

# Indirect Value Creation Potentials of AI Application in Companies

Janina Gabrian\*<sup>1</sup>, Jürgen Seitz<sup>2</sup>

<sup>1,2</sup> Institute for Applied Artificial Intelligence, Stuttgart Media University, Stuttgart, Germany

**Abstract:-** This study explores questions concerning AI value creation potentials in companies and, in particular, focuses on indirect value creation potentials. In order to adequately address this complex topic, more than 90 AI use cases were collected and evaluated in over 40 qualitative interviews with experts from 34 companies.

For an in-depth survey of the indirect value creation potentials, open questions were posed in the interviews. These questions sought to find out which goals were being pursued through the application of AI. The evaluation was carried out using a qualitative content analysis based on Mayring ([1] 2016).

Subsequently, all statements on indirect value creation potentials were assigned to inductively formed categories. This showed that the recorded and systematised goals of AI applications contribute indirectly to the value creation of the companies and go beyond the direct value creation factors of reducing costs, increasing sales and increasing company value ([3] Seitz/Willbold/Haiber, 2022).

In the evaluation, general statements were made about indirect value creation potentials across industries and companies. A total of 14 indirect value creation categories emerged, for example optimising decision-making, but also increasing the productivity of employees.

In a more detailed analysis, it was determined whether and to what extent there were differences, based on the industry and the company's field of activity. The goals pursued with the application of AI in companies differ depending on the application scenario. While companies with a high level of customer contact tend to see potential in optimising the customer journey, manufacturing companies, for example, are more concerned with process optimisation.

In a next step in the research, it would be useful to develop a more complex evaluation system for value creation potential in order to give companies an indication of rewarding AI projects. The indirect value creation potentials identified in the study can provide an initial starting point for this.

**Keywords:-** Artificial Intelligence, Indirect Value Creation.

## I. INTRODUCTION

The value creation potential of the application of Artificial Intelligence (AI) in companies goes beyond the increase in revenue, the reduction of cost and the increase in company value ([3] Seitz/Willbold/Haiber, 2022). There are many underlying goals that companies pursue with their AI projects, which are analysed more in-depth in this paper.

## II. RELATIONSHIP TO EXISTING WORK

This paper is based on the “AI Value Creation Study” by Seitz, Willbold and Haiber ([3] 2022), which investigates AI value creation, mainly in terms of direct value creation potentials of the application of AI in companies. Those direct value creation potentials are the increase in revenue, the reduction of cost and the increase in company value, based on the value creation model by Seitz and Burosch ([2] 2018, p.2).

## III. RESEARCH APPROACH

### A. Objectives

- Identification of AI use cases and value creation potentials in companies
- Especially identification of indirect value creation potentials in the application of AI
- Identification of differences in indirect value creation potentials between sectors.

### B. Research Design

Responsible persons from 34 companies that use AI were interviewed about more than 90 use cases of AI in their companies. 32 of these semi-structured interviews, which dealt with the topic of indirect value creation potentials, are included in this study. The two remaining interviews were left out because the topic was not addressed.

The interviews analysed contained 438 statements on indirect value creation potentials. These were determined through open, unaided questions. Inquiries were made as to which goals the experts would like to achieve through the application of AI in their company. Aspects that go beyond the direct value creation potential were recorded and systematised using a qualitative content analysis based on Mayring ([1] 2016). These are referred to in the following as indirect value creation potentials. In the evaluation, general statements were made about indirect value creation potentials across industries and companies.

The statements in the interviews were paraphrased and assigned to inductively formed categories in a group discussion. A total of 14 categories of indirect value creation potentials through the application of AI emerged. These are examined in more detail in the following and analysed in terms of whether and to what extent there were differences, based on the industry and the company's field of activity. In the following, this classification is referred to

as the sector. The number of mentioned objectives pursued respectively indirect value creation potentials per sector was evaluated. From this, tendencies are derived as to which indirect value creation potentials appear to be particularly relevant for the sectors. The allocation of the companies to the sectors can be found in the following table.

Sector	Manufacturing Industry	Information, Communication & Media	Wholesale & Retail	Finance & Insurance	Leisure & Tourism	Law, Consulting & Auditing
Number of companies in sector	10	6	7	4	2	3
Number of total mentions in sector	103	77	78	43	29	43

Table 1: The allocation of the companies to the sectors and the number of mentions of indirect value creation potentials in the interviews per sector

#### IV. FINDINGS

In the following, the 14 categories of indirect value creation potential through the application of AI in companies, which were extracted from 438 statements from the interviews, are described in more detail. Subsequently, the indirect value creation potentials are examined depending on the sector affiliation of the respective companies from which the statements originated.

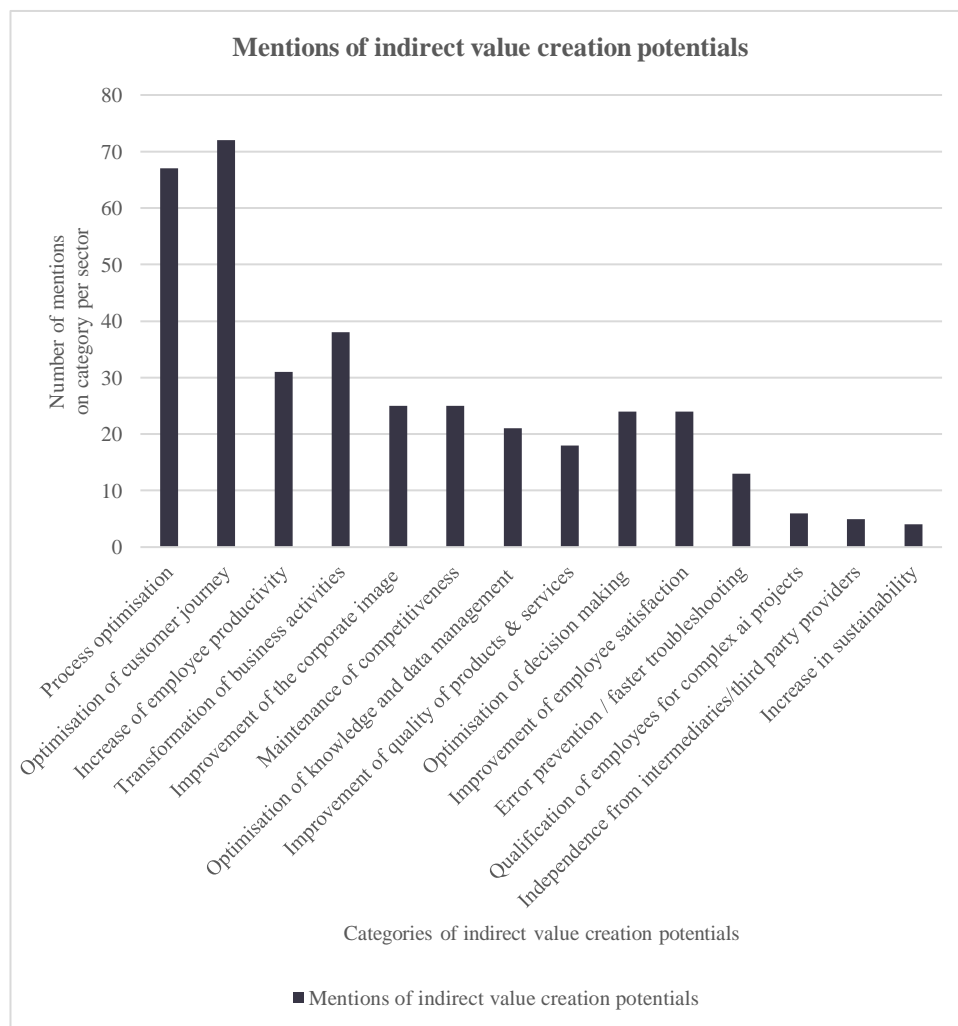


Fig. 1: Mentions of indirect value creation potentials in the interviews per category

## V. INDIRECT VALUE CREATION POTENTIALS OF THE APPLICATION OF AI IN COMPANIES

### A. *Process optimisation*

In the category of process optimisation, various aspects were mentioned in which AI can be helpful for achieving corporate goals. Time savings have a positive effect both within processes and in shortening the time-to-market. Processes can be reduced in complexity and made more transparent and leaner as a result of the application of AI and the associated precise process analysis.

### B. *Optimisation of customer journey*

With regard to their customer journey, the companies surveyed see great potential for getting closer to achieving their goals. A better understanding of customers and their behaviour can help to make customer acquisition more individualised, target new and existing customers more specifically and increase their engagement, and ultimately increase customer loyalty and prevent customer churn. The companies surveyed also report an optimisation of the customer experience.

### C. *Increase of employee productivity*

In terms of increased employee productivity through the application of AI, many respondents said that time savings or AI taking over tasks means that employees can focus on other and more complex tasks. AI also allows the same number of employees to handle a higher volume of work, so there appears to be no need to hire new staff.

### D. *Transformation of business activities*

Many of the companies surveyed see opportunities in the application of AI to transform their business activities. Several companies report the possibility of offering new products and services, and they also see the expansion of existing business models or the development of new business models as an opportunity. Further, AI offers the opportunity to scale business activities according to the experts surveyed.

### E. *Improvement of the corporate image*

With regard to the improvement of the corporate image as an indirect value creation potential, the study shows that companies strive to increase their attractiveness to applicants and thus become a more appealing employer. The experts also see opportunities to increase the perceived future viability of their company.

### F. *Maintenance of competitiveness*

For the maintenance of competitiveness through the application of AI, two main goals can be derived from the companies surveyed. On the one hand, companies feel compelled to keep up with changes in their industry and in the competition. On the other hand, companies are striving for a technological advantage over competitors and, in some cases, the associated customer benefits.

### G. *Optimisation of knowledge and data management*

The experts expect that the application of AI will enable them to use existing knowledge and data in their company in a new or optimised way. The companies also intend to acquire new data sources and make them usable through the

application of AI. Another factor in this area is the mapping of existing expert knowledge within the company itself. The companies surveyed would like to become less dependent on employee absences and fluctuation through the application of AI.

### H. *Improvement of quality of products & services*

Several companies are using the application of AI to improve the quality of products and services, both internally and externally. In the interviews, the experts report higher accuracy or complexity in the processing of various tasks, which would not have been possible without the application of AI.

### I. *Optimisation of decision making*

With regard to decision-making, the interviews show that with the application of AI in companies, decisions can be automated, but AI also serves to provide a more complex basis for decisions, e.g. by making previously unconsidered data available. This goes along with better risk assessments and enables more targeted decisions.

### J. *Improvement of employee satisfaction*

Regarding the increase in employee satisfaction by the application of AI, the experts stated that especially the reduction of repetitive and manual tasks leads to more satisfaction. Improved working conditions and easier information retrieval also contribute positively. Furthermore, higher motivation, e.g. through predicted prospects of success in the work, and stronger employee loyalty through AI projects are reported.

### K. *Error prevention / faster troubleshooting*

In the area of error prevention and faster troubleshooting through the application of AI, the companies surveyed strive to achieve more accurate predictions in maintenance and thus error-free processes and greater efficiency. There are reports of accurate anomaly detection and also of human errors being avoided by AI taking over tasks.

### L. *Qualification of employees for complex AI projects*

According to some of the companies surveyed, the application of AI is an opportunity to expand the experience in this area. Employees should be qualified by current use cases of AI for subsequent use cases with greater potential.

### M. *Independence from intermediaries/third party providers*

The experts interviewed report increased independence from intermediaries and third-party providers in two main ways. On the one hand, the application of AI means that it is no longer necessary to rely on data or services from external providers. On the other hand, internal tasks no longer have to be outsourced, as they can be completed internally again with increased capacities in terms of quality and time.

### N. *Increase in sustainability*

With regard to increasing sustainability through the application of AI, the interviews show that the main aim is to optimise the application of resources and avoid wasting materials.

**VI. ANALYSIS OF THE INDIRECT VALUE CREATION POTENTIALS OF THE APPLICATION OF AI**

A total of 75 percent of the experts surveyed mentioned the potential of **process optimisation**. This indicates that for the majority of companies process optimisation is an area in which indirect value creation is possible through the application of AI. 24 of the 32 companies named a total of 67 possible uses of AI for process optimisation and the associated goals they are pursuing.

It is particularly striking here that there are large deviations between the sectors. Experts from companies in the manufacturing sector specified 28 possibilities and goals in the area of process optimisation in the unaided survey. In the wholesale and retail trade sector, 22 positive mentions were made. In the information, communication and media sector, on the other hand, only two potentials were mentioned. The experts from the finance and insurance, leisure and tourism, and legal, consulting and auditing sectors mentioned only slightly more potential, with an average of five.

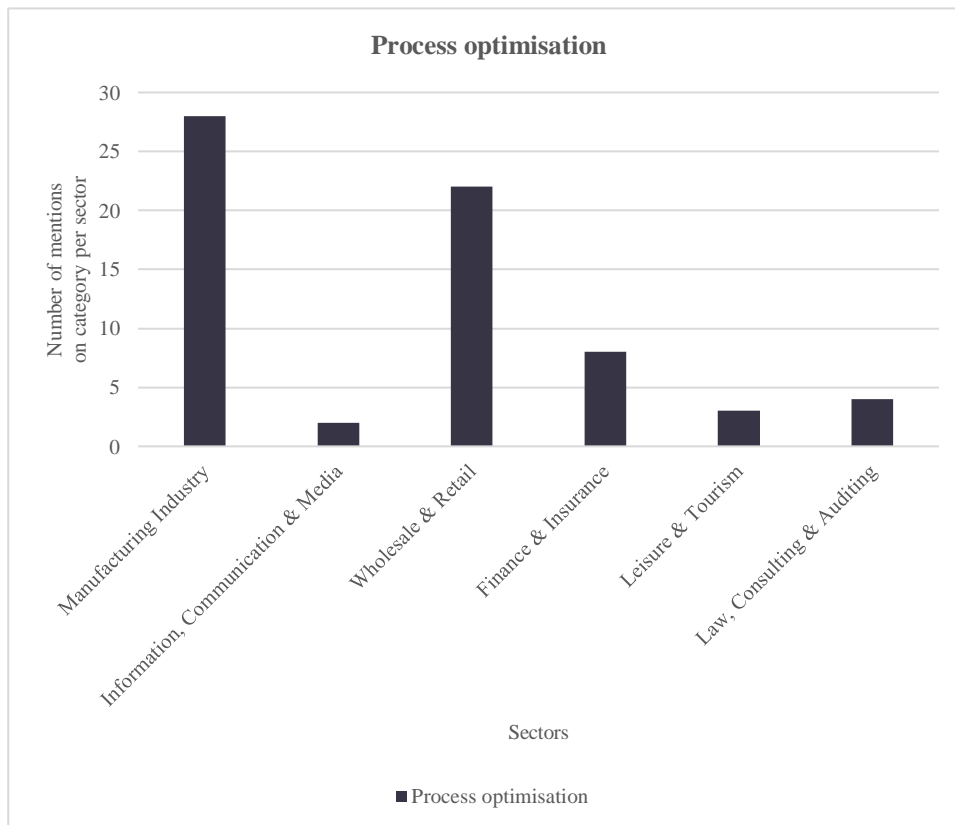


Fig. 2: Mentions of indirect value creation potentials in the field of process optimization per sector

Almost two-thirds of the companies surveyed (65.6 percent) reported goals in the area of **optimising the customer journey**. 72 potentials were named in this area.

28 of the 72 mentions can be attributed to this sector. Wholesale and retail also see above-average potential here with 17 mentions. The lowest number of mentions of this goal was made by representatives of the manufacturing industry, with 3 potentials in this area.

In contrast to process optimisation, companies from the information, communication and media sector are mainly aligned with the goal of optimising the customer

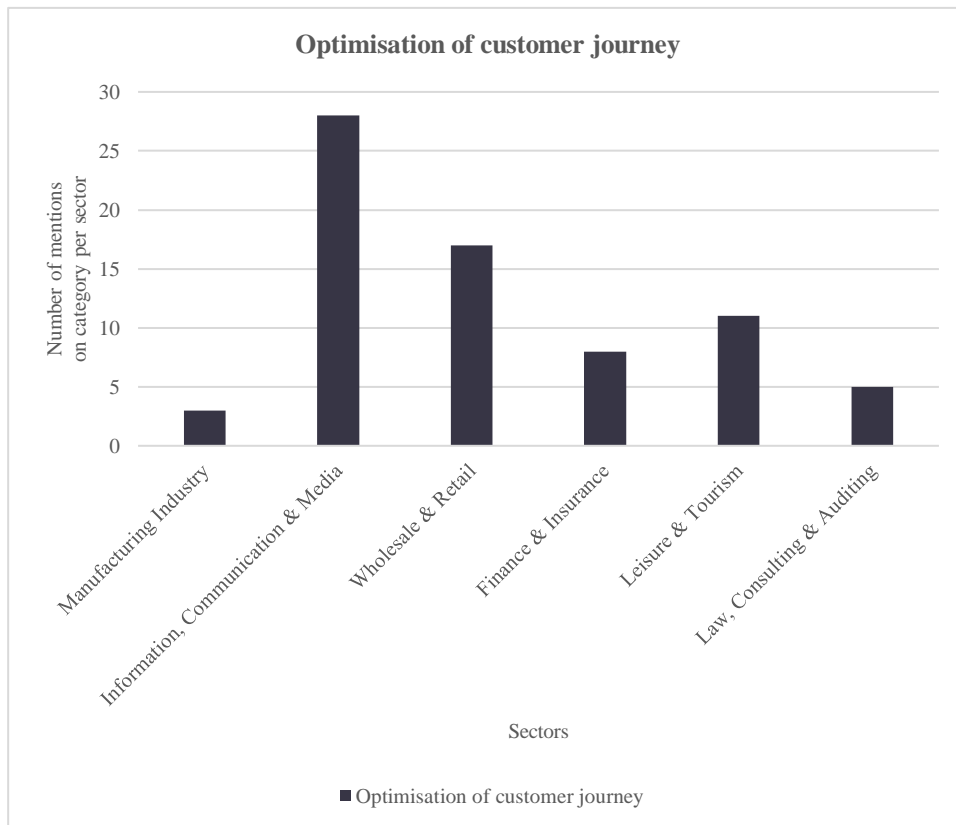


Fig. 3: Mentions of indirect value creation potentials in the field of optimization of customer journey per sector

More than half of the companies surveyed (18) pursue goals in the area of **increasing employee productivity** with the application of AI, with a total of 31 mentions.

One third of the mentions (10) are attributable to companies from the manufacturing sector. Companies from other sectors named four to six potentials, with the exception of the leisure and tourism sector, where there were no mentions.

Half of the companies surveyed named goals in the area of **transforming business activities** through the application of AI. A total of 38 intentions and objectives were named in this context.

Nearly half of the potentials mentioned (18) can be assigned to the information, communication and media sector. Companies in the manufacturing sector also see potential in the transformation of business activities (10). No mention was made by the surveyed companies from the leisure and tourism sector.

## VII. ANALYSIS OF THE SECTORS OF THE COMPANIES SURVEYED REGARDING INDIRECT VALUE CREATION POTENTIAL OF THE APPLICATION OF AI

Among the surveyed companies from the **manufacturing sector**, process optimisation emerged as the greatest indirect value creation potential by far. With 28 mentions, it was mentioned almost three times as often as the subsequent potentials. Increasing employee productivity, transforming business activities and maintaining competitiveness were each mentioned 10

times. In contrast, efforts to improve the qualifications of employees or disintermediation were reported rarely in this sector.

In the **information, communication and mediasector**, two indirect value creation potentials predominate. The optimisation of the customer journey through the application of AI accounts for the largest share. This was mentioned just as often as process optimisation in the manufacturing industry (28 each). The transformation of business activities also stood out as relevant for the industry. Increasing employee productivity, improving the corporate image and optimising knowledge and data management were rated in the intermediate range with five to six mentions each. Error prevention and correction as well as efforts towards disintermediation were not mentioned in the unaided survey.

In the **wholesale and retail sector**, process optimisation (22) and optimisation of the customer journey (17) play an elevated role. A clear gap exists here compared to other indirect value creation potentials. With seven mentions, potential for optimising decision-making is nevertheless seen here, followed by increasing the productivity of employees and improving the quality of products and services.

In the **finance and insurance sector**, the companies surveyed also strive to achieve goals in process optimisation and optimisation of the customer journey. Also of potential value creation here, more than in the other sectors, are the increase in employee satisfaction and optimised decision-making through AI.



For the surveyed companies from the **leisure and tourism sector**, the focus of indirect value creation is on optimising the customer journey. It is noticeable that employee productivity and the transformation of business activities - in contrast to all other industries - were not mentioned.

The surveyed companies from the **legal, consulting and auditing sector** have less clear tendencies towards certain indirect value creation potentials. Here, efforts to increase employee productivity were named most frequently, followed by increasing employee satisfaction, improving the corporate image and optimising the customer journey.

### VIII. CONCLUSION

Overall, this study showed that there is a wide range of indirect value creation potential in the application of AI in companies. The companies pursue many different goals with their AI projects. In the analysis of the statements that were assigned to the categories of indirect value creation potential, clear focal points emerged in some areas. Overall, indirect value creation potential in the area of optimising the customer journey was mentioned most frequently in the unaided interviews.

The sector analysis showed that optimisation of the customer journey is particularly relevant for companies in the information, communication and media sector, as this was mentioned by far the most frequently by the associated companies. Overall, process optimisation was named second most frequently as an indirect value creation potential. This was mentioned in particular by experts from companies in the manufacturing industry and wholesale and retail sector. In the other sectors, which were finance and insurance, leisure and tourism, as well as legal, consulting and auditing, there were less clear focal points.

### IX. LIMITATIONS AND PROSPECTS

Overall, the sample size of this study is a limitation, which is why the results do not claim to be representative of all companies and sectors. Certainly, some of the deviations between the industries and fields of activity of companies and their indirect value creation potentials in the application of AI are due to the fact that not the same number of companies were represented in all sectors.

Nevertheless, the results are very clear especially in the area of process optimisation and optimisation of the

customer journey. In other areas, it would be helpful to learn more about the background of the findings. It would be interesting to use a larger sample and an aided study design to investigate the question of why some sectors see little or no potential in some areas. It should be found out whether it was due to the individual experts surveyed and their companies, whether the potentials and possibilities for achieving them are not known professionally or whether it is due to specific characteristics of the sector that focuses are set differently.

Further research across all sectors would be desirable to find out whether other key areas are named in supported questioning or whether the framework created in this study can be expanded. Further research is also needed to further concretise business value creation through indirect value creation potentials. Findings in this area could help companies to pursue goals in the application of AI more concretely and to maximise their success.

### GRANT INFORMATION

The work discussed in this article was funded as a joint research project by: Ministry of Economics, Labour and Tourism Baden-Württemberg, Germany.

### ACKNOWLEDGEMENTS

We would like to thank the researchers of the AI Value Creation Study, Katharina Willbold and Robin Haiber, who provided valuable fundamental work for this paper as part of their study. We would also like to thank the students Benjamin Fetzer, David Fichtner, Steven Hermanutz, Marleen Hesse, Marek Neuwirth, Lea Richter, Katja Trusch and Moritz Weccard for their active support in conducting the research.

### REFERENCES

- [1.] Mayring, P. (2016). Einführung in die qualitative Sozialforschung. Eine Anleitung zu qualitativem Denken (edition 6). Beltz.
- [2.] Seitz, J. & Burosch, A. (2018). Digital Value Creation [Conference Paper]. 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Stuttgart, Germany, 1-5. <https://doi.org/10.1109/ICE.2018.8436380>
- [3.] Seitz, J.; Willbold, K. & Haiber, R. (2022). AI Value Creation Studie: Potenziale und Hindernisse von AI Business Use Cases in Unternehmen, Kappel-Grafenhausen, Germany, Digipolis Verlag

**AUTHORS' INFORMATION FORM****First Author – Information**

Name : Janina Gabrian CA  
Designation : Researcher  
Department : Institute for Applied Artificial Intelligence  
University : Stuttgart Media University  
Mail id. : gabrian@hdm-stuttgart.de  
Contact No. : +49 1577 4286902  
Course : -  
Residential Address : Nobelstrasse 10, 70569 Stuttgart  
ORCID ID : -

**Second Author – Information**

Name : Prof. Dr. Jürgen Seitz  
Current Designation : Professor  
Current Department : Institute for Applied Artificial Intelligence  
University : Stuttgart Media University  
Mail id. : seitz@hdm-stuttgart.de  
Contact No. : -  
Course : Digital and Media Business  
Residential Address : Nobelstrasse 10, 70569 Stuttgart  
ORCID ID : -