to the super-

visory authority. In addition, the duty to maintain an directory of processing activities shall be directly the responsibility of the controller and processor as well as their respective representatives. An exception is hardly possible in Germany, as the supervisory authorities have expressed themselves relatively clearly here.

Existing directories of processing activities are sometimes not managed properly. For example, activities are listed which have no personal reference or processing operations without a legal basis are described. In both cases there is no procedure within the meaning of the directory. While in the first variant “only” unnecessary time is invested and thus the operational routine is disturbed, variant two violates the principle of legality according to Art. 5 para. 1 lit. a) GDPR. Here a sensitive fine threatens according to art. 83 exp. 4 lit. a) GDPR. Companies will have to re-examine their processes here in the future.

Data processing agreement (DPA)

The problem of self-imposed over-regulation also concerns the conclusion of DPAs. Conclusion is not always desirable. It has to be concluded with the external software provider and with the lettershop, but what about freelancers? DPAs and their handling can quickly become a

nuisance. Who do I have to sign a contract with? Who should I not conclude a contract with? The conclusion of DPAs with external service providers, which is often characterised by actionism, is probably not least due to the fact that the question of the nature of the relationship between the parties involved is often not so easy to answer from a data protection point of view.

If the contractor determines his working hours, the location and the systems used independently, i.e. if he is bound by instructions but not integrated into the company, an DPA relationship usually exists. The same also applies, for example, to printing companies as contractors. In the vast majority of cases, these are to be qualified as processors. Although they define the means, i.e. the “how”, to a small extent, they do not have any decision-making power over the purposes – this is not sufficient to be regarded as the controller.

The fact that this is an data processing can in principle be established by the following characteristics:

- The contractor does not have the authority to decide on the data.
- The contractor does not pursue its own business purposes with data processing. The contractor is subject to an explicit prohibition of use with regard to the data to be processed.
- The order is directed to the execution of data processing, which is, however, the responsibility of the client.
- In connection with the processing of the order, the contractor shall have no contractual relationship of any kind with the parties concerned by the data processing.

It is also imperative that the processing of personal data is not merely an additional service. This is the case, for example, with postal and telecommunications services, as these are regulated by special legislation.

It also includes services used by outsiders where the processing of personal data is only an “ add-on” (such as interoffice mail, security guards, transport of shredded files). In these cases it would therefore not be an order processing within the meaning of Art. 28 GDPR. Consequently, only a qualification as a “third party” according to Art. 4 No. 10 GDPR would be considered.

This is problematic as it would remove the “privilege of data processing”. The privilege under Art. 28 GDPR means that the transfer of data from the data controller to the processor does not require the consent of the data subject or any other legal basis. On the other hand, the data are not “passed on” to third parties, but “transferred”. However, the fact of transfer leads to the fact that the third parties are subject to

the abovementioned obligations from which the processor is exempted.

If, on the other hand, everything speaks in favour of data processing within the meaning of the preceding criteria, it is indispensable that the client and contractor conclude an DPA in accordance with Art. 28 (3) GDPR.

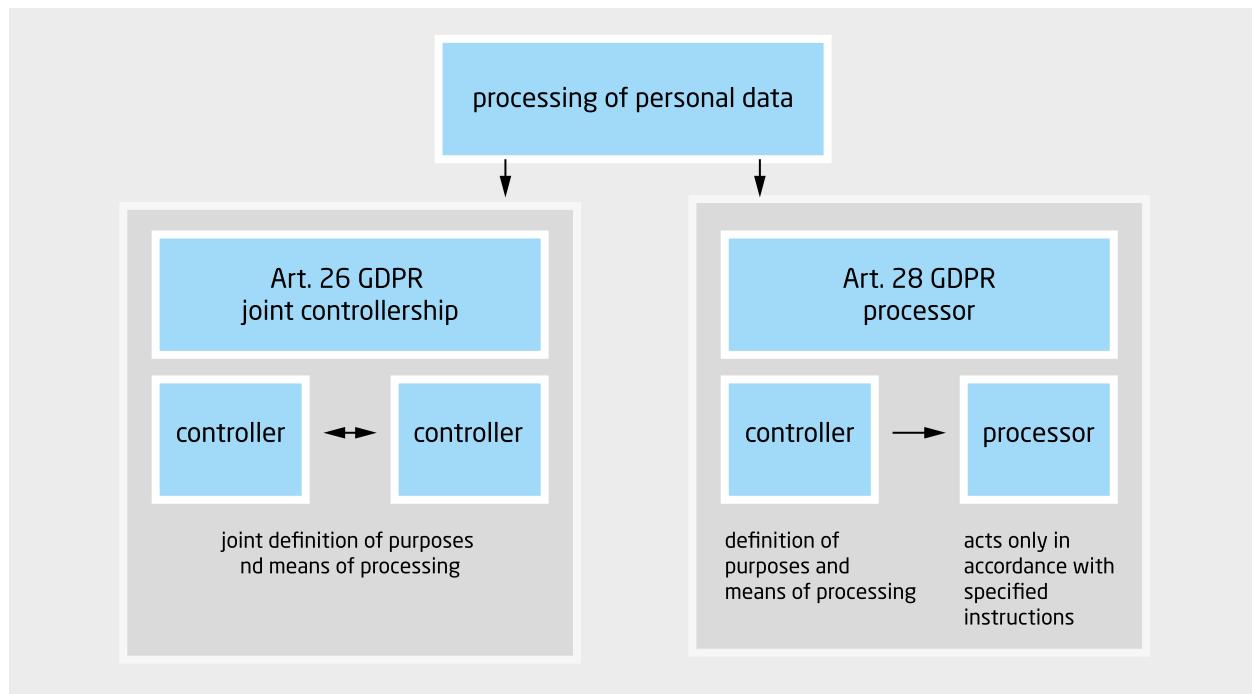


Fig. 4.4 Data protection is the responsibility of the controllers and processors. © GLENDE CONSULTING

But what about the freelancers or company groups? The conclusion of an DPA is usually not the right solution for both the contractor and the client. It must be clarified whether only one “person subordinate to the controller” or several controllers can be assumed here.

Since the Joint Controller Contract (Art. 26 GDPR) is new in Germany, it still causes problems for many companies and the apparently simple DPA is used instead. However, this will have to change in the next few years.

Technical-organisational measures (TOM)

In contrast to the much more concrete catalog of measures in Annex 9 BDSGalt, the GDPR relies on a risk-based approach when selecting and implementing the TOM.

This is problematic to the extent that there are no clear guidelines. It is therefore hardly possible to define a uniform process for this transaction.

Due to the very general formulations of the GDPR, problems repeatedly arise in practice, particularly with regard to the detection of suitable TOMs. These include, in particular, the insufficient informative value of the evidence, the submission of evidence irrelevant to the processing or the taking of measures unsuitable for

the protection of the data subjects. Experience has shown that these deficits primarily apply to contract processors.

But this also puts those responsible in an incalculable and potentially expensive situation, since the TOM is a mandatory component of the PDA – if it is missing, a considerable fine is imminent. The fact that the competent supervisory authority considers the evidence, selection and implementation of the TOM to be suitable in an emergency cannot be affirmed with certainty.

It is a fact, however, that the more meaningful (not necessarily more detailed) and concrete controllers and processors fulfil their duty in this respect, the more favourable this will be for any fine to be imposed. Investing time in this area is therefore worthwhile in any case.

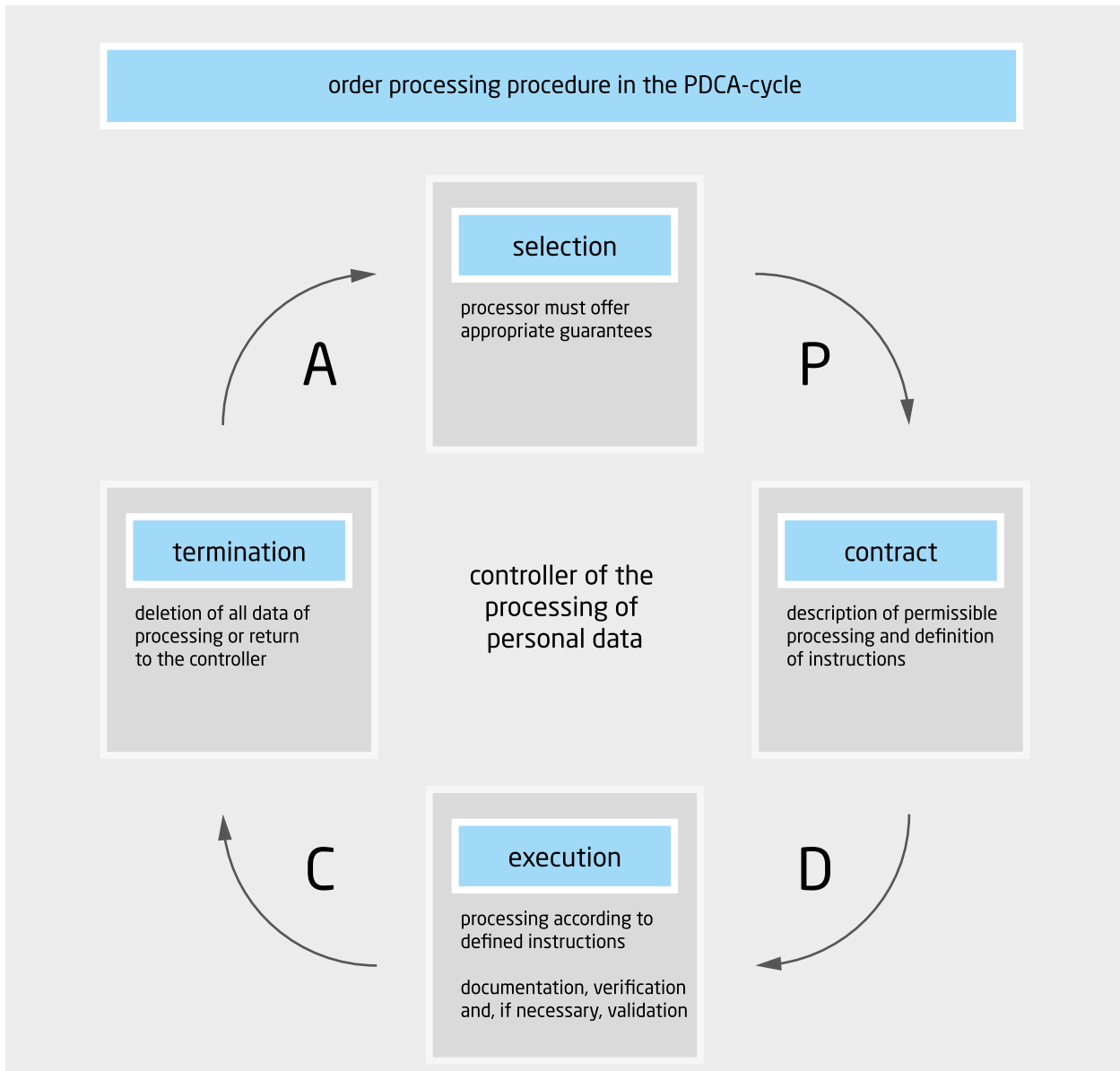


Fig. 4.5 Recommended workflow for order processing. © GLENDE CONSULTING

Data subject rights

Dealing with and safeguarding the data subject rights continue to be problematic in some cases. The essentials can be found in Art. 15 et seq. GDPR:

1. Right of access
2. Right of rectification
3. Right to erasure
4. Right to limitation of processing
5. Right to data transferability
6. Right to object to processing on the basis of legitimate interest

In particular, the right to information under Art. 15 GDPR is a headache for many companies. Many companies are not in a position to fulfil their obligations under the right to access information.

The right to access information sometimes blossoms in strange ways: In August 2019, for example, the Higher Regional Court of Cologne ruled that even telephone notes constitute personal data and thus fall under Art. 15 GDPR. Furthermore, the Chairman stated that there are no longer any irrelevant data in this information society. In practice, this means that the concept of personal data must be interpreted more

broadly than has been the case to date.

Consequently, the scope of the right to access information is also extended. In the future, the task of the companies will be to meet this requirement without compromising practicability.

Finally, there is the question of what happens if a controller violates the rights of the data subjects. The BDSG (Bundesdatenschutzgesetz, Federal Data Protection Act) in force until May 2018, did not provide for any sanctions in some cases, in others for fines of a maximum of 300,000 euros.

The General Data Protection Regulation changed this fundamentally. Any violation can result in a fine. And the maximum fine has multiplied: up to 20 million euros or 4 percent of the worldwide annual turnover, whichever is higher.

Future

“The grace period is over.” What sounds a bit bold at this point has its justification. The supervisory authorities will punish breaches of data protection much more frequently in future. Because there is no shortage of reports of these. Successful companies know that the GDPR is not a legal “flash in the pan”, but will in future determine who is competitive and who is not. Ignoring or underestimating the data protection

requirements can lead to considerable problems not only on the part of the authorities. Even within economic traffic, such behaviour will threaten the very existence of the company. In the medium term, well-prepared DPAs, mature TOM and legally compliant directories of processing activities will be standard components of business relationships. Anyone who cannot afford this will be eliminated from the competition.

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5 CROSS-MEDIA PROCESSES AND PRODUCTION ROUTES

SUMMARY

In this chapter, cross-media processes and production routes are examined from different perspectives.

The first step is to clarify the terms. This is followed by a comprehensive description of media processing, which is relevant to marketing and includes both classic and programmatic processes.

Other topics show detailed aspects, such as different degrees of personalization in advertising media and variants of the creation of cross-media publications, which in turn are also relevant in the publishing sector.

A description of system concepts allows the identification of key aspects of software solutions and can help to classify certain systems with regard to the right area of application.

Practice-oriented examples show multi-channel publishing based on Web CMS or databases.

Other content deals with print-oriented processes, including web-to-print and dialog marketing.

5.1 Term and principle cross-media

There is now a whole range of terms relating to one and the same complex of topics: cross-media, cross-channel, multi-media, multi-channel or omni-channel.

When using the prefixes “Omni” or “Cross” (as opposed to “Multi”), such as “cross-channel” or “cross-media”, it is often said that the individual media channels are related to each other.

Depending on the perspective, the concrete characteristics then turn out differently. In retail, for example, the organizational and technical link between stationary shops and web shops can be meant.

The publishing sector, on the other hand, is concerned with the production of publications for print, e-books and apps with largely the same content. In product marketing, on the other hand, an online advertisement links to a landing page (special product website).

The background to this is the fact that consumers are increasingly using several communication channels, the benefits or effects of which increase when they are related to each other.

The lowest common denominator of all terms is that it is about the creation and output for two or more media channels. Further differentiations

consist in whether the individual media channels are each published as a single entity with all components (as a “silo”), on the basis of a uniform database (standardization of the media channels) or have additional connections to each other (interlinking of the media channels).

Standardization of media channels

In order to maintain a homogeneous appearance in the different media and to ensure a high recognition value as well as to avoid mul-

tle efforts in media creation, the goal can be pursued to output on the basis of central multi-media data sets as simultaneously as possible in different media channels (Fig. 5.1). For example, products that are displayed simultaneously in an app and in a web shop should be uniform in terms of designations, images and other information. The data sets are managed in media, product or content management systems, linked to the respective media-specific structures, format templates and functional environments and

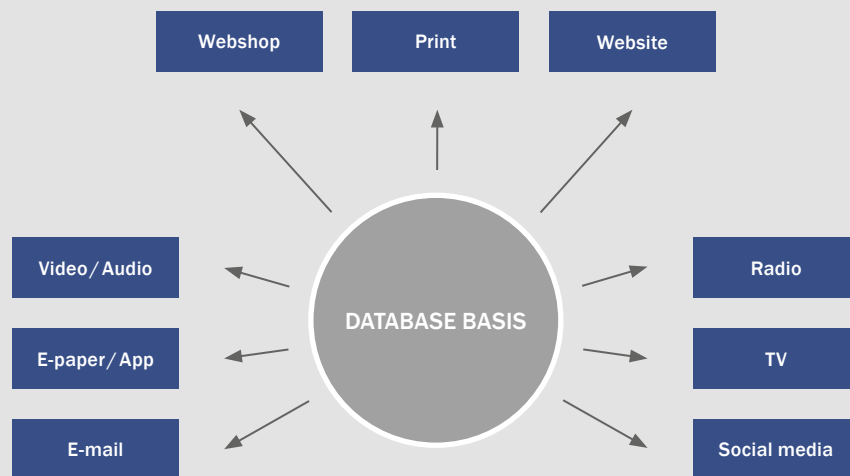


Fig. 5.1 Standardization of media channels: The contents in the media channels are to be displayed uniformly by means of central data management. © Melaschuk-Medien

published in the respective media channel. This is achieved through central data management.

Interlinking of media channels

In interlinking, the representations in the media channels contain links to each other in order to guide users from one medium to another (Fig. 5.2). It is necessary to use interactions and to achieve a strengthening of the respective media. The aim is to motivate the user to certain actions.

For example, print mailings may contain an NFC chip with an encoding that leads to a personalized website where products can be purchased in a special promotion.

Standardization of media channels is also possible.

Merging of media channels

Media channels merge when previously different transmission and display technologies enabled playback on only one medium (Fig. 5.3).

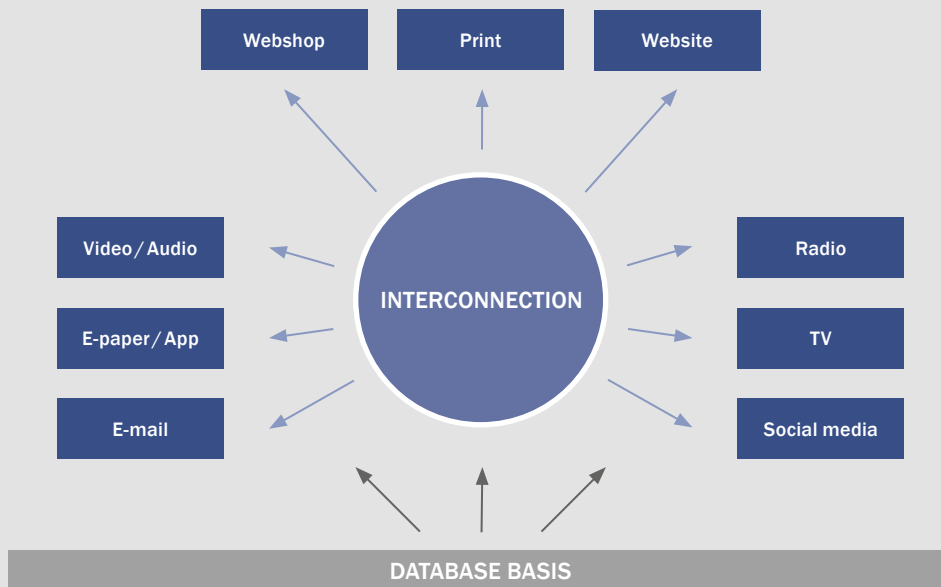


Fig. 5.2 Interlinking of media channels: Media channels are interconnected in order to reach and route recipients via different media. © Melaschuk-Medien

Examples: Television or radio programmes can be transmitted on the internet or television sets with internet access make it possible to transmit online video data.

In this book, the term crossmedia is used for all applications and the focus is on the aspects of technical and practical implementation.

Crossmedia process in the overview

In the following overview (Fig. 5.4) of a cross-media process, the database (database systems and data formats), content capture and the internal or external creation of media channels are included in the analysis.

In principle, it is recommended to follow the “content first” approach when designing IT solutions or media productions, in which content is

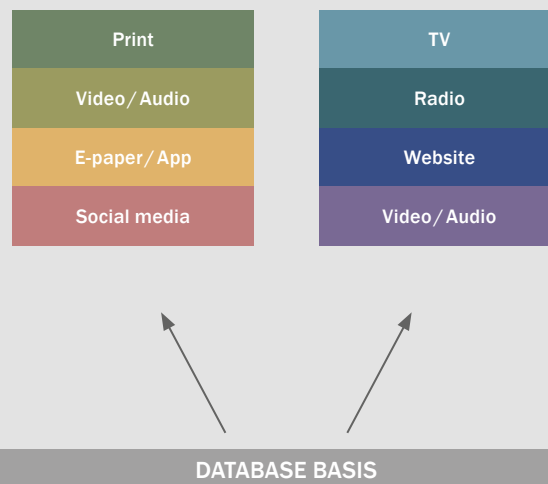


Fig. 5.3 Merging of the media channels: Previously isolated media channels can be used in an integrated way.
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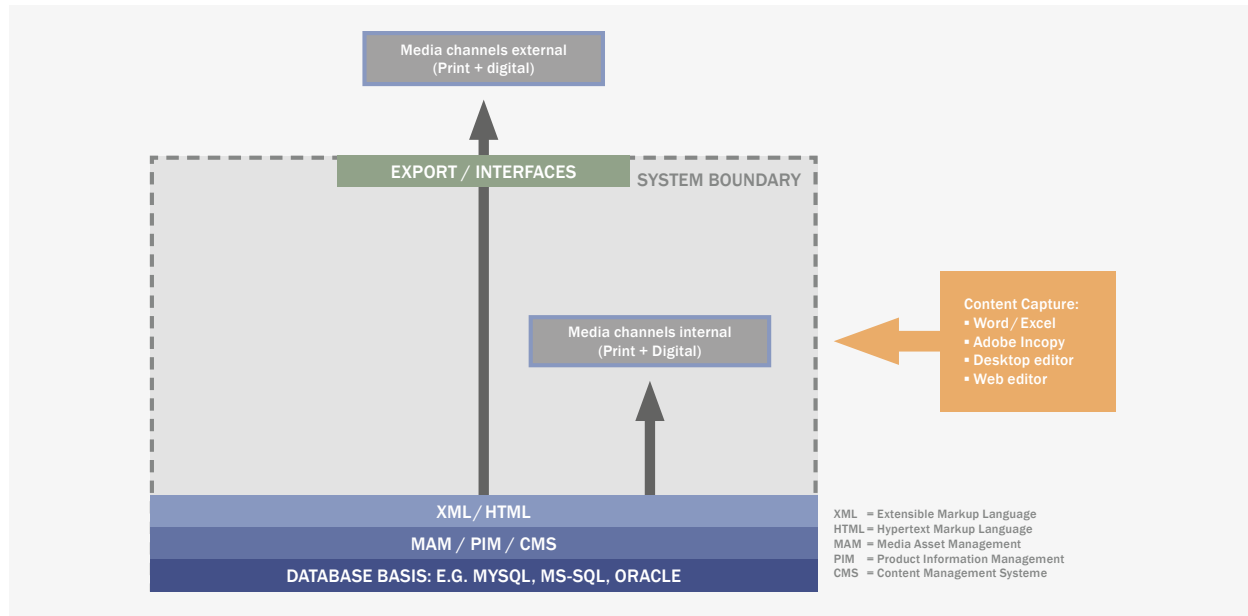


Fig. 5.4 Cross-media process in the overview with the elements databases, content capture and media channels.
© Melaschuk-Medien

centrally administered once only and then transferred to the media channels.

Databases and data formats

When using a web-based publication system, a database basis such as mySQL, MS SQL or Oracle is used to manage all content such as user data, metadata, production and order data.

Specialized database systems can be used integrated or via interface. These include in particular media asset management (MAM)

systems, product information management (PIM) systems or content management systems (CMS). Within the specialized database systems, content including its structural information can be managed in XML, HTML or other media-specific data formats.

Content creation

Content is created using external application programs such as Microsoft Word, Microsoft Excel, Adobe InCopy or system-specific desktop or web editors. Desktop editors can also

be used offline and, if required, establish the online connection to the system. The editors are either compatible with the respective system or the content is transferred to the system via conversions.

With the media channels, a distinction can be made between whether the creation or finalization in connection with a preview function takes place within the system or whether the media channels are created externally.

Internal media channels

In the case of internal processing and creation, the publications, advertising media or templates are produced, individualized, edited or ordered completely or partially internally in the system.

Examples:

- Print: Individualization of print templates in the system.
- Websites: Creation of HTML design templates in the system for a landing page.
- App: system-internal creation of multimedia, interactive publications and transfer to standard app web services (such as Twixl media).
- Video: Individualization of a pre-produced video with intro and outro in the system.

External media channels

In the case of external processing and creation, the publications, advertising media or templates are produced externally and individualized, edited, ordered or linked with data in the system.

Examples:

- Print: external creation of print PDF files and ordering in the system within a web shop.
- Website: Linking of database information of the system with an external website CMS (example: Typo3) or a standard web shop (example: Magento).
- Video: external production of the video and ordering or download including preview in the system.

5.2 Data and workflows of media processing

In the context of digitization, more and more possibilities are being used to play out advertising in real time in a data-based, automated and target-group oriented manner. But not only the placement of advertising, but also media booking and order processing up to invoicing is automated and contributes to an optimization of business processes. In this chapter, the classical as well as the automated or programmatic processes are examined.

5.2.1 Automation of advertising

According to a BVDW definition, Programmatic Advertising refers to “the automated control of individual advertising contact opportunities in real time” (*BVDW 2017d*). In the area of online advertising (including outdoor advertising), this is referred to as “Programmatic Advertising”, in the area of TV as “Addressable TV”. Audio Programmatic” is also on the way - on the basis of digital radio usage data.

A large field of application is the automated delivery of online ads, but there are also exciting applications in the out-of-home area. One of the

best media strategies for outdoor advertising in 2019 was an ebay campaign in which products were displayed on digital screens depending on the target group relevance of passers-by (*PlakaDiva 2019*).

The “Code of Conduct Programmatic Advertising”, which was initiated by the BVDW (*BVDW 2019d*), obliges participating market players to meet minimum standards in order to increase quality and transparency in this area. This includes, for example, the advertising environment, campaign control, which includes the billing of data or the visibility of advertisements, and advertising media.

In marketing portals, automation by means of online booking systems for print products, such as advertisements or posters, includes automated order processing throughout. Workflows from the creation of advertising material to media selection, media booking and invoicing are usually integrated. Digital advertising is also increasingly provided automatically in the advertising media portals: Users can select the advertising medium, such as a Facebook or Google Ad, add parameters (keywords, individual data) and display them. The success of keywords is monitored and adjusted automatically.

Cross-channel campaign control and integration into planning will be a major challenge for software providers and their customers in the future.

5.2.2 Overview media processing

The following presentation of media processing (Fig. 5.5) comprises the data levels, including data sources, data analysis and online and offline advertising media. In digital marketing, available advertising space is also referred to as “advertising inventory”.

On the other hand, the process level is represented with the partners involved, such as the client and media provider, as well as the classic or programmatically controlled execution within the context of media processing.

Participants, such as media agencies, media service providers, marketers, log-in, demand-side or supply-side platform providers, can also have several functions simultaneously. These overlaps are not shown here for the sake of transparency.

5.2.2.1 Clients

Advertiser, Agency, Marketing portal Media agency, media service provider

Advertisers and agencies are clients for advertising that either buy directly or through media agencies and media service providers that offer additional services such as consulting, campaign management, commercial processing, technical platforms or reporting.

Marketing portals can have the function of a system-supported ordering platform and be connected to booking platforms via an interface.

The order is placed either with the publishers, for example website operators, advertising space providers, marketers and log-in platform providers or - in the case of automated programmatic purchasing - with providers of demand-side or supply-side platforms. Orders are also placed with commercial advertising agencies that buy advertising space as “intermediaries”.

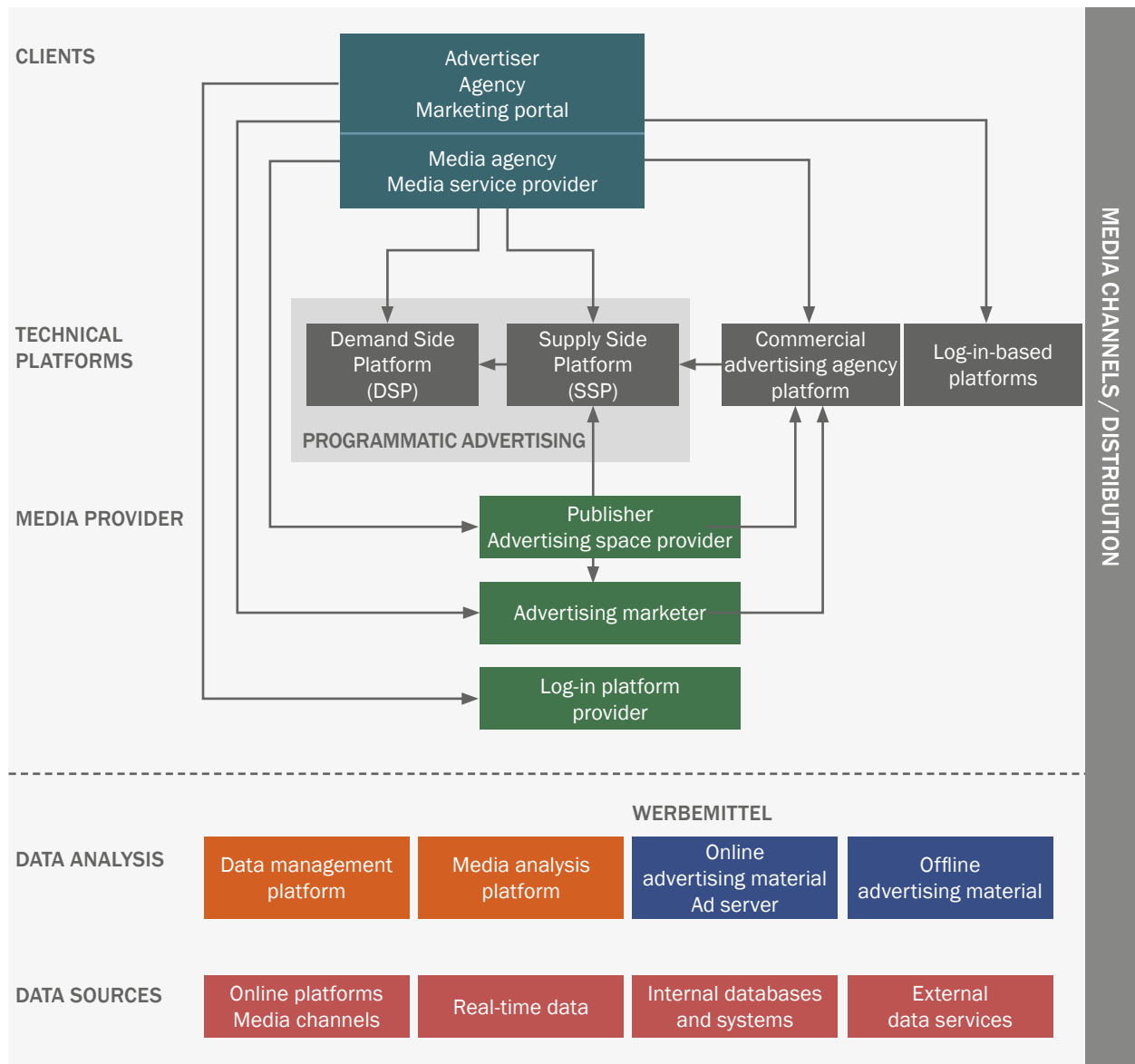


Fig. 5.5 Overview of media processing with classic and programmatic workflows. © Melaschuk-Medien

5.2.2.2 Technical platforms

Demand Side Platform (DSP)

Demand side platforms are technical platforms within the scope of Programmatic Advertising. Advertising inventory is made available for demand, i.e. the clients, is purchased automatically in real time and the advertising media are controlled. This is done on the basis of target group parameters and various price models, such as auctions or fixed prices. DSPs can be cross-channel or media-specific, such as for television, online video or the mobile sector.

Verifications within a DSP can integrate additional quality measures with regard to fraud protection, brand conformity, visibility or environmental suitability of the displayed advertising.

Supply Side Platform (SSP)

Supply side platforms (SSP) are technical supply platforms within the scope of Programmatic Advertising. Marketers, publishers and advertising inventory providers use these platforms to sell their advertising space to connected partners, such as DSP platforms, taking into account rule-based target parameters such as the highest possible prices. An SSP can be connected to one or more DSPs. Individual SSP providers also

offer the possibility for advertisers or agencies to use the SSP offer directly via online access and thus bypass DSPs.

Commercial advertising agency

Sales agencies buy advertising space or digital advertising inventory from media providers and often offer combined services consisting of technology, target group identification and special forms of advertising. Advertising media are controlled via Programmatic Advertising, own technologies or manually.

Log-in-based platforms

Log-in-based platforms include the providers Google, Facebook and Amazon, which offer online access for manual management on the one hand and standard interfaces in the form of APIs (Application Programming Interface) for direct connection and placement of advertising materials on the other. In some cases, the platform providers also have their own DSPs that can be used to programmatically purchase their own and, in some cases, “third-party” advertising inventory.

5.2.2.3 Media provider

Publisher, Advertising space provider

In the field of digital marketing, publishers are operators of online platforms and media channels, such as websites, apps or television, who sell advertising inventories. Advertising space providers also sell offline offers, for example outdoor billboards. The offers of these providers are sold either directly on their own, through marketers or in the digital sector via supply-side platforms (SSP).

Media provider

Marketers act as “intermediaries” and sell the offers on behalf of publishers and advertising space providers.

For the following media channels, there are specialized offers for advertising from publishers or marketers, which are also offered across channels depending on the provider:

- Publishing titles Print, digital (newspapers, magazines)
- Online and display
- Search engines (SEA, Search Engine Optimization)
- Mobile, Apps

- Out-of-Home, posters
- Cinema
- Radio
- TV, Online video

Log-in platform provider

The platform providers Google and Facebook, but also large trading platforms such as Amazon or Zalando, have a rich database that enables advertisers to control their campaigns in a targeted manner. For example, various target group parameters can be determined in Facebook, such as age, gender, interests, behaviour or geographical locations.

5.2.2.4 Data analysis and advertising material

Data management platform (DMP)

Data management platforms are technical platforms for measuring, analyzing and managing online and offline data, which are used for programmatic trading and target group-specific control of advertising media. This can, for example, be operated by marketers and publishers to enrich media services, but also by clients.

Media analysis platform

On a media analysis platform, target group and reach data of media channels are brought

together, analyzed and evaluated. Depending on the provider, geotargeting is also used. Geotargeting combines information on target groups (age, gender, interests) or media channels (distribution) with geographical data, such as addresses, and visualizes it in a user-friendly way using maps. For example, it can be used to illustrate in which urban areas residents with certain income areas and interests live. Advertising activities can be coordinated and optimized accordingly.

In the case of target group data, a distinction can be made between personal and anonymous data. In order to comply with data protection requirements, personal data may have to be anonymized before further use.

Advertising material

Advertising materials are provided online or offline. Specialized ad servers can be used for online advertising media.

Data sources

The data sources, such as internal databases and systems, online platforms and media channels, real-time data and external data services, are explained in more detail in chapter „4.2 Data sources“ on page 70.

5.3 Target group-oriented advertising media and media channels

On the basis of the described data sources and processes, information can be created and distributed in marketing and communication at suitable times and places for specific target groups. The target group can, depending on the availability of the data, be relatively “unclear “ defined, e.g. related to a location, or apply to a single person. The English term “targeting” is often used to determine the target group.

Examples of target group parameters are: Customer or prospective customer, women or men, areas of interest, purchasing power, purchasing activities, geographical location and time of day information.

Retailers and web shop operators can create personalized advertising media for their customers based on target group parameters such as gender, age, purchase history and click behaviour. Log-in-protected environments, such as online shops or social media platforms, provide characteristics that can be precisely assigned to individual persons. According to the previous and expected customer behavior, the appropriate products are selected from a product database

and displayed in the advertising media. Since the locations of the customers' homes are also known, reference can also be made to the nearest branch.

The target group parameters can influence the content of advertising material in different ways, such as the illustration of cosmetic articles in a drugstore mailing for female addressees. In other cases, the target group information is only used for distribution, for example the distribution of a furniture store brochure to certain households as part of a direct mailing. The same principle can also be applied to digital output channels, such as websites and web shops, to display personalized content.

In the area of search engines and search portals, keywords are defined, which are entered by internet users and display suitable advertising content.

Further basic parameters for determining target groups on the internet are thematically appropriate environments on websites, the click behaviour of online users, geographical data (e.g. based on IP addresses), device data (such as manufacturer, display resolution) or user IDs from log-in data.

In retargeting, for example, customers are shown content on websites on the basis of their previous activities, the relevance of which is assumed for buyer behaviour. This principle can also be applied to the print sector, for example when personalized printed brochures take into account consumer behavior in online shops and are enclosed with the consignment of goods.

By combining this with the use of artificial intelligence, the success of personalized campaigns can be increased even further in the future.

The following workflows show the different personalization and individualization options for the output of advertising media. In addition, the different ways in which target group parameters are included in the technical creation of advertising media and the level of control in the media channels are analyzed.

5.3.1 Unpersonalized creation of advertising material

With this variant, advertising media are created without extensive personalization or individualization of content (Fig. 5.6). Media production is either database-supported, automated, semi-automated or manual, possibly by integrating

export files from databases. Examples are brochures of furniture stores, DIY stores, electric houses or advertisements.

At the same time, desired target groups are selected, for example using address service providers, household databases or special marketer data. The advertising media are then

directed to these target groups, for example offline via direct mail, postal addressed items, as inserts in newspapers or digitally in the form of online advertisements on websites or in social media channels.

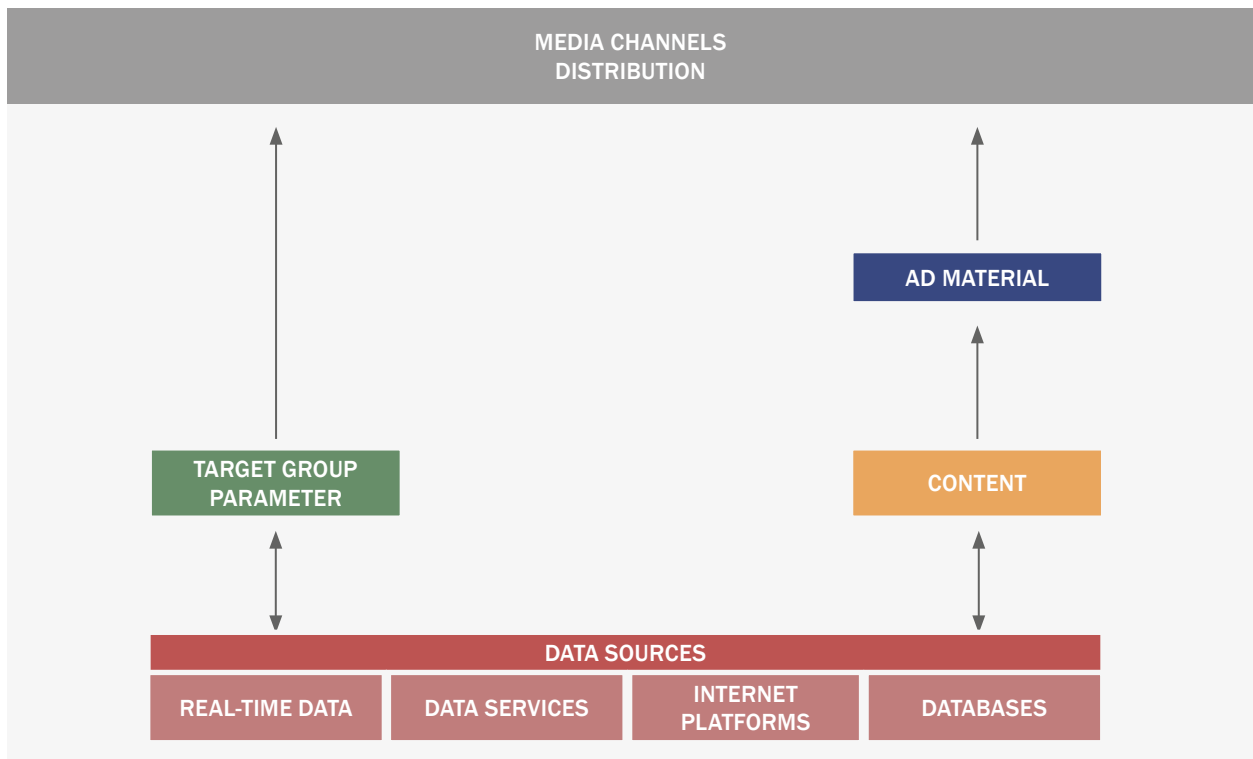


Fig. 5.6 Unpersonalized creation of advertising material. The advertising media are created without personalized content and distributed according to the target group parameters or media channel. © Melaschuk-Medien

5.3.2 Partially personalized creation of advertising material

The unpersonalized advertising media can partly be personalized or individualized, for example by imprints in digital printing or in marketing portals of brand companies. Corporate design-compliant templates are created unpersonalized

and branch offices, branches or sales employees supplement individual data in the marketing portal in the form of contact data, regional offers or prices (Fig. 5.7).

Examples are flyers from insurance companies or dealers that supplement regional data or online ads that are also completed with regional data and displayed live in a certain regional area.

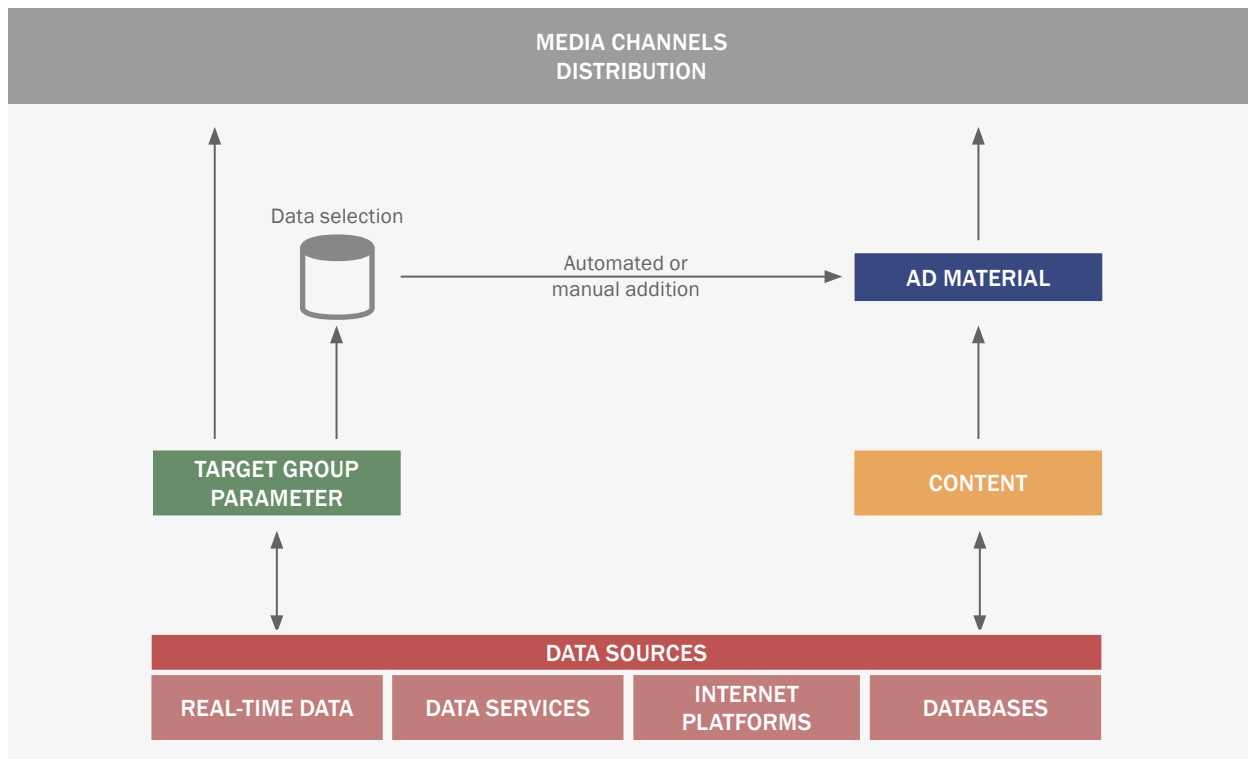


Fig. 5.7 Partially personalized creation of advertising material. The advertising media are largely created without personalized content and distributed by means of target group parameters or media channel-specific. © Melaschuk-Medien

5.3.3 Fully personalized creation of advertising material

In this variant, the advertising media are largely created automatically on the basis of the target group parameters and personalized and individualized content (Fig. 5.8).

In this way, websites, product recommendations in web shops or newsletters are personalized or individualized in real time, for example by determining location data on the basis of the IP address and displaying local offers or contact data of branches and subsidiaries. Information on the device types used, i.e. whether a desktop PC or mobile device is used, or whether a

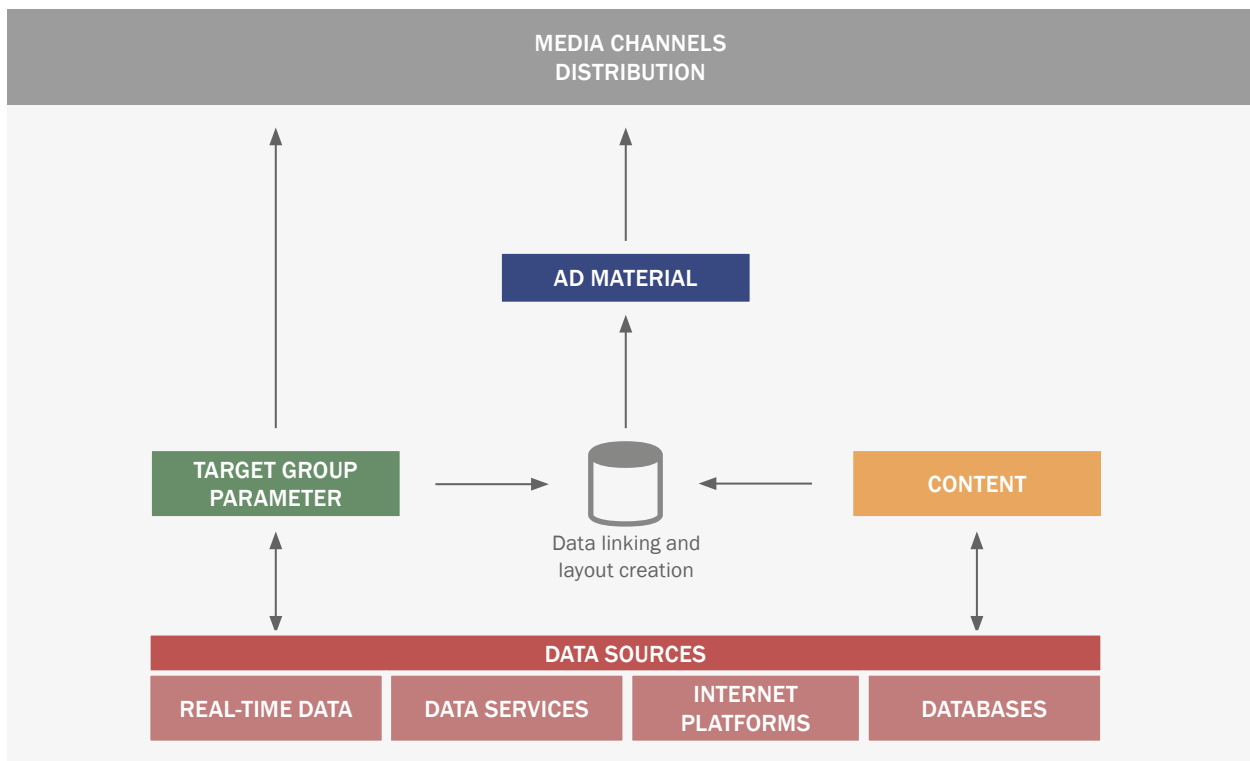


Fig. 5.8 Fully personalized creation of advertising material. The contents of the advertising media are created, issued or distributed in a personalized manner using the target group parameters or media channel-specific. © Melaschuk-Medien

new visitor is involved and the click or shopping behavior, can also be used to derive suitable content in real time.

In the print sector, solutions are establishing themselves with which package or catalog inserts and mailings can be created in a fully personalized manner. This can be based on various data sources, such as customer relationship management (CRM) systems, enterprise resource planning (ERP) systems and recommendation engines.

The customer and product data are combined, linked to layout templates in an automatic process, output via digital printing and delivered to the recipients - either together with a consignment or in the form of print mailings. In these processes, target group parameters and the advertising medium itself are brought into almost 100 percent agreement.

Digitization makes it possible to design and deliver advertising media and media channels in a differentiated and highly target group-specific manner. However, considerable challenges also have to be mastered: The structured structure and regular maintenance of data stocks as well

as the intelligent linking of data sources require a relatively high conceptual effort.

Then, however, marketing campaigns can be implemented that align their messages with the individual recipient. Competitive advantages can be expected – through new customer acquisition, customer loyalty and higher sales.

5.4 Multi-channel publishing: WordPress and any output channels

BY HAEME ULRICH

Focus on content instead of a specific output channel. And bring that content to the right person on the right channel at the right time. That's multi-channel publishing. Systems that meet such requirements have a reputation for being costly and only large companies can pay for them. However, this is no longer the case today. On the one hand, there are powerful systems that can be rented in standard configurations as a service at attractive prices. Producers rely on mass and small price. On the other hand, conventional open source web content management system providers like WordPress are establishing themselves also for creating and managing content for different output channels.

Finding the right system and technology

Over the years, system and technology suppliers have specified how to publish. Possibilities and innovations in publishing have been delegated to the providers. This meant that no responsibility had to be assumed for own actions. This is wrong and dangerous. Neither the system nor the tech-

nology may dictate or restrict possibilities.

The needs of the target market and thus the operator of the system determine what is published and in what form.

Thus the procedure is clear: First clarify in the market what is needed. Focus uncompromisingly on the target markets. We usually make this change of focus according to "Design Thinking". Because with this method, "understanding the problem" (where are the difficulties in the target market?) and "solving the problem" (which technology, which system helps to alleviate the difficulties?) are strictly separated.

Is HTML enough or does it need XML?

The first step in the "Problem solving" phase is the search for possible technologies and systems. For multi-channel publishing systems, this will result in two possible technologies: HTML- or XML-/JSON-based systems. XML/JSON is ahead of HTML in terms of automation. In practice, the validation according to own data models proves to be extremely helpful. This is not possible with HTML. But HTML-based systems are cheaper and simpler. If HTML is sufficient, then a small budget is also sufficient.

Paid in 5 years

As a matter of principle, “the ball should be kept in the air” when investing in systems. I would argue that a system investment must be amortized in five years. This gives us the freedom to constantly improve systems and adapt them to current market needs.

Multi-channel publishing with WordPress

By far the most used Web CMS is WordPress. Since most of the managed websites are already based on this free OpenSource system, I wondered if it could be used to load other output channels as well. The first solution approaches were quickly found and then a practical project was realized; further projects will follow. By the way: It does not necessarily have to be WordPress. In any case, the data must be stored in a documented and standardized database, usually MySQL. And it should be possible to access these data for further use in other output channels via a direct database connection (e.g. Open Database Connectivity, ODBC). If the operator of the system does not grant direct access to the database, which is then a question of the security concept, another possibility must be found to get to the data of the system. Today’s Web CMS usually make the data

available in the form of JSON (JavaScript Object Notation) or XML.

The graphic (Fig. 5.9) shows a multi-channel publishing system based on WordPress. It is a standard WordPress installation that is preferably operated in a computer center specializing in high-performance WordPress hosting. For multichannel operation, normal hosting and not WordPress.com is recommended. We are happy to host at SiteGround. They offer “Managed Hosting” – here 24/7 support for WordPress.

The output channels

The output of the content to the web is given with WordPress anyway. The formatting of the content is controlled by CSS (Cascading Style Sheets), appearance and functionality of the complete website is controlled by “themes” (design templates). Themes are created or purchased by the user. With today’s tools, even sophisticated themes can be created without time-consuming programming. Non-standard functions can be programmed if required. Around WordPress there are countless developers, also freelancers.

There are different strategies for automated output to social media platforms. We use clouds like “Zapier”, which retrieve the content in Word-

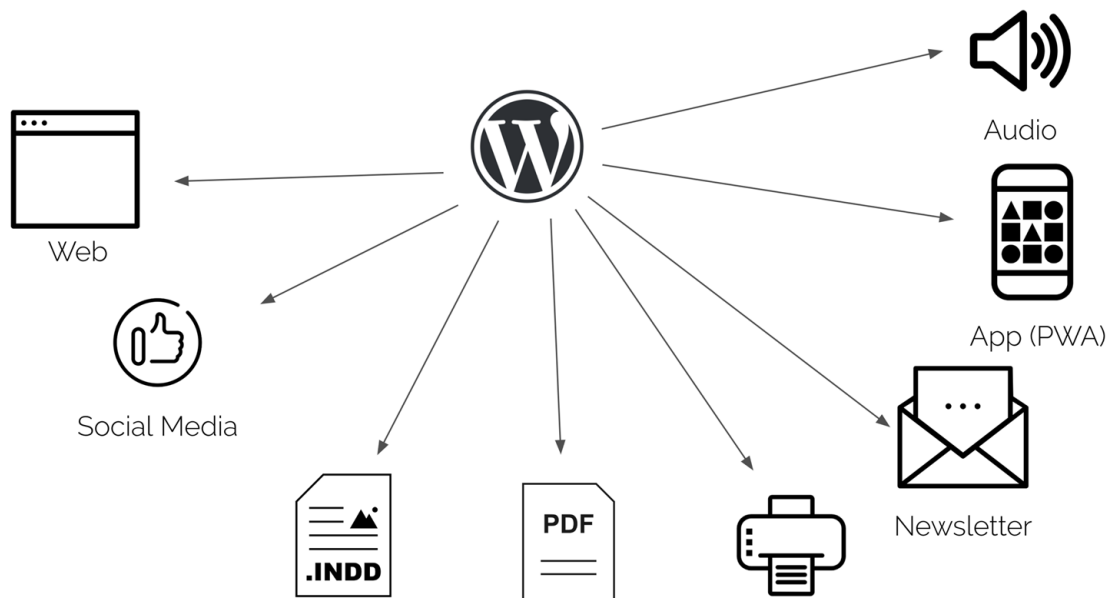


Fig. 5.9 WordPress as the hub for multi-channel publishing. © Haeme Ulrich

Press and distribute it to the desired platforms. There are also WordPress plug-ins that do this. In practice, however, the plug-ins are usually less reliable than specialized cloud services.

WordPress offers the options “Custom Fields” and “Custom Post Types” so that content for different output channels can also be managed in different variants.

If the print edition is to be created using InDesign, InDesign must be extended to include the option of importing content from the Web

CMS and automatically linking it to InDesign layouts. We often use the InDesign extension “EasyCatalog” for direct access from InDesign to the WordPress database. Of course, more extensive plug-ins such as “priint:comet” or “Xactuell” are also possible.

It is simpler, but less automated, to retrieve JSON content from WordPress. For this there is even the free InDesign script “press2id” (<https://www.publishingblog.ch/press2id/>).

Direct from HTML to Print PDF

To this day, the creation of high-quality print PDFs has usually also meant the use of InDesign. Alternative technologies such as XSL-FO only met professional design and typography requirements in a few cases.

That's changing now. Print-CSS (like Paged Media Module from W3C), pdfChip from callas software and Adobe's "PDF.next" are technologies that aim to directly generate high-quality print PDFs from XML and HTML.

These are exciting approaches that have the potential to dramatically simplify multi-channel

publishing in the future. Alternatively, there are PHP libraries that can be integrated into WordPress to create formatted print PDFs directly from separate CSS files (such as <https://html2pdf.fr>).

If you want to print directly from the web browser, the print output can be controlled with a "Media Query". The design of the print output is stored in a separate CSS file.

For sending the newsletter it is similar to social media: rent the service from the cloud or use a WordPress plug-in. Here, too, we use cloud services such as MailChimp - not least for data

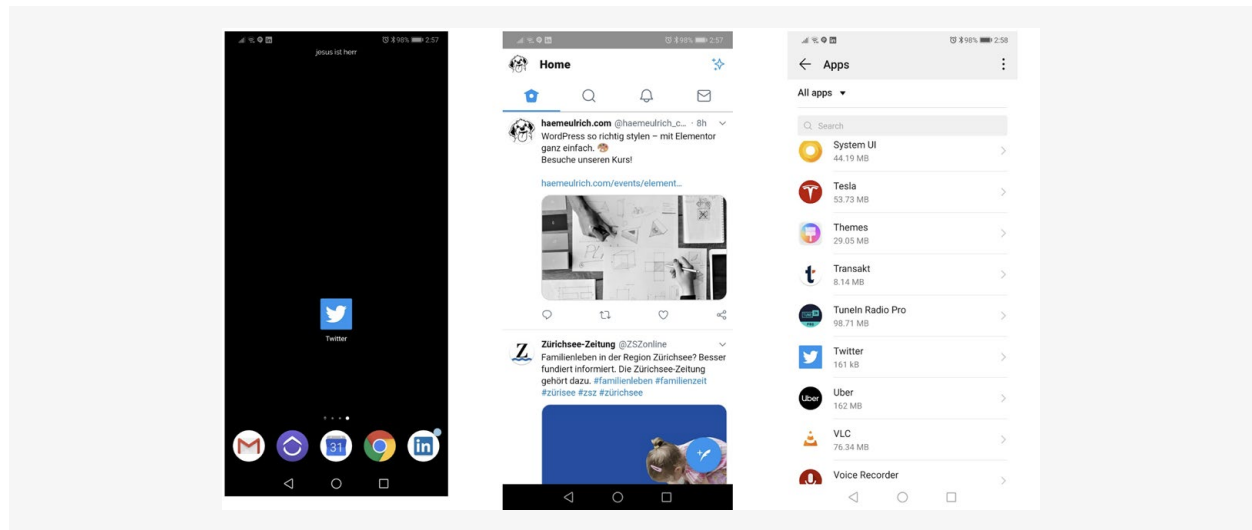


Fig. 5.10 PWAs behave like traditional apps. Here as an example the PWA of Twitter, accessible via mobile.twitter.com.
© Haeme Ulrich / Twitter

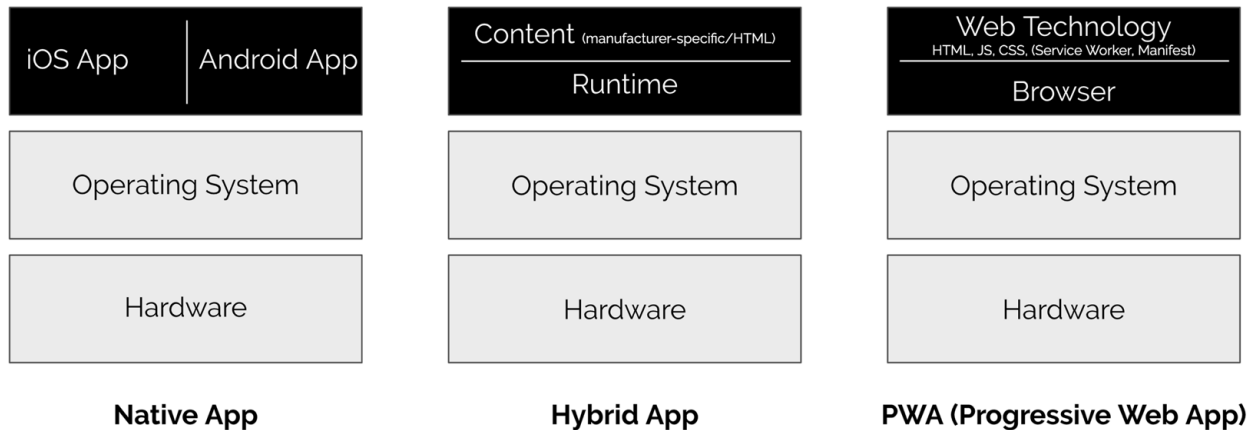


Fig. 5.11 Unlike traditional apps, the Progressive Web App (PWA) builds on the features of the mobile web browser.
© Haeme Ulrich

protection reasons. MailChimp can monitor WordPress and automatically create newsletters from new articles and send them to the right people at the right time.

Creating Apps with WordPress

Even apps can be created directly with WordPress. Not the classical, like native or hybrid apps, for this a third framework would have to be interposed (Fig. 5.11). However, there are a few WordPress extensions to create PWA (Progressive Web Apps). PWAs are websites that behave like apps: they run offline, don't display a browser, can receive push info, and can access device functions. We use the free WordPress extension "Progressive WordPress" (<https://>

wordpress.org/plugins/progressive-wp/) by Nico Martin.

Under Android the PWAs work perfectly, Apple still has to deliver. Nevertheless, more and more companies are also offering their websites as apps (Fig. 5.10).

Audio from WordPress

Even speech output is possible with WordPress. If the text is clearly structured, it can also be read aloud. This not only makes a website barrier-free, it also allows the creation of contributions to an audio book or even podcast.

We recommend the plug-in "ResponsiveVoice Text To Speech" (<https://wordpress.org/plugins/>

responsivevoice-text-to-speech/). And if you want to automatically create podcasts from your contributions, “play.ht” (<https://play.ht>) is a good choice.

Conclusion

Multi-channel publishing systems do not necessarily have to be expensive. For less structured publications, an HTML-based solution is often sufficient. This is where free open source web systems such as WordPress come into play. Equipped with simple extensions, these systems can deliver centrally created and maintained content to a wide variety of output channels.

Those who rely on such freely assembled systems also assume responsibility for smooth operation at the same time. Producers and suppliers are off the hook because they each only cover a small part of the total and do not assume any responsibility for interaction with “external” components.

For publishers, this means building up and maintaining IT competence, maintaining systems themselves and taking project management in hand in the event of expansion. The bottom line is a first step towards independence.

HAEME ULRICH

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He is also the founder of the well-known “Publishingblog.ch” and leads business trips to Silicon Valley. His latest project is a private publishing academy.

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5.5 System concepts

A further orientation guide for the classification of web-to-publish systems with regard to the technical system concepts is the following structure:

- Template-based systems
- Document-based systems
- Automation-based systems
- Cross-linking-based systems

This categorization has its origin in the analysis of print-oriented output channels, but can also be transferred to the output of digital media. For example, templates can be based on InDesign, but also on HTML for the output of web pages or e-mail newsletters.

The term “document” covers both printed and digital editions or files. Individual systems can either be assigned to a single concept or to several. This results in meaningful application possibilities for the solutions.

Basically, all web-to-publish systems have a database basis. Due to the clear system separation of content and layout of a publication, content

can be managed centrally and used multiple times for different media channels.

With the use of specialized databases, including media, product or text databases, cross-media channel access to the data is also possible.

5.5.1 Template-based systems

In the template-based system concept, designed templates are provided on the web server (Fig. 5.12). These templates contain both unchangeable design elements (such as a logo) and elements that can be changed by users. When a template is called, a copy, i.e. a document, is created. In this way, any number of users can call up and individualize a copy of this template. Individualization can also be automated, for example by inserting address data from merchants by retrieving them from the master data of the users. The individualized template is either an advertising medium, such as an advertisement, or is linked to a promotional item, such as a ballpoint pen, and produced externally.

Variable templates

To control the “behavior” of the variable objects during user input, rules are added to the templates: For example, a text frame can “grow” to a

maximum height as the amount of text increases and displace subsequent frames.

Some systems also allow you to assign different layout variants to a template. This allows users to switch from a two-column layout to a three-column layout without having to open a new template.

The rules can either be directly linked to the template or defined in the user rights management. More complex rules can be implemented with the template-bound method than with the right-hand method.

Typical areas of application:

Advertising materials, such as flyers, posters, advertisements, mailings, promotional items or business prints, such as business cards, letterheads.

- Advertising media portals of companies
- Marketing service portals
- Web shops for B2C and B2B products
- Web shops for industrial products

See chapter „3 Application Areas“ on page 53.

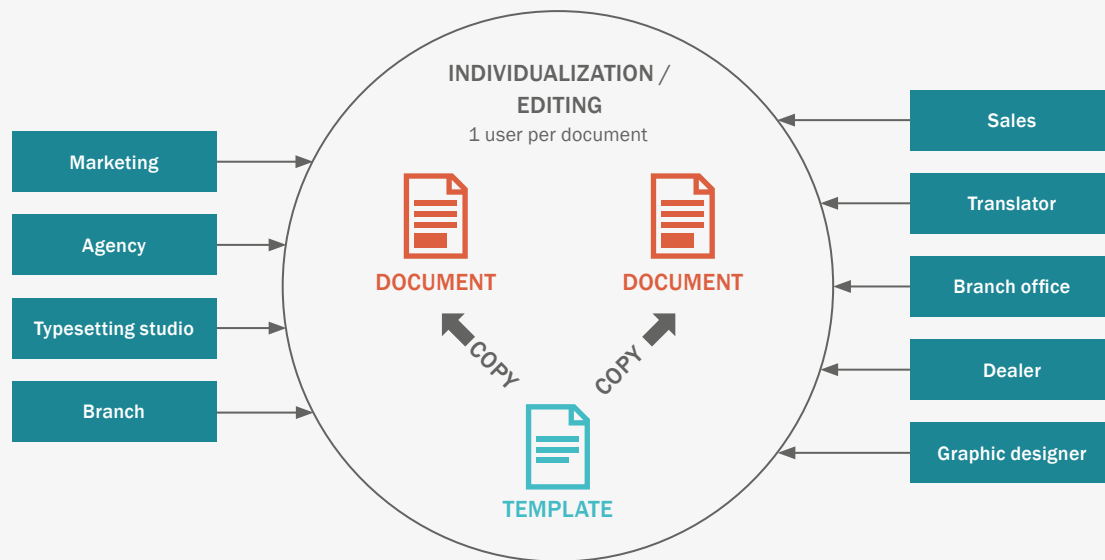


Fig. 5.12 Template-based system concept. © Melaschuk-Medien

5.5.2 Document-based systems

In the document-based system concept (Fig. 5.13), either pre-designed documents are made available on the web server and processed or individualized by several users simultaneously. Or parts of a document page, which can also be a website, are assembled in a kind of “modular system”. In both cases, user groups receive editing rights; for example, the marketing staff of a company may only change texts, but no images, or editors only have access to certain texts. These documents can also contain unchange-

able corporate design elements and elements that can be edited.

From a technical point of view, it is possible, depending on the system, that a “working copy” of a source document must first be created. For multilingual publications, one language version corresponds to one document copy. In contrast to the template-based approach, however, there is only one working document and several users can access it. Simultaneous editing by users can be possible within the document on different pages or at object level within a single page.



Fig. 5.13 Document-based system concept. © Melaschuk-Medien

Typical areas of application:

Product brochures (multilingual), editorial publications (also corporate publishing).

- Web Content Management Systems
- Editorial platforms
- Translation portals
- Media and communication portals

See chapter „3 Application Areas“ on page 53.

5.5.3 Automation-based systems

With the automation-based system concept (Fig. 5.14), content is continuously maintained by several users in media, product or text databases on the web. At the same time, a template is created. This template can be a print layout template or an HTML template for a website. The design elements in the layout templates are linked once to the contents of the databases. The successive flow of the contents can either be done manually “at the push of a button” or permanently fully automated. The content can

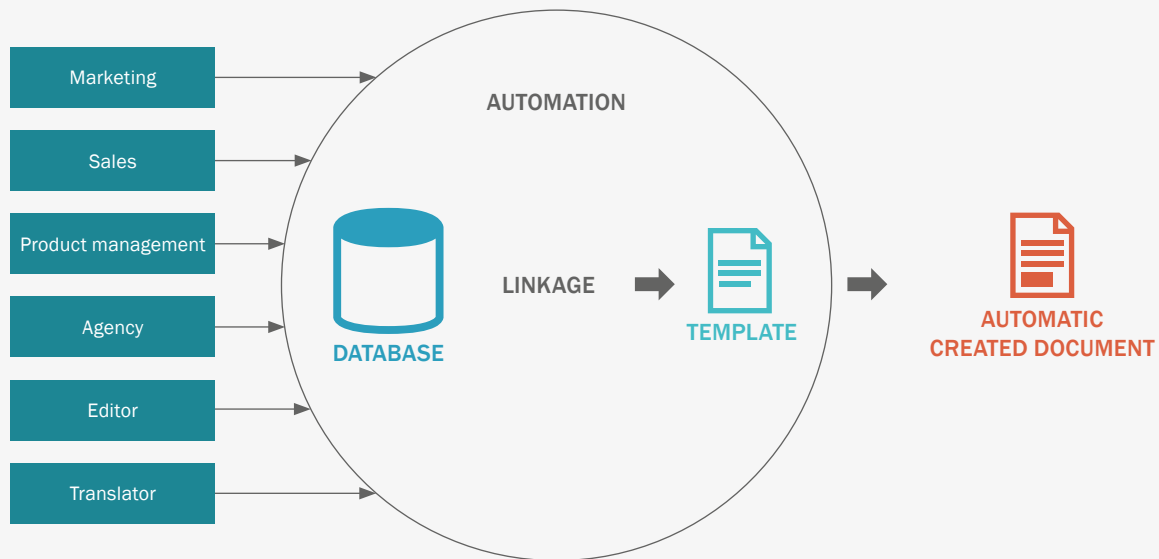


Fig. 5.14 Automation-based system concept. © Melaschuk-Medien

also be largely personalized so that a unique version is created for each output document. A semi-automated approach is possible by continuing to create the layout with the already integrated content in parallel to further database maintenance until the document is released for final output.

Automation-based systems in the print sector usually have sophisticated control functions so that the design elements fit in flexibly when the content flows into the layout templates and subsequent post-processing is kept to a minimum.

A common term for this process is “database publishing”.

Typical areas of application:

Product catalogs, price lists, newspapers, magazines, mailings.

- Automationsbasierte Multichannel-Systeme
See chapter „3.1.4 Automation-based multi-channel systems“ on page 58.

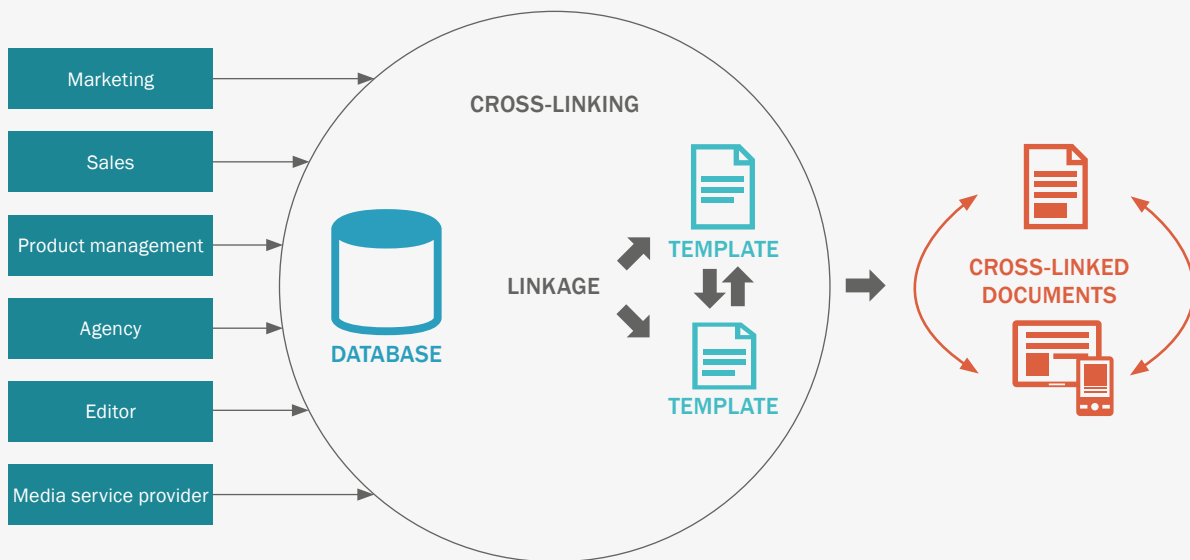


Fig. 5.15 Cross-linking-based system concept. © Melaschuk-Medien

PRODUCT TYPE	ADVERTISING MATERIAL	BUSINESS PRINTS	PUBLICATIONS
	Flyers, advertisements, posters, mailings, product sheets, web-sites, promotional items	Business cards, letterheads, envelopes, forms	Kataloge, Preislisten, Broschüren, Bücher, Zeitschriften
SYSTEM CONCEPT OF THE MEDIA PRODUCTION	TEMPLATE-BASED		DOCUMENT-BASED
	CROSS-LINKING-BASED		AUTOMATION-BASED
TYPICAL MANIFESTATIONS	Small number of pages Single documents Individualized advertising material Personalized serial documents		High number of pages Periodic documents Multilingual

Fig. 5.16 Print product types, system concepts and typical forms of appearance. © Melaschuk-Medien

5.5.4 Cross-linking based systems

The combination of media channels within cross-linking-based systems (Fig. 5.15) is becoming increasingly important, as there are more and more channels and touchpoints on which consumers can be reached. In retail, for example, the individual media channels are increasingly interlinked in order to accompany recipients of advertising messages on their way to an action, such as purchase or request. These so-called “customer journeys” run along touch points at which interactions are possible or information or advertising messages can be placed.

Templates for print and digital advertising materials are partially linked with variable data from databases, such as recipient data, product and media data. The advertising media are also linked together to enhance the advertising effect and trigger actions such as filling out a web form. The link to a landing page (website) is realized, for example, by means of personalized web addresses (PURLs). Typical scenarios from the automotive sector are online advertisements on the internet linked to the websites of local car dealers where test drives can be booked. The success of such a campaign is clearly measurable by the number of test drives booked.

Typical areas of application:

Cross-media campaigns consisting of print mailings, e-mail newsletters and landing pages.

- Dialog marketing systems (marketing automation)

See chapter „3.1.3 Dialog marketing systems“ on page 57.

5.5.5 Interaction of the system concepts

The system concepts presented can also be used in combination (Fig. 5.17). For example, publications that are created based on documents or automation usually contain extensive content that must be managed on a database basis. In addition, there may be a need for individualized editions.

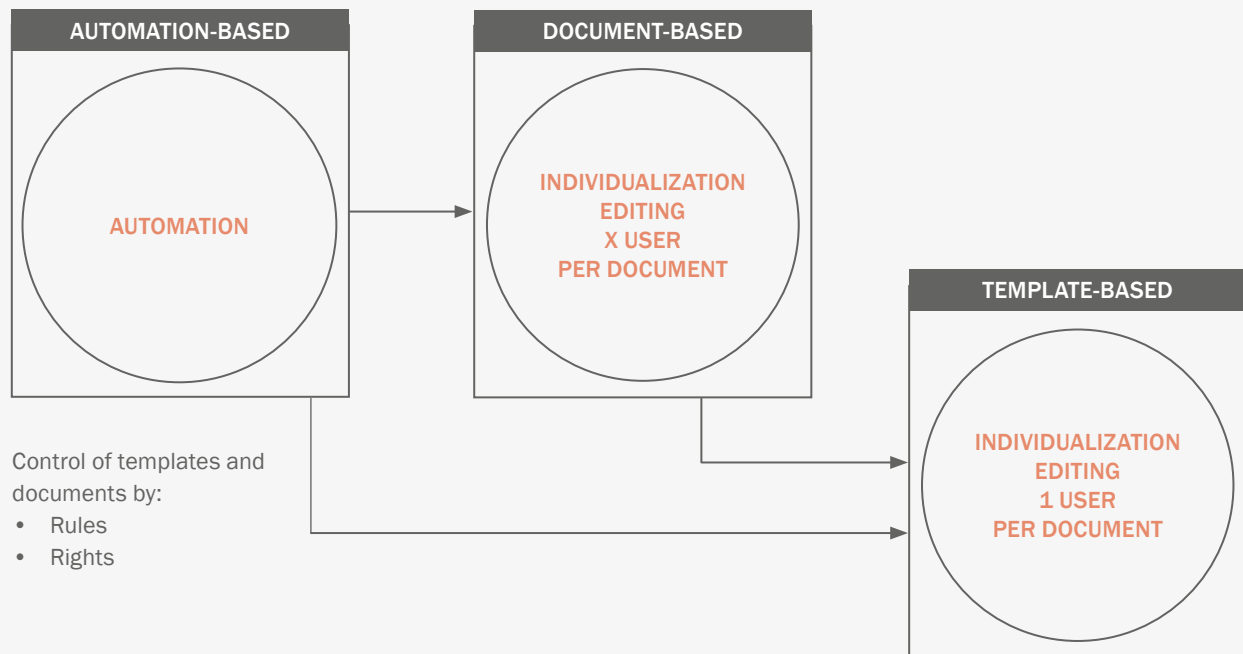


Fig. 5.17 Interaction of system concepts. © Melaschuk-Medien

Example

A franchise company with seminar offers creates a training catalog, which is available in different versions for each franchisee. The seminars are held by franchisees at different locations. The seminar offer is maintained in a database containing the seminar descriptions. The training catalog is created with the central contents from the database and made available to the franchisees on the web server, which can supplement individual event locations and dates. The training catalog including the individual data is issued.

It is also possible for a catalog to be created automatically with the use of a database (automation-based) and then finalized in a document-based manner by several participants, such as employees from marketing or the agency. As in the example above, this publication can then also be released for individualization, e.g. by dealers (template-based).

5.6 Example of a cross-media, database-driven media production process

Using an anonymous example based on a practical application, the basic processes of cross-media media production are shown, in which the media channels print, website and app are created (Fig. 5.18). The company is a manufacturer of household goods that sells its products in retail stores and department stores. The following requirements apply to media production:

- Once or twice a year a product catalog is created in several languages.
- Within the company website there is a web shop for end users.
- An app for tablet PCs is intended to provide sales staff with product presentation options and an ordering function.

The database basis

At the center of the web-to-publish system is a MAM (Media Asset Management) system for managing media objects, such as images or videos, and a product database, referred to here as PIM (Product Information Management), for managing product information. The information in the product database is transferred from the

ERP (Enterprise Resource Planning) system and supplemented in the marketing department.

Within the scope of product selection, the products and features within the database are assigned to the respective channel - the print catalog, the website and the app.

This assignment can be automatic, manual or semi-automatic.

Product data is often inserted several times in media channels as a result of the assignment; however, these are only “copies” that must not be changed. Changes are only allowed in the “source data”. The following descriptions of the steps refer to numbers 1-4 in Figure 5.18.

1: Media channel Print

The web-to-publish system contains an internal template editor that is used to create the “Layout Template Print”. The layout objects, in this example the “placeholders” for the product name, the product image and the article number, are placed on the page. If several products are to be displayed on one page, both product templates and page templates are created, which can contain several product templates.

A database field is assigned to each layout object. For example, the product name appears at the top of each catalog page.

The format definitions are also created in the form of style sheets. During the final document generation, the layout objects in the templates are linked to the assigned contents of the database fields. Depending on the number of products, the document pages are generated, output as a PDF print file and forwarded to the print service provider.

2: Media channel Website

The product selection for the web shop forms the selection basis for the XML export.

This export data is used to transfer the content and structure of the product information to the Web Content Management System (CMS). Similar to the print media channel, the CMS contains HTML templates and format definitions in the form of Cascading Stylesheets (CSS), with which the XML export data is linked and prepared for online presentation.

This update of the product data in the web shop can be done automatically or manually, depending on the configuration. This means that the current product information is quickly available online in the web shop.

3: Media channel app

The product selection for the app is also defined via the XML export. Here, too, the transfer is carried out either automatically or manually to the web server on which the app is hosted. The app is linked to the product information and is therefore always available in a current version. As soon as sales staff start the app, the data is automatically updated.

Products can be better explained via video presentation in the app and all color variants can be displayed in conjunction with the product at no extra cost.

In the printed catalog, on the other hand, the presentation of color variants is associated with additional printing costs.

The sales staff can also use the app offline, so that there is no dependence on functioning internet connections.

4: Orders

Orders placed via the web shop or app are automatically transferred to the ERP system.

The order function integrated into the app was a key motive for developing this media channel to relieve sales staff of time-consuming administrative tasks.

EXAMPLE OF A CROSS-MEDIA, DATABASE-DRIVEN MEDIA PRODUCTION PROCESS

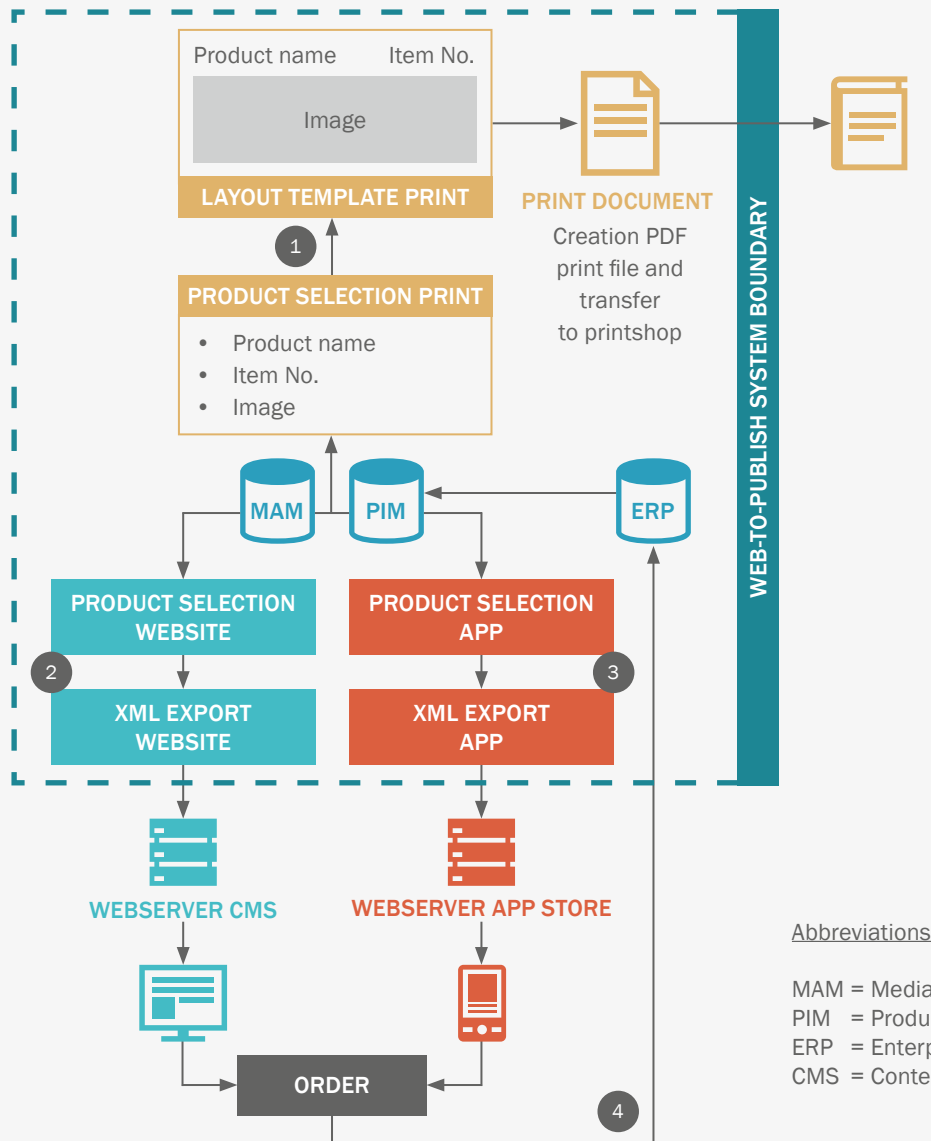


Fig. 5.18 Example of a cross-media media production. © Melaschuk-Medien

5.7 Process variants print creation

In practice, the processes involved in print production are often of particular importance. These include aspects of layout program integration (such as Adobe InDesign) and the associated layout control, the extent of standardization and the degree of automation in the creation of publications.

The following process variants, which can also be implemented combined in systems, take into account scenarios with and without a publishing server. In the following, we will refer to “InDesign Server” as the most common type of publishing server on the market. Alternatively, publishing servers from Pageflex or Quark are used.

The processes of template preparation (template creation), where publications can be enriched with rules or controlled by means of rights management, are not considered here in order to keep the illustrations manageable. The methods of template preparation are diverse and range from plug-ins for InDesign or Adobe Acrobat to system-internal, web-based tools.

Process 1:

Print creation based on InDesign templates

In the process variant based on InDesign templates (Fig. 5.19), customizable InDesign documents are provided as templates in the system on the web server. If the template is changed, the document must be transferred to the system again. Depending on the system, changes already made may be lost. This depends on the extent to which an internal system separation of content, structure and layout is implemented.

Content can be automated or manually linked to the template, depending on system functionality. In principle, a high degree of automation is possible. It depends on the degree of media-neutral management of content and system functions whether content from a template can be written back into the databases.

The following options result from the integration of the InDesign Server:

- Users can call up a system internal binding preview at any time.
- Optionally, the InDesign template or document can be extracted from the system and post-processed in an InDesign desktop version if

the system's internal functions are not sufficient. In this case, the print PDF file is created in the InDesign desktop version and not via InDesign Server in the system.

common reason for using this system concept. *See also chapter „3.3.2 Translation portals“ on page 62 and chapter „5.5.2 Document-based systems“ on page 113.*

Areas of application

The option of final InDesign post-processing in conjunction with translation processes is a

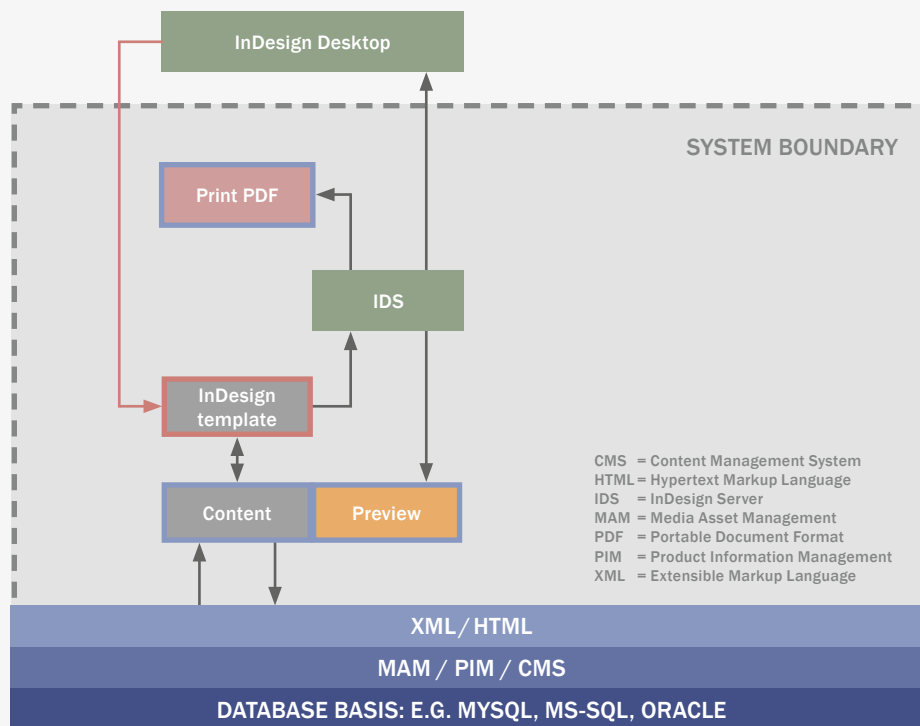


Fig. 5.19 Print process variant (1) based on InDesign templates. © Melaschuk-Medien

Process variant 2:**Print creation on InDesign document basis**

This process variant (Fig. 5.20) includes customizable InDesign documents that are made available in the system on the web server. The document can be fully edited in the InDesign desktop version and retransmitted to the system in an updated version. Depending on the system, this requires a separate check-in or

check-out process and users are informed of layout geometry or content changes. This makes it possible to practice parallel content and layout creation processes.

By integrating the InDesign Server, users can call up a system-internal, binding preview at any time.

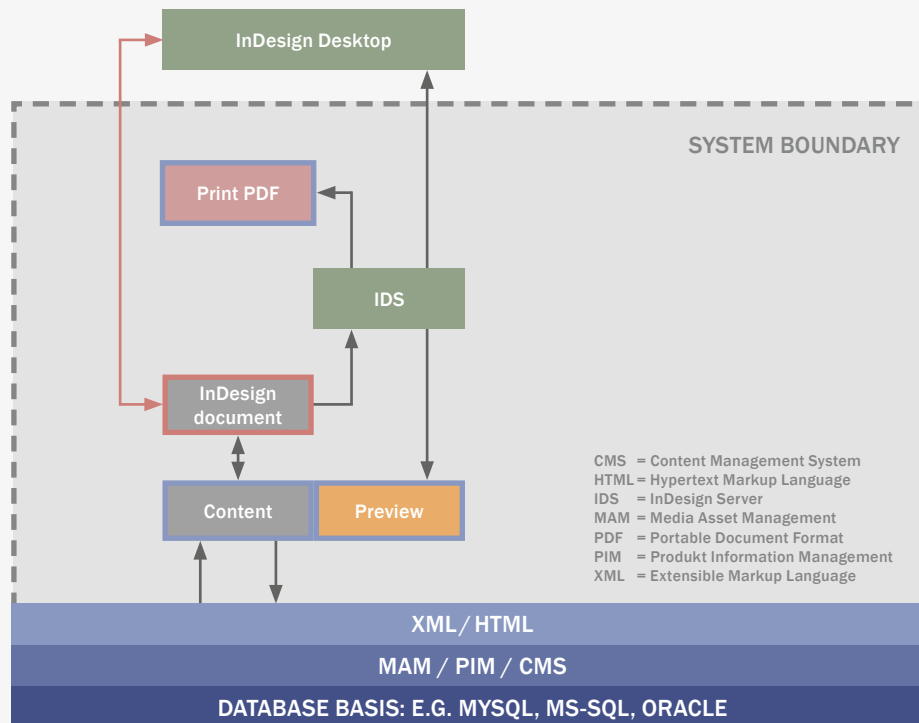


Fig. 5.20 Print process variant (2) based on InDesign documents. © Melaschuk-Medien

Areas of application

This process is particularly suitable for collaborative projects in media production, such as magazines, periodicals or publications in the field of corporate publishing.

See also chapter „3.3.1 Editorial platforms“ on page 61 and chapter „5.5.2 Document-based systems“ on page 113.

Process variant 3:

Print creation based on XML, IDML templates

In the process variant based on XML or IDML templates (Fig. 5.21), customizable InDesign documents are exported in XML or IDML data format and made available on the web server as templates. Alternatively, there are systems with which XML-based templates can be designed directly in the system.

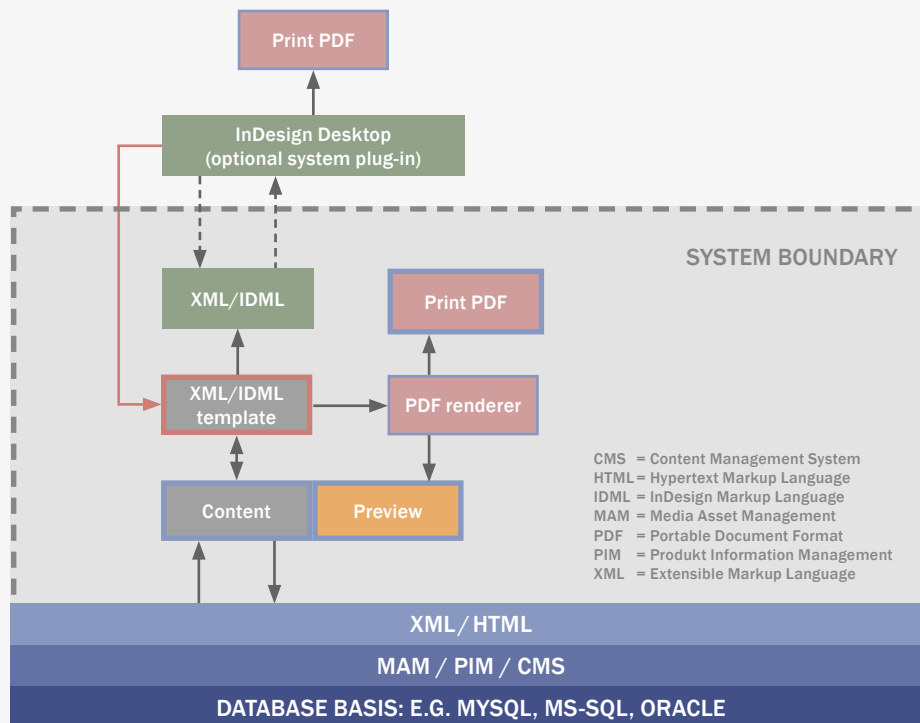


Fig. 5.21 Print process variant (3) based on XML or IDML templates. © Melaschuk-Medien

Changes in the template are made internally or the XML or IDML data is transferred to the InDesign desktop system again and also transferred back again. In individual cases, data may be lost, especially when XML data is converted. For this reason, it makes sense not to transfer the document back into the system after it has been exported to InDesign and to create the print PDF in the Desktop InDesign version.

Content can be automated or manually linked to the template, depending on system functionality. In principle, a high degree of automation is possible. It also depends on the degree of media-neutral administration of the content and the system functions whether content from a template can be written back to the databases (see *chapter „4.3 Media-neutral data management“ on page 75*).

A PDF renderer (like PDFlib, iText) is used to render preview and print PDF files.

Areas of application

This process variant is suitable for a wide range of applications, such as collaborative, template-based, but also automation projects in which the layout of the documents is largely standardized and extraction to InDesign is only necessary on a case by case basis.

See also chapter „3.1.4 Automation-based multi-channel systems“ on page 58.

Process variant 4:

Print creation based on PDF, IDML templates

When using this process variant (Fig. 5.22), customizable PDF or IDML documents are provided as a template basis in the system on the web server. If the template is changed, the document must be transferred to the system again and any changes already made are lost.

Content can be automatically or manually linked to the template depending on the system function. In principle, a high degree of automation is possible, but this is limited to comprehensively standardized publications, as possibilities for post-processing are limited in the layout. It depends on the degree of media-neutral administration of the content and the system functions whether content from a template can be written back into the databases.

A PDF renderer (such as PDFlib, iText) is also used to render the preview and print PDF files.

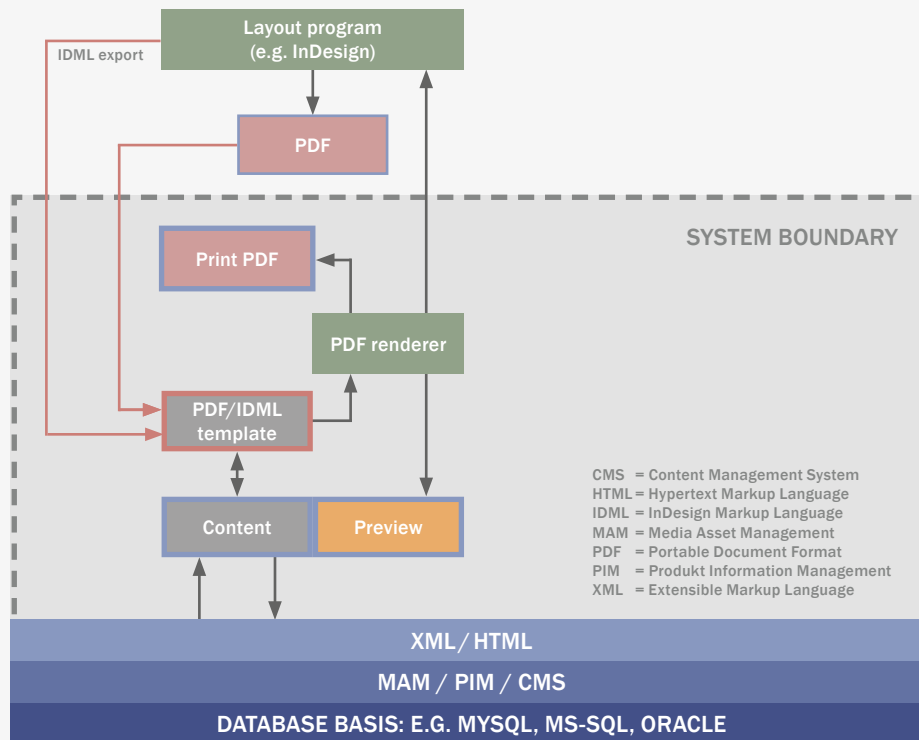


Fig. 5.22 Print process variant (4) based on PDF or IDML templates. © Melaschuk-Medien

Areas of application

This process variant is mainly used for the individualization of advertising materials and promotional items as well as for the fully automated creation of standardized publications, such as price lists or catalogs.

See also chapter „5.5.1 Template-based systems“ on page 111 and chapter „5.5.3 Automation-based systems“ on page 114.

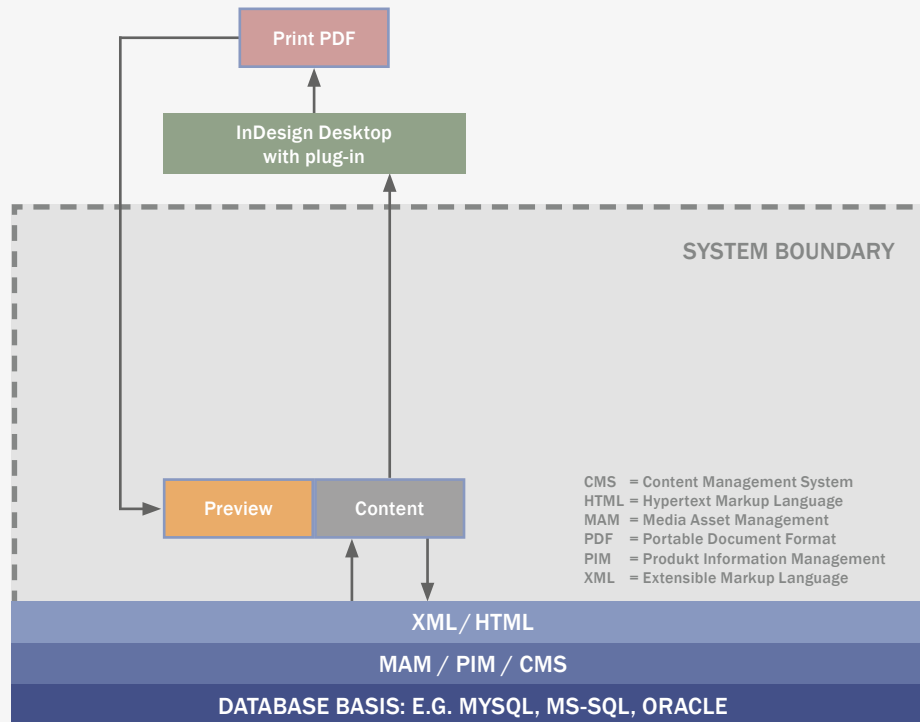


Fig. 5.23 Print process variant (5) with InDesign plug-in. © Melaschuk-Medien

Process variant 5:

Print creation with Indesign plug-in

In this process variant (Fig. 5.23), InDesign documents are created in an InDesign desktop version and are given access to the database contents via a system plug-in for InDesign. The database contents are linked to the layout elements in InDesign. Content changes can be

updated “at the push of a button” in the InDesign document.

This allows largely automated print productions in conjunction with the extensive option for local layout editing. Depending on the system, content can also be played back via the plug-in.

In the (database) system, there is no central access to the layout document and no binding preview. A PDF preview can be created in the InDesign desktop version and made available in the system to allow system users to view the current status of the layout document.

Table 5.1 compares the differences of the presented process variants.

Areas of application

This process variant is used if the layout creation is largely standardized and can be automated or decentralized layout processing is possible.

See also chapter „5.5.3 Automation-based systems“ on page 114.

WORKFLOW VARIANT PRINT CREATION	1 INDESIGN TEMPLATE BASE	2 INDESIGN- DOCUMENT BASE	3 XML/IDML TEMPLATE BASE	4 PDF/IDML TEMPLATE BASE	5 INDESIGN- PLUG-IN
SYSTEM CONCEPT	Template-based Automation-based	Document-based	Template-based Document-based Automation-based	Template-based Automation-based	Automation-based
TEMPLATE FORMAT	InDesign	InDesign	XML or IDML	PDF or IDML	InDesign
CENTRAL RENDER ENGINE	InDesign server	InDesign server	PDF	PDF	None
OUTPUT IN INDESIGN DESKTOP VERSION	Yes, native	Yes, native	Yes, after conversion	No	Not relevant

Tab. 5.1 Comparison of the print process variants. © Melaschuk-Medien

5.8 Web-to-Print

Web-to-print refers to production processes for the internet-based transmission or creation of printed matter.

The print products that are created, processed or commissioned by means of web-to-print are usually standardized - in terms of paper format, number of colors, page count or design. In addition to standardization, other important features of web-to-print are user operation via web browser and the automation of workflows.

The following web-to-print production routes (Fig. 5.24) can be differentiated, which include template-, document- and database-based system concepts.

Transmitting ready print files

Print documents are created using graphics or design programs (such as Adobe InDesign, QuarkXPress, Adobe Illustrator) and saved as PDF files.

These PDF files must contain settings that meet the qualitative requirements of the subsequent printing process (such as sufficiently high image

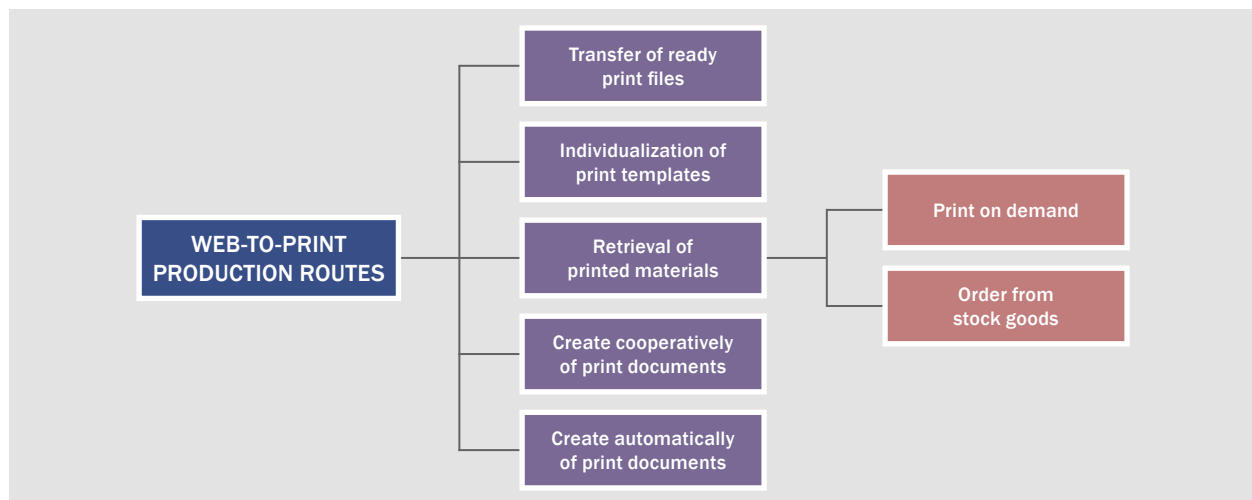


Fig. 5.24 Production routes in web-to-print systems can be implemented individually or combined.

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resolution, font size). The PDF file is uploaded to the web server in a web-to-print portal and from there is processed in further production steps up to the printing process.

Individualization of print templates

Templates are files that are stored on the central web server of a web-to-print system. The templates contain unchangeable (static) and changeable (customizable) elements and must be prepared beforehand in a separate step in a way that is compatible with the system.

The users of a web-to-print system call up the templates in the web application to individualize or personalize them (for serial documents). The results can be checked by the user during processing and before the final order in a preview view that is generated on the web server. The final document version is finally converted into a PDF print file on the web server and processed in further production steps until the printing process is complete.

Print on demand

When retrieving printed materials via a web portal, a distinction is made between “print on demand” (POD), where printed materials are only printed on request (order). On the other hand, a

web portal can be used to order printed matter that has already been pre-produced and can be retrieved from a warehouse stock.

Cooperative creation of print documents

Print documents are created cooperatively if they are provided centrally on a web server and, using the functionality of a web-to-print system, are created, edited or commented on cooperatively by several users for the purpose of correction.

Automatic creation of print documents

For the automated creation of a print document (like a product catalog) a print template with layout objects (text, image) is first created. In the next step, the individual layout objects of the print template (a product heading) are linked to the structure elements of a data source, such as a product database. A data structure element (product description) is assigned to each layout object of the template (product heading). Finally, the print document is created in which the print template is automatically merged with the contents of the data source. A common, synonymously used term for this production method is “database publishing”.

Examples for Web-to-Print applications

- Open print shops for standard printed materials, such as business cards or flyers, with calculation, ordering and uploading of finished print files.
- Advertising material portals of industrial companies whose branches or subsidiaries can access, individualize and order central corporate design-compliant advertising material templates via log-in.
- Creating editorial products, such as newspapers or magazines, in which several text and image editors and layout designers work together on a document.
- Translation of a product brochure into several languages, whereby the language documents are provided centrally and translated by the translators in the countries. The translators have layout control in an updatable preview.
- Creation of an extensive product catalog with several hundred pages based on product data managed by product information management.

This section “Web-to-Print” is part of the article “Web-to-Print” on Wikipedia.de, which was initially posted by the author Ira Melaschuk (*Wikipedia 2018*).

5.9 Dialog marketing

Dialog marketing includes printed or digital advertising aimed specifically at target groups or individuals and containing interactive components designed to lead to action or dialog.

This can include downloading a white paper or registering on a web form for an event.

The advertising media used for dialog marketing are correspondingly broadly diversified. Among the most important advertising media are those that enable one-to-one personalization, such as e-mail, messenger newsletters or print mailings. In cross-media dialog marketing, various advertising measures of a campaign (in particular e-mail, websites, print) are planned and linked with each other.

The link is established, for example, using personalized web addresses (PURLs). The execution and rejection of the personalized advertising material is carried out automatically, as is the measurement of success.

Variable data such as recipient data, product and media data, PURLs (personalized URLs) are linked to the advertising media, QR codes, geomaps (directions sketches, videos with simulated routes), image personalization or video personalization (Fig. 5.25).

The results of the campaign success flow - in real time - back into the database and optimize follow-up campaigns. The database includes recipient data, such as address or birthday, but also click behaviour on websites and the resulting areas of interest.

In the ideal case, it is a closed loop that is planned, controlled and provided with rule-based automatisms in a workflow. This includes, for example, sending reminder e-mails if address-

ees have not triggered an action after a defined period of time. The contents can be managed in a central database.

Cross-media dialog marketing is thematized under various names. These include the terms “marketing automation”, “cross-media marketing”, “e-mail marketing”, “newsletter marketing”, “permission marketing” or “lead management”.

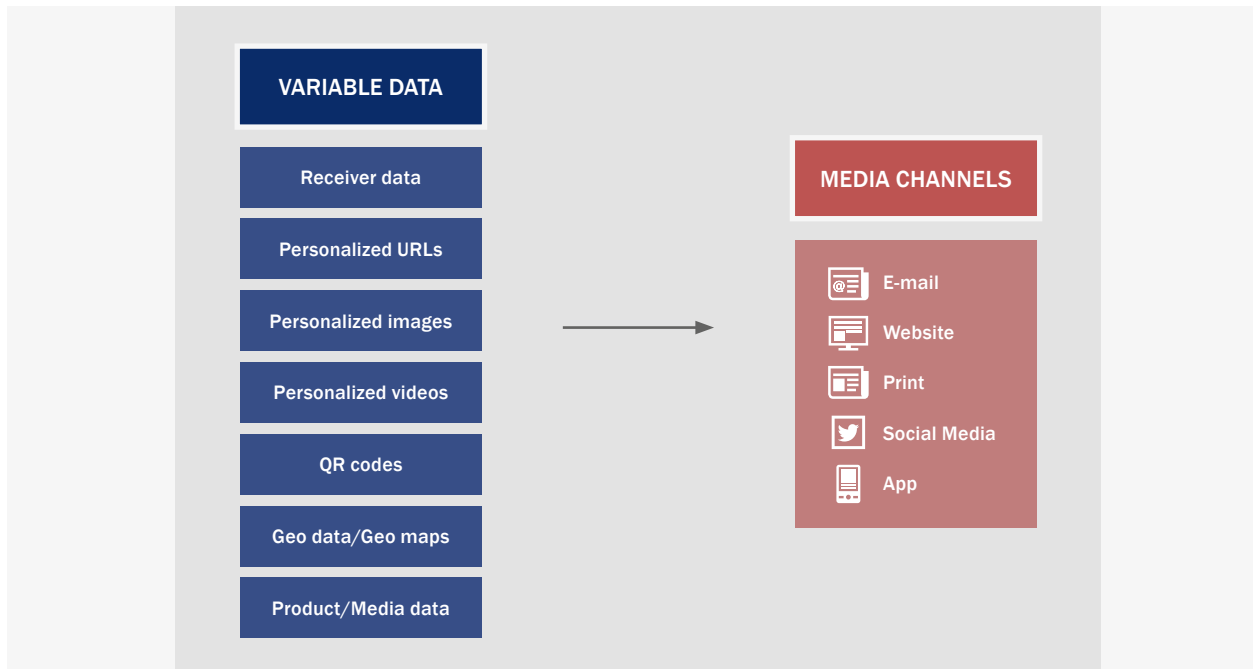


Fig. 5.25 Variable data for the personalization of dialog marketing campaigns. © Melaschuk-Medien

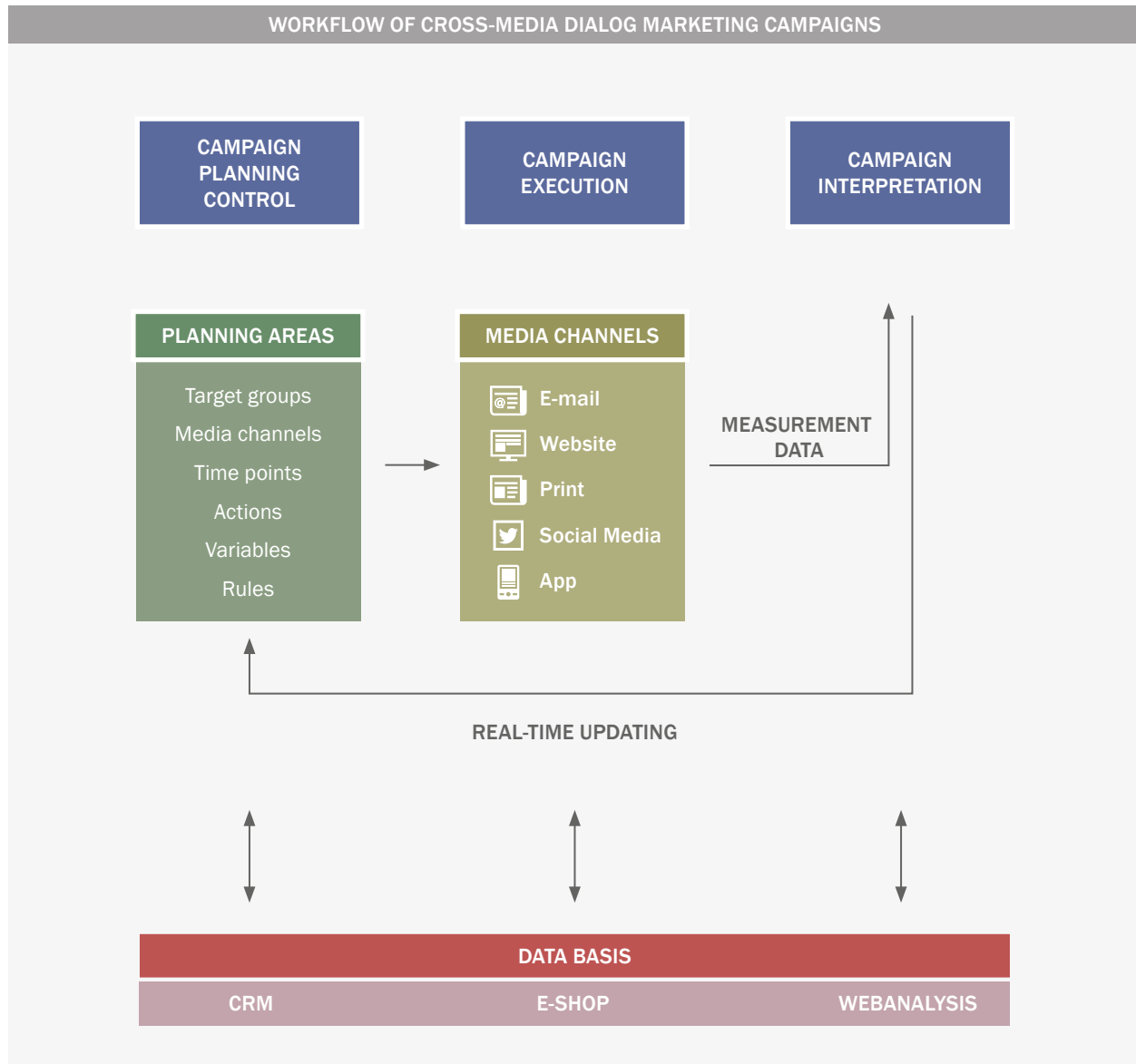


Fig. 5.26 Cross-media dialog marketing campaigns as a cycle with planning and control, implementation and evaluation.
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The following requirements are important for automated marketing campaigns:

- High-quality database (addresses, product data)
- Clear marketing strategy (goals, measures)
Attractive offers (incentives) and contents (relevance to the target group)
- Feedback (performance measurement) with reverse transfer (data optimization, sales support)

Campaign workflow

The course of a campaign is divided into the steps analysis and strategy, planning, campaign execution, measurement and evaluation (Fig. 5.26).

Analysis and Strategy

Market and data analyses as well as the definition of the campaign strategy are at the beginning of a dialog marketing campaign.

Targets can be:

- Customer loyalty
- Activation of inactive regular customers
- Product sales and sales increase
- Information on new products

- Sales support
- Branding

Planning

The target groups, advertising media, variable data, actions and times are planned within a planning tool in the system.

Also accompanying measures outside the system, like telephone marketing, press reports, blog contributions, television, radio and print advertising belong to the campaign preparation.

Campaign execution

Campaigns are executed automatically on a time-controlled basis and actions are changed or supplemented in real time as required.

Depending on the campaign rules, the main and follow-up actions (such as follow-up e-mails) are executed automatically.

Measurement and evaluation

Campaign data is measured and transmitted to the system. The database is supplemented if necessary and the results are visualized in diagrams and lists. The campaign data includes, for example, the click behaviour of the recipients or the number of purchase actions.

Main applications

The following describes typical areas of application for dialog marketing campaigns with exemplary objectives and campaign elements. As a rule, these are multi-level campaigns in which several actions are executed in parallel or consecutively in a defined time-controlled sequence.

New customer acquisition and existing customer care

Targets:

Winning prospects and new customers, retaining customers to increase product sales, increasing newsletter opening rates, taking advantage of discount promotions.

Campaign elements:

1. Sending personalized e-mails, newsletters or print mailings with an invitation to visit a website with a special offer (landing page). Content and incentives are individualized offers, test products, gifts, raffle participation, discount campaigns or vouchers, which can vary based on the recipient profiles (such as higher discounts for recipients who have been inactive for a longer period of time).

2. On the landing page, the updated recipient data is entered for retrieving offers, gifts or participation in surveys and promotional games.
3. Sending reminders and postcards to non-respondents.
4. Send a thank-you letter by post or e-mail.

Increase of purchase transactions and turnover

Targets:

Motivate potential buyers in the online shop to close broken shopping baskets, reactivate inactive existing customers, more purchase actions after the creation of offers and shopping baskets.

Campaign elements:

1. Sending personalized e-mails with individual customer approach based on recipient and shop transaction data, also in connection with a voucher campaign.
2. Reminder mailings with selected offers, product recommendations (e.g. based on the products in the cancelled shopping basket) and coupon codes.

Event management

Targets:

Increase the number of participants for events, e.g. reaching high numbers of visitors at a fair or a roadshow.

Campaign elements:

1. Send a personalized print mailing and emails with an offer for a free ticket including registration code. The mailing contains a personalized URL and a personalized QR code whose link targets lead to a landing page with registration form.
2. Recipients register via a registration form on the landing page with recommendation function on social media channels.
3. Confirmation e-mail that enables the log-in data for the event ticket shop and the ticket download.
4. Vouchers can be exchanged or gifts collected on the day of the event.
5. Reminder mail or postcard for non-responders.
6. After the event: Sending e-mails or print mailings with an event review.

7. Outlook

Dialog marketing campaigns are part of marketing and sales activities that are currently often carried out in isolation from other marketing systems or advertising measures in terms of system technology and organisation.

However, there are already approaches to integrate dialog marketing systems into web-to-publish or marketing portals. This allows personalized advertising measures to be centrally prepared and individually designed.

The greatest challenge, however, is to be seen in the consistently maintained database on which the feasibility and success of dialog marketing campaigns depend.

More than 80 percent of online experts in industrial, commercial and service companies will invest in improving data quality (*Eichsteller 2017*).

See also chapter „3.1.3 Dialog marketing systems“ on page 57.

6 COMMUNICATION CHANNELS

SUMMARY

The term communication channels is used in this chapter as a generic title for advertising media and media channels. In a tabular overview, separated into print and digital, advertising media are assigned to the media channels for which they can be used.

These tables can be used by marketing strategists during planning because they show which advertising media can only be used in one or more media channels.

Individual media channels and advertising media are then viewed separately – in terms of content, technologies, market relevance and trends. The market observations in this chapter relate primarily to the German or German-speaking market. This information can be used to evaluate existing or planned communication channels and integrate them into the marketing strategy.

6.1 Overview and trends

The diversity of media channels continues to increase, especially in the digital sector, and in many cases leads to technically and organizationally independent production processes. An example of this are e-mail campaigns, which are implemented as an important marketing instrument as standard, but in companies often by using stand-alone solutions.

In future, however, largely automated planning and control of the entire media mix will be required. For example, the share of digital advertising in the total budget of the Volkswagen Group is expected to approach 50 percent, as marketing manager Jochen Sengpiehl explained in an interview with the magazine HORIZONT (*Scharrer 2019*).

Media channels and advertising media in the market overview Web-to-Publish systems

The interactive market overview Web-to-Publish systems of Melaschuk-Medien is updated annually by the providers. The diagram (Fig. 6.1) shows the evaluation of the results from the update of the market overview Web-to-Publish at the beginning of 2019 compared to the corresponding data from 2017.

Some digital communication channels have relatively high growth rates, such as online marketplaces (plus 14 percentage points), search engines (plus 9 percentage points), online/mobile (plus 7 percentage points), office applications (plus 7 percentage points), e-mail and messenger (each plus 4 percentage points). Data for media channels that are supported by internal functions in the systems (in contrast to media channels generated) were taken into

account. The newly added media channel “Out-of-Home” is not shown here because the database for it was not yet sufficient.

The following overviews (Tab. 6.1 and 6.2) connect printed and digital advertising media to the media channels and thus provide an overview of the respective application spectrum.

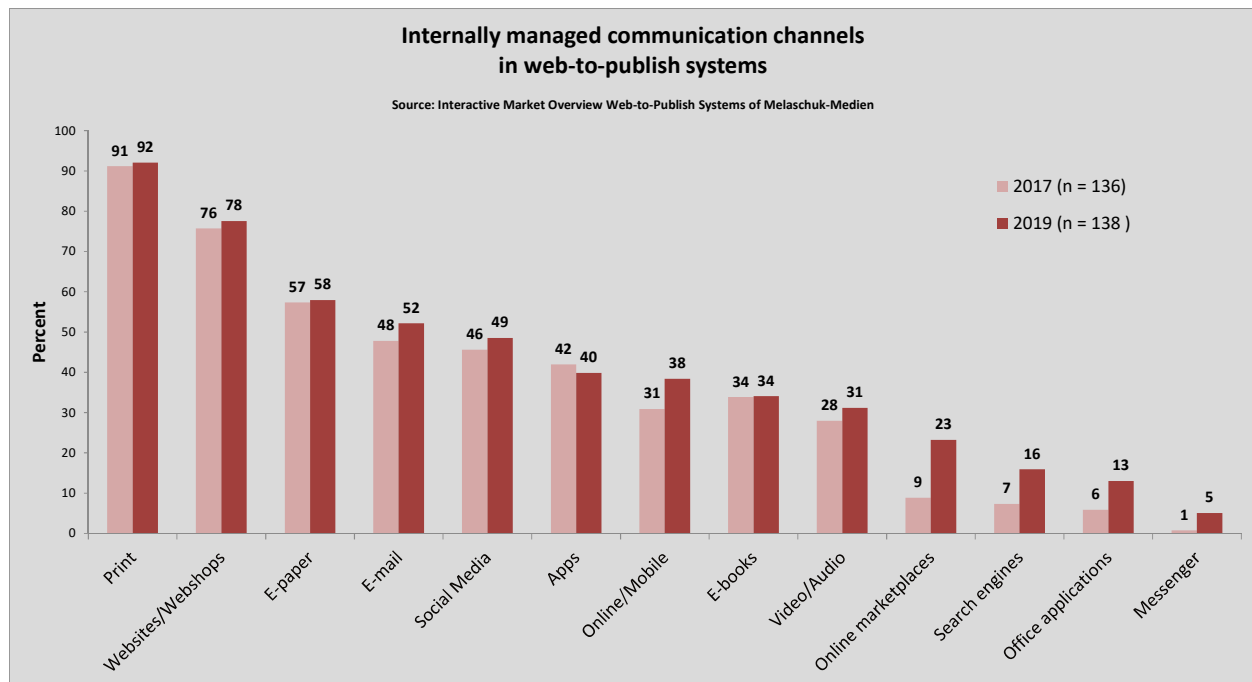


Fig. 6.1 Communication channels supported internally in web-to-publish systems. Data from the market overview Web-to-Publish 2017 and 2019, version in German, comparison (Status 2019: 26.06.2019). © Melaschuk-Medien

CHAPTER 6 COMMUNICATION CHANNELS

Media channels Ad material print	One-to-One marketing Home	Point of Sale (POS)	News-paper Magazine	Out-of-Home	Internet Web-shop Online market place	Mobile Apps	Social Media	Cinema Radio TV	Internet of Things
Flyers, leaflets, brochures	✓	✓	✓						
Business cards, letterheads, envelopes, folders	✓	✓							
Coupons, discount cards	✓	✓	✓						
Posters, billboards, large format prints		✓		✓					
Brochures, catalogues, price lists, books, instruction manuals	✓	✓							
Packaging, labels, stickers	✓	✓							
Flags, roll-ups, beach flags, displays, signs		✓		✓					
Vehicle signage				✓					
Print ads			✓						
Mailing	✓								
Promotional items	✓	✓							
Indoor furnishing, event objects		✓		✓					✓

Tab. 6.1 Overview of typical print advertising media and their use in single or multiple media channels.

© Melaschuk-Medien

Media channels Ad material digital	One-to-One marketing Home	Point of Sale (POS)	News-paper Magazine	Out-of-Home	Internet Web-shop Online market place	Mobile Apps	Social Media	Cinema Radio TV	Internet of Things
Brochures, catalogues, price lists, books, instruction manuals	✓	✓	✓		✓	✓	✓		✓
Search engines, online directories entries and advertising					✓	✓			
Online ads (web, social media)					✓	✓	✓		
Messenger ads					✓	✓	✓		
Social media profiles and posting					✓	✓	✓		✓
Website, blog, microsite, landing-page					✓	✓	✓		✓
Online-newsletter (e-mail, messenger, app push notifications)	✓				✓	✓			✓
Community, chatroom, forum	✓				✓	✓	✓		
Video spot, slideshow, 360-degree panorama image		✓	✓	✓	✓	✓	✓	✓	✓
Digital signage, POS-TV		✓		✓					✓
Cinema, radio, TV spot	✓	✓		✓	✓	✓	✓	✓	
Skill, podcast	✓	✓			✓	✓		✓	✓
Augmented reality, virtual reality	✓	✓	✓	✓	✓	✓	✓	✓	✓

Tab. 6.2 Overview of typical digital advertising media and their use in single or multiple media channels.

© Melaschuk-Medien

6.2 Print

Print products are increasingly part of the mix of media and communication channels (Fig. 6 2). In the long term, a leading role will only be maintained in some sectors, such as the production of packaging, labels or functional printing.

Difficult conditions

For some years now, the printing industry has been exposed to sustained strong competition in an international market, monopolization by “printing factories” and shifts in advertising budgets from print to digital. According to calculations by the Bundesverband Druck und Medien e. V. (German Printing and Media Industries

Federation), the production values of the printing industry for all products and services fell by 2.0 percent year-on-year in 2018 (*BVDM 2019*).

Digital printing offers chances

The former mass production of printed matter is increasingly being replaced by individualized, target group-oriented small and very small print runs that can be realized with digital printing „6.5 *One-to-one communication*“ on page 149. For many companies, this supports the optimization of business processes by no longer storing large quantities of printed matter, but producing and delivering it on demand. This reduces storage costs and ensures that print products are always up to date.

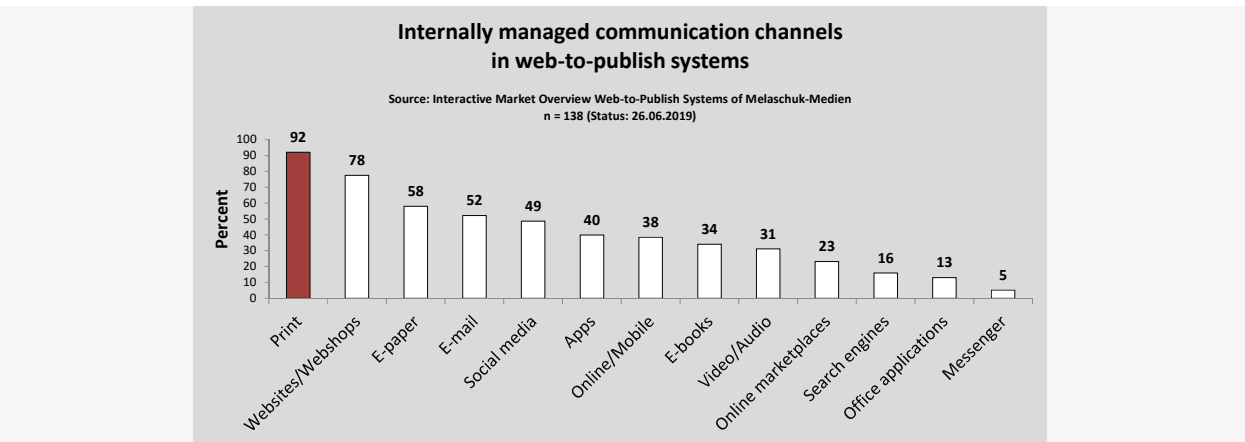


Fig. 6.2 Percentage of print channel support in web-to-publish systems. © Melaschuk-Medien

Print in the media mix

Another trend is the combination of print products with elements that link to digital offerings, such as URLs to landing pages, QR codes, wireless technologies such as NFC or beacons, and augmented reality technologies. *See also chapter „5.9 Dialog marketing“ on page 132 and chapter „6.10 Mobile“ on page 158.*

One speaks of web-to-print systems when the media channel print is almost exclusively supported in web shops (*Wikipedia 2018*). *See chapter „5.8 Web-to-Print“ on page 130.*

Print as advertising medium

The statistics of the Zentralverband der deutschen Werbewirtschaft ZAW e. V. (Central Association of the German Advertising Industry) show a decline of around one percent in advertising investments for all recorded advertising media in 2018. Eight out of twelve advertising media allocated to the print sector account for 66 percent of total net advertising revenues. Daily newspapers, advertising journals and trade journals are among the five media with the highest shares of sales in the ZAW evaluation. However, in 2018 only online and mobile advertising (7.1 percent), outdoor advertising (1.2 percent) and radio (0.6 percent) achieved a year-on-

year increase in revenues. The biggest declines compared to the previous year were recorded by the cinema (minus 15.4 percent), advertising newspapers (minus 7.2 percent) and daily newspapers (minus 7.0 percent) segments. Television, the medium with the highest revenues, also fell slightly by 1.2 percent (*ZAW 2019*).

6.3 Online platforms, websites and apps

The importance of the internet for society and the economy continues to grow: According to the ARD/ZDF online study, 90 percent of the German-speaking population aged 14 and over are now online. In 2018, 63 million people had internet access, compared to 62 million in 2017. Mobile internet use, driven by the smartphone as a constant companion, has also risen sharply: 37 percent of Germans use the internet every day on the move; among the 14- to 29-year-olds, the figure is 70 percent (*ARD/ZDF 2019*).

Online platforms as advertising media

Web-to-publish systems are in themselves web platforms for the creation, processing, administration and distribution of advertising materials and documents. However, if the media channels website or web shop are mentioned, they fulfil the function of advertising media, such

as trading platforms or publishing websites, on which advertising can be placed (Fig. 6.3). The AGOF (Arbeitsgemeinschaft Online-Forschung) lists 558 websites (January 2019) as relevant advertising media, including autobild.de, duden.de, gutefrage.net and wissen.de (*AGOF 2019b*).

The importance of search engines as an advertising medium is also important, as the occasional or frequent use of search engines within internet use is in first place with around 94 percent (*AGOF 2019a*).

Online advertisements

Online advertisements are published on highly frequented websites, trading platforms, social media channels, within messengers, in mobile apps or in the digital out-of-home (DOOH) sector. The term “display advertising” is also commonly used to distinguish it from more text-oriented forms of advertising, such as in search engine marketing. Net advertising revenues for online and mobile advertising in 2018 were up about seven percent on the previous year. This puts these advertising media in third place after television and daily newspapers in the corresponding ZAW statistics (*ZAW 2019*).

Websites and apps

The term “app” is usually used for application programs that are used on mobile devices such as smartphones and tablet PCs.

Revenues and download figures in the Apple and Google app stores are at a consistently high level. Of the more than two billion downloads in 2018, 1.4 billion (67 percent) came from Google’s Play Store and 704 million (33 percent) from Apple’s App Store (*BITKOM 2019a*).

The apps as extensions in mobile devices, especially smartphones, integrate important everyday functions for users, such as camera, file manager, TV and audio player or weather, map and news services. The use of applications in the retail sector is also increasing in order to simplify shopping: products are scanned with a smartphone and can be paid for either immediately via an app or at the checkout without having to enter them again (*Horizont 2019*).

In the long term, apps will be partially replaced by functions that are taken over by bots as part of customer communication (see chapter „6.5 One-to-one communication“ on page 149).

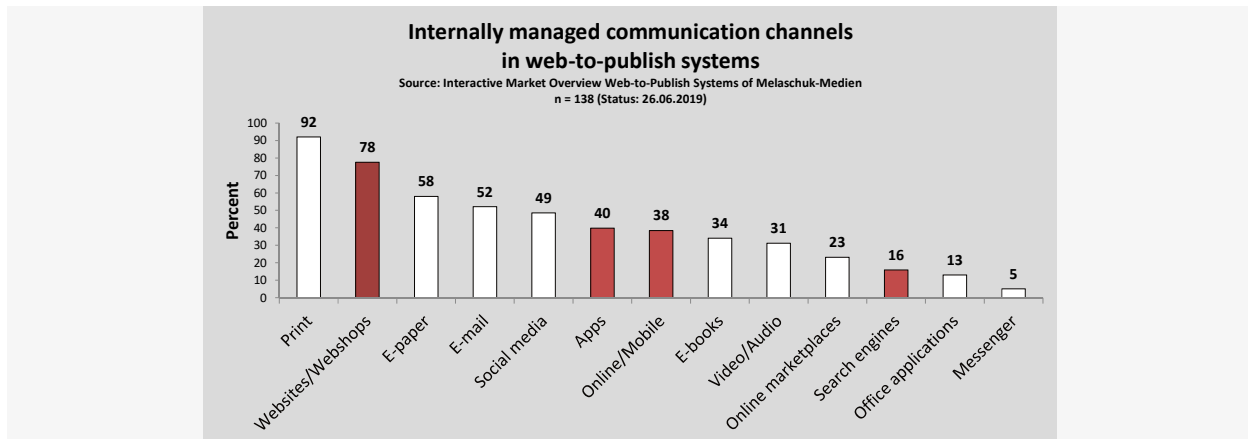


Fig. 6.3 Percentage of support for online platforms and apps in web-to-publish systems. © Melaschuk-Medien

Technical variants

The technical app variants include native apps, web apps and hybrid apps.

Recent developments that support increasing mobile internet use include Accelerated Mobile Pages (AMP) and Progressive Web Apps (PWA).

Native apps are programmed for a specific operating system, such as Google's Android or Apple's iOS. The app must be installed on the mobile device. The development effort is particularly high if an app is to be made available for different operating systems. The reasons for using native apps so far have been the use of device functions such as camera or location detection and high demands on design, usability or performance.

Web apps are created using web technologies (HTML, CSS, JavaScript) and can be accessed via URL links in web browsers. The high degree of coverage of operating systems and end devices as well as the relatively cost-effective development speak in favour of web apps. However, the use of device functions such as camera, telephony or location data is not self-evident.

So-called hybrid apps, in which only a single app is programmed and certain functions, such as access to device functions, are programmed natively, provide a solution. Therefore the development is simplified and usually cheaper. The technologies around AMP and PWA, which are to be assigned to mobile optimized websites, are supposed to facilitate the increasing

mobile use of the internet mainly by increasing the performance and platform-independent development.

6.4 E-commerce

According to Handelsverband Deutschland (HDE), the online share of the German retail sector is growing steadily and amounted to 10.1 percent in 2018. However, at 9.1 percent, the growth rate of online sales is following a declining trend (2017: 10.5 percent). The largest revenues are generated in the fashion and electronics segments, the highest growth rates in the FMCG (Fast Moving Consumer Goods) segment (HDE 2019).

Online marketplaces gain in importance

Online marketplaces play a major role in retailing (Fig. 6.4) and impair the growth of providers who operate only one online shop without a marketplace connection. The platforms include various options for individual company and product presentation through to fully automated trading transactions.

Amazon already accounted for 46 percent of online sales in Germany in 2018. In addition to other established online marketplaces such as ebay, mercateo, Alibaba, Wer-liefert-was and Rakuten, other marketplaces and online shops such as Zalando, Otto and Europages (HDE 2019) (Förster 2019) are also gaining in importance. For advertisers, retail platforms are

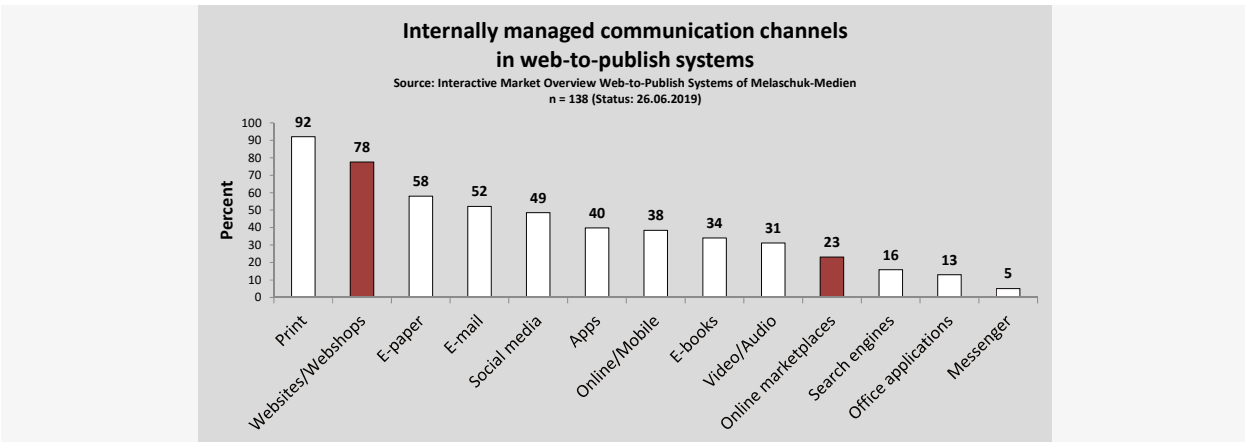


Fig. 6.4 Percentage of e-commerce support in web-to-publish systems. © Melaschuk-Medien

becoming increasingly interesting as advertising media under the keyword “retail media”.

In the B2B sector, Amazon Business is gaining in importance as a purchasing platform for business customers. The targeted search using filter functions, the comparability of prices and the transparency of delivery conditions are seen as essential advantages. The biggest obstacle is the dependence on the marketplace operator and the difficulty of negotiating individual prices (*ibi 2019*).

57 percent of the companies that use Amazon Business also have integrated internal IT systems, such as Enterprise Resource Planning (ERP), merchandise management, Product Information Management (PIM), financial accounting or Customer Relationship Management (CRM). The most common problems with the connection to marketplaces result from unsuitable product data quality. Even when operating their own shop systems, only 38 percent of companies update product data fully automatically (*ibi 2019*) (*ibi 2018*).

E-commerce functions are also increasingly being integrated into social media platforms or Google. Product recommendations can be ordered and paid for directly.

6.5 One-to-one communication

One-to-one communication is also referred to as direct marketing and comprises advertising measures, for example by means of print or e-mail newsletters or messengers, which are directed at individual recipients or recipient groups (Fig. 6.5). Customers in an online shop can be informed by newsletter about new products and current offers or a service is offered for products with further information. The target-group-specific design of offers based on profile information can also enable targeted addressing.

Print media

Using digital printing or imprinting systems, personalized print mailings can be produced in any number. In the simplest form, the recipient's address varies; in complex applications, the products displayed in mailings, catalogs, brochures or product inserts are also output customer-specifically. Delivery to the recipients is via direct addressing, partial or non-addressing, in which target group-specific areas or households are selected. In a study in which 50 online retailers participated, an average conversion rate of 4.5 percent was determined for print mailings (ratio of sent print mailings to redeemed voucher codes) (*CMC 2019*).

Digital Media

The German population aged 14 and over spends around 87 minutes a day on individual communication, including chatting, e-mail, messenger and WhatsApp. In the 14-29 age group, the usage time is 152 minutes (*ARD/ZDF 2019*). By far the most frequently used messenger in Germany is WhatsApp (81 percent), followed by Facebook Messenger (42 percent) and Skype (24 percent). Snapchat, iMessage and Telegram (*BITKOM 2018*) are further examples. Messenger messages are used according to the medium rather for short messages, like current offers or new products. But also news services and the possibility of product orders or bookings are possible. The technical basis for this is provided

by so-called (chat) bots, which can be used to run automated processes that are increasingly equipped with artificial intelligence (AI) and function via voice control.

Application examples for chatbots:

- Online customer consulting
- Online orders
- Customer service
- Online reservation and booking

Messengers replace web applications

Chatbots will therefore also replace functions of apps or websites of individual product or service providers and messengers will develop into multifunctional platforms. Standardized

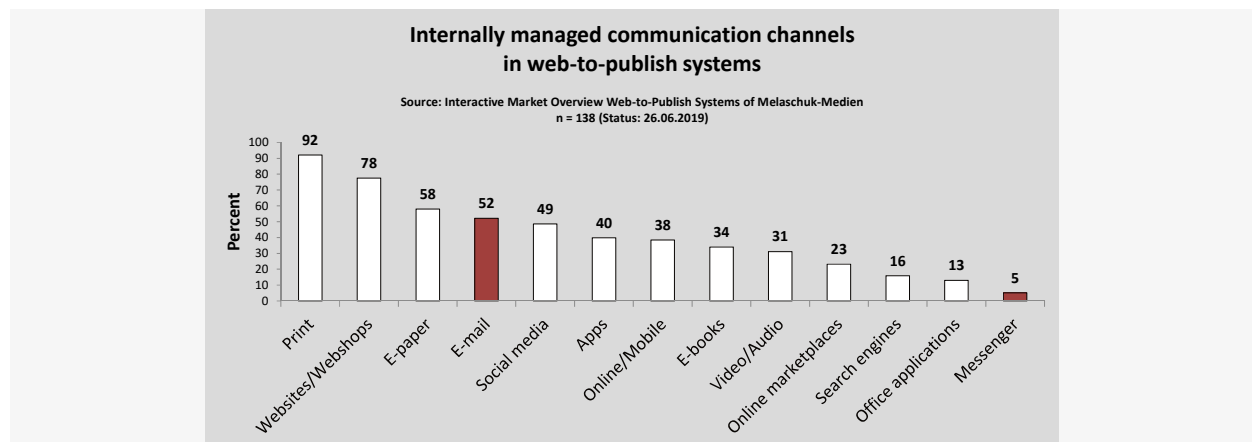


Fig. 6.5 Percentage of one-to-one communication in web-to-publish systems. © Melaschuk-Medien

interfaces are provided in the messengers (API, Application Programming Interface) and the corresponding offer can be installed by users within the messenger.

6.6 Social media

Social networks play an important role in marketing concepts (Fig. 6.6). The regular use of social networks by the German-speaking population at least once a week in 2018 was distributed as follows (ARD/ZDF 2019), figures in brackets (value of total population/value of 14-29 year-olds):

- WhatsApp (72 percent/no data)
- Facebook (31 percent/63 percent)
- YouTube and other video portals¹ (39 percent/83 percent)
- Instagram (15 percent/50 percent)
- Snapchat (9 percent/36 percent)
- Twitter (4 percent/7 percent)
- Xing (4 percent/5 percent)

¹for example MyVideo, Clipfish

The data for WhatsApp were collected in a separate study because the platform has a special position between chat service and social network.

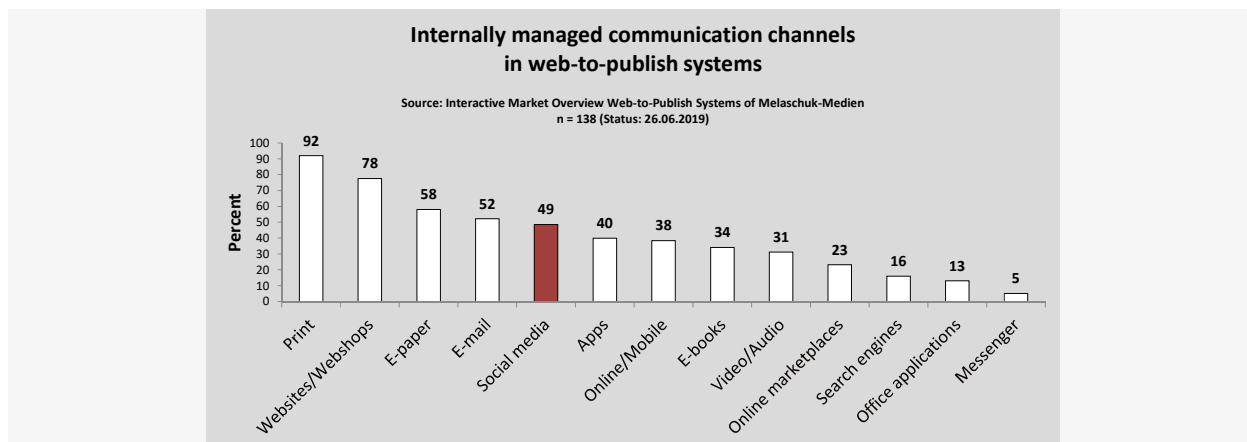


Fig. 6.6 Percentage of social media support in web-to-publish systems. © Melaschuk-Medien

Regardless of “stand-alone” messenger apps such as WhatsApp or Facebook Messenger, the direct messaging feature frequently integrated into social networks is used by users for direct communication.

Despite numerous negative headlines, the number of Facebook users declined only slightly at a high level. Rising user numbers reach Snapchat and especially Instagram, while Xing and Twitter remain stable (*ARD/ZDF 2019*).

Interesting for advertisers are the options on platforms such as Facebook and Instagram to play out advertising to the desired target groups, reach and marketing goals.

Purchasing functions are now also being integrated into social networks and messengers.

6.7 Out-of-Home

Out-of-Home (OOH) includes both printed and digital media used in outdoor communication and marketing, outside of private premises.

The media types of outdoor advertising are diverse and include large-format posters and giant posters, city light posters, mega lights, city light boards, digital displays and monitors in public areas, automotive advertising and full pillars. OOH ranks 4th among the media channels after television, print and online and is steadily increasing its market share (2013: 5.5 percent, 2018: 6.8 percent) (*FAW 2019*).

The OOH advertising segment is divided into the classic segment (focus on print) with a share of 75.0 percent and the digital segment with a share of 24.1 percent in 2018. In the classic segment the poster dominates with 88.0 percent, in the digital segment the traffic media lead with 62.5 percent (*ZAW 2019*).

Use in practice

BMW AG attracted a great deal of attention with a classic large-format print campaign for the MINI Connected smartphone app. Posters were used to advertise the app, which helps users

to drive through the city without traffic jams by means of real-time traffic information. The posters were equipped with real staircases, ladders and doors that allowed passers-by to take a time-saving shortcut through the city. The campaign was awarded a prize for the best innovative use of OOH by the FAW outdoor advertising association (*PlakaDiva 2019*).

The REWE food retail chain has a network with more than 2000 screens in over 400 stores, where both its own and third-party advertising is shown (*Göpfert 2016*).

Out-of-home solutions are also used to solve requirements for control and information systems in public institutions or corporate communications. Such solutions, which are implemented within the company or at the point of sale (POS), can also be summarized under the term “digital signage” or POS-TV.

6.8 E-books and e-paper

According to Wikipedia, the term e-book refers to books in digital form that can be read on e-book readers or with special software on personal computers, tablet computers or smartphones (*Wikipedia 2019f*).

In this sense, the term e-book is also used in this book - with a focus on books and in contrast to digital publications that are available in the form of e-papers or apps for mobile devices (Fig. 6.7). E-papers, also known as flip books, are often created on the basis of print documents and, unlike e-books, do not allow content to be automatically adapted to different display sizes. Typical applications are digital editions of newspapers and magazines.

Digital added values

Integrated functions of e-books include scaling, keyword search, chapter and page overviews, marking of text passages, integrated video and audio files, links and reading aloud. Of particular interest to e-book readers is the dynamic adaptation to different display sizes through the variable setting of fonts, font sizes or line spacing.

Among the most important data formats for e-books are EPUB and vendor-specific Amazon file formats (such as MOBI). EPUB is based on a number of standard technologies, including HTML, XML, CSS, SVG and ZIP.

Adjustment of the conditions for print and digital media

According to a Bitkom study (*BITKOM 2019b*), around a quarter of German citizens read digital books. However, this proportion has remained almost constant since 2014. Printed books have not been replaced by e-books. Many publishers also supply their digital counterparts with the print edition, so that both media forms coexist.

The fixed book price also applies to digital books in Germany. This means that a digital book may be offered at a different price than the printed edition, but this must be the same in all distribution channels. This already common practice was confirmed in the Book Price Fixing Act, valid from 01.09.2017 (*BMJV 2017*).

The further spread of e-books could benefit from the amendment of an EU directive which would allow the application of the reduced tax rate of seven percent to e-books, which already applies to print products. This regulation is expected to enter into force at the beginning of 2020 (*BEVH 2019*).

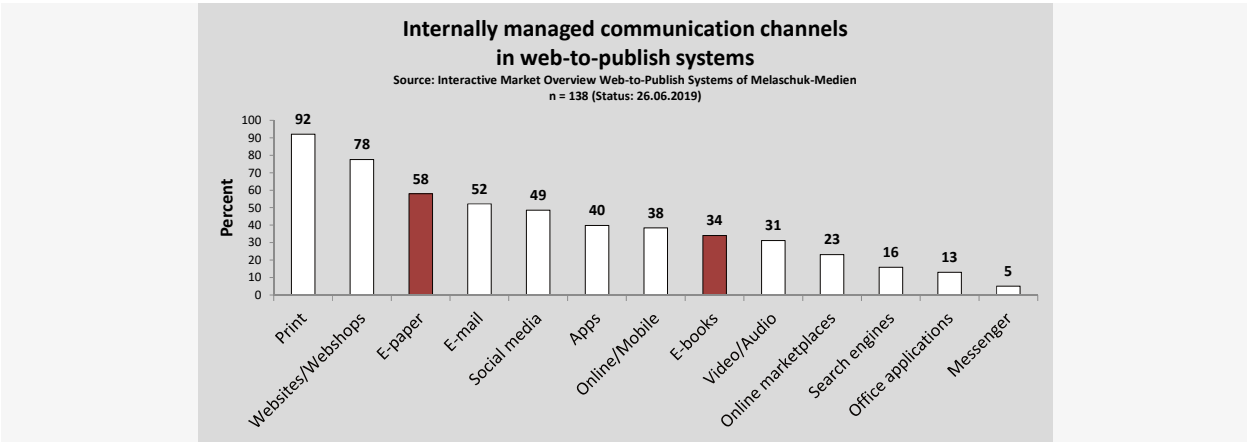


Fig. 6.7 Percentage of e-book and e-paper support in web-to-publish systems. © Melaschuk-Medien

6.9 Moving image / Video / Audio

The use of moving images is continuously increasing: 75 percent of the German-speaking population aged 14 and over watched online videos at least rarely in 2018. In the 14-29 age group, the figure is 99 percent (*ARD/ZDF 2019*).

Areas of applications

For marketing and communication (Fig. 6.8), there are also a number of possible application scenarios in the moving image area:

- Videos as advertising on the internet.
- Video streams on social media platforms for advertising purposes with interaction possibilities.
- Moving images for advertising or information purposes at the point of sale that are displayed on monitors, for example in sales rooms, at trade fairs, presentations or press conferences.
- Moving images for advertising purposes on digital outdoor advertising spaces (Digital-Out-Of-Home, DOOH), streets and squares, supermarkets and public transport.
- Video productions in marketing materials as supplementary product information to

illustrate how products work or to illustrate views of products.

- Video productions as a supplement in specialist books or magazines in order to illustrate and deepen facts and topics.

Technical realization

The management of moving image data makes sense in media databases with integrated preview. The data can thus be assigned and used for export to digital output channels (such as websites, monitors). Optionally an individualization of video files is possible; for example by the individual customization of the intro and outro of a video.

In networked digital signage systems - also known as POS-TV - the moving image content is centrally processed and made available. The sequence of the moving images can be defined manually or automatically in so-called “playlists” or “scripts”. These moving image sequences are transmitted to or retrieved from decentralized playout locations, such as branches of a company. Decentralized individualization and the integration of real-time information, such as weather data or social media posts, is also often possible.

Diverse channels for online video consumption

In the area of online video consumption, the trend towards time-independent use continues and a large number of users alternate between several channels. Consumption across all channels takes place on televisions, PCs, laptops, tablet PCs and smartphones. In terms of daily use, the channels are ranked as follows (ARD/ZDF 2019):

- Video portals such as YouTube (15 percent)
- Video streaming services like Amazon, Netflix etc. (12 percent)
- Videos on Facebook (9 percent)
- Media centres of television stations (7 percent)

- Television live or time-shifted (6 percent)
- TV time-shifted and live TV on the internet (3 percent)
- Video podcasts (2 percent)

Growing audio market

The use of audio services on the internet continues to increase in line with the video sector: 66 percent of Germans over the age of 14 listen to audio on the internet, compared with 98 percent of 14-29 year-olds. One of the most popular applications is YouTube and the most frequently used device is the smartphone.

Voice assistance systems and voice boxes are becoming more and more relevant. The best

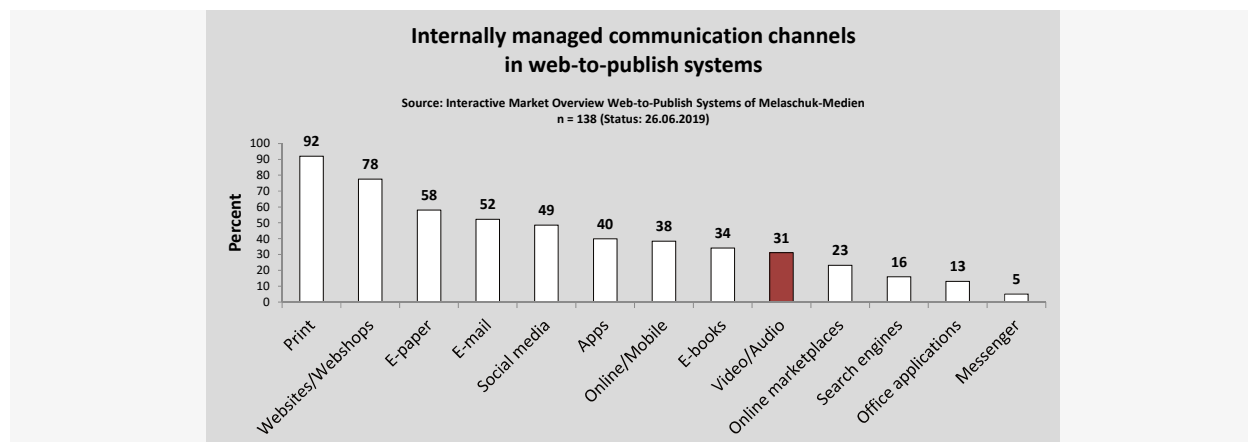


Fig. 6.8 Percentage of video and audio support in web-to-publish systems. © Melaschuk-Medien

known is Alexa from Amazon and the most frequently used feature is voice messaging via WhatsApp (*ARD/ZDF 2019*). In many cases, language will replace written communication in the future.

6.9.1 Virtual Reality (VR) and Augmented Reality (AR)

In virtual reality applications, interactive worlds are designed on a digital basis in which people move, act interactively and see themselves as part of this environment. Movement in virtual space is made possible by data glasses with integrated motion sensors that record head movements and translate them into virtual reality.

Application examples:

- Simulation and configuration of interiors in furniture stores.
- Individual configuration of passenger cars.
- Shopping in virtual shopping centers.
- Instructions for service employees in the field of technical systems or in the automotive sector.
- Virtual stays in holiday resorts at the travel agency or participation in events.

According to a survey by the digital association Bitkom, one third of Germans have already tested virtual reality glasses (*BITKOM 2019c*). Not only will there be exciting marketing opportunities, but the benefits for consumers and manufacturers will also be high if customers can use visualizations to make safe purchasing decisions and avoid complaints.

In contrast to virtual reality, users of augmented reality applications remain in the real world. Objects are captured by mobile devices using intelligent image recognition techniques and then linked to the appropriate digital content. Existing applications exist for packaging or in catalogs. A well-known example of this is the Ikea catalog, for which an app is available that can be used to place furniture within one's own virtual space.

On an independent internet platform (<https://realitiesoftheworld.de>) are presented by the Bundesverband Digitale Wirtschaft (BVDW) VR and AR applications that can be filtered according to criteria (*BVDW 2019e*).

6.10 Mobile

The term “mobile” refers to advertising and communication measures that are transmitted to recipients by means of mobile devices or trigger actions. Applications in the area of location-based services are particularly linked to mobile devices. In this context, technologies such as Beacon, NFC or QR codes, which act as a “media bridge” between print, online and offline channels, should be mentioned.

Location Based Services (LBS)

Location-based services (LBS) are transmitted via apps and integrated location recording (GPS, WLAN, Bluetooth or radio cell location) depending on the geodata of users of mobile devices. If the target persons enter a defined area, advertising is played out in the form of “push notifications” (see below). This is also called “Geo-fencing” (artificial word from “Geographic”, and “Fence”).

Near Field Communication (NFC)

NFC (German: Nahfeldkommunikation) is a radio technology that can transmit data between devices over short distances (up to about 4 cm). The standard integration in smartphones will increase the number of applications for

NFC. “NFC tags”, which contain a chip with an antenna, are applied to objects and activated by placing the NFC-enabled smartphone on them. Additional apps do not need to be installed. One area of application is cashless payment in retail.

Beacons

Beacons are radio chips based on Bluetooth radio transmission technology that can transmit signals at regular intervals and thus bridge distances of several meters. The radio signals establish the connection to a specific mobile device app that processes the location data. In its January 2019 issue, the magazine W&V describes a campaign implemented by the media agency Moccamedia for Jeep Austria. Mega-boards installed in the city centre of Vienna were equipped with beacons, passers-by were located via geofencing and the display of a nearby car dealer was transmitted to a mobile phone (*Schwab 2019*).

QR-(Quick-Response-)codes

QR codes are generated in the form of square patterns containing encoded information and links to websites, email or social media channels. When photographing the QR code on printed matter or displays, actions are triggered with a mobile device and a QR Read app. In the event

that an app is not available, naming a simple URL for later retrieval can lead to a mobile-optimized website.

Push notification

Push notifications are messages that the user of an app receives, provided he gives his consent. These messages can be sent in response to a specific action or can be made dependent on the user's location without the app having to be open.

6.11 Internet of Things

Internet of Things (IoT) involves machines, devices, buildings and vehicles in industry and everyday life in digital data cycles. On the basis of internet technologies such as WLAN, states are determined in real time and the resulting information is forwarded to IoT platforms for further processing, triggering actions and evaluation. To perform these functions, objects are equipped with sensors, radio chips, location systems and internet-capable mini computers. Advanced solutions are also self-learning based on usage habits.

According to a survey by the digital association Bitkom, 43 percent of industrial companies

already use an IoT platform. 59 percent of the respondents are concerned about data security and data integrity (*BITKOM 2019d*).

Also the so-called “wearables” belong in the extended sense to the Internet of Things. These are portable computer devices that can be worn on the head or body. Examples are data glasses, watches (“Smartwatch”) or bracelets (“Fitness Trackers”).

Examples of areas of application:

- Anti-burglary devices on doors and windows or smoke detectors that send messages to a smartphone in the event of an alarm.
- Automatic acquisition of vehicle data and resulting messages.
- Automatic control of heating or cooling systems.
- Control of stock levels through automatic post-production.

7 APPENDIX

7.1 Provider directory



Providers with this symbol have an entry in the MARKET SURVEY Web-to-Publish at Melaschuk-Medien.de. In the digital book versions, a link leads directly to the relevant provider detail page. These provider detail pages contain further links to systems or services as well as to the latest news articles.

The respective providers are responsible for the information in this directory.

Melaschuk-Medien assumes no liability for the contents.

BRANDMAKER GMBH

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brandmaker.com



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E-mail: dunja.riehemann@brandmaker.com

BrandMaker is the enterprise-level Marketing Resource Management solution that let marketing leaders get on top of their budgets, people workflows, campaigns, and marketplace performance. In fact, BrandMaker is trusted by more than 300 companies, including Deutsche Bank, Carl Zeiss and Bayer.

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<https://www.laudert.com/en/media-it/database-publishing.html>



Contact:

Dirk Streich
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Phone: +49 2564 919 200

500 employees combine the expertise of media IT, media production and photography and realize extensive projects in PIM, MAM, Web2Print and Database Publishing. System and interface competence: LaudertMediaPort®, sellyo®, Contentserv, priint:suite, Celum, CHILI, Shopware, OXID.

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www.riversand.com

<https://youtu.be/tuDmdpl6sGM>



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E-mail: ben.rund@riversand.com

Riversand: The Platform for Digital Transformation
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Bahnhofstr. 65

DE-73430 Aalen

www.sdzeecom.de



Contact:

Oliver Frömmer

Member of the Executive Board

Phone: +49 7361 594 537

E-mail: o.froemmer@sdzeecom.de

SDZeCOM is one of the top system architects and integrators for MDM, PIM, MAM and database publishing in the German-speaking region. Our solutions have already received multiple awards. In our own trainings centre, we offer trainings, workshops and webinars for efficient and successful product communication.

VJOON GMBH

Kieler Straße 103-107, Haus D
DE-25474 Bönningstedt



<https://vjoon.com/what-we-offer/vjoon-k4/>
<https://vjoon.com/what-we-offer/case-studies/>

Contact:

E-mail: info@vjoon.com

Web: www.vjoon.com

Phone: +49 40 55 69 50 0



vjoon is one of the leading software companies in the field of digital content management with an international partner network. With the product vjoon K4, an innovative cross-media publishing platform, content can be optimally prepared and managed for print, tablet, online or mobile.

WERK II GMBH / PRIINT GROUP

Auf der Höhe 49
DE-47059 Duisburg
www.priint.com



PRIINT

Contact:

Verena Schwörer

E-mail: verena.schwoerer@priint.com

Phone: +49 203 298 508-0

Multichannel publishing with priint:suite connects your content with the publishing process and generates classic print advertising media, on-demand publishing, native digital publishing. More than 400 customers worldwide and more than 100 commerce, MDM, PIM and DAM partners rely on the priint:suite.

7.2 Market overview web-to-publish

The market overview Web-to-Publish of Melaschuk-Medien comprises web-based software solutions and services in the fields of marketing, product communication, media production and cross-media.

The research tool has already been awarded the IT Innovation Prize of the Initiative Mittelstand several times.

The market overview is available in an interactive version on the MELASCHUK-MEDIEN.de website. With filter functions, systems and services can be selected on the basis of important selection criteria and provide an initial orientation in the wide range of software available.

In the further process of system selection, the evaluation and selection of suitable systems according to the specific customer requirements and priorities takes place.

Melaschuk-Medien supports this with advice and workshops. Customers and partners particularly appreciate the broad market overview and the vendor-neutral approach.

[WWW.MELASCHUK-MEDIEN.DE/
MARKTUEBERSICHTEN-WEB-TO-
PUBLISH.HTML](http://WWW.MELASCHUK-MEDIEN.DE/MARKTUEBERSICHTEN-WEB-TO-PUBLISH.HTML)



www.innovationspreis-it.de

7.3 Supporter

7.3.1 University of Wuppertal

Printing and Media Technology is a section of the School of Electrical, Information and Media Engineering of the University of Wuppertal. With innovative research and a future-oriented education the faculty meets the technological change - including smart packaging, 3D printing applications, cross-media documents, augmented and virtual reality and deep learning in media production.

Research and teaching are closely interlinked and students are directly involved in research works e.g. as part of their final theses.

Two six-semester degree programmes lead to a **Bachelor's degree**:

The **Combinatorial Course** of studies in which printing and media technology is combined with economics, computer science or media design and design technology.

The **engineering science course of studies** Information Technology and Media Technology. This new course combines the basics of computer science with media technology applications.

The four-semester Master's programme in Print and Media Technology is based on the undergraduate programs. The selection of optional modules offers the individual opportunity to deepen media technology engineering knowledge or to acquire technical management skills. The **Master's degree** is the prerequisite for a doctorate as Dr.-Ing.

For the teaching profession at vocational schools, the first step is to complete the combinatorial course of studies; this involves combining printing and media technology with another school subject or another vocational specialization. This is followed by a four-semester Master's programme with several practical phases. The **Master of Education** degree is equivalent to the first state examination for the teaching profession.

Further informations:

www.dmt.uni-wuppertal.de/en



7.3.2 Beuth Hochschule für Technik Berlin

“Study the future” is the slogan of the Beuth University of Applied Sciences Berlin. Founded in 1971, the state university of applied sciences offers more than 70 Bachelor’s and Master’s degree programmes for more than 12,000 students. One of these is the Print and Media Technology study, established in 1995. It was conceived cross-media from the very beginning. The contents are regularly updated - since 2005 as Bachelor’s and consecutive Master’s degree studies.

“Shape your path” is the slogan the students have given to the course. More than 56 % of the six-semester Bachelor’s programme can be freely chosen.

In the 3rd and 4th semesters, 26 optional courses are offered. The subject areas are prepress, printing technology and postpress, interactive and audiovisual media, IT and business administration.

Very well equipped PC and Mac laboratories, a photo studio as well as technical laboratories equipped with modern printing and finishing machines enable practice-oriented and project-oriented studies.

The course-integrated practical training is during the 5th semester and offers intensive experience in the field of printing and media technology.

The four-semester Master’s programme expands the students’ view of scientific topics, innovative research fields and an international perspective. One semester can be completed as part of a study abroad programme with a focus on media technology.

Current information can be found under:

www.beuth-hochschule.de/en

The courses of study are also presented under:

www.dmt-berlin.de

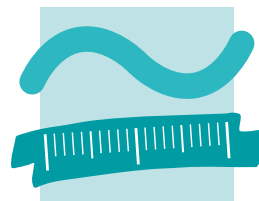
If you are interested and have specific questions, please do not hesitate to contact the Head of Print and Media Technology.

Prof. Dr. Shahram Hauck (bachelor programme):

shauck@beuth-hochschule.de

Prof. Dr. Patrick Godefroid (master programme):

godefroid@beuth-hochschule.de



BEUTH HOCHSCHULE
FÜR TECHNIK
BERLIN

University of Applied Sciences

7.3.3 Deutscher Drucker & print.de

Deutscher Drucker is the oldest and at the same time most renowned German-language trade journal for the printing industry. In 23 issues per year, Deutscher Drucker is addressed to specialists and executives, technical and university students, professional users and the entire technical and commercial management of the print and media industry. Many print experts rely continuously on the information “of their DD”, whether in the printed version or as a digital edition.

The magazine offers well-founded management and technology information as well as reports, interviews and reports on the most important market participants in the printing industry. Deutscher Drucker is the sole German member of the European information pool Eurographic Press, an association of the largest trade journals from 14 European countries.

What Deutscher Drucker represents as a printed magazine is print.de in the online portal sector. print.de is the specialist portal with the highest reach for the German-speaking printing industry. This means that print.de reaches the majority of managers and specialists in its industry.

The daily and weekly newsletters provide over 8,000 recipients with everything they need to know about professional print production.

The largest job market in the industry offers additional added value. Numerous fans and followers also use the publisher’s Facebook, Xing and Twitter channels.

The ranges of Deutscher Drucker and print.de are IVW-tested and thus offer advertisers the highest possible degree of transparency and reliability.

Actual media data can be found under:

<https://media.print.de/>



7.3.4 dmpi – Industrieverbände Druck und Medien, Papier- und Kunststoffverarbeitung

Community makes you strong

Political lobbying, legal, business and technical advice, training and advanced education - take advantage of the services offered by the printing and media, paper and plastics processing associations in Baden-Württemberg. We represent around 500 companies in the sector. The competition between the media and the coming challenges at national and international level make it clear more than ever how important it is for companies to join forces in the association. Better together stronger!

Services

- As an employers' association, we conclude the collective agreements for the sectors.
- We represent our members before labour and social courts in all instances by lawyers with special qualifications in labour law.
- Company agreements or in-house collective agreements - here you will find us at your side.
- Through our engagement in recruiting junior staff and in training and advanced education, we ensure that well-trained specialists continue to contribute to your business success in the future.
- We organise platforms for the exchange of experience with various industry events or our network meetings.
- The board and advisory board of the association set the political course.
- With public relations and press work, we are committed to the interests of the companies.
- Our subsidiary printXmedia Süd supports its members in all technical and environmental issues - from process standard offset printing or digital printing via dampening solution test form or press acceptance to the CO2 climate initiative.
- printXmedia Süd is also the consulting partner in business management matters. Planned cost accounting, comparison of financial ratios and operational analyses - you will find the experts here.

To the website: www.dmpi-bw.de



Industrieverbände Druck und Medien,
Papier- und Kunststoffverarbeitung
Baden-Württemberg

7.3.5 drupa – no. 1 for printing technologies

Digital printing technologies and their various print applications represent a special focus at drupa and open up great freedom of design, especially for cross-media production. Against this background drupa is delighted to be a partner of the publication “Web-to-Publish | Web-to-Media: ways of cross-media production”.

The innovative power of the print industry and the wide range of possible applications are not only strengthened by the increasing integration of web-based solutions, but are also indispensable due to the targeted interlinking of media channels. This is the only way to create exciting and innovative communication solutions.

Only the interaction of different actors enables the inspiration of people. Against this background, trade fairs such as drupa, as a global meeting place for the industry, represent an important platform for inspiration, innovation and trends. In addition, the top-class conference and forum programme in particular offers valuable knowledge transfer and excellent framework conditions for networking.

In addition to trade fairs, digital and analogue media are also regarded as indispensable sources of information and are therefore important industrial partners. With this in mind, we wish you, dear readers, an exciting and inspiring read. See you at drupa in June 2020.

You can find further information under:
www.drupa.com



7.3.6 Fachverband Medienproduktion e. V. (f:mp.)

f:mp. is committed to the interests of media producers in the brand industry, advertising and production agencies, service and industrial companies and producers in publishing houses.

Well over 1,800 members play a key role in the development of industry trends and benefit from in-depth knowledge of all aspects of media production.

More activity

The f:mp. actively represents the interests of media producers, arranges important contacts, advises and supports. As part of a strong community, the members can participate in the development of competence, develop creative concepts and new ideas.

More innovation

The f:mp. invests in innovation. In cooperation with industry experts, new trends and opportunities are identified, their practical benefits assessed objectively and competently and promising future strategies developed on this basis.

More competence

The f:mp. brings together experts and members from various areas of media production in a strong network and thus promotes the development of new trends and technologies as well as competence and know-how along the entire value chain.

More knowledge

The f:mp. training courses have a very special significance in the industry, as they always focus the participants' attention not only on the latest technology but also on sustainable trends and potentials. In addition, f:mp. offers the opportunity to learn from experienced experts and collect relevant know-how in numerous seminars and roadshows.

Industry initiatives of the f:mp.:

www.mediamundo.biz

www.print-digital.biz

www.go-visual.org

www.printperfection.de

www.creatura.de

f:mp. on the Internet:

www.f-mp.de



7.3.7 haemeulrich.com

Innovation is a matter of the heart. This is what **haemeulrich.com** stands for. Be it in the production of websites, from good text and design to technical support. The training courses on WordPress and the Elementor Page Builder, multi-channel publishing, InDesign and digital marketing are also full of new, interactive and innovative features.

The pure, self-executed practice enriches not only the internal work, but also the company coaching offer. Digital transformation with everything that goes with it!

With over 30,000 monthly readers, haemeulrich.com's **publishing blog** is one of the largest in the German-speaking publishing industry. Authors from education, publishing and marketing share their mindset and know-how.

The huge wealth of experience and the valuable community are fun!

Customers appreciate the honest, open and cordial way we treat each other. Anyone who is a customer of haemeulrich.com becomes a friend.

www.haemeulrich.com

www.publishingblog.ch

haemeulrich.com



7.3.8 Hochschule der Medien (HdM)

The Hochschule der Medien (HdM) in Stuttgart is a state university for applied sciences that educates specialists and all-rounders for the media world.

The range of courses offered under one roof is unique in Europe. Almost 30 accredited Bachelor's and Master's degree programmes are available: from printing to audiovisual media, information management and computer science, advertising or media production to media management and packaging technology.

In all study courses, active knowledge transfer is offered through well-founded theory and practical projects. Media content, technology and business are interlinked, teamwork is trained and complex challenges are mastered.

The course contents are regularly reviewed and adjusted to current developments in the media industries. A practical semester is part of the Bachelor's programme and underlines its practical relevance.

In cooperation with partner universities, students can also do their doctorate at the HdM.

Applications such as the Internet, mobile TV, visual radio, the mobile office or computer games, their platforms and end devices such as mobile phones, notebooks, portable game consoles or infotainment and navigation systems are the focus of the HdM's app course:

Mobile Media.

It offers interdisciplinary studies in this rapidly growing media sector. Students design and develop applications for mobile devices, design business models and learn to realize services. In addition to technical feasibility, the focus is on the provision of content, its design and user-friendliness, as well as the planning and correct use of marketing strategies and sales models.

Links:

www.hdm-stuttgart.de – the university

www.hdm-stuttgart.de/mm – the study course
Mobile Media



7.3.9 Hochschule Wismar

Openness, transparency, participation, many freedoms and clear structures at the same time: The Faculty of Architecture and Design at Wismar University of Applied Sciences offers a solid and at the same time multi-layered course of study in the classic diploma courses in **Communication Design and Media** and **Design (Product and Jewellery Design)**, the Bachelor and Master courses in **Architecture** and **Interior Design**, the internationally sought-after Master course in **Architectural Lighting Design**, and the numerous distance learning courses offered by WINGS GmbH.

Modern teaching content, professionally and socially relevant topics as well as modern equipment are a matter of course - classical techniques and fundamentals are also important to the Faculty of Architecture and Design. For example, the photofinish printers are opposed by lead typesetting and lithography, and in addition to the latest studio and medium-format digital camera technology, students can work with several analogue cameras and in photo laboratories with classical photochemistry. The examination of user experience and programming backgrounds is supported by cultural-historical and cultural-scientific discussions.

In addition, the students work together on projects across the courses of study and the faculties (in addition to design, economics and engineering).

About 2000 square meters of laboratory and workshop space are available to the students at the Faculty of Design at Wismar University of Applied Sciences.

The student studios can be reached 24 hours a day, 350 days a year using a chip card system.

The Faculty of Architecture and Design of Wismar University of Applied Sciences on the Internet:

<https://fg.hs-wismar.de/en>



7.3.10 homann colormanagement

homann colormanagement is specialized in color management for standardized media production. Owner Jan-Peter Homann is an internationally recognized expert in this field and works as a consultant and troubleshooter. Conception and development of products, systems and workflows belong to the services.

The speciality of Jan-Peter Homann is to meet customer requirements that are not covered by the standard functions of conventional production systems. In the area of cross-media production, these include, for example, the integration of special in-house standards in printing via DeviceLink profiles, production processes with many spot colors or the connection to online systems for documenting print quality.

Since manufacturers and software developers integrate homann colormanagement at an early stage in the implementation of beta tests for new products and software solutions, the company is always involved at an early stage when it comes to the introduction of new technologies..

Through cooperation with other independent specialists, all of whom are leaders in their fields in Germany, tailor-made solutions can be offered even for complex tasks, combining the latest technologies with on-the-job training for employees.

Jan-Peter Homann

www.colormanagement.de

Fon: 0049 30 61 10 75 18



Hoffmann-Walbeck, T., Homann, J.-P. et al. (2013)
Standards in der Medienproduktion
Springer-Verlag Berlin Heidelberg
Weitere Informationen (Link)



7.3.11 rb omnichannel

rb omnichannel is specialized in consulting and project management in the field of marketing technology.

There is no way around digitalization. For marketers of companies of all sizes and industries, this is often a major challenge - especially when it comes to harmonizing strategies, processes and technological possibilities. This is where rb omnichannel provides support in all project phases: From the business case to the complete implementation of new processes and technologies. Depending on the type of project, rb omnichannel acts as a consultant, project manager or product owner.

Focus

With a focus on the requirements, rb omnichannel supports technology implementation in the following areas, among others:

- Web-to-Publish
- Marketing Management Systems
- Product Information Management
- Digital Asset Management
- Marketing Automation
- Holistic view of the process and system landscape

Person

Roland Bühler founded rb omnichannel GmbH in 2017 - after leading positions at agencies and system service providers. He has experience in managing complex and international projects for clients in industry, automotive, trade, FMCG, advertising, print and media. Activities for analyst houses round off his profile.

Certifications are available in the following areas: Scrum, DevOps, PRINCE2 (Agile), ITIL, Java, Google, AWS, Data Science, Machine Learning, Data Protection.

Website:

www.rb-omnichannel.com



7.3.12 Schule für Gestaltung Zürich

The **Zurich School of Design** offers prospective and trained professionals a wide range of options and development opportunities.

Nearly 150 teachers and lecturers provide the necessary qualifications in basic vocational training, vocational advanced training and higher professional training for occupations in the fields of prepress, printing technology and print media processing, photography, graphics, advertising technology, 3D polydesign, jewellery, painting and coating technology.

Courses of study

The courses at the College of Design and Art impart conceptual, creative and technological skills. This is the case in the study courses Visual Design HF, Photography HF, Interaction Design HF, Product Design HF. In the field of media technology HF, competences in the planning, management and realisation of communication products are taught. These courses conclude with a federally recognised HF diploma.

Courses in higher vocational education and training prepare students for federal vocational examinations and federal higher subject examinations or for association certificate examinations. Qualifications are imparted which are necessary for the exercise of a demanding and responsible professional activity. This applies to the fields of techno-polygraphy and printing technology, advertising technology and specialist photo trade.

Website:

www.sfgz.ch



Schule für Gestaltung Zürich

7.3.13 publishingNETWORK (Fachverband Medienproduktion)

publishingNETWORK wants one thing above all else:

Generate knowledge. Publishing develops rapidly and grows into upstream service areas. This also changes the job profile of the publisher. Everyone has to stay on the ball today when it comes to technologies, solutions, training and visions of the future.

Professional competence + network

At publishingNETWORK, specialists join forces to form a competence center and benefit from combined resources. Through our networks of experts, we maintain close contact with current events - regardless of whether it's a matter of looking at trends in the technological field or developing technology standards.

We maintain cooperation with various associations in the graphic arts industry, ICT Berufsbildung Schweiz and associations in Germany. Always with the focus on acquiring the knowledge and skills that are important for your job and your industry.

publishingNETWORK, as an independent industry authority, coordinates the professional further education "Publisher Basic" for creative

lateral entrants in media production as well as "Publisher Professional" with the three main profiles multimedia, design and technology. For the CAS Digital Communication Excellence training at the HTW Chur, the professional association is responsible for the technical content.

publishingNETWORK offers:

- Expert Network Switzerland - online and real
- Forums, lectures, seminars, diploma courses, industry information service, supplier-independent specialist information
- Support in questions of basic education
- E-Learning platform Mediametro.ch, current teaching materials
- Courses Publisher Professional Technology and Project Manager Publishing in cooperation with dmpti, Germany
- Lobbying for practical and contemporary advanced education

Contact:

facebook.com/publishingnetwork

twitter.com/pubNETWORK

www.vsd.ch/publishingnetwork oder XING

publishingNETWORK
Fachverband Medienproduktion

7.3.14 Verband Druck und Medien Hessen e. V.

The Association of Print and Media Hessen e. V. (VDMH) is a strong and reliable partner for prepress companies, media agencies and service providers as well as printing and finishing companies.

At the heart of all the VDMH's work is ensuring the entrepreneurial success of its member companies. This is why the VDMH service network offers a differentiated and exclusive portfolio of consulting and services in addition to active representation of interests in politics and administration.

We inform and advise you in the fields of labour law, business administration and technology. In addition, we help with company training and further education as well as environmental protection. For support and advice, printXmedia Süd, the joint service subsidiary of the print and media associations, is at your disposal.

With our industry-specific experience and knowledge, we accompany you in mastering entrepreneurial challenges and daily tasks in your company. In addition, we present our industry

to the outside world through effective public relations work.

Inform yourself about new industry standards and technologies. If you do not want to cover new business areas yourself, we will arrange cooperation with other companies, exactly according to your specifications.

Do you need help with daily problems? Our Germany-wide network has a large pool of experts at its disposal who will be happy to assist you with advice and assistance. The VDMH is there for you!
Contact us, we will help you.

www.vdmh.de

Seminars and trainings:

www.vdmh.de/veranstaltungen

VDMH

**Verband Druck und Medien
Hessen e. V.**

7.3.15 Verband Druck & Medientechnik

As an independent business association, we have been advising, informing and representing the printing and media industry since 1872. We are proud to count around 200 companies among our members.

- **We speak for the industry**

In numerous discussions with relevant stakeholders from business, the media and politics, we are committed to the interests of the industry and emphasize the power of print communication in the advertising canon.

- **We provide valuable information**

We prepare up-to-date and relevant information for our member companies and provide guidelines, checklists and model contracts. This allows our member companies to concentrate fully on their core business.

- **We offer consulting and technical support**

We advise our members on issues relating to (labour) law, corporate governance, technology and sustainable production.

- **Networking events**

At our conferences, congresses and seminars, our members come into contact with industry colleagues, suppliers and potential customers and receive input from experts on their business strategy.

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*Verband
Druck & Medientechnik
Österreich*

7.3.16 Winter Consulting

Winter Consulting - your communication is important to us

Who we are

Winter Consulting is an agency for marketing, communications, and events and is a communicative companion, especially for companies from the print, media, and IT industries.

Since 2002, Sandra Winter and the Winter Consulting team have successfully leveraged their extensive experience to develop and implement of customized communication campaigns for a broad range of projects - in close collaboration with our clients and our extensive network. For 17 years, medium-sized companies, innovative start-ups and international trade fair organizers have benefited from our wealth of expertise.

How we work

Our customers appreciate working together with us because we offer a convincing mix of creativity and realization power. So let's work together!

Why communication is so important

Behind every product, brand or service there is an idea with a fascinating success story. Let's talk about it!

What we can do for you

We are at your side to help you communicate and find the right words - for both individual projects and long-term campaigns.

These includes:

- Strategic corporate communications
- Implementing of marketing campaigns
- Event planning and organization
- Moderating of your customer events
- Creating specialized articles and texts
- Coordinating your PR work

Visit us at www.wintercon.de

We look forward to having you on our site!



7.4 About the author

Ira Melaschuk is a graduate engineer for printing technology and owner of the management consultancy **Melaschuk-Medien**.

The focus is on web-based system solutions for marketing, product communication, cross-media and publishing.

The fields of work include consulting projects on system selection, digital and printed publications as well as academic activities.

Workshops and teaching activities

Ira Melaschuk holds workshops on behalf of customers and is a lecturer for the subject “Web-to-Publish” at the University of Wuppertal in the master’s program in printing and media technology.

Consulting priorities

The consulting focuses are as follows:

- Requirement analyses
- System selection and system evaluation
- Seminars and Workshops

The approach is methodical, transparent, consistently provider-neutral and oriented to individual requirements.

Expert portal MELASCHUK-MEDIEN.DE

On the expert portal Melaschuk-Medien.de the interactive market overview Web-to-Publish is available as well as news and specialist articles on the topics of marketing, product communication, Web-to-Print, Web-to-Publish and Crossmedia.

A broad, constantly active communication network with suppliers, users and experts keeps our know-how up to date.

Target groups

Target groups are industrial companies, public institutions, trade, agencies, print and media service providers.

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