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# AI Assistant for PhD Supervision

*Dr. Martin Wynn and  
Dr. Alexander Skuridin*

***3rd Symposium on AI Opportunities and Challenges (SAIOC)***

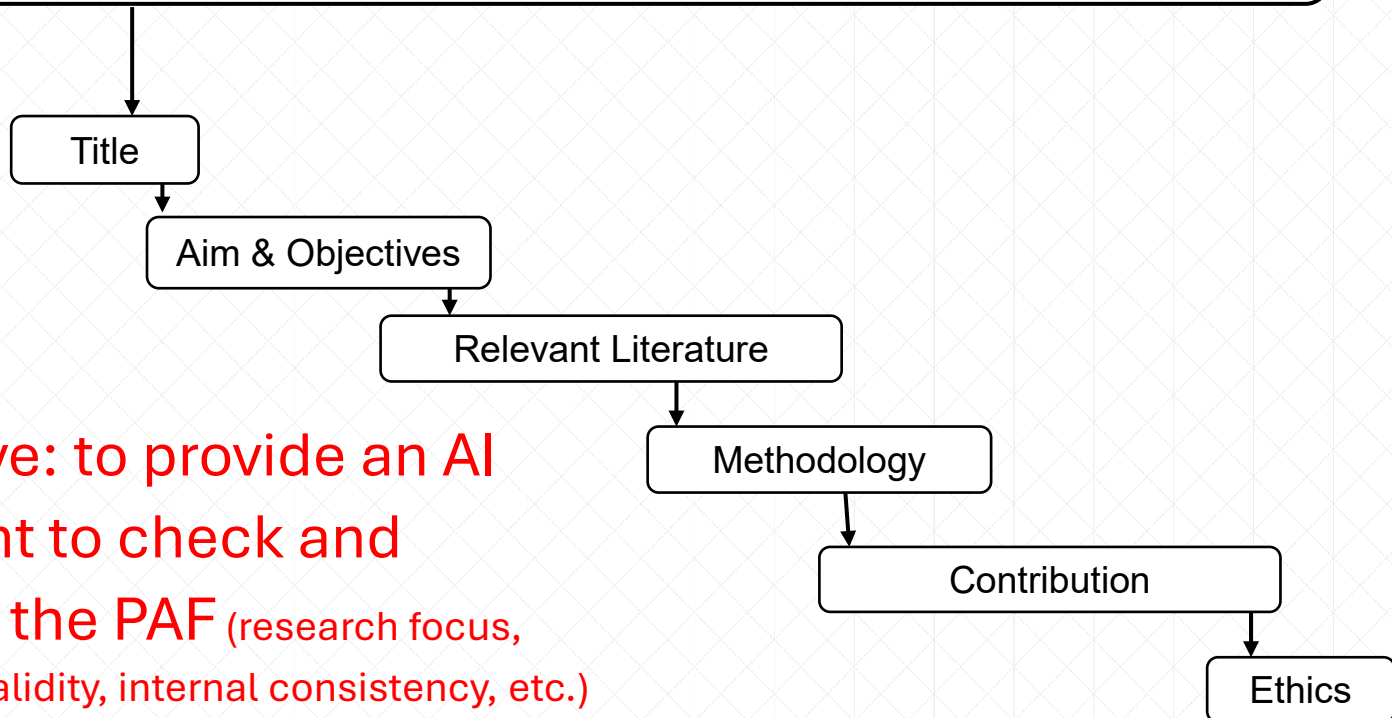
*Online Symposium, Tuesday 13th May 2025*

Co-Hosted by Mid Sweden University, The University of Gävle, Sweden, Uppsala University, Sweden and EM Normandie, France



# The Challenge: to support the PhD supervision process (and enhance supervisor productivity)

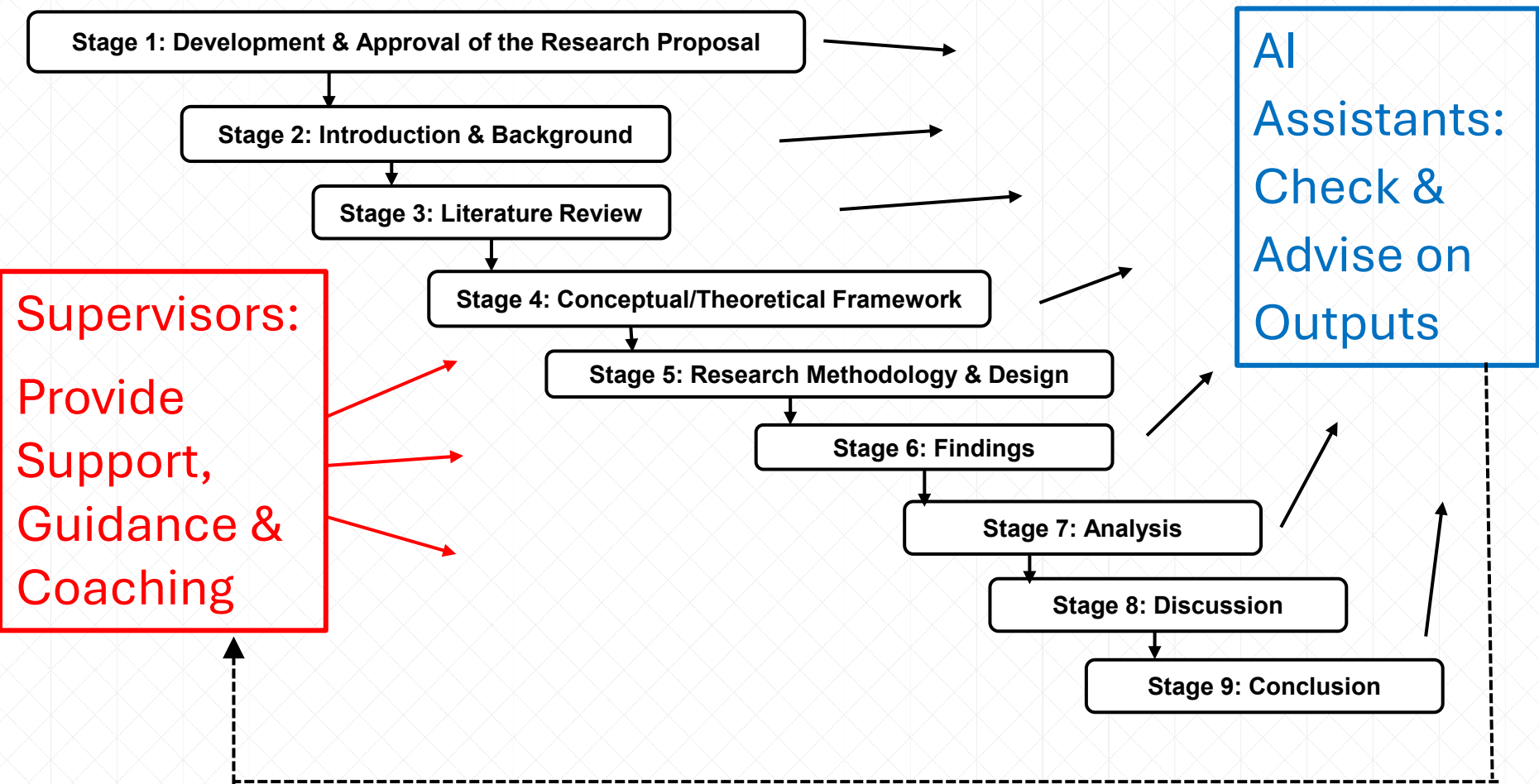
## Stage 1: Development & Approval of the Research Proposal: Project Approval Form - PAF



**Objective: to provide an AI Assistant to check and validate the PAF** (research focus, academic validity, internal consistency, etc.)



# The supervision process



# PROJECT APPROVAL FORM

**This form should be completed by every candidate and submitted for approval. Please refer to the Research Student Handbook and the Academic Regulations for Research Degrees Provision for further detailed information.**

## **b) RESEARCH OBJECTIVES**

1. To identify and analyze the critical success factors (CSFs) for digital transformation (DT) in the German automotive industry.
2. To research the key requirements and requisite capabilities for digital transformation leadership (DTLS) for leading successful DT in the German automotive industry.
3. To develop and validate a blueprint and action plan that can serve as a guide, especially for those from Generation Z, to successfully lead DT in the German automotive industry.

## **c) IMPORTANCE AND ORIGINALITY OF THE RESEARCH**

(This should be related to a brief literature review of the field of study)

DT is seen as a component of Industry 4.0. Some experts even claim that it is the start of Industry 5.0. Dramatic effects, such as the revolution in industries like the camera industry or the music industry, allow this conclusion to be drawn. As a result, countries lose economic power, established companies disappear, and employees are laid off and lose their jobs.

Successful DT and the required DTLS are .....

# PAF Pre-Submission Checklist

## a) IMPORTANCE AND ORIGINALITY OF THE RESEARCH

|                                                                                                                |                                     |                          |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|
| Are you able to recognize/infer the context for the study?                                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Is the study properly located within a particular field/approach?                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Is the context for the study delimited in an adequate way?                                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| If the study involves non-theoretical conceptual frameworks, are concepts and relationships clearly described? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Is there a brief review of the literature or a rationale for its omission?                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |





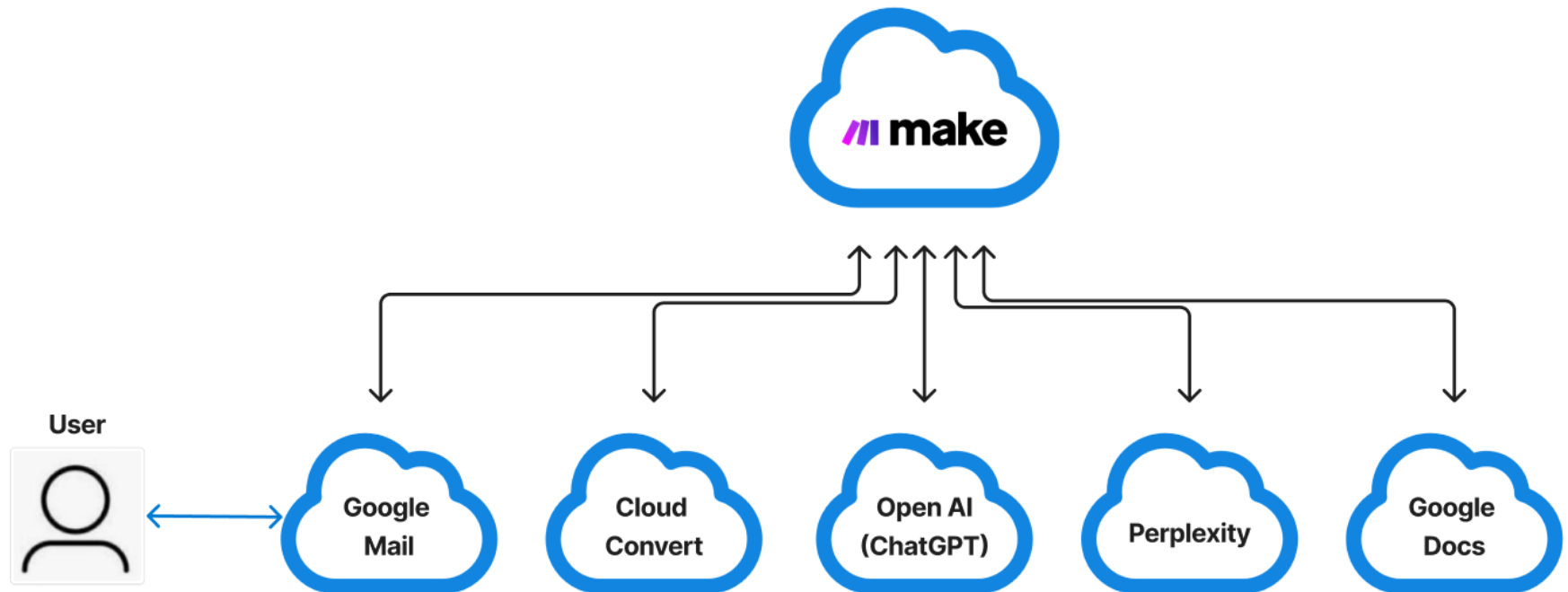
## RESEARCH OBJECTIVES

|                                                                               |               |                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Are the research objectives non-trivial?</b>                               | <b>Yes</b>    | The objectives are non-trivial because they tackle a complex issue by linking technology adoption theories with a significant operational context in aviation, which requires in-depth theoretical and empirical analysis.                             |
| <b>Are the problem concepts identified in the objectives researchable?</b>    | <b>Yes</b>    | The concepts mentioned—such as the role of AI, factors driving adoption, and framework development—are researchable within established theoretical models (e.g., TAM and UTAUT), though they require careful operationalization and empirical testing. |
| <b>Are the objectives appropriate to the proposed level of investigation?</b> | <b>Yes</b>    | The objectives align well with a PhD-level investigation, combining rigorous analysis of contextual factors with the development of an innovative strategic framework appropriate for a high-level research study.                                     |
| <b>Are the basic formulations of the objectives correct/appropriate?</b>      | <b>Partly</b> | While the objectives are generally formulated and provide a clear direction, they could benefit from more precision and measurable elements, such as explicitly defining key constructs and the criteria for assessing AI adoption outcomes.           |

*Recommendation: The current objectives are acceptable as a preliminary outline but must be revised to enhance clarity and specificity. An ideal set of refined objectives could be:*

- 1. To critically evaluate the role and impact of AI technologies in enhancing operational efficiency within airport ground operations at Abu Dhabi International Airport using established theoretical models (TAM/UTAUT).*
- 2. To identify, classify, and empirically validate the determinants influencing the adoption of AI technologies among ground staff.*
- 3. To develop and validate a strategic operational framework for AI deployment that addresses specific challenges in airport ground operations and supports effective technology adoption.*

The **Make.com** service was used, which offers very easy to use but effective tools to integrate various software services in a few clicks.







1. **Gmail - Watch Emails:** The scenario starts by monitoring incoming emails to the AI assistant's Gmail account.
2. **CloudConvert - Convert a File:** If the email contains an attachment, it is sent to CloudConvert for file conversion from Word document to text (ChatGPT API can process text data only).
3. **OpenAI (ChatGPT) -** Analyses PAF text and provides a brief analysis of section of the PAF. A text prompt instructs the model that it should answer 14 questions from the checklist and give a short assessment and recommendation for improvement.
4. **JSON parser -** Used to parse ChatGPT output into structured data for inclusion in the report document.



**5. Google Docs - Create a Document:** The detailed analysis is stored in another Google Docs document.

**6. Gmail - Send an Email:** Finally, the processed document is sent via Gmail containing two links to Google Documents.

**PROMPTING: A series of prompts was used to generate PAF assessment:**

## **1. AI-assistant's role**

*You are a PhD research supervisor whose job is to assess quality of PhD students' dissertations, supervise them during their theses writing and providing comprehensive and structured feedback in order to guide students and ensure delivery of very high quality of students' results.*

## **2. Request specific prompt:**

*Here is a Project approval form below. It is being submitted by a PhD student for approval. The Project approval form content:*

*"{{6.data}}"*

*Analyse the content and provide the following data:- Identify the research aim- Identify research objectives or research questions and list them as a separate numbered list. Next answer the following questions:*

*C1: Are we able to recognize or infer the context of the study?*

*C2: Is the study properly located within a particular field/approach?*

*C3: Is the context for the study delimited in an adequate way?*

*....*

*C14: Does the proposed research show a mechanism acceptable in its field of generating new knowledge to the level of the intended degree?*

*When answering these questions use the following formatting rules:*

- Start each question with a new paragraph*
- Write question, short answer (Yes or No), short reasoning.*
- Write recommendation for improvement (no more than 3-4 sentences).*
- If you provide citations or refer publications, use APA-8 referencing style.*
- If you provided any references, then create a References section in you response and list all mentioned publications as a bullet point list using APA-8 style*

# Validation: Assessment Criteria



**Coverage.** Check that no major element of the assessment form is ignored or over-emphasised.

**Accuracy and insight in research topic.** Are the judgements and recommendations factually correct?

**Accuracy and insight in research design.** Judgements and recommendations concerning research design.

**Constructive Value.** Usefulness and actionability of the feedback.

**Readiness for student delivery.** Can current agent-generated report be given directly to the student?

Overall summary

**Augmentation and automation potential.** Considering the overall quality above, to what extent could the AI agent already act as a useful supervisory assistant or perform PAF assessments independently?



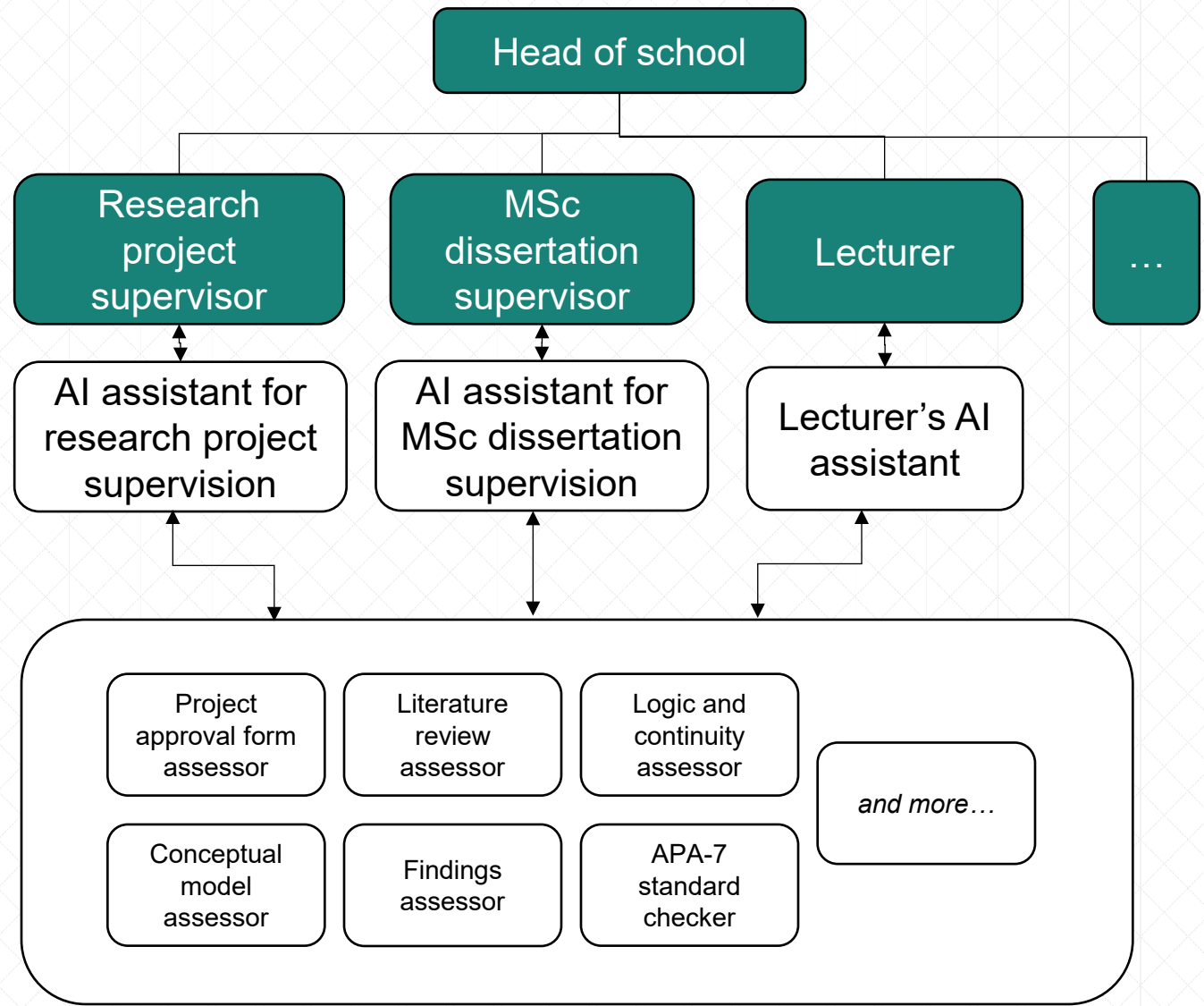
# Concluding Remarks



- 1. Approach has been “bottom –up” - -i.e., developed and executed by end-users. This is likely to be the way forward. Self-made AI agents are becoming the “new Excel”.**
- 2. Agents are becoming increasingly accessible, with no-code tools being embedded into platforms. Ease of development and value of result have been of significance.**
- 3. A wide range of issues need to be addressed: e.g., integration with other systems; role of the IT function; on-going maintenance; ethics and compliance issues; hallucination and trust.**



# Towards AI-assisted organisation



**Human  
employees**

**Manager  
agents**

**Specialist  
agents  
(shared)**

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