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AI Solutions in the Publishing and Printing Industry (Part 2)

After we got an overview of the topic of Artificial Intelligence (AI) in the first part a week ago, we now take a look at where and, above all, how AI is being used in the publishing and printing industry today and in the future.

Quality and process optimization have been a topic in the printing industry for many years. Artificial Intelligence is often used in this context, taking care of individual tasks in a targeted manner. As a rule, such approaches are classified as weak AI solutions. Image data acquisition and recognition are used, for example, to control quality across all process stages, and in the event of a deviation from the reference data, software automatically compensates for it.

This happens on the fly without any manual intervention and is already almost state of the art. This applies equally to analog and digital presses. However, much has also progressed in the field of process optimization, and overall equipment effectiveness (OEE) is being continuously raised.

„Machine Learning“

Behind the abbreviation OEE is a key business figure that measures the percentage of production time that is actually productive. According to current figures from [Heidelberg](#), the average value for offset presses is just over 30 percent. Therefore, there is room for improvement here. Some companies that are fully committed to automation and optimization are already achieving peak values of more than 60 percent, depending on the job mix.

By integrating machines into cloud-based solutions, job sequences, setup times, waste rates, process stability and much more can be improved. However, preventive maintenance concepts also help keep machine availability high. This requires Big Data applications that are continuously supplied with new data via the cloud and thus enable „machine learning“.

AI and robotics – a dream team

„By analyzing production data, AI algorithms can suggest process optimizations to improve the efficiency and quality of print finishing,“ says Stefan Bulgheroni, who follows developments in the AI field as a senior solutions expert at Muller Martini. He takes this opportunity to point out that the implementation of AI solutions at Muller Martini is still in the start-up phase. However, the potential is definitely there to also rely on AI in print finishing. However, it is necessary to think beyond the machine itself – for example, in the direction of workflow management and warehousing concepts, in order to supply the systems with the necessary data, substrates and consumables.

When thinking about AI, the question of using robots naturally also arises. The first solutions are already in use and are significantly relieving staff. „Due to the trend toward shorter runs and increasing variability, our customers are increasingly encountering problems in intra-logistics. Robotic systems could help with automatic loading and destacking or sorting,“ emphasizes the Muller Martini expert.

Content from AI

In this respect, one could dismiss the current AI hype and point out that the topic is not really new. However, [ChatGPT](#) and other tools such as Midjourney take a completely different approach – namely that of „generative AI“. Based on a vast amount of data, the AI tools are literally fattened up and generate appropriate content for a multitude of very different questions. With Midjourney, images can be generated very easily via the underlying language model.

This is why there was such an outcry in the creative and publishing scene. The fear that many tasks in the entire design process could be taken over by dedicated AI solutions cannot be completely dismissed. This doesn't just refer to text and images, but also includes audio and video. A podcast created with AI is now already a reality, and we are only at the beginning of a rapid and not really foreseeable development.

Generative AI models

ChatGPT is to become a fixed component of the Microsoft world this year and will be integrated into various applications such as Word or Teams, but above all also into the company's own browser. Adobe also recently showed what is possible in the graphic design field with generative AI models. „Generative AI is the next evolutionary step in AI-driven creativity and productivity, making the conversation between creator(s) and computer more natural, intuitive and powerful,“ says David Wadhvani, president of digital media business at Adobe.

The company promises that [Firefly](#) will enable anyone, regardless of skill level, to turn their words into creative ideas – from images to vector graphics, video, audio and 3D animation. The first applications to benefit from Firefly integration will be Express, Experience Manager, Photoshop and Illustrator.

Where do the copyrights lie?

Adobe plans to capture another issue that has not yet been clearly addressed by establishing the [Content Authenticity Initiative \(CAI\)](#) to create a global standard for trusted attribution of digital content. Adobe asserts that it is committed to open industry standards and will use the CAI's free, open-source tools to do so. The goal is to create a universal „tag“ in file infor-

mation. This would allow image creators to exclude their content from being used to train AI image generators.

The tag would be associated with the content wherever it is used, published or stored. In addition, AI-generated content will be marked accordingly. However, this does not yet settle the question of where the copyright of AI-generated images lies. The image agency Getty Images has already filed a lawsuit against the image generator Stability AI to bring about legal clarification [here](#).

Data-driven personalization of design and content

[Omneky](#) promises a data-driven automatic „post“ generation to be able to place the perfect ad for each customer/client – i.e., an automatic generation of ads by connecting AI. This would allow an ad tailored to the specific profile to be delivered and played out. As the company points out, „Our machine learning algorithms analyze which designs and messages resonate with potential customers and use those insights to generate ads that best activate customer engagement.“

It will be interesting to see if such approaches can be used in print advertising. There’s really nothing technologically wrong with it, and it could enrich HP Indigo’s [SmartStream Designer plug-in](#).

Conclusion

In addition to the weak AI solutions described at the beginning, which can be used to optimize specific tasks in the entire production chain within the printing industry, it is generative AI solutions that will permanently change the creative and design industry. New image worlds, logos or fonts are to be created with just a few concepts. The market will ultimately decide which requirements can be met with these solutions. For print service providers, the tools of the Firefly platform could open up opportunities to provide customers with greater support in graphic design.

Your
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