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Short paper

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Abstract

It has been acknowledged that the Information Systems (IS) discipline needs to pay attention to policymaking. However, the IS field has not yet sufficiently acknowledged complexities of policymaking and the resulting ambiguity. We present two worldviews that underlie how IS research has approached policymaking and, indirectly, policy ambiguity. In the dominant "representationalist" view, a policy is planned and implemented in a linear manner, and ambiguity is seen as problematic. The "enactivist" view sees a policy and its implementation as mutually constitutive: a policy does not exist without its implementation but it also guides the implementation. This can result in unresolvable paradoxes that manifest as ambiguities. Based on our review of the extant IS research we present existing perspectives to policy(making) and ambiguity. We call for IS researchers invested in policy/regulation-related research to be aware of and explicit about the views to policy(making) and ambiguity guiding their research.

Keywords: Policy ambiguity, policymaking, representationalist view, enactivist view

Introduction

Policy and policymaking ("policy(making)" henceforth) has been an area of interest in the Information Systems (IS) field since the early days of the discipline. In the first ICIS conference, Keen (1980, p. 16) argued that the IS field was moving from the "tactical issues of how to deliver specific systems" of the 1970s to larger concerns of planning and policymaking. During the last decade, this interest has ever grown, and policy concerns now manifest in various places such as in an ICIS panel (Niederman et al., 2017) and in a MIS Quarterly special issue editorial (Majchrzak et al., 2016). The Journal of the Association for Information Systems has also recently dedicated a section for IS Policy (King and Kraemer, 2019). Sirkka Jarvenpaa argues that "a section on policy in our journals is a good stepping stone," but that eventually every article should strive to speak to policy (Hovorka et al. 2019, p. 1363).

Information security researchers have been the most active in prioritizing policy in IS research (e.g., Warman, 1992; Siponen, 2000; Bulgurcu et al., 2010). As the IS field has expanded from purely intra-organizational information technology (IT) issues to more societal and industry-wide concerns (Winter et al., 2014; Sørensen, 2016), the role of policy(making) becomes ever more important. For example, the rapid development of artificial intelligence (AI) has led to AI-related policies that, e.g., seek to increase the trustfulness of AI systems or improve "ethical behavior" in AI systems. The most recent example is the European AI Act proposal by the European Commission in April 2021. The Digital Services Act and the Digital Markets Act also represent European Union (EU) level developments of interest to IS research. Public policy and regulations have been identified as external conditions that steer and drive organization's digital transformation (Vial, 2019; Hanelt et al., 2021), which itself is yet another focus area of IS research.

Some recent examples of policies and regulations have pointed towards the significant role and impact of ambiguity in them. With ambiguity we refer to a "state of having many ways of thinking about the same circumstance or phenomena."[1] (Feldman, 1989, p. 5). A recent example on the challenges with regulatory ambiguity is the European General Data Protection Regulation (GDPR) (Grundstrom et al., 2019), which regulates the protection of personal data about EU citizens, and it has impacted implementation of IT artefacts. However, GDPR contains ambiguous elements due to the use of legal principles and undetermined legal terms (Jakobi et al., 2020). The European AI Act – once it becomes effective – will heavily influence the way AI systems have to be developed and under what conditions they can be brought to the market and used in the EU area. Both the GDPR and the AI Act are technology-neutral regulations that do not prescribe the exact technologies that are subject to these regulations or that must be utilized in order to comply with. Technology-neutral regulation often contains ambiguity (Puhakainen and Väyrynen, 2021), and this is also the case with the AI Act proposal (Konttila and Väyrynen, 2022).

With this conceptual paper, our first aim is to bring "policy ambiguity" to the attention of IS research. Other fields have recognized the impact of policy ambiguity on phenomena that are also in the focus of IS research, e.g., that IS security policy may be ambiguous, which may explain non-compliance with the policy (e.g., Buthelezi et al., 2016). The IS field, however, has so far remained quite ignorant of this important policy(making)-related concept. Our second aim is to start a critical discussion on how policy ambiguity – but also more generally "policy and policymaking" – have been approached in IS research. We draw from organization studies and management research to conceptualize two distinct worldviews in policy and policymaking in IS – a representational view and an enactivist view. We then present three ways in which ambiguity has – implicitly or explicitly – been understood in prior IS research. These assumptions also heavily affect and guide what the IS community studies in relation to policy(making) and how. We argue that by understanding and making explicit the underlying ontological and epistemological assumptions about the nature of policy(making), as well as policy ambiguity, IS policy research can establish 'construct clarity' (Suddaby, 2010) regarding policy(making) process, aims, and outcomes, helping the field move forward.

Different Worldviews of Policy(making)

IS research, like all other research fields, is governed by certain 'dominant logics', "pervasive yet invisible predispositions regarding certain scientific problems" (Bachelard, 1987, pp. 46-50, quoted in Rasche, 2007, p. 2) such as "policy" and "policy ambiguity". We propose here a distinction into two views that prior IS research has – implicitly or explicitly – taken when studying policy-related issues: a "representationalist" and an "enactivist" view (see Protevi, 2006) of policy(making). We argue that the "representationalist" view of policy(making) is a dominant logic in IS policy research.

Barad (2003, p. 804) argues that representationalism is "[T]he belief in the ontological distinction between representations and that which they purport to represent; in particular, that which is represented is held to be independent of all practices of representing. That is, there are assumed to be two distinct and independent kinds of entities-representations and entities to be represented." Examples of the **representationalist view of policy(making)** in IS research include papers where the focus has been

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[1] We are aware that prior research has utilized different – and more specific – ambiguity-related concepts such as equivocality (Weick, 1995) or lack of clarity (Feldman, 1991; Weick, 1995). In this paper, we use the term ambiguity more broadly, acknowledging its different forms, see e.g., Cappellaro et al. (2020).

on the policy document – such as on the way the policy (document) is developed (e.g., Niemimaa and Niemimaa, 2017) and how the policy (i.e., what is written in the policy document) is being implemented or complied with (e.g., Bulgurcu et al., 2010, Gwebu et al., 2020). Within the representationalist view, the process of policymaking is usually seen as rather linear and sequential. An example on the level of governmental policymaking is Jann and Wegrich's (2007) policy cycle with the (possibly overlapping) stages of agenda setting, policy formulation, decision making (regarding whether the policy will be implemented), policy implementation, and evaluation of the policy's effects. An organization-level example would be information security policymaking, where various process models for information security policy development have been proposed that are centered around the formulation and later implementation of the policy (see Paananen et al., 2020 for a review). In a representationalist worldview on policymaking, an underlying assumption is that policy can be written in a way that it would be understood.

Critics of the representationalist view argue that the focus of policymaking should not be on writing of these texts or on the assumably simple implementation of policies, but on their enactment. The concept of enactment highlights the subtle and inchoate nature of policymaking and forefronts how policies are made sense of, mediated, struggled over, and ignored. Local material and human resources, discourses and values are deployed in the complex process of enactment. (Ball et al., 2011.)

In the **enactivist view of policy(making)**, advocated for example in the literature of educational policy(making), policies are seen to have varying and complex trajectories with different stakeholders, roles, values and agendas involved. This resonates with Lindblom's (1959) notion of "muddling through." Studies representing the enactivist view examine, for instance, language policy and planning in different country contexts (Hornberger and Hult, 2008) or how schools do, or enact, educational policies (Ball et al., 2011). In these studies, stakeholders are not seen merely as writers of texts or implementers of the policies written. Instead, policies are seen as encoded and decoded; they require understanding and translating, interpretation and recontextualization – interpretation of interpretation is always required (Ball et al., 2011). The enactivist view invites seeing policymaking holistically from material, discursive, and interpretive perspectives (Ball et al., 2011). Policies are seen as texts and things, but also as discursive processes "that are complexly configured, contextually mediated and institutionally rendered" (Ball et al., 2011, p. 3). Contradictions and sociopolitical challenges are intermingled with policies (Hornberger and Hult, 2008). The enactivist view calls for the complex inter-relationships among policies, participants, and social contexts to be acknowledged (Hornberger and Hult, 2008). Policy creates context, but context also creates policy. Context is acknowledged in different senses such as in situational, material, professional culture, or external. (Ball et al., 2011.) In this worldview, policies do not dictate or determine practices, but there is a reciprocal relationship between policy and practice (Hornberger and Hult, 2008; Ball et al., 2011). In the enactivist worldview, ambiguity is seen as a basic fact of life (Zahariadis, 2007, p. 87).

Policy and Policy Ambiguity in the Extant IS Research

Ambiguity can be related to for example, means, goals, or authority (Eisenberg, 1984; Jarzabkowski et al., 2010; Cohen and March, 1974). All these views have been already acknowledged in the IS literature. Ravishankar (2013) discusses **goal ambiguity**, referring to unclear objectives, **means ambiguity**, which implies uncertainty and an unclear relationship between goals and the means to achieving the goal(s) as well as **authority ambiguity**, i.e. "ambiguity created by the presence of multiple authority and power centers" (p. 317), each of which are promoting their own view and where it is unclear who has authority and power over whom.

The extant IS research has studied policy and policy(making)-related aspects, ranging from studying government-level (e.g., Okoli et al., 2009; Väyrynen and Lanamäki, 2020) to organization-level policy(making) (e.g., Niemimaa and Niemimaa, 2017). However, there is little research that would directly study policy ambiguity (see, e.g., Ravishankar, 2013; Väyrynen and Lanamäki, 2020; and Lanamäki et al., 2019 for examples of ambiguity-related IS research). Then again, also studies that do not directly address policy ambiguity allow for an inference of how policy ambiguity is – at least implicitly – being viewed in these studies. A useful conceptualization comes from Ravishankar (2013), who studied how strategic ambiguity is utilized in public sector innovation in India. He argued that there are two schools of thought regarding ambiguity: those who see it as a problem, and those who see it as an inherent part of policy(making). Inspired by this dichotomy, we reviewed the extant policy(making)-related IS research to understand how policy ambiguity is viewed in these studies. The underlying assumptions regarding the

adapted policy(making) worldview and policy ambiguity are rarely made explicit in policy(making)-related IS research. Nevertheless, the way in which these studies have approached policy(making) and the questions that these studies investigate in relation to policy(making) reveal some of the ontological and epistemological assumptions regarding ambiguity: whether ambiguities in policy text are seen to pose a **problem** for policy implementation; whether ambiguity is seen as a rhetorical **tool** enabling policymaking; or whether the whole policy-implementation duality is seen as **inherent** to the process of policymaking, ongoing and mutually constitutive, resulting in complexities that manifest as ambiguities in the process of policymaking.

Policy Ambiguity as a Problem

Ambiguity – although it may be strategically employed – is often seen as a problem (e.g., Jarzabkowski et al., 2010), as something that is problematic for policy implementation and should be avoided or gotten rid of. It is also important to notice that the degree and duration of ambiguity are seen as playing a role in the outcome of ambiguity. Too much ambiguity can lead to difficulties in creating an understanding of the situation, decision-making, or action and may result in confusion (e.g., Sonenshein, 2010; Liu et al., 2018), avoidance of responsibility (e.g., Denis et al., 2011), or resistance (McCabe, 2010).

Most research on policy and policy ambiguity in the IS field falls into the category where policy ambiguity is seen as a problem. In the IS discipline, research on policy(making) is prominent especially in the information security field. Threats to information security can come from outside the organization or inside the organization. Information systems research has largely focused on threats coming from inside the organization, distinguishing between intentional and unintentional behavior that threatens information security. Non-compliance with information security policy is seen as a major problem in this stream (Warkentin and Willison, 2009.) Aspects that have been addressed in the information security stream are, for example, employees' information security policy compliance, and the alignment between information security policy and the strategic information systems plan (Doherty and Fulford, 2006). Aspects studied regarding IS security policy compliance are factors that influence employees' attitude toward information security policy such as benefits of compliance and costs of (non)compliance (Bulgurcu et al., 2010; Gwebu et al., 2020), or information security knowledge sharing, intervention, collaboration and experience (Safa et al., 2016), factors that affect or help explain (non-)compliance with IS security policy such as ethical work climate (Gwebu et al., 2020), moral reasoning (Myyry et al., 2009), neutralization (Siponen and Vance, 2010; Gwebu et al., 2020), protection motivation and deterrence (Warkentin et al., 2012), and factors affecting the intention to comply with information security policy such as the informal social learning environment (Warkentin et al., 2011), social influence (Ifinedo, 2014) and organizational commitment (Herath and Rao). Willison et al. (2018) conducted a literature review on research about deterrence in an information security policy compliance/non-compliance context. One thing that is common to these information security policy studies is their implicit assumption that the policy itself is clear, and if policy is not implemented as intended, it is due to other reasons than because of the policy being ambiguous or unclear. For example, research that investigates why employees comply or do not comply to information security policy make the implicit assumption that there *is* a certain way to comply. These studies do not recognize that policy itself might be ambiguous.

Some studies, in contrast, recognize that policy can be ambiguous, e.g., in the sense of means or goals, and see this ambiguity as a problem. Stahl et al. (2012) conducted a critical discourse analysis on information security policies the UK's National Health Service used. They found that there is considerable ambiguity in these policy documents regarding the policies' objectives (i.e., goals ambiguity) and intended targets of the policy (i.e., who is supposed to implement the policy) and retarding jargon and very technical (and thus unfamiliar) language in the policy. This ambiguity is one of the reasons that information security policy is not being implemented as intended by the policy makers. Stahl et al. (2012) also provide guidelines for how to better design information security guidelines. Yang (2016) refers to Stirling's (2007) matrix of incomplete knowledge in policymaking, which introduces the condition of ambiguity as problematic. Greulich et al. (2020) argue that ambiguous security policies, e.g., being ambiguous of security countermeasures to be taken in the event of a cybersecurity attack, can evoke cybersecurity perplexity. They see ambiguous security policies as an adverse cybersecurity condition.

Several studies in IS provide implications for policymaking with the intention of improving the process of policymaking. Cordella and Willcocks (2012) identify a need for public policymaking that is better informed

and call for more focus on delivering on public values instead of focusing on business requirements and cost savings in a short-term perspective. Niemimaa and Niemimaa (2017) study the translation from information security best practice into information security policy, and then into situated practices. They identify both aspects that inhibited and and aspects that supported the translation. Niemimaa and Niemimaa (2019) develop a model that integrates a top-down and a bottom-up approach in information security policymaking. Their managerial implications provide seven maxims for information security policy development. Okoli et al. (2009) study the effect of national IT policies (and, in more detail, general IT policies and e-business policies) on e-business outcomes and argue for the development of very focused policies such as e-business policies – in contrast to more general IT policies. Culnan (2019) identifies processes and principles that organizations can employ to develop privacy policies that help prevent privacy disasters. Common to all these studies is their shared goal towards a clear (i.e., unambiguous) policy.

Policy ambiguity has also been argued to lead to unintended – and problematic – consequences. Väyrynen and Lanamäki (2020) illustrate how ambiguity in the Finnish taximeter regulation has led to the adoption of such types of technology that were seen as problematic and unwanted by the regulator. Konttila and Väyrynen (2022) found that the European AI Act proposal has been perceived as ambiguous and – should it be adopted in future in the EU – as increasing the challenges related to the interpretation of regulations that affect the development of AI-based healthcare technology. This increased ambiguity was seen to have impacts on AI-based health technology innovation and development activities.

Policy Ambiguity as an Inherent Part of Policymaking

Ambiguity can also be seen as a 'natural' consequence of the complexities of organizing, arising from the multitude of different possibilities of the ways individuals make sense of a given situation (Weick, 1995). Based on that, we view ambiguity as an inherent part of policymaking as a complex organizational phenomenon, and policies as a form of organizational communication. Ambiguity is constantly produced and reproduced by organizational actors as they aim to reduce complexity and make decisions - and while doing so, open up new complexities. When viewing ambiguity as inherent part of policy(making), the assumption is that policymakers need to cope with ambiguity as it is something that cannot be removed completely from policy(making).

There are also examples of IS research that see ambiguity as an inherent part of policy. Ravishankar (2013), for example, show that strategic ambiguity is "a core aspect of public ICT innovations". Strategic ambiguity refers to situations where ambiguity is used as a resource or "a prevalent and valuable tactic" in organizational communication (Paul and Strbiak, 1997; Aggerholm et al., 2012), to situations where vagueness and/or incompleteness is deliberately and purposefully used when formulating a strategy (Ravishankar, 2013). Ravishankar explicitly distinguishes between the top-down strategic ambiguity view which strives for clarity and for minimizing ambiguity among the dimensions of goals, authority and means, and the bottom-up view where ambiguity "can be seen as an inherent aspect of design and implementation of innovations in the public sector" (p. 318). Furthermore, he argues, "since it is an intrinsic and relatively enduring condition of the system, realistically ambiguity can neither be easily manipulated or eliminated in line with the first school of thought's recommendations." (Ravishankar, 2013, p. 318). Klecun-Dabrowska and Cornford (2000) analyze British Health Policy and show that there is a "preferred reading" embedded in policy documents, but that these policy documents can also be interpreted in different ways. They apply hermeneutics as the theoretical perspective and analyze four policy documents regarding possible interpretations of IT and information in health care. They show challenges, tensions and possible problems that can arise from these different interpretations and meanings they uncover. Klecun (2016) applies discourse analysis and studies how policy interpretations of patient-centered care shape the transformation of healthcare in England. By recognizing that policy is being interpreted and that interpretations made by different actors can differ, we argue that Klecun-Dabrowska and Cornford (2000) and Klecun (2016) thus implicitly acknowledge that ambiguity is inherent in policy documents.

Policy Ambiguity as a Tool

The notion of strategic ambiguity involves seeing policy ambiguity as a rhetorical tool: goal ambiguity may promote unified diversity in organizations and facilitate organizational change by allowing diverse groups to work together and divergent interpretations to coexist (Eisenberg, 1984). In the context of policy, means ambiguity can arise, e.g., when a law-mandated technology does not yet exist, or when it is unclear which

organizations should play which roles in the process of implementing a policy and this is thus deliberately left open in the policy. Furthermore, means ambiguity prevails when the choice or outcome of technology is unclear (Matland, 1995). Technology neutral regulation, which often makes use of means ambiguity to allow for future technological innovation (Greenberg, 2016; Puhakainen and Väyrynen, 2021), is another example of strategically utilizing ambiguity.

Ravishankar (2013) provides an example of the use of policy ambiguity as a tool in the IS context. He reports on an IT project that was a public policy innovation where "high levels of ambiguity existed about the objectives of the project, the means to achieve the objectives and whether the B1 team could exercise control over multiple entities." (p. 323). In the project, wide use was made of strategic ambiguity by the project team, and this strategic ambiguity helped to make the project a success.

The Continuation of this Research

Pointing to the cross-section of IS research and other disciplines that have taken interest in policy(making), the purpose of this conceptual paper was to make sense of the different ways policy and policy making have been seen in IS research and of the underlying assumptions regarding the nature of policy(making). We have briefly shown that the extant studies touching on this topic in IS make – implicitly or explicitly – certain assumptions about policy(making) and policy ambiguity. We call for future IS research that addresses policy(making)-related issues to explicitly reveal the worldview on policy(making) and on policy ambiguity that underlies their research. This may help moving the IS stream on policy, and the more recent stream on legal regulation, forward, allowing IS researchers to critically examine and discuss their policy-related research findings in the light of the assumptions underlying policy(making) and policy ambiguity.

While the double-edged nature of ambiguity has been noted in strategy literature (Abdallah and Langley, 2014), for policymakers, the hindering aspect of ambiguity is often more prevalent, as laws and regulations in general should be as un-ambiguous forms of communication as possible. However, the more complex the phenomenon under regulation is, the more 'strategic' ambiguity may be as it can also provide a necessary 'leeway' for the policy implementation to evolve. As ambiguity arising from the complexities of social life is something that brings out the 'supplement' of the dominant worldview (ambiguity as a problem) that also prevails in IS research, this paper suggest that IS policy research could benefit from increased understanding of different forms of ambiguity in policy(making) and the different paths for future research that they outline. Rasche (2007) addresses the paradoxical foundations of strategic management theories and introduces dimensions of context, process, and content (Pettigrew, 1987) when outlining his framework of strategic change. *Process* relates to the 'how' of policymaking, whereas *content* addresses the outcome ('what'). Policy *context* then describes the circumstantial factors that influence policy content and process -related decisions, and in which they are embedded ('wherein'). In the next phase of our study, we plan to utilize Rasche's (2007) dimensions of strategic change, and use ambiguity and the different forms it takes in IS policy research as a springboard to unearth and categorize some of those core paradoxes that regulators – such as in the context of the European AI Act proposal – need to cope with, but which remain invisible when examined through current conceptualizations of IS policy(making).

Conclusion

With this short paper, our aim has been to draw IS researcher's attention to the important concept of policy ambiguity. This concept has been yet overlooked in IS research. We also wish to initiate a critical discussion about the assumptions about the nature of policy(making) and policy ambiguity underlying IS policy research. We call for IS researchers' attention to the nature of policy ambiguity and its different forms. In our own future research, we are particularly interested in investigating the nature of policy ambiguity in the empirical context of the regulation of AI.

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