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The European Union's Regulatory Challenge: Conceptualizing Purpose in Artificial Intelligence

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Abstract

In April 2021, the European Commission proposed the Artificial Intelligence Act (AIA) to regulate AI throughout Europe. This regulation categorizes AI risks based on their intended uses, as defined by their providers. In this paper we have tracked the AIA's policy process up to the June 2023 EU Parliament vote. Significant events, like the launch of ChatGPT, have made the regulation process more complex. Initially, it was assumed AI could be regulated based on its intended purpose. However, concepts like 'general purpose artificial intelligence' (GPAI) and 'foundation models' emerged, showing AI can have a myriad of purposes, some known, and others emerging during use. These developments challenge our understanding of AI. We contribute to IS research by problematizing the common assumption that technology's purpose is easily defined. Practically, we highlight the difficulties in regulating AI, emphasizing its complex nature.

Keywords: Artificial Intelligence Act, Intended Purpose, AI, foundation models, General Purpose AI

1 Introduction

The view that artifacts are created for an intended purpose is a widely shared underlying assumption about technology (Deng et al., 1998). This assumption implies a clear-cut division of roles between design and use, a boundary Leonardi (2009) has called the "implementation line." Technology's intended purpose is established in the design process, while this pre-defined purpose is actualized in the use process. It is a core assumption of much of IS theorizing that the use process does not affect the purpose of technology. For example, this assumption is embedded in the widely applied affordance theory (Volkoff and Strong, 2013; Markus and Silver, 2008).

Artificial intelligence (AI) and machine learning (ML) have become increasingly prevalent in various aspects of human life in recent years, and IS research is closely related to these topics (Berente et al., 2021; Collins et al., 2021; Ågerfalk et al., 2022). On the front of AI and ML investigations in IS, concerns are emerging whether we should rethink technology and our relation to it (Lyytinen et al., 2021; Grover and Lyytinen, 2023). Perhaps technology is no longer what it once was (e.g., Orlikowski and Iacono, 2001; Bailey et al., 2022)?

In this paper, we draw on the trajectory of the EU AI Act (AIA) policy process from April 2021 to June 2023. Our focus is on the AIA's initial premise in April 2021, which posited that AI technologies are defined based on their intended purpose. However, as the policy process evolved, it became apparent to policymakers that there are – and arguably will increasingly be – AI technologies that cannot be confined to a single, specific purpose or use case. In response, the European Council's 2022 Proposal emphasized

the category of 'general purpose artificial intelligence' (GPAI), while the European Parliament's 2023 Proposal framed this concept as 'foundation models.'

Using this AIA policy process setting as a backdrop, we employ it as a problematization anchor for IS theorizing of technology (Baiyere et al., 2023). Problematization aims to generate thought-provoking and influential scholarship by challenging hegemonic beliefs (Davis, 1971; Alvesson and Sandberg, 2013a). Technology's intended purpose is such a deeply held assumption about technology that it is easily taken for granted. But all technology is not that way, as we will demonstrate in the context. This is a great opportunity to rethink this assumption. Suchman (2023: 1) has recently articulated that "the thingness of AI, its status as a stable and agential entity, needs to be made controversial." We position that AI is regularly conceptualized as "a thing" that has "a purpose," but this can be challenged. Rather than a thing-with-a-purpose, AI is a difficult-to-grasp ambiguous category constantly in-the-making. Our research question, thus, is:

> How can the challenges of defining AI based on its intended purpose, experienced during the AIA policy process, help problematize the ways be conceptualize technology in IS?

Next, we explain our approach to this challenge in Section 2. In Section 3, we examine the AIA policy process, including a chronology of key events. Section 4 discusses why questioning the intended purpose of technology is important, and how it affects both regulatory practice and improves theoretical understanding. Finally, we conclude our paper.

2 Methodological Notes on Problematization

In contemporary scholarship, problematization is most famously attributed to two pairs of management researchers: Karen Locke and Karen Golden-Biddle (Golden-Biddle and Locke, 2006; Locke and Golden-Biddle, 1997), and Mats Alvesson and Jörgen Sandberg (Alvesson and Sandberg, 2011; Sandberg and Alvesson, 2011). The latter build their influences from divergent sources such as Davis' (1971) "That's Interesting" and Foucault's (1985: 9) definition of problematization as an "endeavour to know how and to what extent it might be possible to think differently, instead of what is already known."

We employ problematization as an *anchor* for IS theorizing of technology (Baiyere et al., 2023). In recent years, problematization has made its way to IS research (Monteiro et al., 2022; Hafermalz et al., 2020; Chatterjee and Davison, 2021; Paré et al., 2023). By challenging hegemonic beliefs, problematization aims to generate thought-provoking and influential scholarship that makes a difference (Davis, 1971; Alvesson and Sandberg, 2013a).

As the title of Alvesson and Sandberg (2011) suggests, problematization is often seen as an approach to build a motivation to papers and generate research questions (Chatterjee and Davison, 2021). However, problematization can be applied as a fully-fledged research approach, a whole package, not just a way to identify motivating research questions. Problematization is one way to make provocative theoretical contributions (Sandberg and Alvesson, 2021). Furthermore, Alvesson and Sandberg (2013b: 145) outline these methodological principles for using problematization as a methodology for assumption-challenging studies: "(1) to identify a domain of literature; (2) to identify and articulate assumptions underlying this domain; (3) to evaluate them; (4) to develop an alternative assumption ground; (5) to consider it in relation to its audience; and (6) to evaluate the alternative assumption ground."

In our work, we employ problematization to understand a significant empirical sociotechnical phenomenon: the assumptions about the intended purpose of, in, and around AI, as revealed in the context of the EU process of regulating AI. Therefore, contrary to the literature-first approach of Alvesson and Sandberg, we began by identifying and evaluating an alternative assumption ground (Principles 4, 5, and 6) that was rooted in the ongoing AIA policy process. By studying this policy process, we were able to discern its evolving conceptualizations regarding the purpose of AI technology (see Section 3). We then considered this alternative assumption ground in relation to the IS (Information Systems) field and its traditions of theorizing technology. We identified a domain of literature in IS (Principle 1) – including Task Technology Fit, Adaptive Structuration Theory, and Affordance Theory

– and proceeded to identify, articulate, and evaluate the assumption of a technology's intended purpose, using Affordance Theory as an example (Principles 2 and 3), as detailed in Section 4. We also explore the practical implications for the challenges of regulating AI.

3 "Intended Purpose" in the AIA

In this section we discuss how intended purpose is a core assumption in the case of AI regulation in Europe. The AIA is a proposed regulation that aims to create a harmonized legal framework for AI development, deployment, and use across the European Union (Veale and Borgesius, 2021). It is designed to ensure that AI systems are safe, respect fundamental rights, and adhere to EU values. The AIA classifies AI systems into different risk categories and establishes requirements for each category. There are four risk categories: minimal risk, limited risk, high risk, and unacceptable risk. The AIA will have far-reaching implications for organizations that develop, deploy, or use AI systems within the EU, as they will need to comply with these regulations to access the European market. The AIA may become the benchmark of AI regulation everywhere (Siegmann and Anderljung, 2022). This is the "Brussels effect," referring to EU's global impact. "The European Union sets the global rules across a range of areas, such as food, chemicals, competition, and the protection of privacy. EU regulations have a tangible impact on the everyday lives of citizens around the world" (Bradford, 2012: 3).

The single market is a cornerstone of the EU's economic policy, enabling the free movement of goods, services, capital, and people within the Union. The AIA will play a crucial role in maintaining the single market's integrity by harmonizing AI-related regulations across member states. As noted by Veale and Zuiderveen Borgesius (2021: 3), the "proposal mixes reduction of trade barriers with broad fundamental rights concerns," basing much of its content on a product safety framework established in 2008.

The AIA is designed within the EU's *New Legislative Framework* (NLF).[1] The NLF promotes clear and uniform rules to guarantee product safety and fair competition.[2] The logic of NLF is that since the manufacturer of a product has the best knowledge of the product's production and design, it is therefore in the best position to guarantee product safety (Veale and Zuiderveen Borgesius, 2021: 10). The NLF is a cornerstone to many EU regulations, such as the EU Medical Device Regulation (MDR), where it is "the intended purpose of the device that determines the classification" of risk rather than specific technical qualities (French-Mowat and Burnett, 2012: S24).

The AIA includes several articles and annexes outlining the requirements for high-risk AI systems. These requirements include measures for risk management, testing, data governance, record-keeping, transparency, cybersecurity provision of information to users, human oversight, accuracy, and robustness. Distributors, importers, users, and other third parties are also subject to obligations under the regulation. The regulation includes provisions for codes of conduct, the presumption of conformity for certain requirements, and technical documentation and registration requirements for high-risk AI.

By establishing a common set of rules for AI systems, the AIA aims to ensure that businesses can develop and deploy AI-enabled products and services throughout the EU without encountering divergent national regulations. This will promote innovation and competitiveness while safeguarding consumer interests and fundamental rights. The alignment between the AIA and the New Legislative Framework means that the EU sees AI as products, comparable to machines, toys, and medical devices. Therefore, the concept of "intended purpose" is central to the AIA, as it is used to classify AI systems based on their intended use and potential risk level.

As of November 2023, the AIA policy process is still ongoing. Currently, there are three distinct proposals under negotiation in the Trilogue process: by the Commission (2021), Council (2022), and Parliament (2023). The 2021 Commission Proposal[3] mentions the term "intended purpose" 42 times, of

[1] https://single-market-economy.ec.europa.eu/single-market/goods/new-legislative-framework_en

[2] https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance_en

[3] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0206

which 37 times in the main document, 5 times in the Annexes. The Council Proposal from December 2022[4], too, mentions intended purpose 42 times, and the Parliament Proposal from June 2023[5] mentions it 48 times – mostly in the same parts and related to the same aspects that are presented in the Commission Proposal. The intended purpose is a key factor in determining whether an AI system is classified as high-risk and subject to certain mandatory requirements and conformity assessments. In all three proposals, the intended purpose is defined as '*the use for which an AI system is intended by the provider, including the specific context and conditions of use, as specified in the information supplied by the provider in the instructions for use, promotional or sales materials and statements, and in the technical documentation*' (Title I, General provisions, Article 3 (Definitions), §12).

According to the AIA, the risks associated with the intended purpose must be analyzed and evaluated through a risk management system established for high-risk AI systems. The intended purpose of an AI system has also been emphasized in the context of, e.g., requirements for data and data governance (e.g., training, validation, and testing data sets); record-keeping; human oversight; accuracy, robustness, and cybersecurity; obligations of distributors, importers, users or any other third party. Important here is to notice that a lot of the requirements set for compliance with the regulation include the phrase "in the light of the intended purpose of the system" or similar. Additionally, any changes to the AI system that affect compliance with regulation, or the intended purpose require a new conformity assessment. Thus, the intended purpose of the AI system plays a quite significant role in all three proposals.

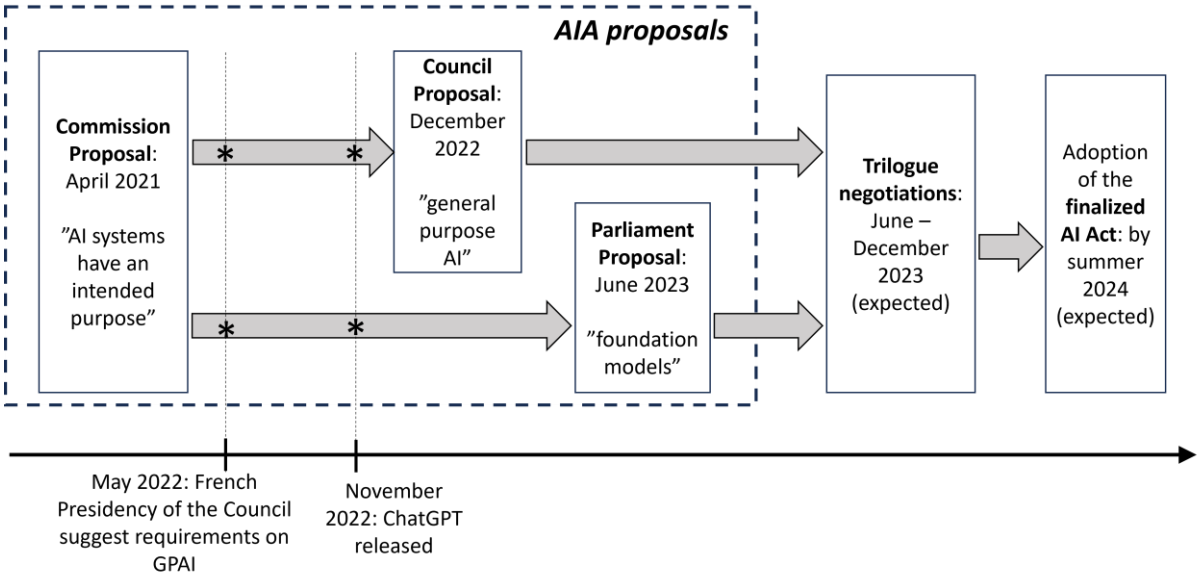

Figure 1. How GPAI and foundation models entered the AIA policy process

The April 2021 Commission Proposal did not mention GPAI even once. The category of GPAI was born in the policy process in May 2021 during the French Council presidency. The published 2022 Council Proposal mentioned it 42 times. The Parliament Proposal, in contrast, mentions "general purpose AI" only four times, and instead prefers the term "foundation model" (mentioned around 60 times). The Parliament Proposal defines foundation models as "*a recent development, in which AI models are developed from algorithms designed to optimize for generality and versatility of output*." Figure 1 illustrates how the discussion of GPAI entered the policy process.

Given that GPAI / foundation models do not have one single intended purpose, the combination of "intended purpose" and "GPAI/foundation model" is quite interesting and shows the challenges of reacting to new technological development in the middle of such a large regulative initiative. Thus, we

[4] https://data.consilium.europa.eu/doc/document/ST-14954-2022-INIT/en/pdf

[5] https://www.europarl.europa.eu/doceo/document/TA-9-2023-0236_EN.pdf

next will summarize the timeline in the AIA policy process, focusing on the notion of "intended purpose" and its alternative conceptualizations.

The Commission Proposal as the original AIA draft proposal was written with the assumption that an intended purpose of AI in its use context covers all relevant cases under this regulation. In Table 1 below we outline the key events related to the process of formulating the different drafts of the AIA that the European Commission, European Council and European Parliament have published. This timeline shows how GPAI and foundation models became important topics in the ongoing AIA policy process.

Time	**Event**
	2020
Feb	The white paper "On Artificial Intelligence - A European approach to excellence and trust" was published.[6] The spirit of the draft largely conveys a view of AI systems having a singular purpose. For instance, the document refers to "the purpose for which the systems are intended." (p. 20).
	2021
Apr	The European Commission Proposal of the AIA is published. It is based on the EU product safety principles that classify product risks based on their single intended purpose. The document does not mention GPAI or foundation models.
May	The concept of GPAI was introduced during the French presidency of the EU Council when preparing the first Council Proposal draft.
Nov	GPAI in the AIA policy process was introduced in the first of five drafts of the EU Council Proposal, published during the Slovenian presidency of the Council. Euractiv journalist Luca Bertuzzi summarized that "A new category of 'general purpose' AI system has been added, which is not to be considered within the scope of the regulation unless the system is put under a trademark or integrated into another system subject to the regulation."[7]
	2022
Feb	In two documents dated 3 and 15 February 2022, the French presidency of the Council stroke through several mentions of "intended purpose" in Commission Proposal.
Apr	A draft report was published by the two AIA co-rapporteurs Benifei and Tudorache leading the central *Internal Market and Consumer Protection* (IMCO) and *Civil Liberties, Justice, and Home Affairs* (LIBE) committees. The report argues for avoiding loopholes in the AIA. It states: "no AI system should be excluded ex-ante, either from the definition of 'artificial intelligence' or by carving out exceptions for particular types of AI systems, including general purpose AI" (p. 159).[8]
May	The French Presidency of the Council suggested requirements on GPAI on 13 May 2022.[9]

[6] https://commission.europa.eu/system/files/2020-02/commission-white-paper-artificial-intelligence-feb2020_en.pdf

[7] https://www.euractiv.com/section/digital/news/eu-council-presidency-pitches-significant-changes-to-ai-act-proposal/

[8] https://www.europarl.europa.eu/doceo/document/CJ40-PR-731563_EN.pdf

[9] https://artificialintelligenceact.eu/wp-content/uploads/2022/05/AIA-FRA-Art-34-13-May.pdf Accessed 4 April 2023.

June	Euractiv reported that the two AIA co-rapporteurs "maintain their opposition to curbing an exception for GPAI," against the push from the EPP party.[10]
Sept	During the Czech presidency of the Council, GPAI raised into a "much-debated topic." Euractiv reports that GPAI includes "large language models" that "can be adapted to perform various tasks, meaning the provider might not be aware of the final use of its system".[11]
Nov	OpenAI released ChatGPT. On 25 November 2022, the EU Council published the Council Proposal of the AIA. This is the counterpart to the April 2021 Commission Proposal and defines a GPAI system as "*an AI system that - irrespective of how it is placed on the market or put into service, including as open source software - is intended by the provider to perform generally applicable functions such as image and speech recognition, audio and video generation, pattern detection, question answering, translation and others; a general purpose AI system may be used in a plurality of contexts and be integrated in a plurality of other AI systems*." In the Council Proposal, GPAI comprises of "large language models that can be adapted to carry out various tasks".[12] Regardless of the inclusion of the GPAI category, the document retains the earlier Commission Proposal's commitment to the risk levels being defined by the intended purpose. Meanwhile, the EU Parliament AIA co-rapporteurs circulated a document proposing "significant redrafting" of the section on GPAI systems.[13]
2023	
Mar	Euractiv reported that EU Parliament AIA drafters have introduced obligations for GPAI providers and responsibilities across the whole GPAI value chain.[14] Moreover, GPAI systems were identified as "the most significant political issue still open" in the EU parliament committees.[15] On 24 March, AIA technical discussions introduced a new direction to "distinguish 'true' GPAI models from foundation models based on the training datasets."[16]
Apr	The Members of European Parliament (MEPs) involved with drafting the AIA introduced that foundation models will be a category of AI that is distinct from GPAI in the Act. While a foundation model was seen as an "*AI system model that is trained on broad data at scale, is designed for generality of output, and can be adapted to a wide range of distinctive tasks*", GPAI is seen as "*an AI system that can be used in and adapted to a wide range of applications for which it was not intentionally and specifically designed*".[17]

[10] https://www.euractiv.com/section/digital/news/ai-regulation-filled-with-thousands-of-amendments-in-the-european-parliament/

[11] https://www.euractiv.com/section/digital/news/czech-presidency-proposes-tailored-requirements-for-general-purpose-ai/

[12] https://www.euractiv.com/section/artificial-intelligence/news/eu-countries-adopt-a-common-position-on-artificial-intelligence-rulebook/

[13] https://www.euractiv.com/section/artificial-intelligence/news/leading-meps-exclude-general-purpose-ai-from-high-risk-categories-for-now/

[14] https://www.euractiv.com/section/artificial-intelligence/news/leading-eu-lawmakers-propose-obligations-for-general-purpose-ai/

[15] https://www.euractiv.com/section/artificial-intelligence/news/ai-act-european-parliament-headed-for-key-committee-vote-at-end-of-april/

[16] https://www.euractiv.com/section/digital/news/tech-brief-eu-standard-setting-cyber-intelligence-competition-cookie-pledge/

[17] https://www.euractiv.com/section/artificial-intelligence/news/ai-act-meps-close-in-on-rules-for-general-purpose-ai-foundation-models/

	Eleven EU MEPs from many parties, all involved with the AIA, wrote a public statement "A call to action on very powerful AI from the European Parliament." They expressed their determination to provide "rules specifically tailored to foundation models, with the goal of steering the development of very powerful artificial intelligence in a direction that is human-centric, safe, and trustworthy."[18] In late April 2023, it was reported that a provisional political deal on the AIA had been reached. Euractiv's reporting identified that GPAI "has been a heatedly-debated topic in the discussion" and that foundation models were now a sub-category of GPAI.[19]
May	The key Parliament committees IMCO and LIBE voted on 11 May in support of the AIA. According to Euractiv, the "success of ChatGPT and other large language models pushed EU lawmakers to scratch their heads on how to best regulate this type of AI. The result was a tiered approach. The AI rulebook will not cover GPAI systems by default. The bulk of the obligations will fall on the economic operators that integrate these systems into an application considered at high-risk."[20]
Jun	The EU Parliament had a vote on June 14th. It demonstrated substantial support for the AIA, with a significant majority of 499 votes in favour, alongside 28 votes against and 93 abstentions.[21] The cutoff for our examination in this paper ends in June 2023. However, as we revise the paper for submission to ECIS 2024 in March 2024, we have insight into how the process continued afterwards. The June 2023 Parliamentary vote initiated the Trilogue process, the final stage of the legislative procedure. This process concluded on 9 December 2023 with the achievement of a provisional agreement. On 2 February 2024, the EU Council of Ministers approved the AI Act, and on 13 March 2024, the EU Parliament voted in support of it. The Act will be implemented in stages, effective between 6 and 36 months after its enactment, depending on the risk level associated with the AI system.

Table 1. Key events in the ongoing EU-level policy process of the AIA (compiled using Euractiv's archive[22] and with the help of materials provided by Risto Uuk of the Future of Life Institute.[23]

4 Discussion

What follows are two key areas of contribution. The first, a practical contribution detailed in Section 4.1, identifies the regulatory challenges of AI, particularly when AI cannot be clearly defined as technology with a specific purpose. We explore how to effectively describe AI, the concepts used, and the demarcation of these concepts from others. The second contribution, theoretical in nature (see Section 4.2), recognizes 'intended purpose' as a deeply held assumption in much Information Systems (IS) theorizing about technology. For future research in IS technology, acknowledging that our conceptualization often presupposes an 'intended purpose' is crucial. Considering our findings, we urge IS researchers to critically evaluate and question the suitability of established theoretical lenses considering new and rapidly evolving technological contexts, such as GPAI and foundation models.

[18] The letter was tweeted by the Renew Europe MEP Ioan-Dragoş Tudorache an AI Act co-rapporteur, on 17 April 2023: https://twitter.com/IoanDragosT/status/1647920290737823746?cxt=HHwWhICxub-xy94tAAAA

[19] https://www.euractiv.com/section/artificial-intelligence/news/meps-seal-the-deal-on-artificial-intelligence-act/

[20] https://www.euractiv.com/section/artificial-intelligence/news/ai-act-moves-ahead-in-eu-parliament-with-key-committee-vote/

[21] https://www.europarl.europa.eu/doceo/document/TA-9-2023-0236_EN.pdf

[22] https://www.euractiv.com/?s=%22ai+act%22

[23] https://artificialintelligenceact.eu/developments/

4.1. Regulatory challenges when AI is not a thing-with-a-purpose

The EU principles of product regulation that are at the core of the AIA and that we described in Section 3, are designed with physical products in mind: machines, toys, and medical devices. The regulation of product safety in the European single market assumes a product's intended purpose at its core. This assumption has served well in many kinds of products in the EU single market. For instance, the EU toy safety regulation targets products intended "for use in play by children under 14 years of age."[24]

The EU Commission Proposal published in April 2021 was similarly constructed to define a purpose for an AI product, including its typical use context. The trajectory of the AIA implies that powerful contemporary AI models are difficult if not impossible to be captured in a singular definition based on an intended purpose. There might be some intended uses, but also various unintended ones that even the developer did not foresee (Mayer et al., 2020; Schneider et al., 2024). Large AI datasets may serve close to infinite different purposes (Triguero et al., 2024). Added to this, the combinatory nature of digital innovation (Holmström, 2018) adds to this problematic. AI models are used as a service through APIs in other digital solutions (Lins et al., 2021). An AI is no longer a fixed product, it is a service process (Cobbe and Singh, 2021; Makridis and Mishra, 2022). The whole setting is highly dynamic and uncertain (Undheim et al., 2022). Identifying and defining a technology's purpose in these contexts is challenging.

As our timeline reveals, the problems with a singular purpose-based AI category were identified in the AIA already before the arrival of ChatGPT. However, ChatGPT's launch and rapid adoption around the world put serious pressure in the legislative process. For example, Italy banned ChatGPT in March 2023, only to lift the ban the next month (Gualdi and Cordella, 2024). In general, generative AI has raised a lot of attention in the IS field (Dwivedi et al., 2023; Teubner et al., 2023; Susarla et al., 2023). For regulators, it started to look like the future of AI is in large systems alike GPT. If the AIA does not capture this type of technology, it does not serve its intended purpose *(pun intended)*.

The initial solution to regulating ChatGPT and such large systems was to introduce the category of GPAI. GPAI gained a central position in the EU Council Proposal of the AIA in late 2022. In contrast, the Parliament Proposal of June 2023 focuses on the concept of "foundation models" instead. However, GPAI and foundation models have been constantly used side-by-side, and the relationship between these two categories has been undetermined. In April 2023, foundation models were placed as a GPAI subcategory. Later, the two seem to be distinct categories of equal weight. For example, Hacker et al. (2023) treat GPAI synonymously to 'foundation models', 'large language models' (LLMs) or 'large generative models'. As identified by Friedl (2023), "One of the biggest changes the proposal for the AIA has seen since its initial conception, is the introduction of a title on 'GPAI systems.'" Due to the proposal's high reliance on the notion of "intended purpose," it was not clear how it applies to these large-scale systems:

> "[I]t remains unclear whether foundation models fall under the scope of the AIA. The risk-based approach proposed by the Act focuses on the intended purpose of the system. Thus, as foundation models are intermediary assets with no specific purpose, it appears that only their downstream applications could be covered by the AIA. However, with no specific mention of foundation models, the Act leaves room for uncertainty." (Wójcik, 2022: 40)

These views underline the fact that regulating large-scale AI is a complex phenomenon (Vainionpää et al., 2023). It is far from obvious what is the best approach to frame it and name it.

[24] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:02009L0048-20171124

4.2. Problematizing the legacy of intended purpose in IS theorizing of technology

In engineering thought, a technology's function is traditionally associated with the designer's intended purpose for that technology (Ackoff and Emery, 1972). Deng et al. (1998: 311) defined that a function consists of two aspects: "a formal specification of a designer's intended purpose of a product-to-be-made, i.e., what it is for or intended to do" and a *common use function*, that is, "an accepted attribute of a product after it has been designed." It is easy to see a linkage to technologically deterministic thinking here: technologies perform their specific functions because they are designed to do so (Kallinikos et al., 2012). This same assumption is also visible in the notion of "intended purpose" in the AIA, which then has been challenged by the rise of GPAI and has led to discussions, e.g., about the distribution of responsibility between the "designer" of a GPAI who does not have one specific purpose in mind, and the "user" of the GPAI, who might be an organization who integrates a GPAI into their own product which might have some specific purpose (or not).

As formulated by Leonardi (2012: 21), "Virtually all social scientific research on technology and organization – whether by promoting or denying it – owes some intellectual debt to technologically deterministic thinking." This intellectual debt is embedded in much of IS theorizing of technology. For example, the Task-Technology Fit (TTF) model (Goodhue and Thompson, 1995) suggests that the success of a technology depends on how well it fits the tasks it is designed to support in an organizational context. According to TTF, a proper fit exists "when a technology provides features and support that 'fit' the requirements of a task" (p. 214). Similarly, Adaptive Structuration Theory (DeSanctis & Poole, 1994; Poole & DeSanctis, 1990) introduces the concept of 'spirit', which suggests that technology inherently embodies the intended purpose, values, and intentions of its designers, thereby shaping users' interactions with the technology.

The concept of technology's intended purpose has been a central feature of IS theorizing for decades. A widely adopted assumption is that technology's purpose is configured before its implementation. The popular affordance theory shares these assumptions (Markus and Silver, 2008). Originating from J.J. Gibson's work on ecological psychology (Gibson, 1966; Gibson, 1979), has been widely adopted in the IS field (Mesgari et al., 2023). The theory conceptualizes affordances as opportunities for action provided by an object or environment. According to the original formulation of affordance theory, purposes are real and permanent. Gibson, the originator of the affordance theory, defined that an "affordance is not bestowed upon an object by a need of an observer and his act of perceiving it. The object offers what it does because it is what it is" (Gibson, 1977: 139).

AT makes a strong distinction between the existence of an affordance and its actualization. Purposes are configured prior to use, before crossing "the implementation line" (Leonardi, 2009). The user is not in power to define the purpose but is concerned with actualizing the affordance as an invariant generative potential. Gibson made this distinction already in the book chapter titled *The Theory of Affordances* (Gibson, 1977) that was two years later republished as a chapter to his final book *The Ecological Approach to Visual Perception* (Gibson, 1979). In that chapter, Gibson makes a strong case for the persistent stability of affordances:

> "The affordance of something does *not change* as the need of the observer changes. The observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived. An affordance is not bestowed upon an object by a need of an observer and his act of perceiving it. The object offers what it does because it is what it is." (Gibson, 1977: 138-139)

In this 1977 book chapter, Gibson discusses the nature of affordance using various examples. His first example is chairs that afford sitting: "The human species in some cultures has the habit of sitting as distinguished from kneeling or squatting. … We call it a *seat* in general, or a stool, bench, chair, and so on, in particular" (p. 128). The example of chairs and sitting later became the prime example to exemplify AT in various disciplines (Lanamäki et al., 2015). In a more general sense, when a user

perceives affordances, (s)he is recognizing predefined purposes (Kaptelinin and Nardi, 2012: 976). Burlamaqui and Dong (2016: 80) formulates that designing affordances "means designing for recognition of the affordances intended by the designer."

The concept of affordances has been Influential in various fields (Şahin et al., 2007; Norman, 2008; e.g., Nagy and Neff, 2023). In IS research, the concept had some following already in the 1990s, but its popularity grew around 2007-2008 through the publication of several influential papers (Markus and Silver, 2008; Zammuto et al., 2007; Leonardi and Barley, 2008). The theory has since become a big hit in IS (Stendal et al., 2016; Mesgari et al., 2023). The IS view on affordance retains Gibson's separation between affordance's invariant existence and its actualization:

> "The affordance, as the potential for action with respect to an actor's goals, refers to function (what the affordance is useful for or the purpose of the action), that is, an affordance is the potential for achieving a goal. As such its definition will be somewhat abstract and applies across potential actors with that goal and associated capabilities. The actualization, as the action itself, is specific and relates to structure, not function, where structure focuses not on the purpose of the action, but the actual configuration of behaviours that make up the action. … Thus, while affordances relate to potential actions and the purpose they are intended to achieve, actualization relates to a particular individual actor and details regarding the specific actions that actor will take or has taken." (Volkoff and Strong, 2018: 264)

Within the more constructivist branches of IS research, technology's purpose has been treated as a non-stable characteristic. For example, technology can be repurposed for new uses (Jarzabkowski and Pinch, 2013). Appropriation research, concentrating on users' freedom to "use a technology's features in anticipated or unanticipated ways" (Leonardi and Barley, 2010: 16), is one way to conceptualize technology's purpose (e.g., Ventä-Olkkonen et al., 2016). Regardless, these legacy theoretical concepts do not capture the flux, the multiplicity, and ambiguity around novel large-scale AI. Berente et al. (2021: 1435) defined AI as "the frontier of computational advancements that references human intelligence in addressing ever more complex decision-making problems." As such, any entity-based definition of AI we make today will be obsolete tomorrow. The frontier is shifting, the goalposts are moving. Likewise, as articulated by Suchman (2023), AI is not only some existing techniques and technologies, but it is a subfield of computer science established already in the 1950s. The term is also a floating signifier, playing on "strategic vagueness" as "a term that suggests a specific referent but works to escape definition in order to maximize its suggestive power" (Suchman, 2023: 3).

Large Language Models (LLMs) can master a range of tasks normally requiring cognitive human abilities (Qin et al., 2023; Fei et al., 2022). This range of different tasks is very wide and unpredictable (Liu et al., 2023). As an example, a group of Polish AI researchers (Kocoń et al., 2023) ran over 38000 prompts on ChatGPT to test its capabilities on 25 different natural language processing tasks. They found out that ChatGPT "can solve most of the problems considered quite well" (p. 19) but its performance was worse than AI models specifically designed for those tasks. Thus, they characterized ChatGPT as a "jack of all trades, master of none."

Foundation models have an extremely large scale that permits surprising emergence, for example adding new capabilities through use. One such phenomenon is *in-context learning*, characterized as activity "in which the language model can be adapted to a downstream task simply by providing it with a *prompt* (a natural language description of the task), an emergent property that was neither specifically trained for nor anticipated to arise" (Bommasani et al., 2021: 5).

In summary, much of IS theorizing of technology has "intended purpose" embedded within, assuming purpose is as a stable ontological configuration prior to a user's actualization of it. Our analysis hints that these assumptions might not be fully suitable for grasping the nature of contemporary large-scale AI systems. Our message for IS research is that we all should be careful about the assumptions in our theories, because those may fail us in novel technological settings.

5 Conclusion

In this paper, we have studied the foundational role of "intended purpose" and its subsequent challenges in conceptualization within the AIA policy process. Our timeline includes the Commission Proposal from 2021, the Council Proposal from 2022, and the Parliament Proposal from 2023. We viewed this trajectory as an opportunity to problematize, using it to uncover and challenge underlying assumptions that are often taken for granted. The arrival of ChatGPT and such has disrupted the negotiations in the process and put into question these assumptions about AI's intended purpose in the AIA, and raised questions about how such a technology should be regulated.

Our work was informed by problematization-oriented research, empirically anchored in the conceptualization issues in the AIA process (cf. Baiyere et al., 2023). Problematization is nowadays a well-established approach in IS research (Monteiro et al., 2022; Hafermalz et al., 2020; Chatterjee and Davison, 2021) that aims challenging established beliefs. When successful, problematization can yield more beneficial and intriguing results than mere gap-spotting (Davis, 1971; Alvesson and Sandberg, 2013a). We hope we have succeeded in intriguing the readers' imagination.

Our study has certain **limitations** but also opens **avenues for future research**. The first limitation is was that we conducted our study during the time when the AIA policy process was still ongoing. We followed the process practically in real-time when originally writing this paper. While this was a great opportunity for providing insight on a current and important topic, it also meant that this paper does not provide an account of the complete process. This, on the other hand, is also a good opportunity for further continue this research to capture the whole process, at it has completed by summer 2024.

Second, and related to this issue, is that we now know the result of the AIA process (in March 2024). We know that the final version has ditched the term 'foundation model.' Instead, the final AIA has settled with the notion of GPAI, but now covers both GPAI models and GPAI systems. Additionally, the regulation acknowledges that some AI models might bear *systemic risk*. All this illustrates the definitional problem described by Scherer (2016: 359), who argues that "you need to define the object of regulation, but AI admits of no easy definition."

Third, our discussion of IS theories' assumptions was not systematic or holistic. We picked a selection of theories, mostly focusing on affordance theory. This analysis could be extended in future work.

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