# THE FUTURE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE PUBLISHING INDUSTRY

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# EXECUTIVE SUMMARY

Artificial Intelligence (AI) has always had fantastical appeal. Imaginative ideas of futuristic superhuman technology provide endless material for storytelling, inspiring humans to create worlds where the impossible is performed with ease. These ideas, however, once at home in seemingly distant dreams, are moving from fiction into reality as AI continues to take root in common business practices. While the hype surrounding advancements in AI is often confined to tech fields, many in the creative industries are taking notice as AI-specific terms like Big Data, predictive analytics, and natural language processing become household words. For those companies implementing AI in the right way at the right time, the systems set to disrupt technology-based industries become the very tools with which they'll climb their way to the top.

As discussions on AI increase, so does the hype—and therefore the confusion—surrounding it. Comprised from the findings of over six months of research, the results of an international survey of ~300 participants, plus interviews and conversations with industry professionals, including many CEOs, editors and representatives across different functions, the following White Paper is a result of the joint effort between Frankfurter Book Fair and management consultancy Gould Finch to demystify AI and help those in the publishing industry (including book publishing, magazines, newspapers and digital publishers) understand its application in business practices by contextualizing the core technologies driving it. Given the varying stages of development of different AI technologies, it is too early to definitively state how they will change the publishing industry—but without question the impact will be immense. This paper outlines the challenges companies are currently facing as they consider how best to implement AI and presents suggestions for where to concentrate efforts and attention to realize the most benefits.

## THE KEY FINDINGS ARE:

**Artificial Intelligence is not going to replace writers, but it is able to strengthen core-business.** While there is technology available to mimic tone and craft plausible prose, the narrative arc and a best-seller's make-up have yet to be reduced to an algorithm. The technology available offers publishers access to an array of new mediums and processes to strengthen areas such marketing and analytics, as well as production and administration.

**Investing in Artificial Intelligence doesn't mean fewer jobs for humans.** On the contrary, businesses currently implementing AI, including The Washington Post and Axel Springer as well as smaller publishing houses, have witnessed positive effects on readership statistics and sales, but also better job stability for journalists and writers.

**Minimal investments can still bring in monetary benefits.** Our findings show the correlation between blind fear and modest to no investments when it comes to investing in AI. Though a high percentage of survey participants believe investing large amounts of money too risky without any guaranteed return, evidence suggests that even minimal investments, be it hiring new employees or training current staff who are already adept, can lead to a significant increase in sales. **Important to note**, **is that those who have invested in Artificial Intelligence are happy with their experience and will continue to invest on all levels.** Noteworthy is also the growing number of service providers using different AI technologies and offering them as paid services to publishers at reasonable costs, thereby increasing accessibility.

Our conclusion is that AI and its future development offer promising opportunities for the publishing industry. Publishing is a people's business and our study shows that the technology will not replace human interactions within the industry but offer various improvements in the value chain. Writers will discover new tools with which to express their creativity, marketing creatives will discover new tools to craft personalized campaigns for a wider audience, and customers will be thrilled by new experiences. To best support a smooth transition, we've also provided six fundamental steps to consider when implementing AI into current business practices.

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## WHAT IS AI?

Though there may be no universal consensus as to what actually constitutes Artificial Intelligence, general aspects of AI lend themselves to comparison and can help us gain initial understanding.

Taken literally, AI describes several technologies designed to function both intelligently and independently, adapting characteristics modelled after the most intelligent creatures we know of, namely humans. When we see a machine performing a task we consider intelligent or associate with humans, we (often subconsciously) label it AI, using our own human intelligence as a standard and recognizing the robotic equivalent. Found in many different fields and areas, Artificial Intelligence—meaning the software and technologies driving the processes in the machines performing these tasks—can also remind us of our senses.

The field of speech recognition for instance focuses on the use of language through speaking and listening as a way of communication, whereas the field of natural language processing, or NLP, is based on communication through the writing and reading of language in text form. Tell Alexa to skip a song, ask Siri a question, use spell check or autocomplete, or even dictate a text message and you're already using Artificial Intelligence.

Computer vision and related technologies mirror our ability to both see and process what we see. This is the technology a Roomba uses to navigate floors as it vacuums and automotive companies are implementing as they develop self-driving cars. Understanding what is seen, grouping like objects, and ultimately recognizing patterns is at the heart of pattern recognition, a field driven by machine learning.

Many computers can be viewed as "smart", such as IBM's Deep Blue, the first computer to famously beat then world champion Garry Kasparov at a game of chess. However, as technology continues to develop and our sense of intelligence changes, definitions also shift. Machine learning—which is the unique ability to autonomously learn and be trained with large amounts of data so as to perform a task better and better—is a crucial aspect in the current understanding of AI. Able to process data greater in both quantity and scope, this form of Artificial Intelligence is often capable of outperforming the human ability it's based on.

While discussions on what qualifies as "intelligent" continue to take place, a common definition has emerged among businesses that use the term "AI" to refer to processes that automate tasks through computers or machines—tasks that up until today would have required the deployment of human, (semi)skilled workers.

## WHAT CAN I REALISTICALLY EXPECT FROM AI AND WHAT DOES THIS MEAN FOR MY BUSINESS?

Coupled with a decrease in computing costs, the broader adaption of machine learning algorithms has fueled AI's re-emergence. Having a machine learn, something earlier AI systems were incapable of and something we consider a very human characteristic, is now a fraction of the cost, meaning companies are turning to AI to have tasks performed faster, cheaper, more reliantly, more relentlessly, and ultimately better than their human counterparts could.

For publishers, AI isn't just for a vacuum sucking up dust, rather for digitizing books (and to perhaps prevent them from turning to dust). Older manuscripts unavailable in digital format could take days for a person to type into a computer. But with OCR, or optical character recognition, the very words on the page can be identified as such and turned into a digital book in an instance. That same text can even be rendered into speech, essentially turning electronic devices into personal narrators.

In terms of administration and accounting, AI can help automate processes behind reports and payments, ensuring that tasks such as handling invoices and transferring fees are not only performed in a timely manner, but also with greater accuracy. Similarly, AI doesn't take breaks like humans do. Chatbots can be deployed 24/7 to serve customers from all over the world at any time of day and in any language.

Ultimately, AI can also outperform humans in tasks where the possible outcomes surpass our natural calculation abilities, like in the case of complex recommendation engines. Publishing house employees and bookstore staff are no strangers to the concept of recommending books based on someone's reading history and preferences. Depending on experience and knowledge across various genres, one may not have difficulty connecting the dots of author, setting, character development and plot to find a suitable fit. For instance, a customer says they're currently binge reading Icelandic crime novels and have voraciously devoured everything by Ragnar Jonasson. The employee they happen to encounter might be able to tell them about Yrsa Sigurdardottir, or recommend a current bestseller which happens to be a Swedish crime novel. The chance is high that the right recommendation can be made and another customer is satisfied.

But things tend to get difficult when customers' interests are increasingly obscure. A request for a recommendation on dystopian romance Westerns or novels centered around medieval French apothecary can easily, and almost certainly, leave an employee speechless and a customer empty handed. Digital bookstores, with hundreds of thousands of customers and therefore a much broader pool to learn from – e.g. a much higher likelihood to find the perfect reference customers to compare with, remembering every book they've bought and what they liked about them – enabling much more complex recommendation engines to filter through catalogues and backlists of any size to find the most relevant recommendations for any request.

The Artificial Intelligence technologies found in these fields and processes are trained primarily through data.

Making the most of machine learning, the AI system in question must be fed vast amounts of data to learn optimally. For example, if you have a large amount of data regarding how well a product sold and the amount of money spent on production, distribution, and advertising, you can feed this data into an adequately designed AI system which will then in turn recognize a possible pattern. Upon learning the pattern, the AI system can then make predictions according to what it has learned. While humans are capable of learning in a limited magnitude of dimensions, this technology is able to process vast quantities of high dimensional data, ultimately allowing its predictive capabilities to far surpass anything humans can come close to.

These technologies serve as a tool to allow you and your business to classify and predict with significantly increased accuracy. Using information from processed data, AI can not only classify and categorize new customers, but it can also be used to predict their buying patterns as well as instances where otherwise loyal consumers might turn to a competitor.

Artificial Intelligence, of course, also has limitations. While Deep Blue may be able to beat Garry Kasparov at chess, it can't beat him at tying shoes, or brushing his teeth, or even singing a song. Well, given that Garry can sing. This simply means that AI is very specific in the tasks it carries out and isn't universally applicable. It is limited to functioning with the parameters set for it. It is not the human mind.

Similarly, the benefits of implementing AI into both current and new business practices hinges greatly on its accuracy, and the range of accuracy deemed allowable depends on the task at hand. If an online bookstore considers using AI to suggest books to custom-ers with 80% accuracy, leading eight out of ten customers to add more books to their shopping cart, that may seem like a reasonable investment; eight out of ten shoppers satisfied and bringing in additional sales, even if two readers are left with a boring book. If an automobile manufacturer, however, considers implement AI with the same level of accuracy into a self-driving car, the results would be catastrophic; recognizing eight out of ten pedestrians crossing the street as human beings but misidentifying the other two, resulting in an accident, and possibly even worse, fatalities. The technology has long been available, sufficient accuracy is the critical factor. To quote Garry Kasparov, "AI is a tool, it's a technology (...), it's not a magic wand, it's not the terminator." (Ranger, 2018) Therefore, the most important aspects to first consider is where AI can be applied and which task or problem it is trying to solve.
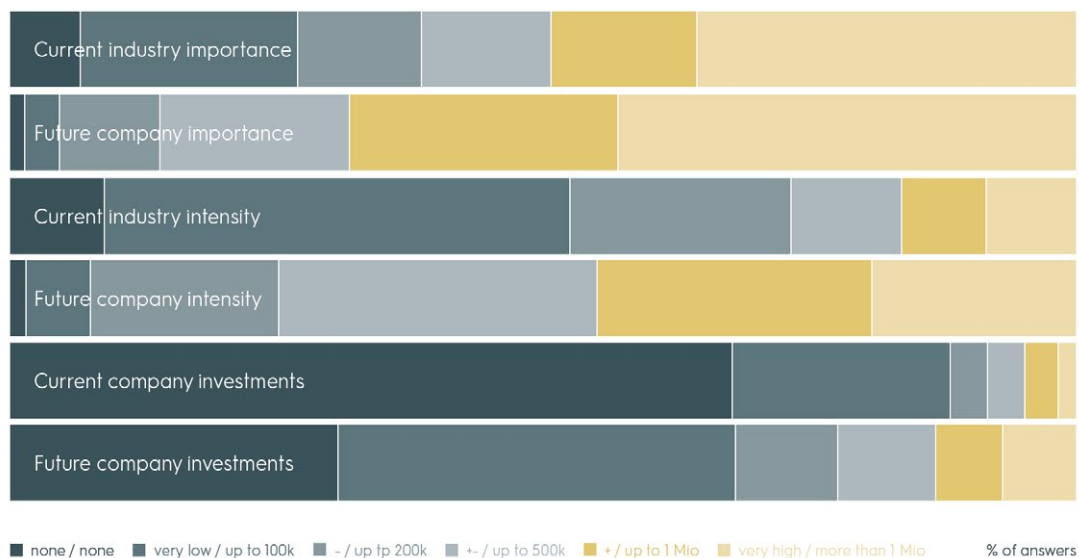
As you will read in the following sections, the AI technologies available today not only enable companies to make better-informed decisions, but also magnify employees' ability to deliver in fields ranging from content creation to customer-specific advertising.

# ARTIFICIAL INTELLIGENCE AS AN UNDERCURRENT IN AN ECONOMIC SHIFT

Technological advancements never cease to amaze. Devices and software often considered fantastical and futuristic are now vacuuming our houses, parking our cars, perfecting our playlists and compressing our thoughts before sending them around the world in an instant. With the increase of digitalization, music, movies, news and knowledge become accessible with ever increasing ease at the tap of an icon on ever-connected devices. (Ramirez, 2016) But with the increase in digitization comes an increase in competition over consumers, as technology once only affordable for wealthy organizations and corporations is now available to entrepreneurs and small businesses alike. Though this rise in competition may initially seem to pose a quickly approaching existential threat—and perhaps rightfully so, as the potential disruption of industries grows daily—the underlying and often overlooked factor to consider when making strategic decisions is the inevitable shift in the economic landscape (Perez, 2018) due to a drastic drop in computing costs and the availability of increasingly sophisticated algorithms at low or no cost, thereby increasing their ubiquity.

While the belief that Artificial Intelligence will be the next step in the evolution of how publishers do business is widespread, results from our survey confirm the great discrepancy between the current and future states of AI in publishing and the need to familiarize oneself with data-driven technologies before harnessing their power.

**Expected impact of AI**



| ■ none / none | ■ very low / up to 100k | ■ - / up to tp 200k | ■ +- / up to 500k | ■ + / up to 1 Mio | very high / more than 1 Mio | % of answers |

Even though publishers believe that AI will have a massive impact on both their industry in general and their company specifically – the majority does not appear to invest accordingly.

Important to note is that our research has shown that those who've already worked with AI, be it through partnerships with start-ups or bringing in external experts at early stages, are happy with both the experience and the results and are going to continue working with and investing into AI.

**Correlations**
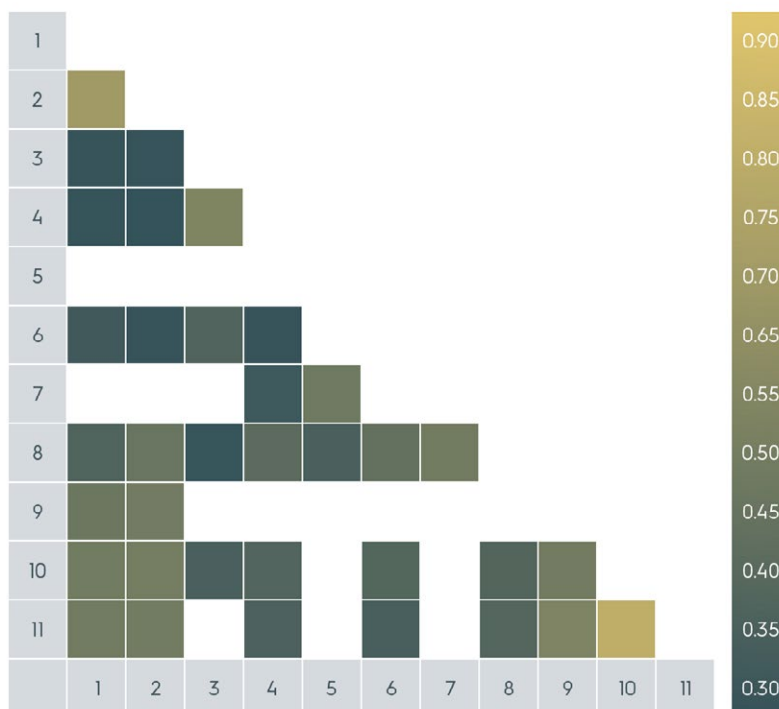


1. Past investments. 2. Future investments. 3. Past cooperation with startups. 4. Future cooperation with startups. 5. Importance of AI for publishing industry currently. 6. Level of Innovation of Company. 7. Importance of AI for publishing industry in the future. 8. Importance of AI for company in the future. 9. Current external AI employee count. 10. Current internal AI employee count . 11. Future internal AI employee count.

Artificial Intelligence and software-driven processes aren't going away or becoming less important, meaning your company's future strongly depends on today's decisions to strategically implement AI into existing processes. This will create not only a corporate atmosphere of innovation and open-mindedness, but also one of assurance as technological developments alter the economic landscape. Riding the wave of Artificial Intelligence, however, shouldn't just be about putting your company a step ahead of your competitors, but rather positioning yourself so as not to get swept under while transitioning into an economy dominated by technology-driven entities. This is easier said than done. As a first step in reaching said position, the following sections serve as points of discussion to help you determine what Artificial Intelligence can do for your business and how data factors in.

## PARALLELS IN PUBLISHING

Those at home in the creative industries are no strangers to the notion of disruption. This notion, however, takes a sinister turn when the very thing vulnerable to disruption is the creative economy itself. While the implementation of AI in the creative process may serve to produce valuable content or perform tasks deemed too laborious and costly for humans, when left to its own devices it can also create content full of misinformation and potentially harm reputation, as discovered by OpenAI, creators of the AI model GPT2. Trained with approximately ten million articles, roughly 40 gigabytes of data, the technology is taking a few lines of text and writing plausible passages that match it in both subject and style. (Hern, 2019) GPT2 can certainly outperform previous builds for similar tasks, but it has yet to be controlled in such a way as to produce purely factual content. The question here, however, is not if it ever will, but when.

With many Artificial Intelligence technologies in varying stages of maturity, their ultimate effect on the creative economy is as of yet undefined, and many businesses are taking this into consideration as they determine how to implement this technology into current practices alongside employees. (WEF, 2018)

As information-based technologies continue to change how content is created, distributed, and ultimately consumed, many companies from various branches are both recalibrating and recalculating their approach to business based on the implementation of AI in expectation of additional AI generated revenue, with external investments in machine learning surpassing seven billion USD. (WEF, 2018) In contrast, results from our survey show conservative intentions in the field of publishing.
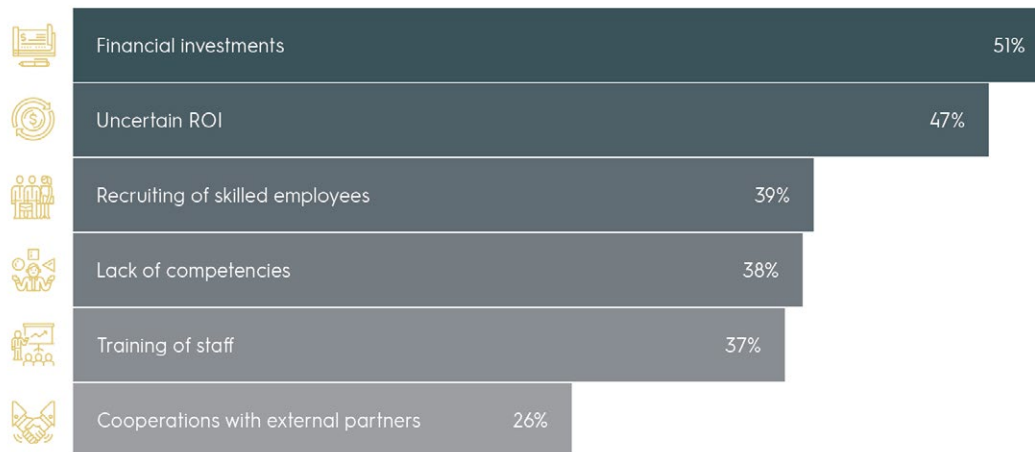
Only 25% of survey participants currently work with AI within their companies. This figure is unsurprising when compared with the percentage of participants from companies with no current investments in AI, namely over 60%. While the planned increase in financial investments—from USD 60,000 to USD 138,000 on average—may seem promising, half of those with no current investments do not plan on changing their approach.

**Distribution of investments**



This could be because many publishing natives believe that large amounts of money need to be invested and there is no guaranteed return, as evidenced by our survey results. Others also commented on the importance of a unified corporate mindset and a culture open to innovation as such, and how blind trust and blind fears need to be addressed and assuaged.
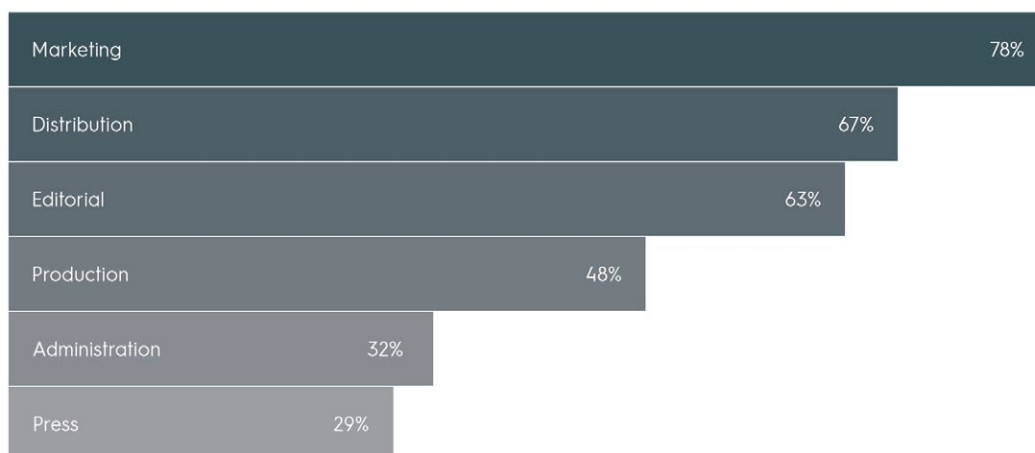
**Challenges for the implementation of AI solutions**

| | | |
|---|---|---|
| Financial investments | | 51% |
| Uncertain ROI | | 47% |
| Recruiting of skilled employees | 39% | |
| Lack of competencies | 38% | |
| Training of staff | 37% | |
| Cooperations with external partners | 26% | |

One important step to assuaging possible fears and ensuing hesitation is to see that even with modest monetary investments in machine learning and manpower, many benefits from implementing AI can be reaped. Additionally, there are many open-sourced or budget off-the-shelf options available for companies to test AI on specific in-company cases.

According to our survey, companies looking to maximize potential and optimize processes by implementing AI are starting in their marketing and distribution departments. AI with supportive functions is also recognized as a valuable tool for both editorial and production teams. Those in administration and press departments may not receive the bulk of investments, but their inclusion hints at a company-wide approach to AI.

**Departments that are expected to benefit from the use of AI**

| | | |
|---|---|---|
| Marketing | | 78% |
| Distribution | 67% | |
| Editorial | 63% | |
| Production | 48% | |
| Administration | 32% | |
| Press | 29% | |

In addition to quantitative research, we also gathered information on where companies plan to use AI from many personal interviews.

**Departments that are expected to benefit from the use of AI (additional answers)**
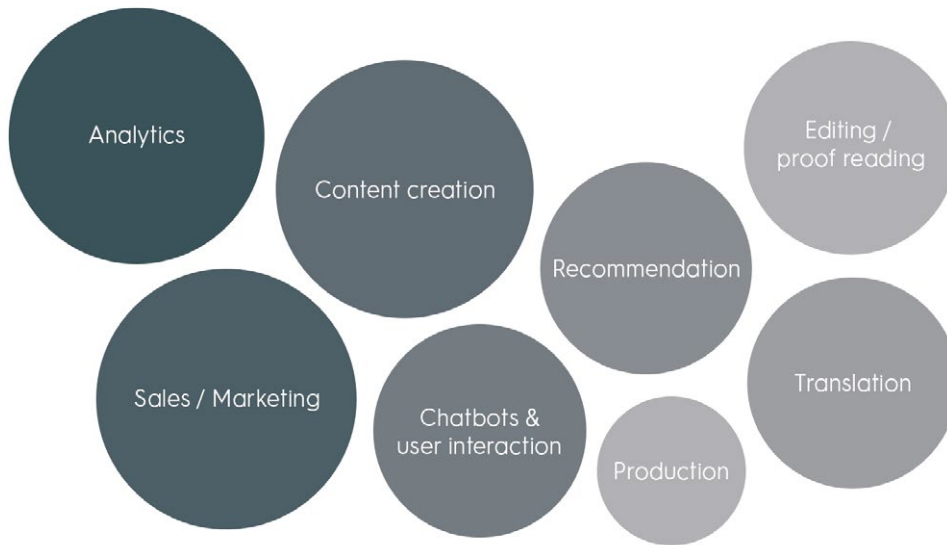


Our results show the intention to automate processes, ranging from translation to customer interaction and recommendation services.

# WHO'S USING WHAT?
# (AND CAN I DO THAT?)

**The New York Times and Machine Learning-Based Detection**
Designed to work alongside human moderators, Jigsaw's tool Perspective detects abusive comments and labels them as toxic. The New York Times has implemented this anti-abuse software across their platforms that facilitate user comments, benefiting not only their readers but also themselves.

Comment sections represent the dream of the internet, a space where anyone can participate and contribute their thoughts, ideas, and opinions in the hopes of furthering public discourse. This dream however takes on traces of a nightmare when comment feeds sprawl out of control, overrun by hateful and discriminatory statements that ultimately shut down conversation. Because moderators were curating the comments individually, as the number of comments increased, the level of quality control decreased, forcing the NYT to only open comments on approximately ten percent of their articles. (Jigsaw, 2018)

To combat this problem, developers at Jigsaw and members of Google's Counter Abuse Technology team created the Perspective which uses both machine learning and natural language processing. By feeding Perspective with a database of human-generated comments, an algorithm is trained to sort comments based on their comparison to those already labelled as toxic. This is where the technology works in tandem with humans. As natural language processing breaks down incoming comments into spot patterns, looking for words and phrases that may classify as hate speech, the results are then not divided into definitive groups of what is acceptable and what isn't, but rather sorted into small stacks for moderators then to approve or delete, thus further training the algorithm. (Marvin, 2019)

The New York Times is now able to open comments on every top story on their home page. This allows the NYT to foster a vast online community capable of connecting with them and with each other. In terms of business, this means communicating with the world and attracting new subscribers. AI-driven technology enables the NYT and companies of their ilk to perform such tasks at scale in ways previously unimaginable. (Jigsaw, 2018)

**Automated Pricing and Dynamic Advertising**
In 2018, European e-book & audiobook distributor Bookwire unveiled a set of tools to automate pricing and in-book advertising. By matching and comparing various historical data points for prices and tracking the title performance throughout time, the system issues recommendations on the ideal prices at any given time and during time-limited special promotions. These tools also automate the integration of recommendation based advertisement in e-books based on title similarity and customer preferences. Though not a person by person or book by book process, it still saves human resources

and optimizes sales and marketing activities, and for Bookwire led to a significant uplift in sales and a 25% increase in titles registered for its Spain and Latin America market venture.

**Customer Service and Chatbots**

Because interacting with thousands of individual customers simultaneously is a feat deemed impossible by customer service teams in small businesses, more and more companies are turning to chatbots as a smarter and cheaper way of keeping customers engaged as they browse their websites, be it in the form of shopping assistants while perusing an online catalogue or a messenger delivering tailored updates on the latest news stories.

Backed by machine learning, the program uses an intuitive question-and-answer inter- face to provide customers with a personalized shopping experience comparable to being in a physical store. Chatbots can also be programmed with answers to frequently asked questions and the ability to offer customers product recommendations based on their responses.

As a publisher, this means increasing discoverability by helping readers navigate your library free from clumsy search functions and filters, ultimately recommending the best books for each individual reader. With machine learning, backlists become a goldmine for potential sales based on current market trends.

Though the software behind these services often isn't as intelligent as Apple's Siri, its potential as a powerful tool for audience engagement is promising.

**Klangoo, Spotify, and AI-driven Personalized Recommendation**

Started in Silicon Valley, Klangoo is an AI company committed to supporting publishers by optimizing their audience engagement. Using a combination of machine learning and rule-based natural language processing, their flagship technology, Magnet, ena- bles publishers to create a profile for every unique customer. Profiles grow as content is consumed over time, ultimately allowing the publisher to not only offer consumers personalized newsletters and recommendations based on their history, but also keep them engaged by informing them on developments of stories or topics as new articles and relevant content are produced and published.

Spotify is also taking advantage of these technological advancements. Departing from the ubiquitous blog style format, the world's largest on-demand music service im- plemented AI as a response to question What do our customers want? Their answer? Simplicity. Using consumer tracking technology, Spotify aggregates and analyzes users' listening behavior and folds the results into every layer of their platform. In the first year alone, Spotify made over 40 million unique customers happy by saving them countless hours spent crafting the perfect playlist by providing them with curated playlists full of the music they already want to hear as well as predicting the yet undiscovered tracks they will want to hear based on their preferences. (Marr, 2017)

**The Washington Post and Natural Language Generation**
Initially threatened by internet-based technologies, newspapers are now turning to AI to help generate content and increase their readership. Using their award winning, in-house developed AI technology, Heliograf, The Washington Post is able to publish an average of 850 additional stories per year, stories that, otherwise left unwritten, account for an increase in website traffic by generating over 500,000 clicks. (WashPostPR, 2017) Extracting data from clearly defined and fact based sources (such as sports results), this degree of natural language generation is capable of producing naturally worded content in the form of short news snippets perfectly crafted for both the target audience and the chosen medium, like Twitter and Facebook. This in turn drastically reduces the abundance of in-house copy/paste tasks and frees journalists to focus on crafting multi-layered, research-based content.

American newspapers aren't the only ones taking advantage of such technology. Mathias Doepfner, chief executive of German publisher Axel Springer, sees the trend as stabilizing for existing journalists. Using AI to produce data-heavy articles covering soccer matches between teams in Germany's lower leagues, the media giant has been able to not only broaden their offering and gain readership, but have also seen a double-digit increase in profits in their first quarter. (Thomasson, 2018)

Publishers are also seeing this technology cross over into storytelling at an increasing speed. While AI technologies have yet to write a bestseller, with the right training some say they will be capable of analyzing current favorites and their author data and telling you who might write the next one. The insights provided in the following section offer valuable information for harnessing the power of AI and how to best apply it to your business practices.

# HELPFUL INSIGHTS INTO ARTIFICIAL INTELLIGENCE RELEVANT TO THE FUTURE OF PUBLISHING

**Data: AI's Fuel For Development**

Though inspired by the way humans use their bodies and minds to compute, reason, and act accordingly, Artificial Intelligence often operates differently. AI is not a magic wand, rather a valuable tool in skilled hands, and the first of its characteristics to familiarize yourself with is the fact that while machine learning algorithms can learn extremely efficiently, they cannot do much at first. The right algorithms need to first be exposed to the right data, tuned, and verified.

Undertrained algorithms are both unreliable and unpredictable, but with proper training, i.e. being fed lots of examples, be it pictures, sounds, formulas, etc., the algorithms develop from an unwieldy tool into a trustworthy colleague.

Data, and more specifically the growth of data, is essential to the development and performance of Artificial Intelligence. Not only does data make AI smarter, but it improves its accuracy, and an increase in data fuels other AI technologies. With access to greater amounts of data, processes such as machine learning are able to outperform human beings, uncovering underlying patterns and determining subsequent actions. (WEF, 2018) Here, the quality of data plays a crucial role. AI ultimately operates within a set of rules to best reach it's pre-defined goal. How well the AI software you are implementing performs depends on the quality of data you are training it with.

Before the quality of data can be assessed it must be acquired and structured. Fact is, however, you may already be sitting on a data goldmine. This asset may not be of much value on paper, but it may reward you in dividends when put in the right hands. Finding out how much data may already be at your fingertips can be done with ease.

Automate data collection from various sources—your website, emails and documents—using special software to capture and classify the information. Not only are these automated processes fast and inexpensive, they also free up valuable employees from hours of data entry to focus on other tasks while also keeping records up to date. Use the same data system to then create customized reports detailing specifics from dates and locations to customer types, purchase history and preferences, ultimately allowing you to decipher trends — the type of information you won't find in a stack of papers on your desk.

Sitting on vast quantities of quality data, however, isn't enough. Someone has to do something with it.

**Data is a Tool and it Needs a Worker**

Big data is everywhere. It is part of everything, even part of your company, whether you see it or not. Because of its ubiquitous nature, many businesses are now looking to leverage big data in hopes of remaining competitive and therefore taking notice of how Artificial Intelligence technologies can help workers both harvest and utilize data more efficiently. The challenge they now face, however, is finding data-skilled professionals capable of turning said data into actionable insights.

Data handlers come in a variety of talents, ranging from gathering and accessing to organizing and analyzing big data, each offering tailored insight into ways to improve customer connection, improve existing processes and services, and create new business opportunities. While assembling a team with this talent is a critical step in harnessing big data and machine learning technologies, it also has its company-wide challenges, best solved from the top down.

Skilled data scientists, who are already in short supply, are difficult to staff if there is no senior data scientist ready to lead them. By hiring a team leader with respectable credentials you signal to potential employees that you are both serious about investing in AI and not following the trend blindly. Yes, most of these talents will come with field experience and therefore a certain price tag. So taking budget constraints into consideration, companies may also consider how to train valuable, current employees to work skillfully with AI technologies.

There are also several viable options varying in length and intensity for those already on staff showing an aptitude for math and statistics. Data science and AI workshops can be an ideal start to putting them on the right track, as well as learning on the job, being accompanied by external experts. For those looking to concentrate or even work solely on AI, attending a data science boot camp may be the best option. These intensive, three-to-six-month programs will certainly get them up to speed on various AI technologies, preparing them to work as data scientists, data analysts, or data engineers.

These skilled workers, whether newly staffed or retrained, ultimately need direction. Reaping benefits, namely revenue, will come largely from discerning when to deploy which technologies. So in addition to looking for staff to build AI and implement it, don't ignore the importance of looking for someone with the savvy to discern between hollow hype and trends of substance. AI Opportunity workshops consisting of a company's core personnel and external facilitators can be a sensible choice to identify opportunities within their daily operations and calculate their ROI.

**Create a Corporate Culture around Data**

According to a recent study and in harmony with our findings, nearly 300 executives surveyed by Forbes Insights believe that AI will play an important role in the responsibilities in the near future," while only 25% have already adopted it into current business plans. (Forbes Insights, 2018) Despite an increasing willingness to incorporate AI technolo-

gies into current processes, businesses must take into consideration how to secure AI's successful implementation. With the adoption of AI being driven by C-level technology leaders, CEOs should focus on creating an atmosphere of innovation and network-based structures that shape a corporate culture around data.
(Forbes Insights, Building AI: Key Steps For Adoption And Scaling Up, 2018)

This can and should start at a base level. First, point out data's ubiquity—from the top tiers of the economy to the lower levels of your business. Helping employees become aware of data can open their eyes to its usefulness in decision-making. With this newly acquired knowledge, encourage employees to experiment with new data-driven process-es. Not all of them will develop into full-fledged ventures, but discovering new combi-nations of data and existing services can offer insights into untapped opportunities, in turn increasing curiosity and initiative in the workplace. Finally, there are courses and workshops designed to help companies to not only become data literate, but also train existing employees to shape and interpret data, using it as a tool once initial excitement has worn off.

**Keep Your Core and Let AI Co-Create**
Artificial Intelligence is taking over storytelling. This statement is tossed around with enough frequency to soon turn it into a cliché trope. While some technology, like GPT2, is capable of mimicking tone and crafting plausible prose (Hern, 2019), the narrative arc has yet to be distilled into an reproducible algorithm, meaning AI is largely still creating works with mangled syntax and unrelated scenes strung together. Inspired by humans? Yes. Surpassing their storytelling creativity? Not yet.

This should serve as a source of relief and inspiration to those in the publishing indus-try. Relief, in the sense that publishers should continue to do what they do best, namely content curation, storytelling, and inspiration, in the sense of being offered a tool capable of creating new opportunities for collaboration alongside humans.

As Artificial Intelligence advances, storytellers not only gain access to an array of new mediums, but also to technology designed to support the emotional arches they are creating, the backbone of said stories. Analyzing successful stories in terms of their narrative arch, AI can distinguish which narrative characteristics, i.e. which type of event at what point in the story, elicit what sort of emotional response. (Mckinsey, 2017) Not only would this allow publishers to predict an audience's reaction to a story, but would also serve to strengthen stories by given publisher insight into which additional elements—sound, setting, relationship and dialogue—could amplify the desired response.

**Strengthen Your Core as AI Optimizes**
Apart from content creation, there are Artificial Intelligence technologies available to aid in many areas of your business, ultimately allowing you to focus on your core. Tasks such as manually combing through customers' purchase history can be delegated

to AI and ultimately deliver a greater outcome. Companies such as Deep.BI and Media-Servista help publishers grow their audiences by using big data and predictive analytics regarding consumer behavior and content performance, creating profiles on what content was consumed and through which channels. These technologies can even be used to offer insight by testing strategic plans on past data. (Proffitt, 2017)

Applying knowledge gained from such software, marketers can gauge the success of broad campaigns and bring razor sharp focus to personalized content. As users interact with websites, intelligent algorithms can track their behavior and offer content best suited to their preferences, pulling suggestions from otherwise ignored backlists. Analyzing these behaviors and classifying them into groups also aids in trend forecasting, allowing marketers to see in real-time when target groups favor material outside traditional preferences and how to promote their content with precise targeting.

## SIX STEPS TO CONSIDER WHEN
## IMPLEMENTING AI INTO YOUR COMPANY

So you're wondering just how AI can add value to your company? We've put together six fundamental steps for you to consider when planning how to best implement AI. We would like to encourage you to take a closer look at them to help you solidify your plans and thus evaluate the added value of AI (machine learning) for your company.

### 01
**Problem**
Define the problem(s) that you want to solve with AI and identify optimization potential through the use of AI.

### 02
**Culture**
Create an open-minded culture and creative mindset around the use of AI in your company.

### 03
**Knowlegde**
Build a collaborative AI team of business professionals, data scientists and technology experts.

### 04
**Data**
Detect data sources, analyze and structure the data, and create a valid data infrastructure.

### 05
**Learn**
Gain initial experience with AI by using, testing, and learning from available plug-and-play applications or open source solutions.

### 06
**Organization**
Promote the use of AI in your company and create an ecosystem to adapt your results.

**1) Define the problem(s) that you want to solve with AI
and identify optimization potential through the use of AI.**
Implementing AI should not be an end in itself. The best way to assess the use of AI is by basing it on a challenge you may be currently facing. Analyze organizational areas, tasks, processes and services, which from your point of view can potentially be optimized by data-driven or automated steps. Identify problems from the user's point of view and define clear, measurable goals. In order to take ROI into account in the following steps, also determine what costs are associated with this problem today and what value the planned solution could create.

**2) Create an open-minded culture and creative mindset
around the use of AI in your company.**
AI is to be understood as an iterative and experimental process whose results can vary according to data quality and whether or not the problem has been clearly defined. Discuss the opportunities and challenges of AI in your company openly and transparently. Bring cross-functional perspectives together to gain deep insight into different fields of action, knowledge levels, and perspectives on the topic in your company. Give critical voices the chance to be heard to better understand potential fears or attitudes of denial and rejection.

**3) Build a collaborative AI team of business professionals,
data scientists, and technology experts.**

The use of AI requires different competencies. Identify the internal experts to deal with AI in your company and put together an interdisciplinary team consisting of business, data science, and IT experts, as well as future users. This ensures that the needs of a successful solution are taken into account. The team will be able to identify and analyze the relevant data, create and manage the business case and action plan, and set up and manage the relevant IT infrastructure.

**4) Detect data sources, analyze and structure the data,
and create a valid data infrastructure.**

The basis for the successful use of AI in various problems and challenges is data. In addition to the availability of a significant amount of data, data quality is also a decisive factor in successfully solving your problem. Carry out an inventory of your data sources in order to determine which relevant data is generated or already exists in your company with regard to your problem. In addition, identify other external data sources that you can use to collect relevant data. Especially concerning personal data, it is advisable to clarify the data protection issues in good time.

**5) Gain initial experience with AI by using, testing, and learning
from available plug-and-play applications or open source solutions.**

If you don't know where to begin, start by taking small steps and checking your approach. This will keep you agile and enable you to react quickly and flexibly to changing conditions. A number of cloud service providers offer pre-trained applications that can be tested at low cost. Open source solutions can also be considered, depending on the problem at hand and existing internal skills and resources. Select them based on your problem and use them with your data to take your first steps with AI. Take what you've learned from the tests and try out further measures. Improve your model step by step until it solves your problem satisfactorily. You can check the model's precision by separating part of the data before training and using it as a "test set".

**6) Promote the use of AI in your company and create
an ecosystem to adapt your results.**

Continue the use and training of your AI application to learn more and increase usage over time. Share the experiences of your tests and learnings across your organization and encourage others to address further issues with the available data infrastructure. Draw from additional tests and use cases to develop a data strategy for your organization that systematically leverages data and AI to address issues or develop services. However, consider the impact of AI on existing processes in order to identify and exploit potential economies of scale.

## ABOUT US

### Gould Finch

Gould Finch supports companies throughout their digital evolution with intelligent products and services. As a technology-driven management consultancy they do not simply advise on the latest digital innovations – but shape them themselves. Gould Finch assist clients in our focus industries Energy, Finance and Media not only on complex strategic questions, but also with the concrete development and implementation of individual tools.

In interdisciplinary teams they do not just rely on proven methods, but keep up with the zeitgeist thanks to own developments based on Artificial Intelligence and Machine Learning.

Gould Finch has offices in Hamburg, Berlin and Düsseldorf as well as an international competence network in Prague, Sydney and San Francisco and is an active member of the Federal Association for Artificial Intelligence.

www.gouldfinch.com

### Frankfurter Buchmesse

Frankfurter Buchmesse is the international publishing industry's biggest trade fair – with over 7,500 exhibitors from 109 countries, around 285,000 visitors, over 4,000 events and some 10,000 accredited journalists and bloggers in attendance.

It also brings together key players from the fields of technology education, film, games, STM, academic publishing, and business information. Frankfurter Buchmesse organises the participation of publishers at around 20 international book fairs and hosts trade events throughout the year in major international markets. Frankfurter Buchmesse is a subsidiary of the Börsenverein des Deutschen Buchhandels (German Publishers & Booksellers Association).

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# AUTHORS

### Colin Lovrinovic

Colin Lovrinovic is an Australian / German serial entrepreneur with a passion for new technology in media and having fun while making the world a more interesting place. He is Managing Director at Gould Finch and has worked with a number of clients from the international publishing industry on projects including strategy, innovation and implementation of new technology.

Prior to Gould Finch, Colin worked for companies such as Amazon, Apple, Universal and Bastei Lübbe - one of Germany's largest trade publishers. And successfully (and unsuccessfully) started companies in the digital media space.

He holds an MBA from Mannheim Business School, as well as an M.A. in Creative Industries Management and is an active member of the German Federal Association of Artificial Intelligence.

### Holger Volland

Holger Volland serves as Vice President and member of the executive board of Frankfurter Buchmesse. He is responsible for international business development and sales and heads the book fair's office in Beijing. He is also founder of an annual think tank event for technology in culture: THE ARTS+. As an author he publishes about digital change in culture and the creative industries. His latest book "The creative Power of Machines" (Beltz, 2018) explores the cultural aspects of artificial intelligence.

Prior to joining the book fair, Holger served as head of marketing and communications with the German Booksellers and Publishers Association and head of brand communications at MetaDesign AG. Before, he led Leipziger & Partner as Managing Director, a digital marketing and communications consultancy which he founded in Berlin. He has held positions in media such as journalism, radio, television and online development and design and curated numerous exhibitions in Buenos Aires and Berlin.

Holger studied information science at Freie Universität Berlin. He led the launch of the New Economy Business School as its founding director and also enjoyed a tenure as lecturer at Hochschule Wismar and Mediacampus Frankfurt.

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