Université du Québec
à Trois-Rivières

HUMAN-CENTEREDNESS IN AI-ASSISTED TERMINOLOGY WORK

Webinar organized by Terminologifrämjandet - 3 November 2026

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Introduction

- **Generative AI (GenAI)** is set to reshape **terminology work (TW).**
- GenAI promises **efficiency** gains, but **unstructured adoption** may:
  - weaken professional expertise and autonomy
  - amplify bias
  - erode linguistic and conceptual diversity
- **Will LLMs replace terminologists?**

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Introduction

TW is at a critical juncture:

How can AI be integrated so that it enhances rather than undermines the work of terminologists?

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Introduction



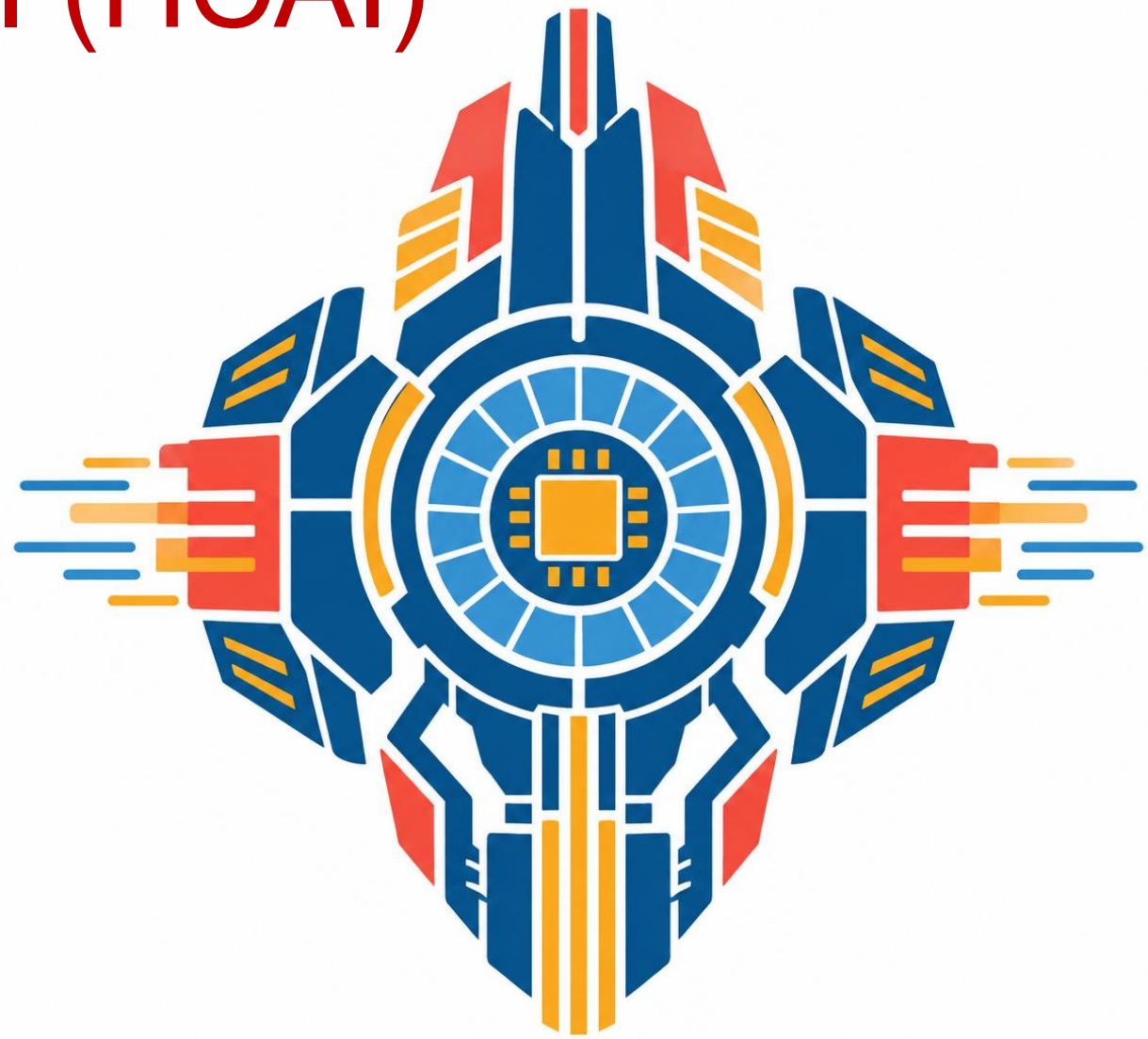
Human-Centered Artificial Intelligence (HCAI) provides a useful framework for guiding AI adoption.

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HUMAN-CENTERED AI

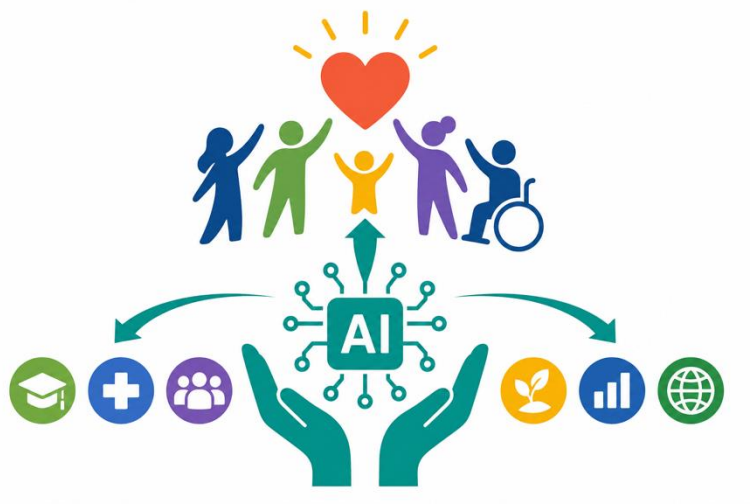
Human-Centered AI (HCAI)

Mainstream AI prioritizes **machine performance** and **efficiency** over human purpose and well-being (Shneiderman 2020).



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Human-Centered AI (HCAI)



- HCAI calls for reorienting AI development toward:
  - **human flourishing** (Vallor 2024)
  - **broadly shared social benefits** (HAI 2025)

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Human-Centered AI (HCAI)



Progress does not mean minimizing human involvement through automation.

The aim is to amplify human capabilities while preserving human control (Shneiderman 2020).

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Human-Centered AI (HCAI)

- AI should revolve around **human needs and values**.
- From "**human-in-the-loop**" to **"AI-in-the-loop"** (Shneiderman 2020):
  - AI is a supportive component subordinate to human direction.

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Human-Centered AI (HCAI)

TW has **social value** that needs to be preserved:

Specialized communication	Knowledge transmission	Translation	Standardization
Cultural heritage	Education	Linguistic identity	Guidance on recommended usage

TW has **linguistic, conceptual, social and cultural** impact.

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Human-Centeredness in Translation



- **HCAI** in translation (O'Brien 2024; Jiménez-Crespo 2025).
- **Cautionary example** for TW: neural machine translation.
- **Technological imposition** and **cost reduction** at the expense of translators' **needs** and **work conditions**.

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Human-Centeredness in Translation



Digital Taylorism (Moorkens 2020):

- Automation is maximized.
- Work is fragmented into small units.
- “Cogs in a large machine.”



Technological augmentation has often advanced at the expense of **translators’ needs and well-being** (O'Brien 2023, 399).



Human-centered approaches seek to redress this imbalance.

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AI-ASSISTED TERMINOLOGY WORK

AI-Assisted Terminology Work

GenAI is a major development for terminology.

New ways of accessing terminological information for users (contextualized, tailored, and potentially updated responses)

Greater efficiency for terminologists

Concerns about the future role of TW, terminologists and terminological products.

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AI-Assisted Terminology Work



GenAI outputs contain **errors** and **hallucinations**.



Validation by terminologists produces **authoritative and reliable content** that machines cannot replicate.



In **commercial and institutional settings**, termbases contain approved terminology tailored to specific organizational contexts.



In **standardization and terminology planning**, terminological resources reflect negotiated human consensus.

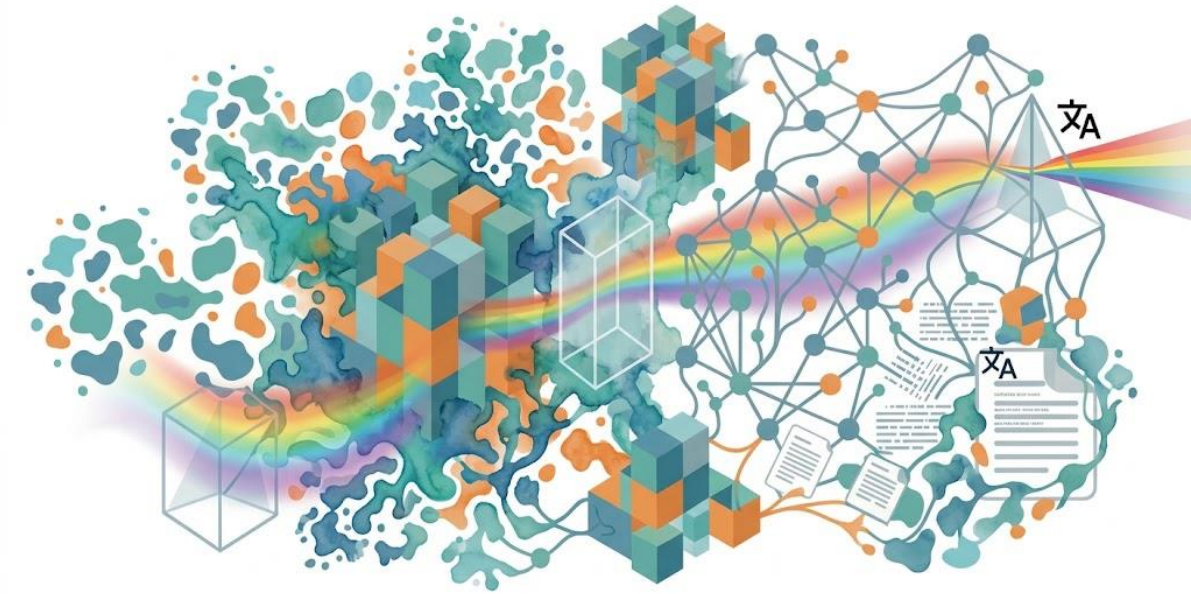


LLMs cannot match the **accuracy and expertise** that underpin professionally developed terminological products.

AI-Assisted Terminology Work

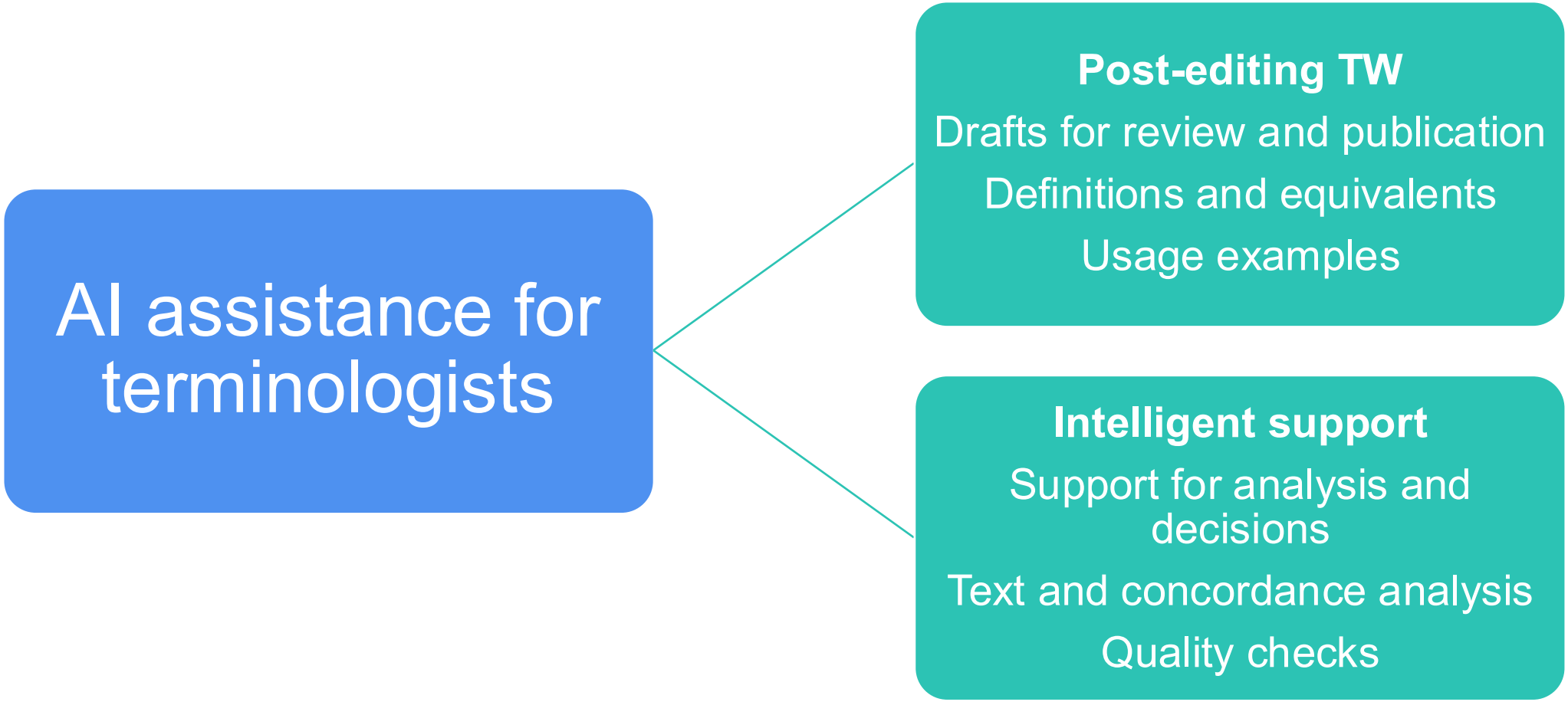
Human-validated terms, definitions and contexts provide structured knowledge for LLMs (Khemakhem et al. 2025).

Terminology-augmented generation (Di Nunzio 2025; Lackner et al. 2025).



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AI-Assisted Terminology Work



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Human-Centered AI-Assisted Terminology Work

- LLMs do not deliver flawless results, and performance varies across tasks, languages, and domains (Giguere and Iankovskaia 2023; Łukasik 2023; Bezobrazova et al. 2024; Di Nunzio et al. 2024; Heinisch 2025; Liu et al. 2025; Pourcq et al. 2025; Tran et al. 2025, etc.).
- “Large language models are good term extractors” (Rigouts Terryn 2026).
- Human intervention remains essential for many tasks.



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Human-Centered AI-Assisted Terminology Work



- Professional environments often prioritize **productivity** and **cost efficiency**.
- The belief that AI can **replace** terminologists risks displacing the terminologist's expertise.
- A **human-centered approach** to AI integration is necessary for TW.

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Human-Centered AI-Assisted Terminology Work

- the augmented terminologist
- sociotechnical context of AI integration
- bias
- human-centered design

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THE AUGMENTED TERMINOLOGIST

The Augmented Terminologist

- Terminologists have long been technologically augmented:

terminology management systems	Internet	corpus tools	automatic term extractors	bitext aligners

- Technology expands what terminologists can achieve in volume and precision.



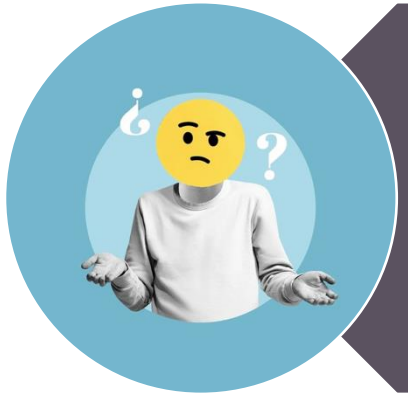
The contemporary terminologist is an **augmented terminologist**.

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The Augmented Terminologist



GenAI has prompted a reassessment of automation: tasks once manual can now be automated.



What's the terminologist's future role?

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The Augmented Terminologist



Automation-Control Compatibility



Emulation vs. Empowerment



New Skills

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Automation-Control Compatibility



High automation and **strong human control** are compatible and desirable in TW.

Well-orchestrated AI support may **outperform** AI alone or manual work.

Human expertise + machine efficiency = **synergy** (Capel and Brereton 2023).

New concepts and terms emerge at unprecedented speed (Shen et al. 2021).

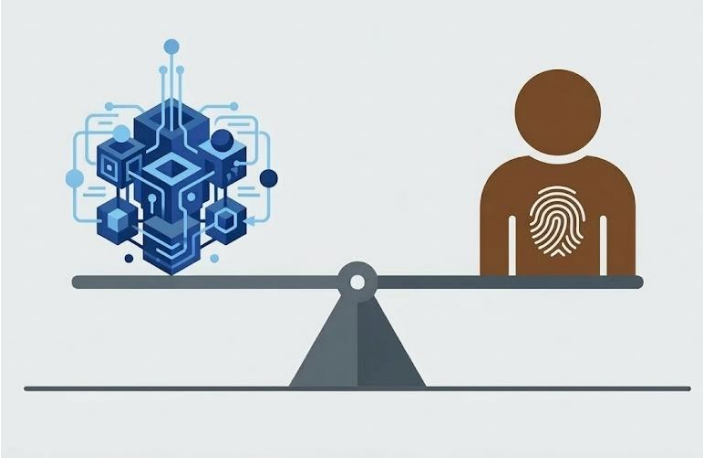
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Automation-Control Compatibility

Appropriate balance

(Shneiderman 2020):

- Too much automation can degrade quality.
- Too much human intervention can slow work unnecessarily.

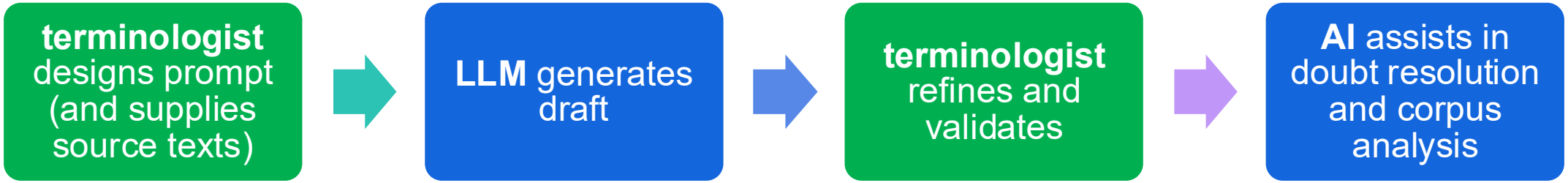


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Automation-Control Compatibility

Balance must be established at the subtask level.

- E.g., definition generation:



Balance depends on setting, goals, project, languages, and individual terminologist preferences.

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Automation-Control Compatibility

Evaluate LLMs across TW tasks and subtasks

- Denominative and contextual variation, multidimensionality, polysemy and metaphor

Seek terminologists' input on the forms of augmentation they find valuable

- AI integration in corpus tools rather than automated field population in termbases?

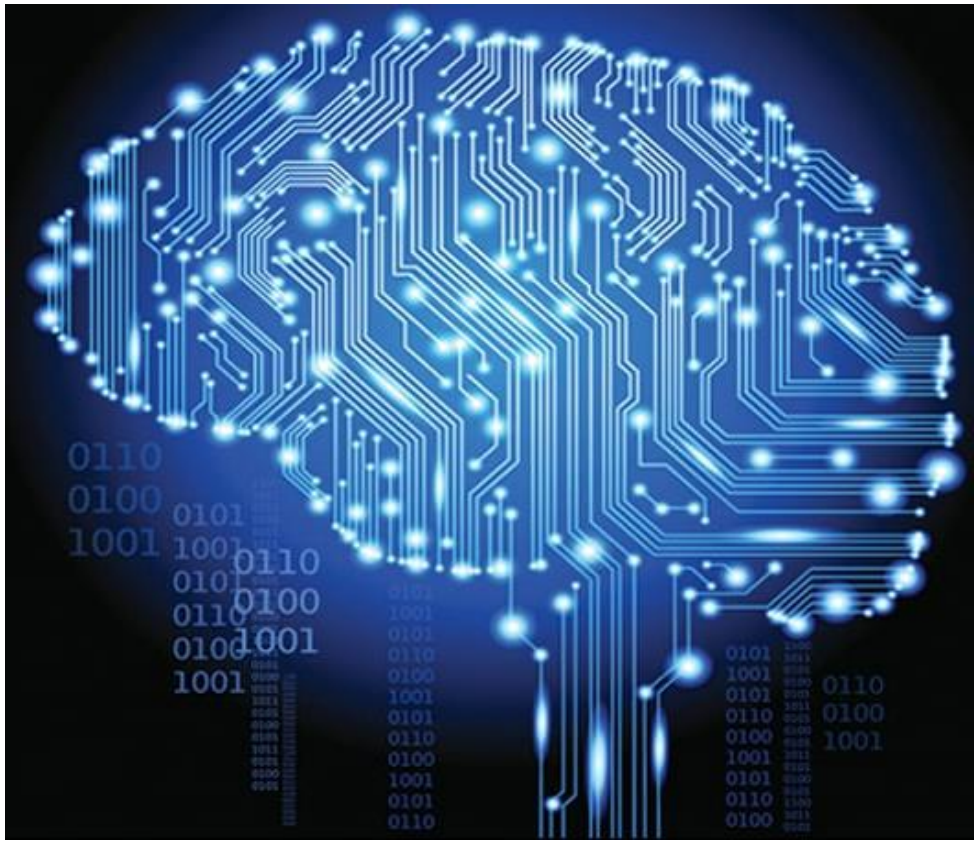
Examine how AI augments TW within situated practice

- How do terminologists interact with AI tools?
- Which AI configurations and workflows truly amplify their capabilities and empower them?

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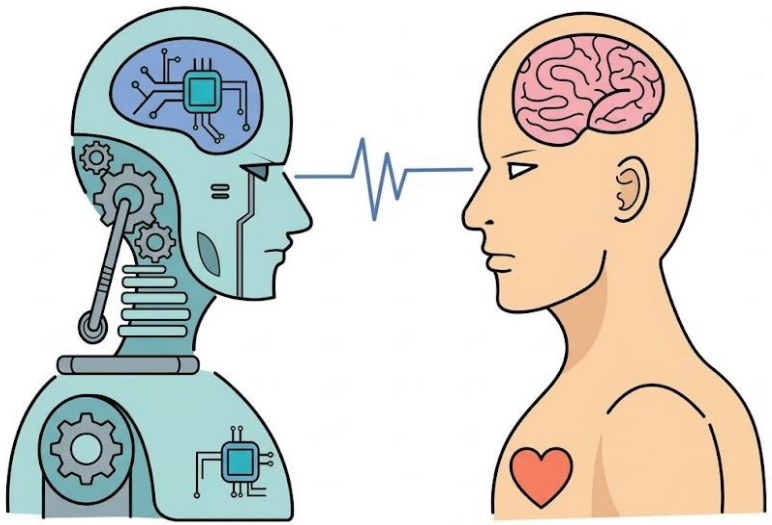
Emulation vs. Empowerment

- A long-standing goal in AI research has been to emulate human intelligence (Shneiderman 2020).
- **Emulation** should only be pursued when it empowers humans.



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Emulation vs. Empowerment



- **AI**:

data processing	pattern recognition	speed	memory

- **Human intelligence** (Robbins and Aydede 2001; Shapiro 2019; Lockhart 2025):

embodied cognition	situated reasoning	real-world perception	creative insight

- LLMs manipulate language without access to the realities it refers to (Poibeau 2025).
- AI contributes to TW by offering strengths that complement human capabilities.

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New Skills



New skill set



AI literacy

Understanding how LLMs can support TW

Formulating prompts that generate the desired output

Understanding the ethical and legal implications of AI use

Evaluating AI outputs critically, recognizing that errors or bias may arise

Explaining to stakeholders why terminologists remain indispensable

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New Skills

New skills should not come at the expense of core terminological competence.

Reducing terminologists to simple validators of AI output would risk professional **de-skilling**.

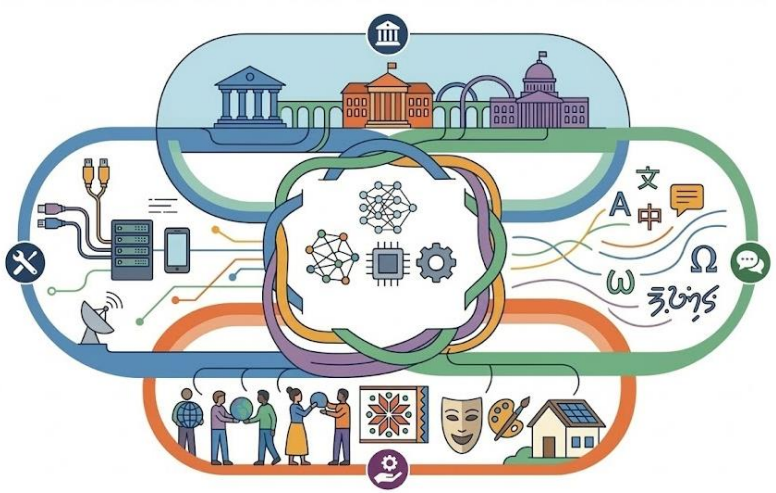
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SOCIOTECHNICAL CONTEXT OF AI INTEGRATION

Sociotechnical Context

- AI integration is embedded in sociotechnical contexts (institutional, linguistic, cultural, and material dimensions) (Dignum and Dignum 2020).

companies	language service providers	standardization bodies	academic institutions	publishers
terminologists	project managers	translators	technical writers	all end-users



- The sociotechnical context and its participants shape how terminologists interact with AI.

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Sociotechnical Context

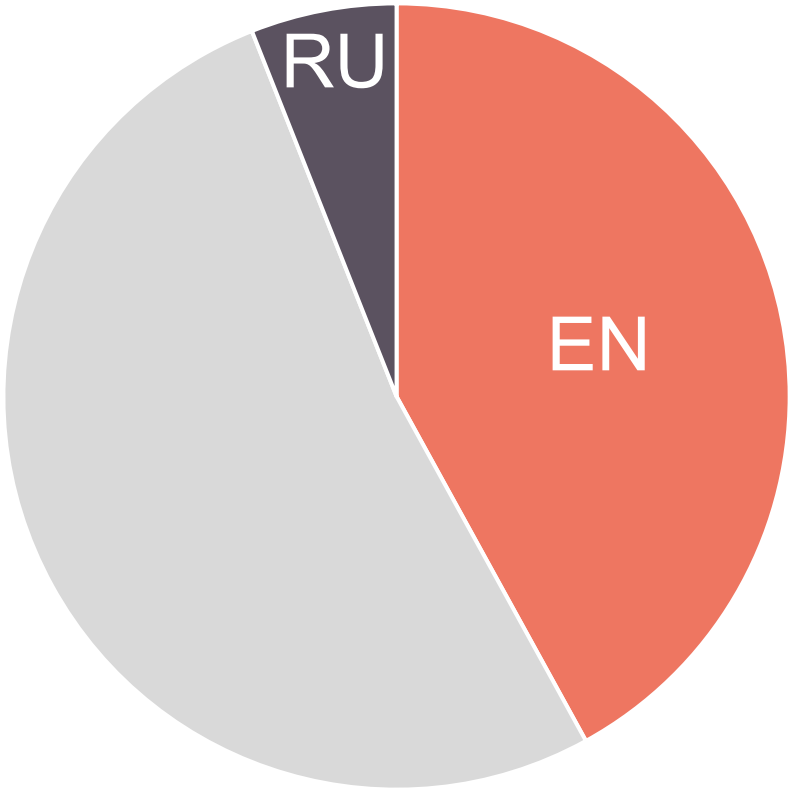


- AI should prioritize the needs of **terminologists** and the **social benefits** of TW over institutional and economic interests.
- Terminologists need **agency** over AI adoption.
- Deterioration of **work conditions**.
- Threat to the ability to produce **reliable resources**.

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BIAS

Bias: Training Data



- LLM **training data** relies on largely uncurated web data (Ferrara 2023).
- Common Crawl is 42% English, mostly US-based.
- Unbalanced in text genres and domains (Navigli et al. 2023).

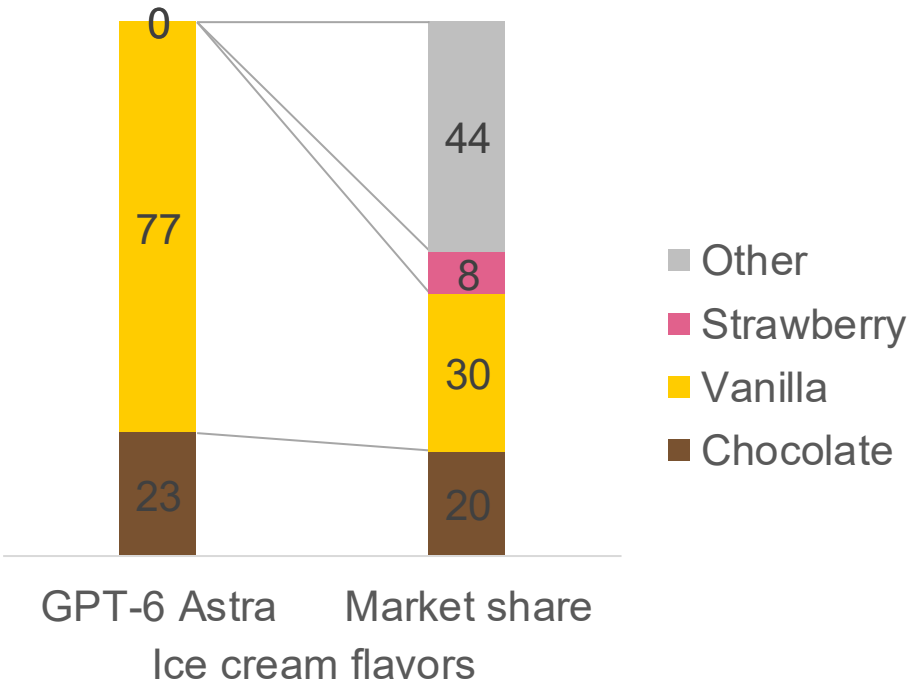
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Bias: Algorithmic Functioning

- Algorithms amplify distortions in training data.
- LLMs optimize for probable outputs, so dominant patterns are overrepresented (Sourati et al. 2025).



My favorite ice cream flavor is…
(return only one word)

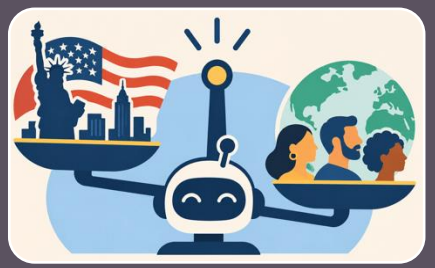


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Bias: Post-training



Post-training aims to shape model behavior and mitigate harmful biases (McIntosh et al. 2024).



Training and evaluation choices can reflect particular sociocultural values, including US-centered perspectives (Ryan et al. 2024).



Their effects vary across models and contexts. Terminologists should critically assess the perspectives reflected in outputs.

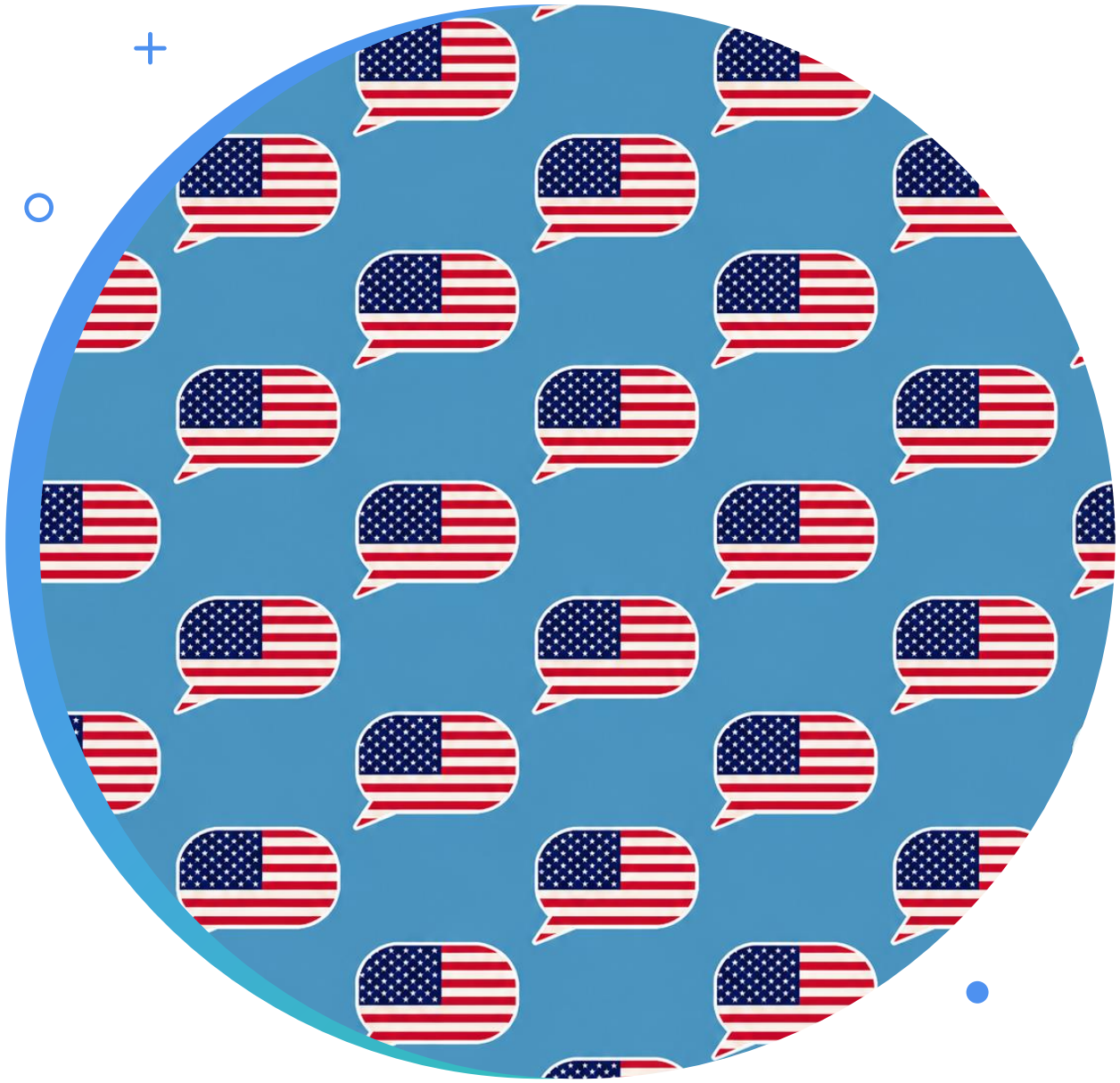
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Bias

- These factors give rise to different types of bias:



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Linguistic Bias

LLMs favor certain languages or linguistic features (especially US English).

- Better accuracy in English.
- Hallucinated terms or concepts (literal translations from English or English denomination patterns)
- Projection of Anglo-American conceptual systems

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Linguistic Bias



GPT-3.5 wrongly treats *rock* in Croatian as both music and stone (Balenović and Proroković 2025).



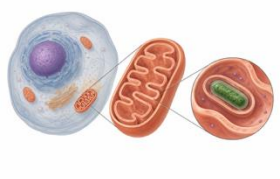
Dominant regional variants projected onto less-resourced ones (e.g., Germany's German vs Austria's German terminology with GPT-4o mini) (Heinisch 2025)

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Temporal Bias

- LLMs may present diachronic data as synchronic, or the reverse.
- Failure to reflect recent conceptual changes and terminological innovations.
- Training data mixes texts from different points in time.
- Training data cutoffs.





E.g., without web access, GPT-6-luna hallucinates the meaning of the neologism *mitobiosis*.

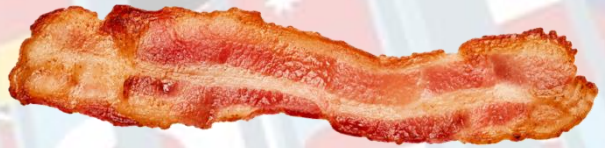
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Cultural Bias

- **Culture** influences language, including terminology.
- Terms are conceptualized differently depending on **cultural context** (León-Araúz and Faber 2024).
- LLMs exhibit cultural biases stemming from overrepresentation of **Anglo-American** cultures in training data.

E.g., when asked to create a lexicographic entry for *bacon* in Spanish, GPT 5.6 Luna writes in the usage example that bacon is commonly eaten with eggs for breakfast.





Epistemic Bias

- LLMs amplify mainstream knowledge.
- LLM-generated terminological data may reproduce dominant epistemic paradigms rather than reflecting the diversity of specialized knowledge.

E.g., Gemini 3.6 Flash defines *economic growth* as inherently positive, while omitting environmental damage.

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Social Bias

- AI can reproduce prejudicial or stereotyped views about gender, race, ethnicity, age, etc. (Gallegos et al. 2024).
- Social bias can appear in AI-generated definitions and usage contexts.
- Widely documented, but under-studied in terminology.
- ChatGPT's example in Arabic for the word "lesbian" (مثلية): "She has been a lesbian for years."



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Bias and Professional Judgment

Linguistic and temporal biases primarily affect descriptive accuracy.

Cultural, epistemic, and social biases also affect whose perspectives and knowledge are represented and legitimized.

Critical lexicography has already emphasized that dictionaries are not neutral representations of language (Chen 2019).

From an HCAI perspective, the terminologist’s role is to promote fairness and contextually adequate pluralism, not unattainable neutrality.

These decisions cannot be fully delegated to AI.



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Bias Mitigation

Without validation by terminologists, AI-generated outputs risk reinforcing bias.

Biased terminology may circulate as authoritative and enter future corpora and LLM training data (a feedback loop that creates linguistic and conceptual distortions).



- upstream
  - prompting strategies
  - RAG constraints
- downstream
  - critical review
  - corpus analysis
  - LLM assistance

HUMAN-CENTERED DESIGN

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Human-Centered Design

- Terminologists mainly interact with AI through standalone chatbots, which creates unnecessary friction.

AI inside terminological tools

Terminological tools inside AI tools



Human-Centered Design

Terminologists' needs

Participation in the design process

Collaboration with experts, translators and writers

Diversity and accessibility
Languages, domains and user needs

Design for human control

Design for augmentation

Design for decision-making support

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Human-Centered Design

- Design for the preservation of **human control**.
  - Transposition of Jiménez-Crespo's (2024; 2025a) findings:

Robust usability

Selective activation/deactivation of functions

Adjustable automation levels

Role-aware permissions ensuring terminologists retain ultimate authority

Adaptive and interactive functions

To reference the ideas presented here, please cite the following article whenever possible:
San Martín, A. "Toward Human-Centered AI-Assisted Terminology Work." *Terminology*. https://doi.org/10.1075/term.00095.mar

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Human-Centered Design

Design for **augmentation**



Foster **critical engagement** (avoid a decline in rigor when evaluating AI outputs) (Heer 2019): intentional friction (e.g., confirmation dialogs)



Avoid the a**nchoring effect** (initial AI suggestions constrain subsequent judgment) (Furnham and Boo 2011): delaying AI suggestions

Human-Centered Design

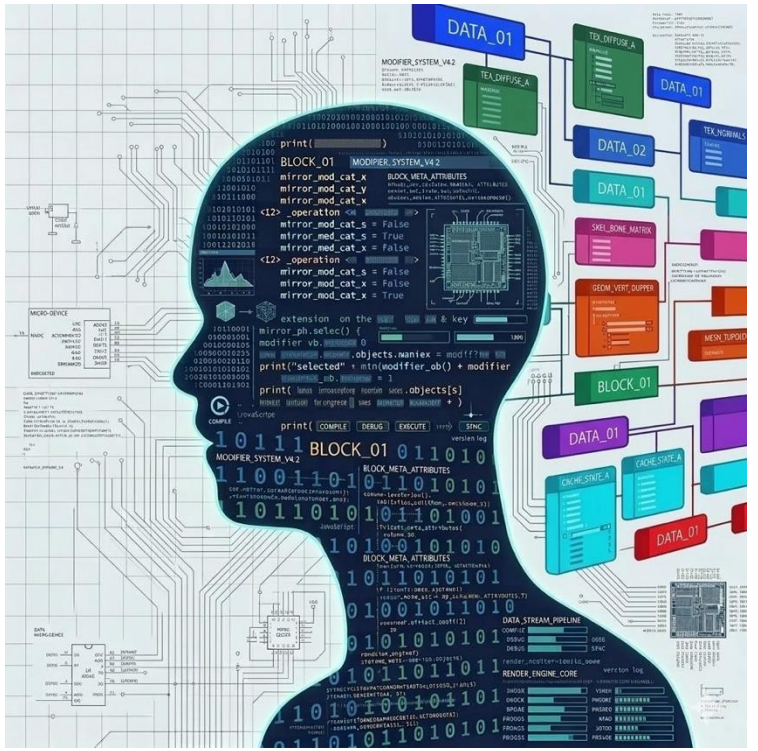
Design for **decision-making support**:

RAG justifies LLM output with verifiable sources.

Best when terminologists supply a well-curated corpus

Web-based RAG may retrieve unreliable, irrelevant, or AI-generated content.

LLM suggestions should not rely on RAG exclusively.



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Human-Centered Design

Systematic empirical evaluation

Sustained, participatory engagement with terminologists

Focus groups, interviews, usability studies, and observational research
(Capel and Brereton 2023)

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CONCLUSIONS

Conclusions

1

AI is likely to **transform TW** profoundly. The key question is not whether AI will be integrated, but **how.**

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Conclusions

2

Meaningful AI integration in TW requires a human-centered orientation that preserves **professional agency.**

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Conclusions

3

Terminologists must retain **authority** over AI adoption and the management and dissemination of terminological information.

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Conclusions

4

Without HCAI, efficiency-driven deployments risk undermining terminologists' expertise, threatening **quality**, and reinforcing **bias**.

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Conclusions

5

Today's AI deployment decisions will shape the **future of TW** and the preservation of its **social value.**

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TACK FÖR ER UPPMÄRKSAMHET!

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Toward human-centered AI-assisted terminology work

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