

Designing an Artificial Intelligence Maturity Model for Human Resources (HR-AIMM)



Sascha Armutat
Nina Mauritz
Malte Wattenberg

HS'BI

Hochschule
Bielefeld
University of
Applied Sciences
and Arts



Structure



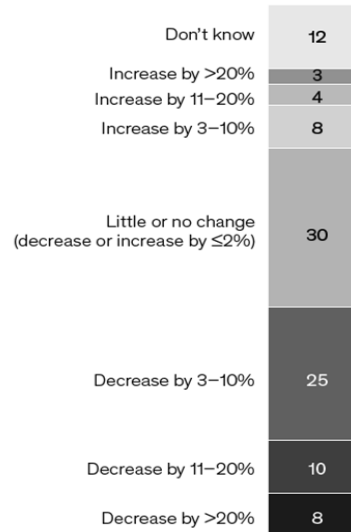
- 1** Theoretical Background
- 2** Research Question
- 3** Method
- 4** Results
- 5** Practical Contribution

Theoretical Background

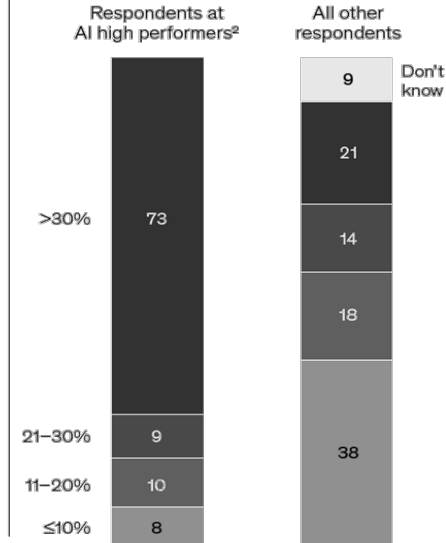
AI and its Impact on Companies Workforces

Expectations about the impact of AI adoption on organizations' workforces, next 3 years, % of respondents¹

Change in number of employees



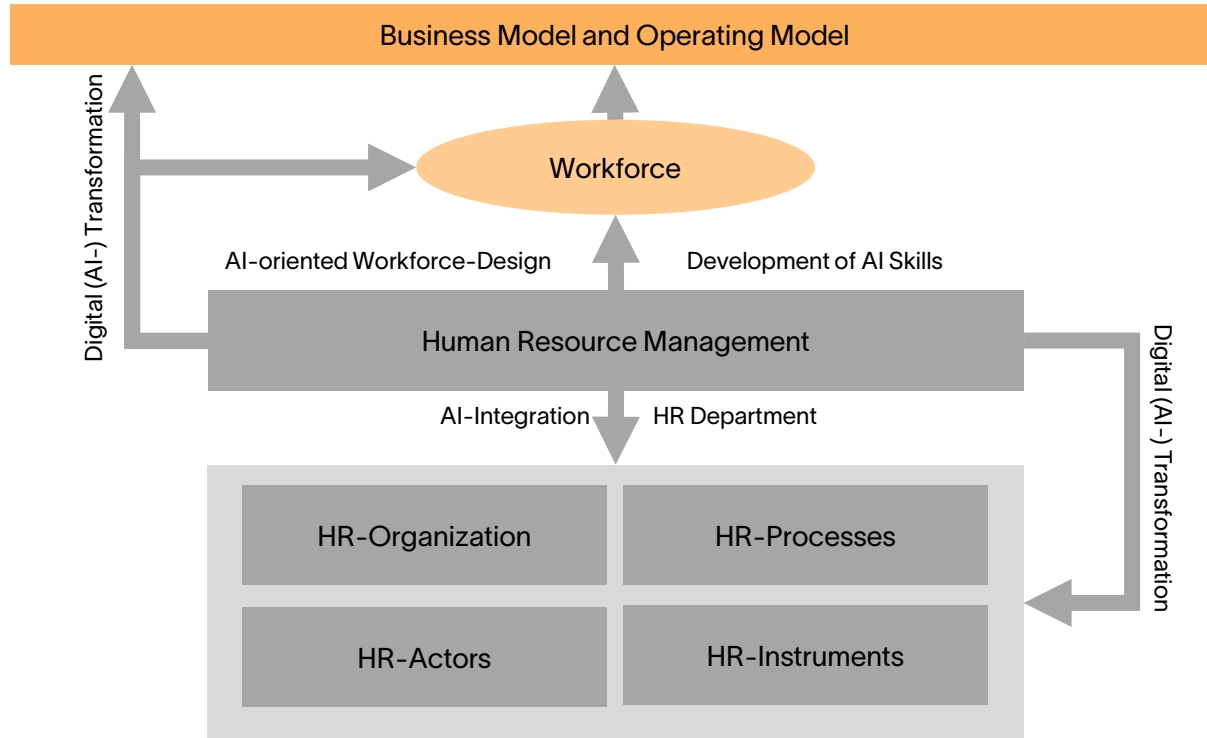
Share of employees expected to be reskilled



Note: Figures may not sum to 100%, because of rounding.
¹Asked only of respondents whose organizations have adopted AI in at least 1 function; n = 913.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

Theoretical Background

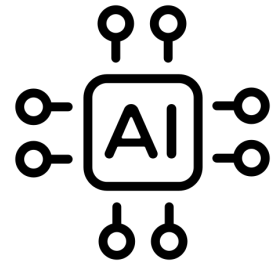
HR – AI-Enabler and AI-Role Model



Theoretical Background

AI and the World of Work

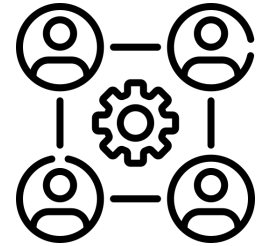
- Artificial intelligence (AI) has the potential to **radically change the world of work** (Franken and Wattenberg, 2019).
- Generative AI has a value potential in the range of USD 6.1 - 7.9 trillion – due to **new use Business Cases** and **productivity increases** among employees (Chui et al., 2023).
- Accordingly, there is a **high interest in implementing** AI in organisations.
- At the same time, there are massive implications for **work processes and workforce structures**:
 - Generative AI will replace a proportion of working hours in all jobs
 - New jobs are being created
- **Human Resource Management** faces two challenges:
 - It must actively support the integration of AI into company processes and structural and skills-related changes within the company – as a change agent, organisational and HR developer, and strategic partner to management.
 - It must adapt its processes, structures, tools, and competencies considering the possibilities of AI-supported HR work.



Theoretical Background

Human Resource Management

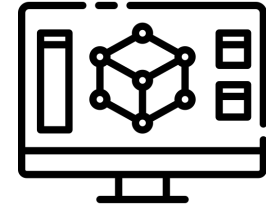
- **Definition:** “*HRM involves management decisions related to policies and practices that together shape the employment relationship and are aimed at achieving certain goals*” (Boselie et al., 2021, p. 484).
- AI is **reshaping processes** in almost all critical areas of HRM and is **increasingly being integrated** into various operational HR processes (Tambe et al., 2019).
- **HRM AI applications** can be found throughout the **entire employee life cycle**, starting with recruitment, selecting suitable candidates, onboarding, performance management, training and development, and retention (Kaushal et al., 2023).
- 89% already use AI tools in their HR departments. Most common use case is GenAI (such as ChatGPT) in recruitment and hiring processes (59%) (Greenhouse, 2023).
- AI creates **added value and cost efficiency**, e.g. by facilitating management decision-making through an expanded range of knowledge (Kumar et al., 2022).
- There are numerous **challenges**, e.g. managing the **overall impact of AI on employees, leadership resistance, human rights and ethical challenges** regarding data privacy and discrimination (Frick et al., 2021; Malik, 2023; Stahl et al., 2023).



Theoretical Background

Maturity Models

- **Definition:** MM are a “structured collection of elements that describe the characteristics of effective processes at different stages of development [and] also suggests points of demarcation between stages and methods of transitioning from one stage to another” (Pullen, 2007, p. 9).
- The **main idea** of an MM is “that it describes in a few phrases, the typical behaviour exhibited by a firm at a number of levels of maturity, for each of several aspects” (Fraser et al., 2002, p. 244).
- describes the typical **development paths** of an object class (Becker et al., 2009).



Helpful and strategic tool for:

- describing a specific **domain's status, potential and requirements** (Wendler, 2012).
- continuous **comparison and roadmap development** (Fukas et al., 2021).



Theoretical Background

AI Maturity Models (AIMMs)

- There are **several AIMMs** in the field, including:
 - readiness of companies (Holmström, 2022; Jöhnk et al., 2021)
 - initial approach (Lichtenthaler, 2020)
 - organisational level (Alsheiabni et al., 2019; Limat, 2022; Jaaksi, 2018)
 - different departments (Saari et al., 2019)
 - small and medium-sized enterprises (Schuster et al., 2021)
 - AI maturity map (Sirrenberg, 2020)
 - marketing (Gentsch, 2019)
 - innovation management (Yams et al., 2020)
 - logistics (Ellefsen et al., 2019)
 - manufacturing (Sonntag et al., 2024)
 - auditing (Fukas et al., 2021)
- **market analysts, consulting companies and software providers** also provide AIMMs
(including ElementAI, 2020; appliedAI, 2021; Accenture, 2022; MITRE, 2022); DFKI, 2022; Deloitte, 2024).

Research Gap

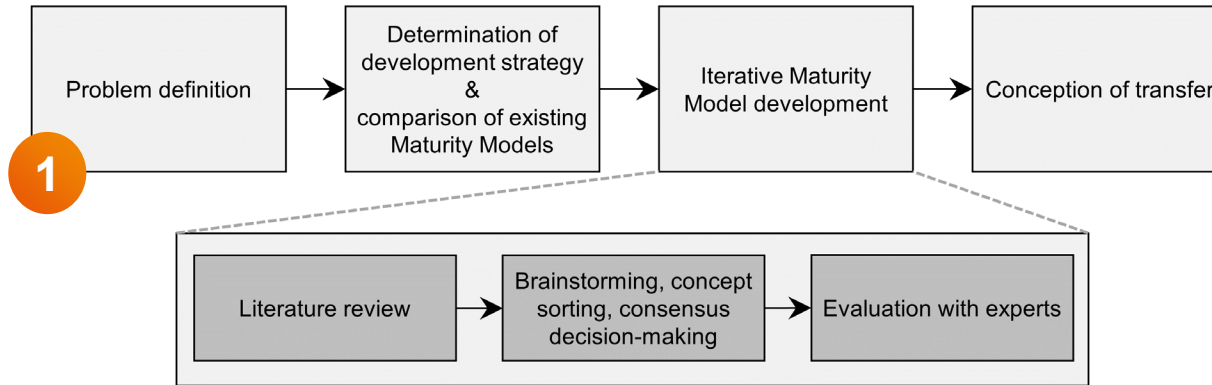
no study
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HR

Research Question

- **Aim:**
develop and transfer an MM with the dimensions of influencing factors that need to be considered in the professional implementation and application of **AI in HR management**.
- **RQ1:**
Which dimensions and components represent the influencing factors for the HR domain concerning the implementation of AI technologies?
- **RQ2:**
How can the dimensions and components be described using maturity levels and mapped in a modular, multidimensional maturity model?

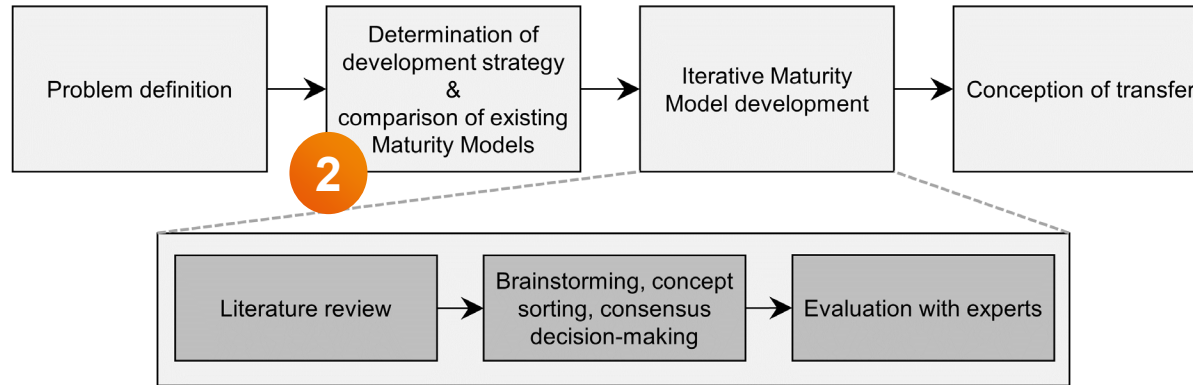
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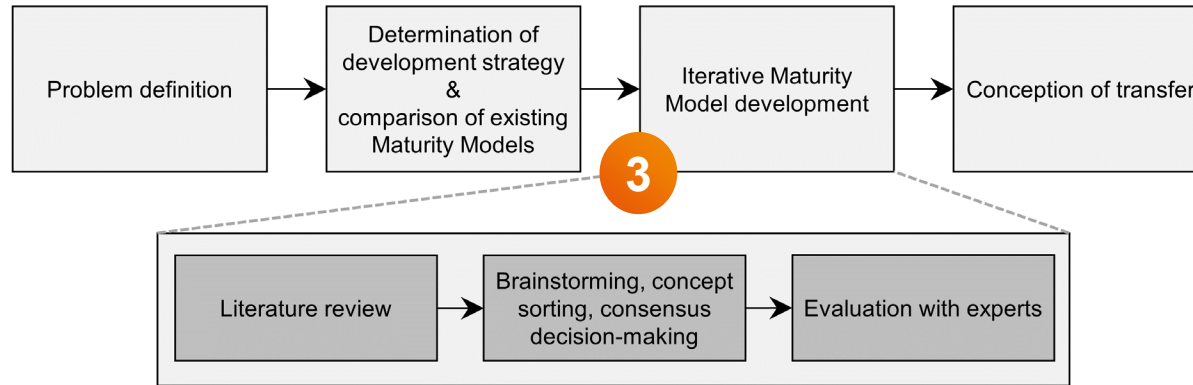
Steps of MM development based on Becker et al., (2009) and Bruin et al., (2005). Source: Author's own work.

- identifying the targeted domain and target group
- discussing the relevance of the problem and the anticipated benefits
- determining the conditions for applying the model
- outlining the research objectives



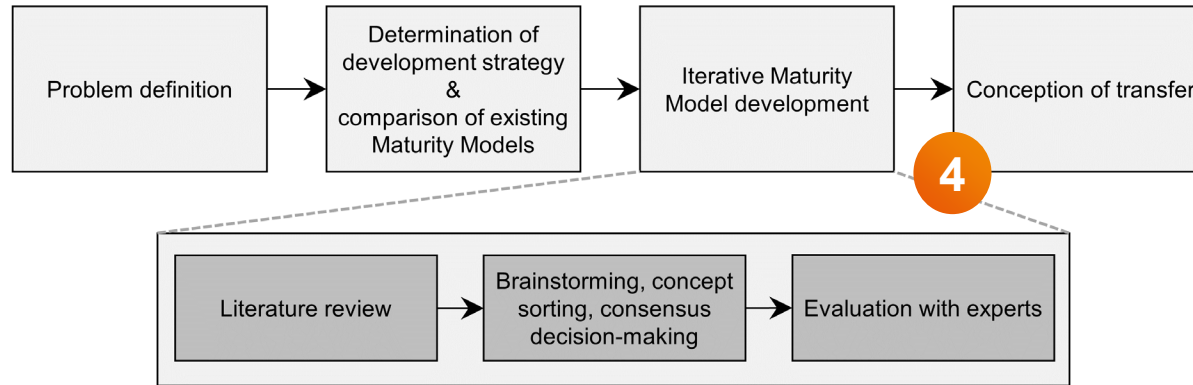
Steps of MM development based on Becker et al., (2009) and Bruin et al., (2005). Source: Author's own work.

- Since no MM for AI could be identified in HR at the time of the study, we follow the procedure for developing an entirely new MM according to Becker et al (2009).



Steps of MM development based on Becker et al., (2009) and Bruin et al., (2005). Source: Author's own work.

- Slightly formalised narrative review: (“*artificial intelligence maturity model*” AND “*human resources*”) on Google Scholar and Google. Finally, a synopsis was created.
- Various knowledge-generating techniques (McGraw, 1989)
- Qualitative research study with six HR and training experts from different industries

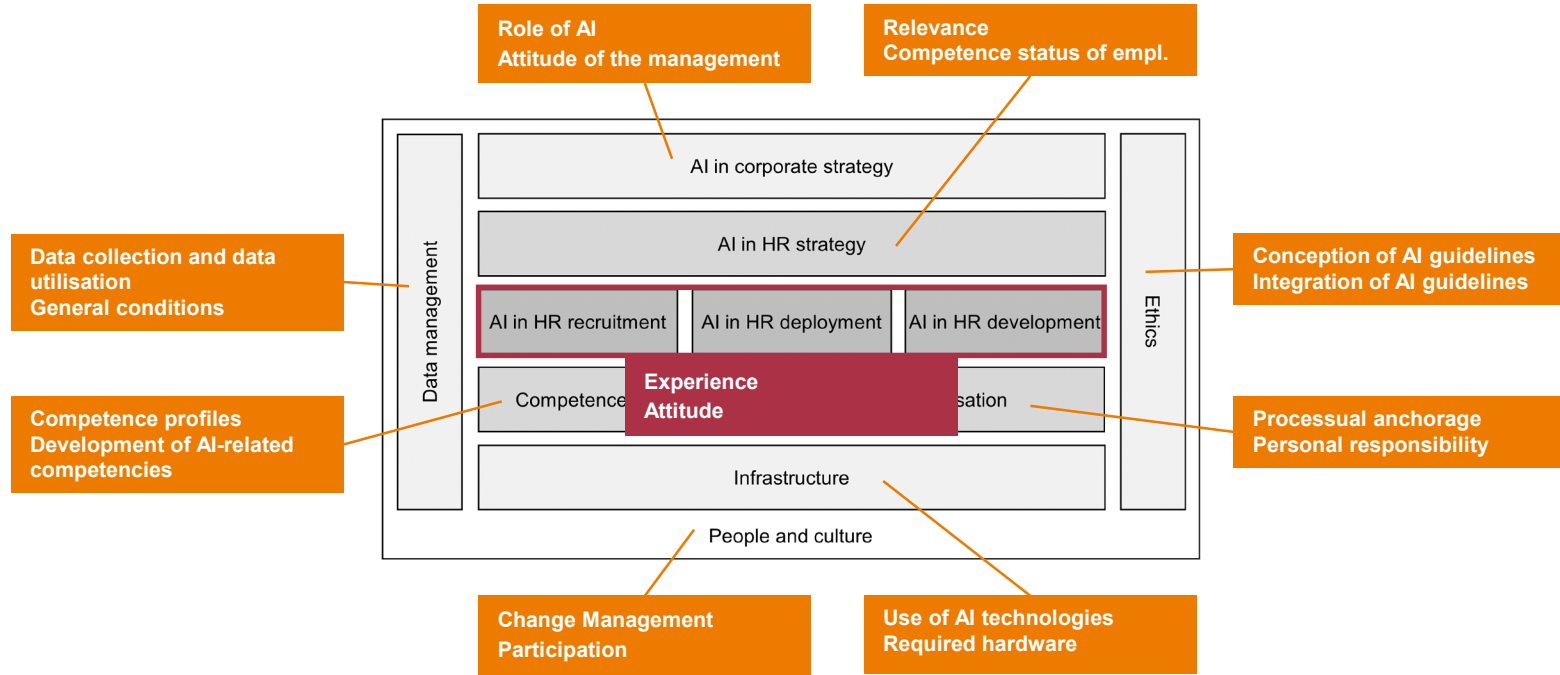


Steps of MM development based on Becker et al., (2009) and Bruin et al., (2005). Source: Author's own work.

- Interactive website
- Results presented with a score and a radar (Armutat et al., 2024)

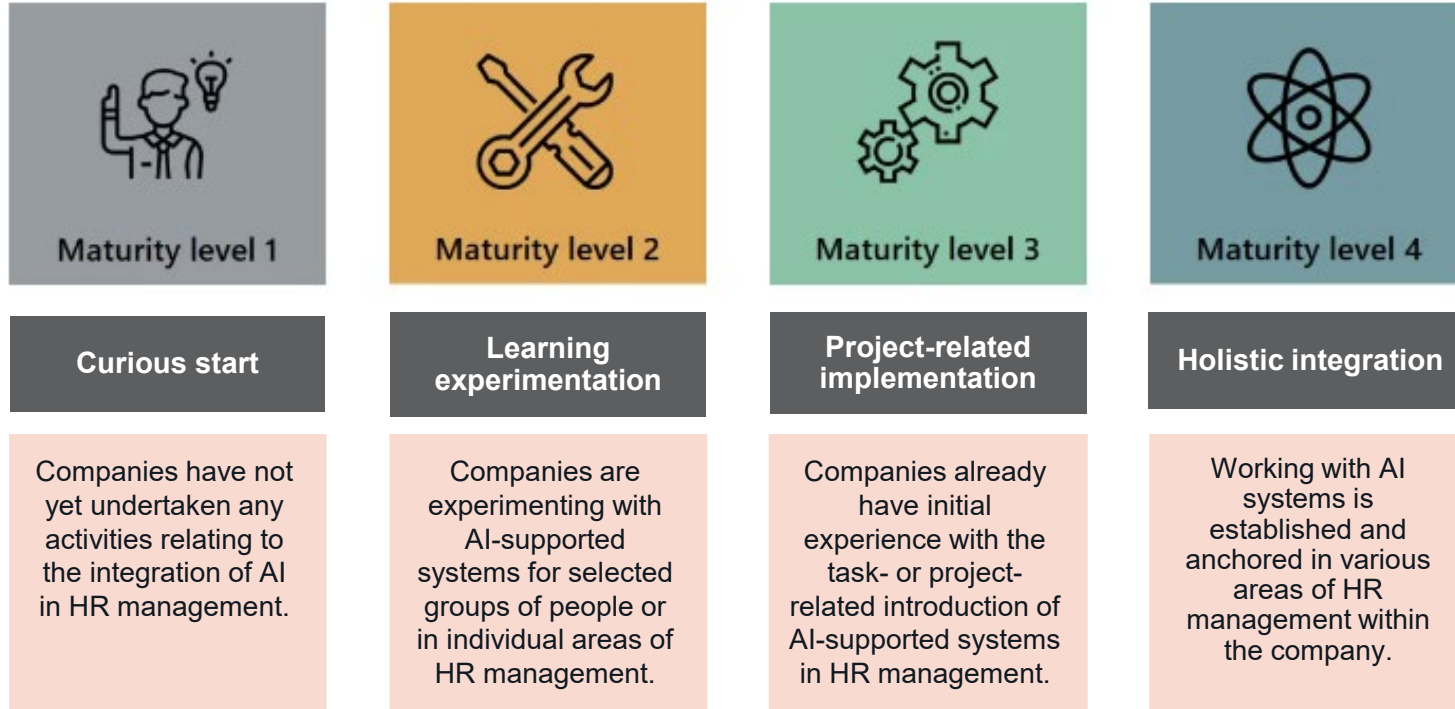
Results

Dimensions and Subdimensions



Results

Maturity Levels



Results

Calculation and Presentation of Score

- Calculation is easy: The system sums up all scores and presents averages for the model and dimensions

You have achieved the following value:



This corresponds to the following maturity level:



comparable companies* achieve:



Detailed analysis:

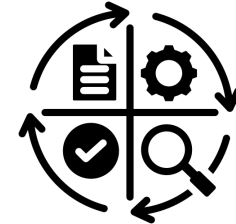


Discussion

Practical Contribution

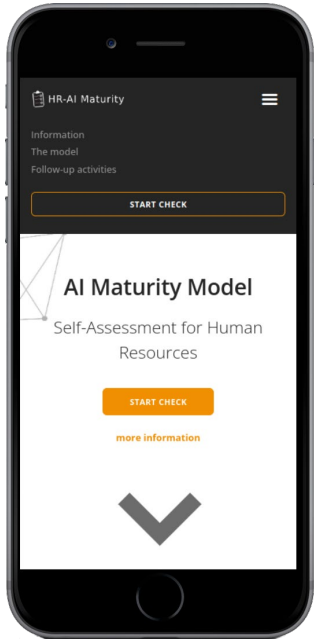
The suggested HR-AIMM...

- Helps decision-makers in the HR- Department to analytically determine the **status quo**
- Support **project planning** and helps to develop a **perspective for AI integration** in the HR management strategy
- Can be a continuous **periodic indicator** of how HR management is developing in the direction of AI
- Can be used for introduction processes **beyond** HR management



Website

Try it out



Check out the website under:
<https://hr-aimm.com>



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Thank you!



Prof. Dr. Sascha Armutat
sascha.armutat@hsbi.de



Nina Mauritz
nina.mauritz@hsbi.de



Malte Wattenberg
malte.wattenberg@hsbi.de



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