EU's Artificial intelligence policy – Towards a narrative governance?

Full paper draft for the 5th International Conference on Public Policy (ICPP5)

Barcelona and online, 2021

Frans August Runo af Malmborg, PhD Student, University of Agder, Norway

Abstract

The fundamental uncertainty of modern capitalist economies has led to an increasing scholarly attention to narratives as guiding frames for sensemaking, structuring of (shared) expectations and decision making. By creating shared expectations and imaginaries, narratives help coordinate actors to decide on a course of action, making them instruments of governance and power. This paper provides a contribution through combining a sociological understanding of narratives with a public policy understanding of narratives. Looking at the case of European Commissions AI policy, the paper develops a theoretical framework towards understanding how narratives function as uncertainty reduction phenomena in policymaking. An important contribution of the suggested framework is that they may function as structuring expectations and coordinating political actors through reducing uncertainty and suggesting grounds for decision-making. This is conceptualised as a form of "narrative governance". The paper finds that the European Commission policymaking on AI can be interpreted through a theoretical lens of narrative governance and exemplifies this through a range of excerpts from policy papers interpreted through this theoretical frame. The suggested frame may help to reconceptualise the existence of grandiose public policy narratives as meaningful coordination aspects but also instances of actors' sensemaking processes within uncertain environments. The contribution of the paper should be considered as developing a more fundamental narrative conceptualisation of public policy through expanding on the notion of uncertainty as well as complementing with a sociological understanding of narratives in public policy.

Keywords: Artificial intelligence, Policy, European Commission, Narratives, Uncertainty, governance,

Introduction

The fundamental uncertainty in modern capitalist economies has led to an increasing scholarly attention to narratives as guiding frames for sensemaking, structuring of (shared) expectations and decision making. By creating shared expectations and imaginaries, narratives may help coordinate actors to decide on a course of action, making them instruments of governance and power (Beckert & Bronk, 2019; Beckert, 2016; Shiller, 2017). From such a perspective, narratives may structure macro as well as micro actors in decision making positions such as in the global economy as well as in high profiled political contexts. Even though the epistemological status of narratives is debated, a narrative perspective offers valuable insights towards both economic and political decision and policymaking.

This paper draws attention to how the European Union (EU) more generally and the European Commission (Commission) more specifically utilize narratives within artificial intelligence (AI) policy as a way of coordinating actors through structuring of fictional expectations, instilling urgency, self-authorization, and establishment of causal links. Narratives is conceived as stories within public policy with an archetypal form; some sort of plot, a hindrance that needs overcoming, as well as a desired state or some sort of goal (McBeth et al, 2014; Stone, 2012). While the purpose of policy more generally is to promote governance principles or propose modes of action, contemporary policies on AI shows particularly high "narrative density" and grandiose narratives. These policies might seem peculiar from a shallow reading, but through a theoretically informed close reading of the policy texts, grandiose statements about the "AI future" may be understood as uncertainty reducing phenomenon reflecting not only a will to coordinate actors but a way for the Commission itself to reduce uncertainty and make sense of emerging technologies.

This EU's AI policy is a rather unique case of public policy. Firstly, there are contemporary technological developments which shows fast paced change within AI systems which has yielded an increasing academic interest, as well as a business/market investment related interest (Perrault et al 2019). Even if AI as a scientific field has been around since the 1950s the current academic surge and renewed interest is historically unmatched and is not likely to be fleeting (Cath et al 2018). Secondly, AI policy is an emerging policy field which makes it less likely to be influenced by any significant amount of path dependence compared to other pre-existing policy fields. Thirdly, even though this paper asserts that all decision-

and policymaking is made under uncertain conditions, AI policymaking may even be attributed to be exceptionally uncertain due to a number of endogenous characteristics to the technology itself namely; 1) that AI per se is an elusive concept to grasp – it can encompass such a wide array of applications, 2) that there is limited transparency in complex AI systems and, 3) the outcomes of the applications of AI systems may be uncertain.

The paper finds that the Commission's AI policy employs narratives which may coordinate political actors through creating shared imaginaries and expectations of a common AI future. This may spur political actors such as member states to coordinate policy, build capacity and address the "AI issue". The utilized narratives also show signs of self authorization whereby the Commission establish themselves as the focal point of European AI efforts. The AI policy itself is also ascribed a vital part of establishing common AI efforts in Europe also an example of narrative self-authorization. These policy efforts is understood as a modern or contemporary form of governance through narratives. This form of governance is necessarily flexible since it on the one hand defines the overall ideational context and promotes some key governance principles, it on the other hand opens for local adaptions. It is suggested that such "narrative governance" may be understood under the general "new models of governance" or "from government to governance" discourse (Bevir, 2012; Salamon 2002). As narrative governance may influence the decision making of actors, structure their expectations and define the ranges of possibilities of action it is argued that it may be a bridge to far to conceptualize it as a "softer" form of governance than for example governance through legal integration. Due to its ability to socially construct axiomatic governance principles and establish norms, narrative governance in the specific case may serve as "path shaping" for the emerging area of AI policy.

The paper proceeds as follows. Firstly, the theoretical framework is outlined combining a narrative sociological understanding of narratives with a public policy understanding and a development of the concept of uncertainty. Secondly, methodological considerations will be presented. Thirdly, an empirical analysis will be conducted on five European Commission policy documents from 2018 to 2020 which are the first and most central of the Commissions AI policy documents. Lastly, the findings will be put in context and the paper concluded along the lines of further relevant discussions and research regarding narratives.

Theoretical framework

Narratives recently have experienced a burgeoning utility within political science research in general and in European studies in particular (García, 2017; Radaelli et al., 2013; Radaelli, 1999). But narrative approaches has been applied in social sciences in general (Czarniawska, 2004) as well as a variety of other academic literatures which emphasizes their role in influencing beliefs and actions Such examples include marketing (Mattila, 2000), neuroscience (Ash et al., 2007), and psychology (Gerrig & Egidi, 2003; Tucket and Nikolic, 2017). From a policy studies perspective the narrative perspective can be seen as an evolution of "the argumentative turn" in public policy (Fischer and Forrester, 1993; Hajer, 1993; 1995; Stone, 2012) while the perhaps most well-known application of the narrative concept is in the context of the "collapse of the metanarrative" as one of the pediments of the postmodern critique of modernism as articulated by Jean-Francois Lyotard (1979).

Recognizing that the narrative academic scholarship is diverse, this article suggests a two-pronged narrative analysis of public policy infused with a sociological and decision-making theoretical perspective of narratives. The section proceeds as follows. Firstly, some key concepts from classic decision-making theory, modern economic and sociological theory building which will form a general understanding of the role of narratives for expectations and decision making. Secondly, a public policy approach to narratives is outlined which more situates narratives within public policy. Thirdly, the concept of uncertainty will be expanded towards the particular case – the emergence of AI technology. Lastly, the section summarizes by offering a theoretical merger of how narratives in public policy may benefit from a deeper sociological understanding of narratives as response to uncertainty, resulting into thinking about AI policy as a contemporary form of narrative governance.

Narratives and uncertainty

A vast scholarship in economy and organization theory has made large strides towards conceptualizing how actors process information and make decisions. This include limited amount of time to make decisions and incomplete information on what to make decisions upon (Simon, 1976), cognitive biases which influence decision making (Kahneman and Tversky, 2000) as well as norms that govern decision making processes towards being "appropriate" rather than "calculative rational" (March and Olsen, 1998). This scholarship

has advanced an understanding of actors far from standard neoclassical economics such as the invisible hand and the economic man. Yet, despite such concessions rational choice perspectives still serves as common go-to heuristic frames for scholars in both political science and economics.

The concept of uncertainty developed by Joseph Schumpeter poses an even heavier critique of the rational calculus actor than above cited scholars. Uncertainty, fundamental, knightian or radical uncertainty as it is sometimes called refers to situations so unique that no probability can be ascribed to them. This means that hypothetically, even if actors would have perfect information, be free from cognitive biases and norms of appropriateness, actors would still have difficult making decisions due to the inherent and fundamental uncertainty of the decision-making process itself. According to Schumpeter (1943) echoed by Shackle (1972), economic actors simply does not know what the future holds. In his seminal work, Joseph Schumpeter argues that the *"process of industrial mutation . . . incessantly revolutionizes the economic structure from within', and this endogenous 'process of Creative Destruction is the essential fact about capitalism'* (Schumpeter 1943: 83). Therefore, the current theoretical foundation necessarily diverges from seeing the world as static and changed by external events. Change is endemic within society and observed or experienced stasis might be more elusive than commonly credited (Blyth, 2011). Beckert and Bronk (2018: 3) thus asks *"What is the role for rational analysis when [one] cannot deduce from past regularities of behaviour and known constraints what the optimal course of action would be?".* Beckert and Bronk (2018) argues that in light of radical uncertainty, narratives are fundamental in not just decision-making processes, they also have a performative quality in the sense that they in themselves constrains and enables imagined futures.

As exemplified by Blyth (2002), there are cases in which our ideas not just form our expectations but also the outcomes of certain processes which is especially true in the social world. In economics, actors' expectations necessarily influence the outcome and fluctuation of markets. Mackenzie (2006) has demonstrated convincingly how financial models shapes market fluctuations, outcomes, and crises and therefore puts the finger on the performative effects of financial models as engines rather than a cameras. The concept of uncertainty provides yet another curtailment of rational actors since uncertainty about one's immediate and long-term environment is a profound condition under which decision making in both economics and politics are made. The fundamental difference is not just that actors are

unclear what actions will lead them to a desired state, they are also necessarily unclear about what that desired state is, because uncertainty may obscure preferences and interests.

Narratives are thus not only grounds on which actors make decisions, they serve as grounds which may constitute the heuristic frames through which actors imagine future scenarios. They thereby also necessarily have an impact in the construction of interests and outcomes through the coordination of fictional expectations. Beckert (2016: 62) conceives of fictional expectations as *"imaginaries of future states of the world and of causal relations that inform actors' decisions"* and also refers to the symbolic qualities that actors ascribe to goods which transcends material features. So symbolically ascribed qualities of goods serve as interpretative frames through which actors make decisions through reducing uncertainty. Policy narratives may therefore reduce decision-making anxiety and replace it with fictional expectations providing guidance and frames for decision-making.

Narratives in public policy

From a public policy perspective, narratives are socially constructed stories which embodies a temporal sequence, a plot, and a solution (Blum and Kuhlmann, 2019, McBeth et al, 2014). While narratives in public policy is a rather distinct field, it can be conceived as one of the approaches under political science ideational scholarship (Blyth, 2002, Schmidt, 2010; Parsons, 2002). Jones and McBeth (2010) argues that emergent narrative scholarship has drawn important and central cues from poststructuralist scholars such as Hajer (1993; 1995), Fischer and Forrester (1993), Roe (1994) and Stone (2012). Such cues include philosophical orientation towards social constructivism as well as methodological ones' – whereby narrations in public policy are acknowledged as important empirical artefacts. Acknowledging that the epistemological status of narratives in public policy studies is target for a wide scholarly discussion – especially the Narrative Policy Framework (NPF) (see Jones and Radaelli 2015a; 2015B, Dodge, 2015, Schubert, 2015; Miller 2015, Lejano 2015), the current article should not be regarded an insertion to this debate. A philosophical and methodological pluralism is rather encouraged and applauded in the spirit of pragmatism.

Narratives are important because they convey meaning. Czarniawska (2004) argues that an enacted narrative may be conceived as the most typical form of life. Understood in the broad sense, myths, traditions, as well as what we call our common knowledge is often

conveyed in a narrative form. Stone (2012: 158) asserts that *"narrative stories are the principal means of defining and contesting policy problems"* and argues that we do not necessarily think of policy as literature, yet they have a narrative structure with a beginning and a middle, heroes, villains, and morale's. According to Stone (2012), public policy is made under uncertain and paradoxical situations, yet embodies a rationality through its assertive discourse. It may be argued that public policy always aims to frame itself as "the rational choice" and thereby through framing processes obscure the underlying values and ideas that underwrites policy choices. Vaara et al (2010) makes this painfully obvious in showing how City strategies rely on meta-level tautologies to establish its own legitimacy. They show that strategy texts themselves create their own legitimacy through self-authorization i.e. – "strategy is a central tool for leading a city" (p. 690).

In an important contribution to the narrative scholarship within EU studies, Radaelli (1999) concludes that policy narratives in themselves are linked to broader political dynamics. They have the potential to set the agenda and direct attention as well as to blow new life into old political questions through a new "framing". In another important contribution, Radaelli et al. (2013) emphasizes how the European bureaucracy 1) projects itself and narrates its own identity through the use of narratives as well as 2) enhance the plausibility, acceptability, and legitimacy of policy proposals. The Commission thus uses in this case Impact assessments to establish EU norms and values, create consensus around policy proposals using causal plots, doomsday scenarios and narrative dramatization (Radaelli et al., 2013).

Narratives in European scholarship has also recently been emphasized in a special issue in Journal of Contemporary European Studies (JCES). In the introduction to this special issue, García (2017) draws on contemporary narrative scholarship within EU-studies and advocates a "narrative turn" in European studies as an emerging and increasingly relevant part of EU studies. García argues that this recent surge in narrative studies may be understood towards the backdrop of the scholarly debate of a common identity and the Habermasian discussion of a public sphere and a European identity. Referring to a quote by Jacques Delors; no one falls in love with a single market, suggests that the EU needs "something else" than the common market in order to attract the hearts and minds of Europeans (García, 2017: 285). In this sense, European policies may also be understood as partly identity constructing phenomena. This article recognizes the importance of such

contributions. As narratives may follow as a response to uncertainty, setting up "fictional expectations" (Beckert, 2016) it may also indeed serve the purpose of constructing identities and as well as "coalition building" (Blyth, 2002).

AI uncertainty and narratives

As the scale and application of AI technologies only burgeoning, it is not possible to know for certain what the AI contribution to society will be. As Brynjolfsson & Mitchell (2017: 1) puts it, *"there is no widely shared agreement on the tasks where ML [machine learning] systems excel, and thus little agreement on the specific expected impacts on the workforce and on the economy more broadly"*. In 2019 alone, the Brookings institution published two reports with diametrically opposite conclusions on which labor groups mainly would be affected and perhaps ultimately replaced by AI applications (Muro et al, 2019a; 2019b). While it is common ground to conceive of AI as bring about a technological transformation of both society as well as science (Harari, 2017; Appenzeller, 2019) we may conclude that the scope and depth of such a transformation remains largely unknown. Here we note a difference between expectations and actual technological developments. As noted by Jasanoff and Kim (2009), sociotechnical imaginaries are necessarily imbued with implicit understandings of what is good and desirable and how technology can meet the public needs.

Within AI, the concept of a digital revolution has been voiced by many but one of the most central of narratives is perhaps that of the *fourth industrial revolution*, popularized by Klaus Schwab, chairman of the World Economic Forum (WEF) in his 2016 in a book as well as a chronicle in Foreign affairs, both titled "The fourth industrial revolution" (Schwab, 2015; 2016). The underlying narrative is the following: *"We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before"* (Schwab, 2015). Drawing on parables from earlier industrial revolution such as the development of the steam engine or electricity, the narrative is explicitly saying that we are facing something in the imminent future which we need to adapt towards and that AI is a central technology of this revolution (Schwab 2016).

Schwab (2016) refers to a societal paradigm shift and that governments and institutions such as education, healthcare and transportation are all being reshaped (p 7) and argues that even though there is an amount of uncertainty towards how these developments takes place, governments, business, academia and civil society needs to work together in order to better understand such emerging trends (p. 8). Schwab underlines a collective future and that a shared understanding is critical in shaping a future which reflects common objectives and values. The intensity of the current developmental trends are according to Schwab unprecedented, but, he argues "*decisionmakers are too often caught in traditional, linear (and non-disruptive) thinking or too absorbed by immediate concerns to think strategically about the forces of disruption and innovation shaping our future". (p 8).* Recognising a certain amount of risk, AI systems of advanced computer reasoning and applications can by and large lead to massive efficiency gains but will also perhaps disruptively transform and rearrange many of the current sectors (Schwab 2016). The underlying contemporary notion that AI on a massive scale will transform our societies often explained by a particular set of conditions. Schwab conceptualizes them as 1) velocity – exponential pace of development combined with global interconnectedness, 2) Breadth and depth – unprecedented paradigm shifts, and 3) systems impact – it involves the transformation of entire systems across and within countries, companies, industries and society as a whole (Schwab, 2016).

There are indeed external developments that might suggest such a transformative change such as an increase in sophistication when it comes AI statistical and probabilistic models (Perrault et al 2019). As the scientific field of AI has experienced both booms and busts in terms of research and development funding since the 1950s, Cath et al. (2018) argues that the current renewed interest in AI is more likely not to be fleeting due to four self-reinforcing trends; ever more sophisticated statistical and probabilistic methods; the availability of increasingly large amounts of data; the accessibility of cheap, enormous computational power; and the transformation of ever more places into IT-friendly environments (e.g. domotics, and smart cities) (p. 506). This not only explains the renewed interest but should also grant that this time it is more than a fad (Cath et al 2018).

However, the uncertainty regarding AI's development and use is undeniably a fundamental condition. How political actors build capacity for adopting new technologies such has impact on technological adoption. Borrowing the notion of fundamental

uncertainty from Schumpeter (1943) and Shackle (1972) there is no getting around the fact that it is unclear exactly how it will play out in the future, making all future AI prospects uncertain. Arguably, this leads to two processes. Firstly, that the AI concept will have a particular stretchability which provides the basis for rather wide fictional expectations and narratives painted with a broad brush. Secondly, that actors' preferences may be more confusing and therefore perhaps more impressionable than in any other comparable policy area.

Towards a "narrative governance"

As is commonly suggested in the literature, previous hierarchical bureaucratic, state and nation centered structures of "government" has given way to more decentralized, network and market-oriented ways of steering. As noted by Bevir (2012) the rapid spread of the concept governance is both related to new forms of conceptualizing and analysing the world, but also due to the fact that the world also has changed. Governance thus refers to a more general process of governing whether it is a tribe, a state a family, a market – it focuses rather on the processes and practices of how governance occurs rather than the state and its institutions (Bevir, 2012).

Few dispute that the world itself has changed making what is being governed more complex, turbulent and uncertain, thereby also making governance decentralized (Ansell, 2017) relying on a governance which is more network and market based (Salamon, 2002). However, as Bevir (2012) has noticed, despite the fact that this new notion of governance is a rather commonplace conceptualization, old ideas die slowly and many still associate governing with presidents and legislatures. In this article, governance is conceived as a broad concept which refers to the processes through which actors organize and coordinate action (Bevir, 2012).

Summarily, we conceive of narratives as socially constructed temporal stories in public policy which embodies a morale, a desired state, a problem as well as a solution. Narratives are important in understanding the shaping of political actors expectations and thereby also interests in political contexts but arguably also has a specific bearing towards the emerging policy area of AI due to its "exceptional uncertainty". As narratives may influence political actor's interests and expectations, they embody a distinct form of ideational power whereby they may define political actors ideas and instill a certain logic of

appropriateness. Narratives are also seen as a natural response from actors, acting under conditions of uncertainty. Fundamental uncertainty within decision and policymaking means that socially constructed narratives. – while they may structure actors' ideas, and work as a "path shaping" phenomena – cannot be understood solely on the basis of irrational/rational. Uncertainty in decision making posits that future-oriented narratives per se embody an amount of fictionality due to the simple axiomatic principle that we do not yet know the future (Schackle, 1972). We may also assume that policy texts steer actors through instilling a sense of rationality. As already argued, due to uncertainty, interests are obscured, especially so in the relation to emerging AI technologies – so we conceptualize narratives regarding AI as partly fictional. Focusing on the structuring of shared expectations, path-shaping, influencing of ideational context and promotion of "appropriate" policy choices leads us to expect that emerging AI narratives may be understood as a modern form of narrative governance. A governance which is necessarily flexible since it promotes overall governance principles, but still instills a sense of urgency and coordination for political actors.

Case analysis and methodology

The following sections outlines the article's methodology and data analysis. As alluded to in the previous section, there are rather diverse epistemological debates when it comes to ideas and narratives within political life. Submitting to an interpretative research tradition (Bevir and Rhodes, 2016), this paper facilitates a theoretically informed policy analysis of existing policy documents focusing on how the European Commission utilizes narratives as instruments of governance within public policy. Firstly, the selection of the case is outlined. Secondly, some methodological principles are outlined which will show more concretely how policy texts are read and analysed.

Case selection: European Commission AI policy

The European Council was early with recommending "*To successfully build a Digital Europe, the EU needs in particular […] a sense of urgency to address emerging trends: this includes*

issues such as artificial intelligence and blockchain technologies" and invited the Commission do put forward a coordinated plan by 2018 (EUCO: 2017). Chronologically the European Commission started addressing the emerging policy area in 2018 with one communication which developed in a coordinated plan the same year. In 2019 the Independent High Level Expert Group on AI (AIHLEG) presented two policy papers and in 2020 the Commissions White paper was issued.

The European Commission is conceived as a central policy entrepreneur (cf. Kingdon, 1995) in European politics. Even if the Commission has limited amounts of power to determine national policy agendas in all areas, the novel and emerging policy area of AI policy is arguably different. Due to the uncertainty regarding AI, this presents a window of opportunity for the European commission to set the agenda at a European level both to steer such processes through overarching governance principles. Important to note is that the data analysis is not interested into what extent the Commission is successful in coordinating a common European AI policy, but is rather interested in the narrative mechanisms which are present in the commission's policymaking. The overarching question is therefore "how" AI policymaking can be conceived as a governance through narratives rather than to what extent this line of governance is successful. It should furthermore be stressed that this largely is a paper driving a largely theoretical argument on a rather modest empirical base. The argument would be strengthened through more robust empirical probes but the main focus of the article is rather placed in the construction and application of a novel theoretical framework and suggest avenues for further research.

The policy analysis is conducted on five policy documents which all are addressed towards the whole of the European union and may therefore be conceived as central and influential documents. The current reading is not specifically Interested in certain technical details in policy documents. The analysis is rather focused on excerpts which embody a "narrative density" and aims to see how a utilization of narratives may be conceived as occasions of coordination and governance. Table 1 outlines the analysed policy documents:

Name of documents	Year
Communication: Artificial intelligence for Europe	2018
Coordinated plan on artificial intelligence for Europe	2018
Ethics guidelines for trustworthy AI (AIHLEG)	2019
Policy and investment recommendations	2019
WHITE PAPER: On Artificial Intelligence - A European approach to excellence and trust	2020

Explanation and deconstruction of policy texts

Interpretative policy analysis is carried out through reading policy text through an interpretative lens. The lens is influenced by the theoretical framework presented above but also inspired by Paul Hernadi's triad. Hernadi developed a triad through which analyses three different ways of reading a text; explication, explanation and exploration. While explanation is concerned with reproductive translation of a text; "what does this text say?" explanation puts the reader above the text and concerns itself with inferential detection asking the question 'why does the text say what it does?'. This is the kind of analysis that is conducted in this article (Czarniawska, 2004).

An explanation of policy text does not read the policy text "naively" – taking it word for word. It rather interprets the words rather as symbols of meaning which conveys certain values or inherent rationales. Narratives are therefore the focal points of our analysis and through a semiotic reading of the narratives that we can find the underlying policy rationale which "explains" the text through a critical stance. The critical reader has been advocated by perhaps most successfully by Laclau and Mouffe (1985) to be able to deconstruct hidden meanings and ideologies. The current contribution does however not assume that ideology is the focal point from which the power of the text emanates. By focusing on the employment of narratives, the policy text are understood as occasions of internal and internal coordination through structuring of expectations. The main reason for adopting certain narratives and ideas is therefore to reduce uncertainty regarding phenomena by supplementing facts with imaginaries creating fictional expectations (Beckert and Bronk, 2018).

Limitations

The analysis in this specific instance is theoretically rich in that it assumes the presence of certain narrative constructions and seeks in the policy text to underline such narrative uses. As there is a risk of confirmation bias, it is important to note that the current reading of the text is indeed one of many readings of the text and makes no claim of objectivity in the strict sense. The contribution should rather be regarded with relevance to its pragmatic effects and the reader of the current text must therefore decide themselves whether the proposed framework might prove useful to the extent that it might yield further interesting research questions. The reason for including only a small amount of policy documents is to exemplify narrative uses in policy rather than to examine its extent.

Furthermore, the case at hand may provide a most likely case in which a narrative governance may be relevant. Firstly, AI is a novel policy area with an emerging and hard to grasp technology. Lacking any path dependency and the fact that AI is a "stretchable" concept, might lead to especially vivid accounts of narrative public policy which are not likely to fly in any other context. Concomitantly, the novelty and elusive nature of the AI concept might make actors especially susceptible to narratives due to the already conceptualised uncertainty.

Empirical analysis

The current section is structured according to the findings of specific narratives in the commissions AI policy which shows a specific narrative density, as well as discursively embodies some form of structuration or coordination aspects. The section is structured around three years of AI policy formation, the Commission's communication and coordinated plan in 2018, The AIHLEG's two policy deliverables in 2019, and the White paper issued in 2020. These years are not expected to yield differing results but is taken together the first three years and the five most central documents of the Commissions policymaking on AI.

The Commission communication and coordinated plan (2018)

In April 2018, the Commission issued a communication on AI which can be interpreted as a signal that an issue needs addressing. 2018 also saw the establishment of the High level expert group on AI as well as the coordinated plan released in October. The coordinated plan builds on the Communication from earlier the same year. One of the most central aspects of narratives in policymaking is that narratives construct shared imaginaries through fictional expectations, which creates imperatives for political actors. A central feature of this is through what Jens Beckert (2016) calls ascribing of symbolic qualities towards goods which necessarily transcends their concrete material constitution. Such coordination help to structure political actors expectations in the AI sphere – expectations which then arguably serves as grounds for decision making. This is something which is found to be very common in the Commissions policymaking and is exemplified below in the excerpt from the Communication;

> *"Like the steam engine or electricity in the past, AI is transforming our world, our society and our industry. Growth in computing power, availability of data and progress in algorithms have turned AI into one of the most strategic technologies of the 21st century. The stakes could not be higher. The way we approach AI will define the world we live in. Amid fierce global competition, a solid European framework is needed.* (European Commission 2018a: 1)

The above quote is an example of a narrative which is common in EU policymaking. The quote is an example of how AI is being narrated as the hero in a story about the world. The temporality of the narrative suggests that AI is already changing the world in various ways and that it increasingly will do so. Saying that AI will "define the world" also paints with a rather broad narrative brush regarding how AI will influence they years to come. The excerpt shows that the commission ascribes rather disruptive symbolic qualities towards AI technology and instills in actors a sense of urgency towards addressing this technology. It may be understood that if actors do not address this emerging technology, they will miss out and perhaps thereby also be considered to "lag behind" technological development. This may be interpreted as the aim of establishing a norm of acting upon AI – the narrative thus constructs a logic of appropriateness. The next quote is from the same policy document from the Commission:

> *The European Union (EU) should have a coordinated approach to make the most of the opportunities offered by AI and to address the new challenges that it brings. The EU can lead the way in developing and using AI for good and for all, building on its values and its strengths. […] This is how the EU can make a difference – and be the champion of an approach to AI that benefits people and society as a whole.* (European Commission 2018a: 2)

The above quote utilizes narration to suggests a causal link between A) a coordinated policy approach and B) making the most of opportunities offered by this emerging technology, which may be interpreted as a sort of tautological narrative self-authorization of policy. The narrative says that that a specific type of policy is needed to accomplish a goal (i.e. policy referring to more policy). This narrative also instills political actors to coordinate their AI action as well as suggests that the EU should be the natural focal point or coordination hub. The latter part of the excerpt also suggests a narrative approach suggests a foundational value-based approach towards AI in the EU as well as posits the EU as a champion for who benefits "people and society as a whole". This may be interpreted as an overarching governance principle designed by the Commission.

> *"Artificial Intelligence (AI) can help us address some of the world's biggest challenges. It can enable doctors to improve diagnoses and develop therapies for diseases for which none exist yet; it can reduce energy consumption by optimising resources; it can contribute to a cleaner environment by lessening the need for pesticides; it can help improve weather prediction and anticipate disasters; and so on. The list is virtually endless. AI will be the main driver of economic and productivity growth and will contribute to the sustainability and viability of the industrial base in Europe. Like the steam engine or electricity in the past, AI is transforming the world."* (European Commission 2018b: 1)

The above quote is taken from the European Commission coordinated plan from the autumn of 2018. The above narrative regarding the potential for AI is a typical example of a more grandiose account of public policy. The paragraph is also a very clear example of what Jens

Beckert (2016) calls ascribing symbolic qualities which transcends the immediate existence of an artefact. In the above excerpt, AI is ascribed symbolic qualities and suggested to be some sort of silver bullet within societal development. This itself should instill a sense of urgency towards harnessing AI technology. Furthermore, saying that AI *will* be the main driver for economic development may be seen as an occasion of structuring actors' expectations as well reducing potential uncertainty regarding AI technologies. The policy text does not suggest that this is one of possible scenarios, it suggests that this is what actually will happen. Such a narrative construction may be interpreted as a rather assertive discursive construction, especially considering the "exceptional" uncertainty regarding AI technology described in the theoretical framework.

The deliverables of the high level expert group on AI (2019)

Another policy effort set up by the Commission was the establishment of an Independent High Level expert group on AI (AIHLEG) in which with concrete goals such as delivering policy proposals (European Commission 2021). The policy proposals was published in 2019 and includes one *Policy and investment recommendations* as well as a recommendation called *Ethics guidelines for trustworthy AI.* In the below quote from the ethics guidelines, the AIHLEG narrates AI as “third wave” of digitalization in the backwash of network technology adoption and big data:

> *“Europe is entering the third way of digitalization […] The third wave is characterised by the adoption of AI which, on average, could boost growth in European economic activity by close to 20% by 2030. In turn, this will create a foundation for a higher quality of life, new employment opportunities, better services, as well as new and more sustainable business models and opportunities.”* (AIHLEG, 2019b: 6-7).

Hereby we also see a narrative which is future oriented as well as well in line with structuring of expectations. The adoption of AI technology could lead to a 20% increase in European economic activity. It is also clear here that economic growth is considered a driver for quality of life, employment opportunities as well as sustainable business models. As Stone (2012) argues that policy necessarily obscures underlying values which underwrites

public policy. The implicit causal belief here seem to be that AI boost the economy and that the economy is the foundation for a better society.

Positioning EU against the backdrop of China and the United states, the document continues on outlining policy and investment recommendations towards member states in the EU towards addressing the "AI issue". Building on a more holistic vision than the United States or China, the policy document suggests a more concretely trustworthy application of AI. The benefits and value of AI is hereby also apparent but with a caveat; that risks of the technology has to be minimized (AIHLEG, 2019).

> *We believe that AI has the potential to significantly transform society. AI is not an end in itself, but rather a promising means to increase human flourishing, thereby enhancing individual and societal well-being and the common good, as well as bringing progress and innovation. In particular, AI systems can help to facilitate the achievement of the UN's Sustainable Development Goals, such as promoting gender balance and tackling climate change, rationalising our use of natural resources, enhancing our health, mobility and production processes, and supporting how we monitor progress against sustainability and social cohesion indicators.* (AIHLEG 2019a: 4)

Ascribing of symbolic qualities of AI which go beyond AI's immediate constitution is also here apparent by saying that it is "a promising means to increase human flourishing". The above quote may be interpreted as seeing AI as a panacea or a silver bullet. It structures expectations by outlining a range of desired future scenarios and ties the AI concept towards these desired states. If AI has the potential that it is ascribed to in the above quote, then it seems rational to invest in its uptake, direct industrial as well as research and development related investments towards AI.

> *In a context of rapid technological change, we believe it is essential that trust remains the bedrock of societies, communities, economies and sustainable development. We therefore identify Trustworthy AI as our foundational ambition, since human beings and communities will only be able to have confidence in the technology's*

> *development and its applications when a clear and comprehensive framework for achieving its trustworthiness is in place.* (AIHLEG 2019a: 4)

The policy and investment recommendations suggest trust to be the foundation and sets up the governance principle of trustworthy AI. The ethics guidelines suggests that trustworthy AI is lawful, ethical and robust. This governance principle will be expanded upon in the Commissions White paper from 2020.

The European Commission white paper on AI (2020)

The White paper was released in February 2020 and was supposed to further commit to a common European approach to AI, building on trustworthy AI as suggested by the high-level expert group. The name of the paper is *On Artificial Intelligence – A European approach to excellence and trust.* The production of a coordinated AI approach was also specifically addressed in Margarete Vestager's mission letter as the von der Leyen Commission was formed as a priority (European Commission, 2019c: 5). As previous examined documents, we will hereby focus on the narrative quality of the white paper, of excerpts that both show narrative density as well as excerpts that may be interpreted along the lines of coordination and structuring of expectations. The introductory paragraph of the White paper reads as follows:

> *"Artificial Intelligence is developing fast. It will change our lives by improving healthcare (e.g. making diagnosis more precise, enabling better prevention of diseases), increasing the efficiency of farming, contributing to climate change mitigation and adaptation, improving the efficiency of production systems through predictive maintenance, increasing the security of Europeans, and in many other ways that we can only begin to imagine. At the same time, Artificial Intelligence (AI) entails a number of potential risks, such as opaque decision-making, gender-based or other kinds of discrimination, intrusion in our private lives or being used for criminal purposes"* (European Commission, 2020: 1).

As the communication, the coordinated plan and the two policy proposals by AIHLEG, the broad strokes narrative about how AI will affect society is also noted in the White paper. The

excerpt embodies the narrative that AI embodies a multi-sectoral potential and that it is therefore it is a key future technology. What we though see in this document is that AI also entails some sort of risk as well. It seems evident in the above quote that AI is a force multiplier in a sense which can be used for both "good" as well as "bad". The two following excerpts from the White paper introductory text shows on a clearer narrative positioning.

> *"Simply put, AI is a collection of technologies that combine data, algorithms and computing power. Advances in computing and the increasing availability of data are therefore key drivers of the current upsurge of AI. Europe can combine its technological and industrial strengths with a high-quality digital infrastructure and a regulatory framework based on its fundamental values to become a global leader in innovation in the data economy and its applications as set out in the European data strategy. On that basis, it can develop an AI ecosystem that brings the benefits of the technology to the whole of European society and economy"* (European Commission, 2020: 2).
>
> *"A common European approach to AI is necessary to reach sufficient scale and avoid the fragmentation of the single market. The introduction of national initiatives risks to endanger legal certainty, to weaken citizens' trust and to prevent the emergence of a dynamic European industry. "* (European Commission, 2020: 2).

The above quotes show a how the commission utilizes narratives in order to position themselves more concretely within Europe but also within the global policy sphere. By suggesting that the EU can become a global leader if policy framework and technological and industrial strengths are coordinated, it also fosters a common identity, as suggested by García (2017). The second quote above is specifically interesting since it clearly discourages national initiatives and frames such policy efforts as clearly contradictory to a common European approach. It also suggests that it is necessary to reach the sufficient scale of AI efforts.

Summary of policy analysis

Summarily, it is found that the Commission utilizes narratives in a variety of ways. The

Commission uses narratives in order to structure actors' preferences and expectations, to instill a sense of urgency, to position themselves geopolitically, and to tautologically self-authorize the policy in itself. If we view of governance as efforts and processes which aim towards structuring and coordinating other actors, the above noted narrative uses may very well be interpreted through such a lens. The narrative use of the Commission can be described as rather broad, graphic and future oriented. Narratives that emanate from the Commission in the AI policy may have the power to steer decision making in specific directions through reducing uncertainty regarding future technological developments and replace them with guiding frames.

Conclusions

While we may deduct that the Commission uses narratives as differing ways of sending signals and conducting governance, important questions remain. As this article suggested to analyse *how* narratives may function and suggests motivations to *why* actors may employ them, we are still relatively unclear as to what extent they actually do structure actors in within decision-making and policymaking contexts. However, the main contribution of this article is theoretical and suggests a thorough sociologically grounded understanding of narratives in public policy. In that sense, the empirical case of this research has to be expanded in order to strengthen or straight up reject the developed conceptual framework.

Despite the "exceptional uncertainty" of AI technologies as argued in the theoretical section, the Commission's narratives showed here does not reflect this uncertainty. AI is ascribed certain characteristics, imbued with certain values and causally emplotted as a certainty – that AI *will* transform society and lead to certain "desired futures". This uncovers a discrepancy between how the paper theoretically conceptualizes AI and the narrative use of AI by the Commission. This is one of the reasons as to why we may be helped with a deeper and more sociological understanding of narratives. They may serve as inherently uncertainty reducing phenomena – both externally – coordinating actors – but also for structuring of internal expectations and coordination. While contemporary grandiose policy narratives on AI may spur a critical reading of policy due to the extensive use of silver bullet narratives and contemporary buzzwords. The analytical framework forces us to reconsider

such grandiose and uncertainty reductive narratives to consider them as rather pragmatically oriented governance mechanisms. In such a sense, the ideational power being wielded through the utilization of narratives may be understood as a distinct form of governance – not as "soft policy" as is commonly suggested. The extent to which this mode of governance is successful may also be determined by establishing how such narratives may translate to other political actors.

The article goes beyond narratives as a rhetorical construction of "strategies" or tools to achieve a specific policy goal. A narrative governance suggests a governance through structuring of expectations. When expectations are structured, coordinated actions may follow. In uncertain environments actors interests are necessarily obscured and in order to make decisions about the future, actors has to rely on narratives. In that sense the current article takes a step away from the NPF for example, in which actors are perceived to be boundedly rational and embody biases (Simon, 1976; Kahneman and Tversky, 2000). Building on the theorization made by Beckert (2016), Beckert and Bronk (2018) and Blyth (2002) regarding *uncertainty*, this article suggests that narratives represents something more profound about how actors process information and make decisions. In an uncertain world, one's interests are obscured and should be understood as "perceived" rather than "real" (Hay, 2011). This account differs from the NPF in that it does not interpret narratives as rhetorical strategies that actors may implement in order to achieve preordained goals or satisfice policy agendas. The way in which narratives structure actors is on a more fundamental level. Narratives should therefore be understood just as much as internal coordinating efforts or sensemaking efforts by actors in the political sphere. Narrative governance makes such decisions by substituting uncertain environments with pre-defined causal stories with an imbued course of action. For example; coordinate your AI policy with the EU and reap the benefits of the technological revolution. In that sense, narratives is the principal means through which actors overcome uncertainty and make decisions.

Moreover, if narratives achieve the status of norms they may profoundly bias policy- and decision-making processes. As Blyth (2002) points out rather convincingly; the movement of planets in the solar system is not effected to any extent by the ideas which we possess about them. But the ideas that we possess about the economy clearly influences the economy since the economy is the aggregated result of an amount of actors and their economic decisions. The same may be said for the social or the political sphere where our

ideas will affect political processes and outcomes. As Jasanoff an Kim (2009) suggests, visions and narratives may have important distributionary effects towards how different types of technologies are adopted and bankrolled.

On a basic level, this article applauds a burgeoning interest of the utilization of narratives, especially within EU studies. As uncertainty reduction phenomena, grandiose narratives may be ascribed a more concrete and practical use than the "assemblage of buzzwords" which may spur a renewed interest towards understanding the role of narratives within public policy. As already suggested, emerging technology policy may be the most likely case to embody such "grandiose stories", but other policy narratives may also be understood through such a theoretical lens. If we empirically can establish links between enacted policy narratives and actors reasoning and decision-making, more concrete claims can be made regarding the general influence of narratives on political decision-making processes. It may, however, prove a scientific challenge to more clearly isolate the independent variables from other forms of social norms and influence. In any case, further research both theoretical and empirical is needed.

Further research

As the studied case is empirically suggestive, more research is indeed needed in order to strengthen or reject the general thrust of the argument. Further research might ask to what extent or how the Commission spreads its narratives in other channels than in the written words such as in oral communications or stakeholder meetings. Further research might also explore to what extent other actors such as member states employ the Commissions' frames – whether they are employed only symbolically (superficially) or whether political actors fundamentally alter behavior and build fundamental capacity motivated by suggested AI narratives. It may further be of interest to pursue interviews with both policymakers and stakeholders to explore their interpretation of policies which may either strengthen or reject the suggested heuristic frame.

One avenue for further research as argued by Miller (2012) suggests a postmodern understanding of the phenomenon of governing narratives, highlighting the construction of meaning and values in public policy and ties it to social practice. It may also be interesting for public policy studies to further draw inspiration from STS scholarship as suggested by Dumoulin and Saurugger (2010). As all societal interaction becomes increasingly digitally

mediated, the narrative inscription of values, meanings and politics into artefacts (Winner 1986) becomes increasingly relevant even for scholars of political science to understand.

Bibliography

Ansell, C. K. , Trondal, J., Ögård, M. (2017). *Governance in turbulent times.* Oxford: Oxford University Press

Appenzeller T (2017) The AI revolution in science. *Science*, 7 July. Available at: https://www.sciencemag.org/news/2017/07/ai-revolution-science (accessed 8 March 2021).

Ash, S., Moore, P., Vesely, L., and Grossman, M. (2007). The Decline of Narrative Discourse in Alzheimer's Disease. *Brain and Language* 103: 181–82.

Beckert, J., and Bronk, R. (2019). Uncertain futures: Imaginaries, narratives, and calculation in the economy. Oxford University Press

Beckert, J. (2016). Imagined Futures: Fictional Expectations and Capitalist Dynamics. Cambridge, Mass: Harvard University Press.

Bevir, M., & In Rhodes, R. A. W. (2016) Interpretive political sience: mapping the field In Bevir, M., & In Rhodes, R. A. W. Routledge handbook of interpretive political science. Pp. 3-27

Bevir, M. (2012) Governance: A very short introduction. Oxford: Oxford University Press.

Blum, S., & Kuhlmann, J. (2019). Stories of how to give or take–towards a typology of social policy reform narratives. *Policy and Society*, *38*(3), 339–355.

Blyth, M. (2011) Ideas uncertainty and evolution, in Béland, D., & Cox, R. H. (eds) *Ideas and politics in social science research*. Oxford: Oxford University Press, pp. 83-103

Blyth M (2002) Great Transformations: The Rise and Decline of Embedded Liberalism. New York, NY: Cambridge University Press.

Brynjolfsson, E. and Mitchell, T. (2017) What can machine learning do? Workforce implications, *Science,* 358(6370) pp. 1530-1534 DOI: 10.1126/science.aap8062

Cath, C., Wachter, S., Mittelstadt, B. et al. (2018) Artificial Intelligence and the 'Good Society': the US, EU, and UK approach. *Sci Eng Ethics* 24, 505–528. https://doi.org/10.1007/s11948-017-9901-7

Czarniawska, B. (2004). *Narratives in social science research*. London: Sage.

Dodge, J (2015) Indication and inference: reflections on the challenge of mixing paradigms in the Narrative Policy Framework*, Critical Policy Studies*, 9(3), 361-367, DOI: 10.1080/19460171.2015.1075735

Dumoulin, L. & Saurugger, S. (2010). Les policy transfer studies : analyse critique et perspectives. *Critique internationale*, 3(3), 9-24. https://doi.org/10.3917/crii.048.0009

EUCO (2017) *European Council meeting (19 October 2017)* Available at: https://data.consilium.europa.eu/doc/document/ST-14-2017-INIT/en/pdf (accessed 17th Mary 2021)

European Commission (2018a) Artificial intelligence for Europe. Final, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. SWD(2018) 137 final, Brussels, 25.4.2018 Com 237.

European Commission (2018b) Coordinated plan on artificial intelligence for Europe. 795 Final, Annex to the Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. SWD(2018) 137 final, Brussels, 7.12.2018 Com.

European Commission (2021) *High level expert group on artificial intelligence.* Available at: https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai (accessed: June 8, 2021)

Fischer, J., and Forrester, F. (1993) *The argumentative turn in policy analysis and planning*. Durham, N.C: Duke University Press.

García, L. B. (2017) Introduction: a narrative turn in European studies, *Journal of Contemporary European Studies*, 25:3, 285-290, DOI: 10.1080/14782804.2017.1348341

Gerrig, R. J., and Egidi, G. (2003). Cognitive Psychological Foundations of Narrative Experiences. In *Narrative Theory and the Cognitive Sciences*, ed. David Herman. Stanford: CSLI Publications, 33–55.

Hajer, M. (1993) *Discourse Coalitions and the Institutionalization of Practice: The Case of Acid Rain in Great Britain* in Fischer, J., and Forrester, F. (1993) *The argumentative turn in policy analysis and planning*. Durham, N.C: Duke University Press. pp. 43-76

Hajer, M. (1995) *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. New York: Oxford University Press.

Harari YN (2017) Reboot for the AI revolution. *Nature* 550(7676): 324–327.

Hay, C. (2011) Ideas and the construction of interests, in Béland, D., & Cox, R. H. (eds) *Ideas and politics in social science research*. Oxford: Oxford University Press, pp. 65-82

High-Level Expert Group on Artificial Intelligence (2019) *Policy and investment recommendations for Trustworthy AI*. June, 2019. Available at: https://ec.europa.eu/digital-single-market/en/news/policyand-investment-

recommendations-trustworthy-artificial-intelligence (accessed 6th June 2021)

High-Level Expert Group on Artificial Intelligence (2019). Ethics guidelines for trustworthy AI. European Commission. Available at: https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai (accessed 10 June 2021)

Jasanoff, S., Kim, SH. (2009) Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea. *Minerva* 47, 119. https://doi.org/10.1007/s11024-009-9124-4

Jobin A, Ienca M and Vayena E (2019) The global landscape of AI ethics guidelines. *Nature Machine Intelligence* 1: 389–399.

Jones MD & Radaelli CM (2015) The Narrative Policy Framework: child or monster?, *Critical Policy Studies*, 9:3, 339-355, DOI: 10.1080/19460171.2015.1053959

Jones, M.D. and McBeth, M.K. (2010), A Narrative Policy Framework: Clear Enough to Be Wrong?. *Policy Studies Journal*, 38: 329-353. https://doi.org/10.1111/j.1541-0072.2010.00364.x

Kahneman, D., & Tversky, A. (Eds.). (2000). *Choices, Values, and Frames*. Cambridge: Cambridge University Press.

Kingdon, J. W. (1995). *Agendas, alternatives and public policies*. New York: HarperCollins.

Laclau, E., & Mouffe, C. (1985). *Hegemony & socialist strategy: Towards a radical democratic politics*. London: Verso.

Lyotard, J. F. (1979). *La condition postmoderne: rapport sur le savoir*. Paris: Minui

Lejano, R. P. (2015) Narrative disenchantment, *Critical Policy Studies*, 9:3, 368-371, DOI: 10.1080/19460171.2015.1075736

MacKenzie, D. (2006) *An Engine, Not a Camera: How Financial Models Shape Markets*. Cambridge, MA: MIT Press.

March, J. G. and Olsen, J. P. (1998). The institutional dynamics of international political orders. *International organization* 52(4):943-969.

Mattila, A. S. (2000). The Role of Narratives in the Advertising of Experiential Services. *Journal of Service Research* 3 (1): 35–45.

McBeth, M. K., Jones, M. D., & Shanahan, E. A. (2014) The Narrative Policy Framework. In P. A. Sabatier & C. M. Weible (Eds.) Theories of the policy process (3rd ed., pp. 225–266). Boulder, CO: Westview Press.

Miller, H. T. (2012). Governing narratives: Symbolic politics and policy change. Tuscaloosa, Ala: University of Alabama Press.

Miller, HT (2015) Scientism versus social constructionism in critical policy studies, Critical Policy Studies, 9:3, 356-360, DOI: 10.1080/19460171.2015.1075734

Muro, M., Whiton, J., Maxim, R. (2019a). *What jobs are affected by AI? Better-paid, better-educated workers face the most exposure*. Metropolitan Policy Program Brookings institution. November. Available at: https://www.brookings.edu/wp-content/uploads/2019/11/2019.11.20_BrookingsMetro_What-jobs-are-affected-by-AI_Report_Muro-Whiton-Maxim.pdf (accessed 11 February 2021)

Muro, M., Maxim, R., Whiton, J. (2019b). *Automation and artificial intelligence – how machines are affecting people and places.* Metropolitan Policy Program Brookings institution. January. Available at: https://www.brookings.edu/wp-content/uploads/2019/11/2019.11.20_BrookingsMetro_What-jobs-are-affected-by-AI_Report_Muro-Whiton-Maxim.pdf (accessed 11 February 2021)

Parsons, C. (2002) Showing ideas as causes: The origins of the European Union. *International Organization,* 56(1): 47–84.

Perrault R., Shoham Y., Brynjolfsson E., et al. (2019) *The AI Index 2019 Annual Report*, Stanford, CA: AI Index Steering Committee, Human-Centered AI Institute, Stanford University

Radaelli, C. (1999) Harmful tax competition in the EU: Policy narratives and advocacy coalitions, *Journal of Common Market Studies*, 37(4): 661-682.

Radaelli, C., Dunlop, C. & Fritsch, O. (2013) Narrating Impact Assessment in the European Union. *European Political Science,* 12, 500–521. https://doi.org/10.1057/eps.2013.26

Roe, E. (1994), Narrative Policy Analysis: Theory and Practice, Durham, NC: Duke University Press.

Salamon, L. M. (2002). *The Tools of Government: A Guide to the New Governance*. Oxford: Oxford University Press, USA.

Shackle, G. L. S. (1972). *Epistemics and economics: A critique of economic doctrines*. Cambridge, Mass: University.

Schattschneider, E.E. (1975) *The Semisovereign People: A Realist's View of Democracy in America*. Hinsdale, IL: Dryden Press.

Schmidt, V. A. (2010) Taking ideas and discourse seriously: Explaining change through

discursive institutionalism as the fourth 'new institutionalism'. *European Political Science Review* 2(1): 1–25.

Schubert, K. (2015) Comment on 'The Narrative Policy Framework: child or monster?', *Critical Policy Studies*, 9:3, 372-374, DOI: 10.1080/19460171.2015.1075742

Schumpeter, Joseph A. 1943 [1976]. Capitalism, Socialism and Democracy. London: Routledge.

Schwab, K. (2015) *The Fourth Industrial Revolution - What It Means and How to Respond*, *Foreign Affairs*, 12 December. Available at: https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution (accessed 17 May 2021)

Schwab K (2017) *The Fourth Industrial Revolution*. London: Penguin.

Shiller, R.J. (2017). *Narrative Economics*, American Economic Review, American Economic Association, vol. 107(4), pages 967-1004,

Simon H. A. (1976) *Administrative Behaviour: A Study of Decision-Making Processes in Administrative Organization*. New York, NY: Macmillan.

Stone, D. (2012) *Policy paradox: The art of political decision making* (3rd ed.). New York: W.W. Norton & Company.

Tuckett, D., & Nikolic, M. (2017). The role of conviction and narrative in decision-making under radical uncertainty. *Theory & Psychology*, 27(4), 501–523. https://doi.org/10.1177/0959354317713158

Vaara, E., Sorsa, V., and Pälli, P. (2010). On the force potential of strategy texts: A critical discourse analysis of a strategic plan and its power effects in a city organization. *Organization*, *17*(6), 685–702.

Winner, L. (1980) Do Artifacts Have Politics? *Daedalus*, 109(1), 1980, pp. 121–136. JSTOR, www.jstor.org/stable/20024652