

## **Institutional shifts and punctuated patterns in digital policy**

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### **Abstract**

While digital policies provide significant value within contemporary governance, not many governments' digital policies are adapted to rapidly changing technologies and associated expectations. The limited adaptability can be explained by government's focus on institutional shifts as an instrument to generate policy changes. Therefore, this article examines the impact of institutional shifts on digital policy by leveraging the Punctuated Equilibrium Theory as a lens to explore the Belgian federal government between 2000 and 2020. This is done through performing a distributional application of the Punctuated Equilibrium Theory and an explaining-outcome congruence case study. The results highlight the role of institutional shifts in directing digital policy, but also underscore the importance of other factors (i.e. policy image, attention allocation and/or structure of the political system) and the presence of policy entrepreneurs to explain the (in)stability of digital policy.

Keywords: institutional shift, digital policy, digital government, punctuated equilibrium theory, policy evolution, policy change

## **1. Introduction**

*“Let me start by pushing an open door: the digital revolution is disrupting every facet of our society.”* (Alexander De Croo, Belgian Minister of Digital Agenda, 2015<sup>1</sup>). As part of that society, governments feel the need to positively engage with digital technologies through digital policy (Peters, 2021; Roberts & Schmid, 2022). Digital policies focus on how governments leverage digital technologies in their internal processes. It shapes the institutional setting, the polity, in which policymaking regarding digital technologies takes place (S. Kuhlmann & Wollmann, 2011; Wollmann, 2003). This is distinct from policies that promote the general use of digital technologies in society (Meijer & Bekkers, 2015; Mergel et al., 2019). A strong digital policy can contribute to governments’ efficiency and effectiveness, citizen satisfaction, operational capacities, and budgetary performance (e.g. Bretschneider & Mergel, 2011; Mergel et al., 2018, 2019). Hence, many governments have heavily invested in strengthening and developing their digital policies over the past decades (e.g. Dunleavy et al., 2005). This, for example, has manifested in better regulation and an increase of budgetary allocation for digital policies (OECD, 2014; UN, 2020a).

However, despite these investments, some governments are still failing to adapt their digital policies to continuously changing technologies (European Commission, 2020, 2021a; OECD, 2020a). These governments do not have a digital policy geared to recent technologies and associated expectations such as being data driven and open by default (Bretschneider & Mergel, 2011; Klievink & Janssen, 2009; Weerakkody et al., 2011). For example, several initiatives to modernize governmental structures through Information and Communication Technologies did not yield the expected results (Di Giulio & Vecchi, 2022). The lack of such an adapted digital policy can have detrimental effects for the public sector. It can significantly decrease the level of a government’s agility, resilience and responsiveness (OECD, 2020b). The COVID-19 pandemic, for example, highlighted inequalities and exacerbated challenges facing governments unable to strategically use their digital policy (OECD, 2020a).

The limited flexibility to adapt digital policies to recent technologies can be explained by the fact that governments mostly turn to adjustments in the institutional setting to generate profound changes (Heintze & Bretschneider, 2000; Janssen & Estevez, 2013; Mergel et al., 2019). An institution can be seen as “an arena in which decisions regarding a certain issue are made” (Walgrave & Varone, 2008), consisting of formal actors that are interested in a common problem (Jennings et al., 2020; Peters, 2021; Wood, 2006). Thus, institutions give direction to the internal organization of governments (Lewis & Steinmo, 2012) and create the necessary frameworks for governments to effectively work with digital technologies (Di Giulio & Vecchi, 2022). It is therefore not illogical that both literature and practice attribute a crucial role to institutional shifts to adapt digital policy to new technologies (Cortell &

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<sup>1</sup> During the period from 2014 until 2019 Alexander De Croo was Deputy Prime Minister and Minister of Development Cooperation, Digital Agenda, Telecom and Postal Services in Belgium. As from 2020 onwards, he is the Belgian Prime Minister.

Peterson, 2001; Mergel, 2016, 2019). Afterall, an institutional shift is a “change in institutions with the authority to make decision regarding the issue” (Baumgartner & Jones, 2009; Pralle, 2003). The problem, however, is that the extent to which institutional shifts contribute to policy change is relatively unclear (see Cordella & Tempini, 2015; Nograšek & Vintar, 2014). Research on the mechanisms or conditions in which institutional shifts lead to change in digital policy remains somewhat scarce (Di Giulio & Vecchi, 2022). First, existing research usually focuses on the causes rather than the consequences of institutional shifts (e.g. Béland, 2009; Thelen & Conran, 2015). Second, said research mostly employs theoretical frameworks from within e-government literature instead of theories of the policy process (e.g. Cordella & Tempini, 2015; Nograšek & Vintar, 2014). Put together, it is not evident whether institutional shifts can adapt digital policies to rapidly changing technologies and expectations.

The aim of the article is therefore to address this gap by answering the question of “*How do institutional shifts impact digital policy?*”. We investigate the effect of an institutional shift on digital policy from an evolutionary perspective (Steinmo, 2003) by using the Punctuated Equilibrium Theory (PET) as a theoretical lens. The PET explains a policy process over time based on the alternation between periods of equilibrium and punctuation (John, 2003), which are respectively prompted by mechanisms of negative and positive feedback (Baumgartner & Jones, 2009). It distinguishes four explanatory factors that play a crucial role in (de)stabilizing the policy process (Baumgartner & Jones, 2009; Carter & Jacobs, 2013) through which policy entrepreneurs can also have an impact (Carter & Jacobs, 2013; True et al., 2007). Those are: policy image, institutional venue, attention allocation and structure of the political system. Thus, the PET allows us to investigate the impact of institutional shifts (or shifts in “venues”), by analyzing the underlying mechanisms of negative and positive feedback.

In this article, we analyze these underlying mechanisms in two steps. First, we explore which mechanisms (i.e. positive or negative feedback) occur during the analyzed period via a distributional application of the PET (e.g. Jones & Baumgartner, 2005). This is done through leveraging data from budgets, regulation and media coverage (Baumgartner et al., 2009; Yildirim, 2022). Second, we gain insights in the entities and activities engaging in the established mechanisms via an explaining-outcome congruence case-study (Beach & Pedersen, 2016; George & Bennett, 2005). This is done through using data from a document analysis and interviews with digital policy experts (Lune & Berg, 2017). In doing so, we are able to account for the plausible impact of institutional shifts on digital policy, however without making explicit causal claims (Beach & Pedersen, 2013, 2016; Tannenwald, 1999). The empirical setting for this analysis is the Belgian federal context between 2000 and 2020. The rationale for studying the Belgian federal government is instrumental (Stake, 1995). It is a multilevel architecture characterized by institutional reforms across various policy areas (Devos, 2021) and several digital policy initiatives (Danneels & Viaene, 2015; European Commission, 2019). Our results show that the Belgian digital policy between 2000 and 2020 followed a punctuated pattern with two periods of

punctuation and three institutional shifts. The results also demonstrate that institutional shifts do have an impact on digital policy but are not sufficient to explain its (in)stability. The findings suggest that attention allocation and structure of the political system play a decisive role in the (in)stability of Belgian digital policy, which differs from what we would expect based on previous applications of the PET (Baumgartner & Jones, 2009; J. Kuhlmann & van der Heijden, 2018).

In the next section we elaborate on the core tenets of the PET, construct our theoretical framework, and establish our theoretical expectations. In the methods section, we focus on the case-selection, outline analytical methods, and discuss our data-collection strategy. This is followed by our case analysis where we analyze the evolution of the Belgian digital policy to explore the presence of the mechanisms and examine the content of the established mechanisms to investigate the impact of institutional shifts on digital policy. Finally, we discuss our findings and their implications.

## **2. Punctuated Equilibrium Theory and digital policy**

As mentioned in the introduction, we approach the impact of institutional shifts on digital policy from a policy perspective by applying the Punctuated Equilibrium Theory. In this section, we begin by highlighting the key tenets of the theory and then proceed to establish our theoretical framework applied to the digital policy context.

### **2.1. Punctuated Equilibrium Theory (PET)**

The PET explains the policy process as a dual pattern of long periods of stability and continuity, interrupted by shorter periods of instability and profound change (Baumgartner & Jones, 2009; Cairney, 2013; Eissler et al., 2016; Lundgren et al., 2018; Princen, 2013). Behind this dual pattern, several mechanisms are at play (Baumgartner & Jones, 2009). In this article, we view a mechanism as a set of entities engaging in activities that allow us to understand what really occurs inside the ‘black box’ of certain social processes (Beach & Pedersen, 2016; Capano & Howlett, 2019). Mechanisms encompass the series of changes that occur between a beginning state and an end state (Capano & Howlett, 2019). The PET recognizes mechanisms of positive and negative feedback (J. Kuhlmann & van der Heijden, 2018). Positive feedback includes the phenomenon that even a small input can cascade into a major effect and thus lead to a punctuation (Baumgartner et al., 2018; Baumgartner & Jones, 2009; Jones & Baumgartner, 2012). Therefore a punctuation is a period of transformational policy change defined by the profound adjustments in the core of the policy that occur exceptionally and have a major impact (Breunig & Koski, 2006; Green-Pedersen & Princen, 2017; Howlett & Ramesh, 2009; Walgrave & Varone, 2008). Negative feedback maintains stability and equilibrium in a system because the marginal effects of investing diminishes (Baumgartner et al., 2018). The initial disturbance becomes smaller as it works its way through time (Baumgartner & Jones, 2009). Therefore, an equilibrium is a period of minor or intermediate policy changes defined by the limited to gradual adjustments aimed at preserving the

status quo (Breunig & Koski, 2006; Green-Pedersen & Princen, 2017; Howlett & Ramesh, 2009; Walgrave & Varone, 2008).

The PET identifies four key explanatory factors that play a central role in (de)stabilizing the policy process, and thus have an impact on the mechanisms of positive and negative feedback (Baumgartner & Jones, 2009; Carter & Jacobs, 2013; J. Kuhlmann & van der Heijden, 2018). First there is the policy image, the “*way in which an issue is framed and understood, and the discourse around it is constructed*” (Baumgartner & Jones 2009, pp. 7–8). Second are policy venues, the “*institutional locations where authoritative decisions are made*” (Baumgartner & Jones 2009, p. 32). The third factor is attention allocation since policymakers have only limited cognitive and temporal resources. This makes attention scarce and the allocation of attention crucial when it comes to policy changes (Jones & Baumgartner, 2012; J. Kuhlmann & van der Heijden, 2018). The fourth and final factor is the institutional structure of the political system because it has the potential to hamper changes via procedures and rules (Jones & Baumgartner, 2012; J. Kuhlmann & van der Heijden, 2018). Throughout all these factors, the role of policy entrepreneurs is interwoven. Policy entrepreneurs are actors who are considered drivers for change (Capano & Howlett, 2020; Mintrom & Norman, 2009). They are able to impact policy via the four factors (Jennings et al., 2020; Peters & Zittoun, 2016), to initiate a mechanism of feedback and thereby prompting change (Capano & Howlett, 2020). For example, policy entrepreneurs have more in-depth knowledge of certain policy issues and are therefore able to portray it in a simplified and favorable terms, influencing the image perceived by non-specialists (Baumgartner & Jones, 2009).

Taken together, the PET allows us to explain the evolution of a policy over time through the analysis of mechanisms of feedback, four potential explanatory factors and the role of policy entrepreneurs (Baumgartner & Jones, 2009; Desmarais, 2019; Green-Pedersen & Princen, 2017).

## **2.2. Digital policy**

Digital policy comprises a suite of policies focusing on how governments use digital technologies in their internal processes to shape the organization, management, processes and culture (Bretschneider & Mergel, 2011; Meijer & Bekkers, 2015; Mergel et al., 2019; Weerakkody et al., 2011). Digital technologies are defined as “the combination of information, computing, communication and connectivity technologies” (Gong et al., 2020; Vial, 2019). In other words, a digital policy shapes the polity, the organizational structure of governments (S. Kuhlmann & Wayenberg, 2016).

As the PET indicates, there are underlying mechanisms that can result in the continuation of an equilibrium (negative feedback) or in a punctuation (positive feedback). In this context, a punctuation resulting from a mechanism of positive feedback is described as an ICT-enabled transformational change of an internal process of a government (Klievink & Janssen, 2009; Mergel et al., 2019;

Weerakkody et al., 2011). Policy changes that do not fall under this definition are considered minor or intermediate, focusing on preserving the equilibrium via negative feedback (Baumgartner & Jones, 2009; Lundgren et al., 2018; Meijer & Bekkers, 2015; Princen, 2013). These changes are not just related to new technologies. They can also be about more abstract (e.g. policy plans, such as the policy memorandum of the responsible minister) and practical (e.g. public services, such as new ways for identification) elements of policy (Meijer & Bekkers, 2015; Mergel et al., 2019).

In contrast to the PET literature, the digital policy literature only addresses institutional shifts as a factor that plays a role in (de)stabilizing the policy process (Béland, 2009; Cortell & Peterson, 2001; Janssen & Estevez, 2013). The literature shows that governments mainly focus on the creation of new institutions in order to coordinate their digital agenda (Heintze & Bretschneider, 2000; Mergel, 2016, 2019) because these institutions create a necessary framework for adapting the internal governmental organization to new digital technologies (Di Giulio & Vecchi, 2022; Lewis & Steinmo, 2012). In other words, the evolution of a digital policy is characterized by shifts in institutions. The problem, however, is the uncertainty regarding the mechanisms resulting from institutional shifts and the necessary conditions for a successful digital policy (see Cordella & Tempini, 2015; Di Giulio & Vecchi, 2022; Nograšek & Vintar, 2014).

### **2.3. Theoretical framework**

By using the PET as a theoretical framework in this article, we can look for the impact of institutional shifts on digital policy through the analysis of mechanisms of positive and negative feedback, while also taking several conditions (i.e. change in policy image, attention allocation and/or structure of the political system) into account (e.g. Kuhlmann & Van der Heijden, 2018). The results contribute to the understanding of the factors that play a decisive role in digital policy change and thus enable governments to adapt their digital policy to rapidly changing technologies and expectations (Gong et al., 2020; Meijer & Bekkers, 2015). In addition, the analysis is also relevant for the PET. Although the PET already received ample empirical support across agendas, issues and nations, this application still adds to the understanding of the applicability of the theory (Princen et al., 2021; Yildirim, 2022). The PET has not been widely applied to policy domains related to the organizational structure of the government itself (polity) (Epp & Baumgartner, 2017).

Following the PET, we expect that an institutional shift will indeed have an impact on digital policy via mechanisms of positive or negative feedback (Baumgartner & Jones, 2009; Pralle, 2003). However, we do not expect that the institutional shifts are able to explain the (in)stability of the policy process on their own, since the PET is very explicit about the interaction and complementarity of the four factors (J. Kuhlmann & van der Heijden, 2018). For example, the theory states that if an institutional shift is accompanied by a change in the policy image, it will lead to a mechanism of positive feedback: “*The*

*interaction between changing images and venues of public policies leads precisely to the type of positive feedback as the cause of disequilibrium politics.” (Baumgartner & Jones, 2009, p. 25).*

### **3. Methodological framework**

In this section, we discuss our case-selection strategy and take a closer look at the methods and data we use to investigate the impact of institutional shifts on digital policy.

#### **3.1. Case selection**

The empirical setting of this study is the Belgian federal context between 2000 and 2020. The reason to focus on this setting follows an instrumental case selection strategy (Stake, 1995). The rationale behind choosing the Belgian federal government is motivated by the empirical space it creates for exploring the mechanisms of feedback and the factors potentially (de)stabilizing digital policy. First, the Belgian federal government is a multilevel architecture with strong institutional structures and institutional reforms across various policy areas (Devos, 2021). The country has undertaken several actions to use digital technologies, resulting in multiple digital policy initiatives (Danneels & Viaene, 2015; European Commission, 2019). Second, Belgium is a consociational partitocracy and has a different political system compared to the often researched American and Anglo-Saxon sphere (S. Kuhlmann & Wollmann, 2019; Walgrave & Varone, 2008). Despite several studies outside the American context, it still dominates the empirical applications of the PET (J. Kuhlmann & van der Heijden, 2018). By focusing on the Belgian context, we contribute to a more heterogeneous field of application. Finally, the Belgian federal context is also a setting many countries can identify with. It already *works* digitally through projects, but *is* not yet a “digital government” (European Commission, 2021b). In contrast with other European countries such as Denmark, Estonia, Finland or the Netherlands, Belgium is not a forerunner when it comes to digital policy (UN, 2020b). In addition to the empirical space, previous research (e.g. Baumgartner et al., 2009; Walgrave & Varone, 2008; Walgrave & Vliegenthart, 2010) also shows that Belgium is a valuable context for an application of the PET.

The decision to limit the longitudinal study to twenty years (i.e. from 2000 until 2020) is both empirical as well as practical. Empirically, e-government was only introduced in Belgium in 1997 and a coordinated approach to digital policy was not adopted until 2000 (Torfs et al., 2021). Practically, the time frame is also the result of the availability of data. For example, media reports can only be consulted on a structural basis from 1997 and budgets from 2000 onwards.

#### **3.2. Methods**

To investigate the impact of institutional shifts on digital policy, we analyze the underlying mechanisms of feedback in two steps. First, we explore which mechanisms (i.e. positive or negative feedback) occurred via a distributional application of the PET (e.g. Jones & Baumgartner, 2005) through

leveraging data from budgets, regulation and media coverage (Baumgartner et al., 2009; Yildirim, 2022). This allows us to map the evolution of digital policy by distinguishing periods of equilibrium (negative feedback) and punctuation (positive feedback) (Baumgartner & Jones, 2009; Howlett & Ramesh, 2009; Workman et al., 2022). Second, we gain insights in the content of the established mechanisms via an explaining-outcome congruence case-study (Beach & Pedersen, 2016; George & Bennett, 2005) through data from a document analysis and interviews with digital policy experts (Lune & Berg, 2017). This allows us to partially open the ‘black box’ and investigate the impact of institutional shifts on digital policy, without making causal claims.

### 3.2.1. Distributional application of the PET

This method was originally developed for budgetary research, but has been previously employed to investigate the evolution of policy changes as well (Epp & Baumgartner, 2017; Vannoni, 2018). Jones et al. (2003) were among the first policy scholars to apply the method to assess changes in U.S. government budgets, election results and stock market returns. Their application was later refined by Jones & Baumgartner (2005) and Baumgartner, Breunig and others (2009), especially to analyze changes in government budgets (J. Kuhlmann & van der Heijden, 2018).

To perform a distributional application, we calculate the change scores of the digital policy measures: media coverage, regulation and budgets (Workman et al., 2022). The change score is a representation of the degree in which something has changed compared to a previous period, here a calendar year (Baumgartner et al., 2017; Breunig & Koski, 2006, 2012; John & Bevan, 2012). It constitutes the foundation to map the evolution of a policy pattern via an analysis of its distribution because an incremental process is associated with a normal distribution (Mortensen, 2007), while a punctuated process is associated with a leptokurtic distribution (for example, see Baumgartner & Jones, 2009; Breunig & Jones, 2011; Jones & Baumgartner, 2005; Lundgren et al., 2018; Yildirim, 2022). The distributional application also enables us to gain insights into the periods of equilibrium and punctuation via a periodization of the heights (Hegelich et al., 2015; Jones & Baumgartner, 2005). Once those periods of equilibrium and punctuation are specified, we conduct a qualitative in-depth analysis (King et al., 1994) to complete the full test of the implications of the PET (Jones & Baumgartner 2012, p. 13). In other words, an analysis of the change scores makes it possible to map the evolution of the Belgian federal digital policy from 2000 until 2020. For a more detailed description of how we perform a distributional application of the PET, we refer to appendix I.

As measures for digital policy, we combine media coverage, regulation, and budgets. This differs from the traditional distributional applications of the PET which mainly only use budgets (Flink, 2017; J. Kuhlmann & van der Heijden, 2018; Mallinson, 2016). Such relatively higher focus on budgets can be considered as a restraint because of the limited capacity to comprehend the complexity of the policy



process and its minimal generalizability (J. Kuhlmann & van der Heijden, 2018; True et al., 2007; Weible & Sabatier, 2018). Therefore, we chose to combine media coverage, regulation, and budgets. It is a deliberate choice to not replace but to supplement budgets because the combination of measures obtains a greater chance of valid findings through triangulating data (Baumgartner et al., 2009; John & Bevan, 2012). Since each measure covers a successive stage of the policy process, it allows us to grasp the policy process (Baumgartner et al., 2009, 2018; Epp & Baumgartner, 2017; Yildirim, 2022). Media coverage addresses the input, regulation the process and budgets the outputs (Baumgartner et al., 2009). Taking budgets out would, for example, extend the likelihood of noise or enlarge the challenges for directionality (Epp & Baumgartner, 2017; Workman et al., 2022). How we addressed the measures and collected the data for the application, is discussed in appendix II.

### 3.2.2. Congruence case-study

By using the explaining-outcome congruence case-study method (Beach & Pedersen, 2016; George & Bennett, 2005), we investigate the mechanisms of feedback through which institutional shifts potentially impacted digital policy. First, we determine when institutions shifts occurred and thus possibly started a mechanism (Lewenson & Herrmann, 2007; Lune & Berg, 2017). Second, we look for mechanistic evidence that links the institutional shifts to the accompanied mechanism (Beach & Pedersen, 2016; Bennett & Checkel, 2015).

Mechanistic evidence is within-case evidence that allows to investigate the impact from one factor on another, but does not theorize about the relationship between both (Beach & Pedersen, 2016; Bennett & Checkel, 2015). Therefore, mechanistic evidence makes it possible to address what happened, without making causal claims (Beach & Pedersen, 2016; Tannenwald, 1999). The four types of mechanistic evidence are presented in Table 1. They are based on the principles of certainty and uniqueness. Certainty addresses whether the evidence is really necessary, while uniqueness addresses whether the evidence truly proves a certain argument (Beach & Pedersen, 2013). Here, we look for the “smoking gun” or “doubly decisive” type of evidence since we need high unique evidence to show whether institutional shifts can be linked to digital policy (Beach & Pedersen, 2016; Machamer et al., 2000).

		Uniqueness	
		High	Low
Certainty	High	doubly decisive	hoop
	Low	smoking gun	straw-in-the-wind

*Table 1: Four types of within-case evidence (Beach & Pedersen, 2013)*

In order to determine the moments of institutional shifts and to find sufficient evidence for the mechanism, we use both documents (policy notes, government statements, reports from the European Commission and OECD) as well as semi-structured interviews with digital policy experts (Lune & Berg,

2017; Tannenwald, 1999). A digital policy expert is someone who has been performing a job at the crossroad of a Belgian (federal) government functioning and a position related to the use of digital technologies for more than ten years. This includes, for example, Chief Information or Transformation Officers at governmental agencies. More information on expert selection and data collection is available in appendix II.

#### **4. Case analysis**

Our analysis is structured in two parts. First, we map the pattern of the evolution of Belgian digital policy between 2000 and 2020 by performing a distributional application of the PET. Second, we investigate the content of established mechanisms by the congruence case-study method.

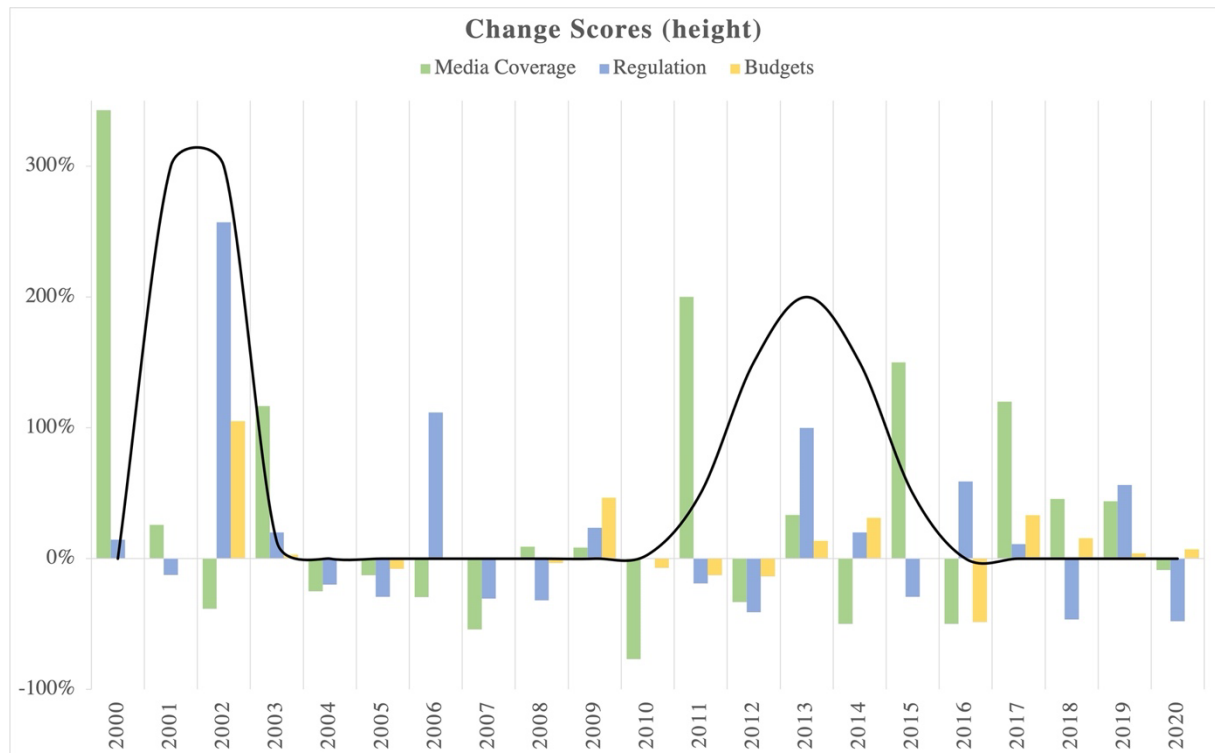
##### **4.1. Evolution of the federal digital policy in Belgium**

The distribution of the change scores shows the pattern through which Belgian digital policy evolved. The histograms for budgets, regulations, and media coverage (see appendix I) all show a non-normal distribution of the change scores, which is associated with a punctuated pattern. Those findings are in line with the statistical tests, as presented in Table 2. The S-W tests are all significant at a level lower than 0.05 which proves a deviation from normality. The Kurtosis-value is higher than 3 which indicates the distribution is leptokurtic and thus punctuated. This implies that the policy evolution is characterized by long periods of stability punctuated by shorter periods of profound change (Baumgartner & Jones, 2009; Cairney, 2013; Princen, 2013).

	Shapiro-Wilk test		Kurtosis
	Statistic	Significance	
<b>Budget</b>	0,812	0,001	5,780
<b>Regulation</b>	0,782	<0.001	5,701
<b>Media coverage</b>	0,836	0,002	3,088

*Table 2: Statistical test results*

The height of the change scores enables us to determine the number of punctuations and the periods in which they occurred. The bars in Graph 1 represent the heights for each measure but they do not show when the punctuations occurred. That is why the results of the three measures are aggregated and periodized. By zooming out from calendric years to periods, we gain insights into the historical dynamics over the past twenty years. The line in Graph 1 represents the zoomed-out gradient, which immediately shows when punctuations occurred and how drastic they were.



Graph 1: Height of the change scores of budgets, regulation, and media coverage

The line in Graph 1 starts with a period of punctuation from 2000 to 2003. In the Belgian federal history, this period is dominated by the introduction of the electronic identity card (eID) that was supposed to make e-government possible (Dequense, 2003; Jacobs, 2001). Belgium did not want to be the fastest, but the best in e-government (De Standaard, 2001). That is why the federal administration focused on developing a strong back office that could lead to administrative simplification. It was not the intention to convert the bureaucratic paper flow into a bureaucratic electronic flow, the intent was to rethink processes to benefit the customer. And it worked, other countries looked at Belgium as an example and the country belonged to the digital world top (Haeck & Bervoet, 2017). The eID became a building block for identification that created endless possibilities for e-government projects (De Standaard, 2002). During the period of equilibrium that followed, the government mostly focused on expanding the applications of electronic identification. It, for example, became possible for citizens to log in to government services via the eID and the federal government created a version for children under the age of twelve (European Commission, 2019).

A second period of punctuation occurred from 2011 to 2015. This period lasted slightly longer but appeared to be less dramatic. During these five years, the federal government developed a new vision on e-government (Van Leemputten, 2016) to improve the accessibility (e.g. open data) and to create an integrated approach across all governmental levels (Di Rupo et al., 2013). The then Minister of Interior Affairs stated that “*a centralized database should ensure that information can flow between different government services.*” (Vanhecke, 2015). A member of the strategic cell surrounding the federal public

service for information and communication technologies (ICT) talked about integrated access to government information: *“Put an umbrella over all inboxes (finance, pensions, utilities, etc.) so the citizens can choose which they prefer.”* (Beelen, 2018). This period of punctuation was, again, followed by a new equilibrium in which diverse (e.g. security and telecom) but rather small (e.g. strengthening and innovating) initiatives were taken. The federal government, for example, focused on automating data exchange (Steel & Van de Velden, 2017) or eliminating the chaos caused by the multitude of digital mailboxes (Andries, 2017). The focus was mainly on 'doing more with less money' because savings were imposed (Haeck & Bervoet, 2017), which is also visible in the budget decline in Graph 1.

In sum, explicitly mapping these dynamics distinguishes periods of equilibrium and punctuation (Baumgartner & Jones, 2009; Kreuzer, n.d.) allowing us to establish mechanisms of feedback. The periods of punctuation (2000-2003 and 2011-2015) are caused by mechanisms of positive feedback, while the periods of equilibrium (2004-2009 and 2016 to the end of the analysis) are caused by mechanisms of negative feedback. Thus, the evolution of Belgian digital policy flows according to the PET: there are longer periods of stability punctuated by shorter periods of profound change.

## **4.2. Institutional impact via mechanisms**

Before we can investigate the impact of the institutional shifts on those established mechanisms, we first must determine when the institutional shifts occurred.

### 4.2.1. Institutional shifts

Historical event research shows three institutional shifts related to digital policy in Belgium during the analyzed period. The first shift happened when the prospect of the turn of the century increased the need for a coordinated approach to ICT. Therefore, federal Minister for Modernization of Government Institutions Luc Van den Bossche (SP) appointed a federal ICT-manager in 2000. The manager had to create a strategy to turn the tangle of the ICT-systems into a high-performance and streamlined network (Van De Velden, 2001a). Yet, his plans collided with mistrust and less than a year after his appointment, the federal ICT-manager resigned (Van De Velden, 2001b). Instead of appointing a new manager, the federal government chose to have the role taken over by the chairman of a new federal public service for ICT they were about to set up in 2001 (Van De Velden, 2001b). This public service was given the name Fedict and was tasked to develop and follow up e-government within the federal government. In this way, Fedict became an organization that supported the federal government in improving its services to citizens, entrepreneurs and civil servants with the help of ICT (European Commission, 2019): *“There was already some computer science present in public administration, but a global philosophy was completely missing. So, Fedict must now take care of that, led by Frank Robben.”* (Luc Van den Bossche, 2001). The first chairman of Fedict, Frank Robben, did manage to implement some innovations. He is even presented as the driver of the changes in that period: *“The fact that initiatives*

*progress so quickly has to do with technology and know-how and the chef, Frank Robben*” (Tegenbos, 2001). Thus, the transition from one federal ICT-manager to a whole federal public service for ICT is the first institutional shift in the analyzed period. At the same time, other factors potentially influencing digital policy changed as well. The image developed from skepticisms about ICT related changes, over the recognition of opportunities, to the appointment of a federal responsible technologies being *“the most important appointment of the federal government in that period”* (De Standaard, 2000). The establishment of Fedict also generated more time and resources to devote attention to the use of digital technologies in internal processes. Additionally, the structure of the political system also changed because of the fifth Belgian state reform in 2001, which transferred various powers from the federal level to the level of the Communities and the Regions (Devos, 2021).

The second institutional shift happened when the Minister for Digital Agenda was appointed for the first time. This Minister was tasked with ensuring that every interaction with the federal government could also be digital in order to maximize the potential of the digital economy (Federal Government, 2014). But the minister first appointed to Digital Agenda, Alexander De Croo (Open Vld), wanted to do more: *“Let us see how we can go further than that. Ireland and Estonia are digital examples. Belgium should be able to perform as well.”* (De Groote, 2014). He wanted to give Belgium a new digital start to reach the digital world top again (Haeck & Bervoet, 2017): *“We outlined a vision and then quickly started to realize it”* (Van Leemputten, 2016). De Croo was the main driver for digital policy changes in Belgium, partly inspired by the European Commissioner for Digital Agenda Neelie Kroes. Similar to the first institutional shift, other factors potentially influencing digital policy changed as well. In the initial period of this new competence, there was the perception that the Minister responsible for the Digital Agenda could not steer policy, that it would not lead to big differences. Gradually that image changes to *“digital as the new normal”* (De Standaard, 2014a). In addition, the introduction of a new competence once more increased the attention devoted to internal use of digital technologies. However, the attention, time and resources had to be shared with the minister’s other responsibilities, such as development cooperation, telecom, and postal services. The structure of the political system also changed through the sixth state reform from 2012 to 2014. The focus of this reform was political innovation and a transfer of powers from the federal level to the level of the Communities and Regions (Devos, 2021).

The last institutional shift within the analyzed period occurred in 2017 when Fedict merged with other supporting federal public services. The merger resulted in BOSA, the federal public service for Policy and Support, composed out of five directorate-generals each responsible for a specific task. The directorate-general responsible for Digital Transformation, or in short the Digital Transformation Office (DTO), took over Fedict’s powers and was given the responsibility to develop a strategic IT-plan for the federal government in which standards and methods were laid down (European Commission, 2019). *“DTO must be the hub of digitization of the federal public services. The ultimate goal must be to serve*

*citizens better.*” (Alexander De Croo, 2016). The federal government decided on the merger because Fedict’s mere IT-implementations did no longer suffice within the current societal context in which issues should be tackled holistically (Blyaert, 2016). In other words, the image of the federal government changed. Contrary to the other institutional shifts, the attention allocation and structure of the political system did not change. The integration of Fedict in BOSA did not create more time for digital policy, and there was no state reform. In addition, the third institutional shift did not lead to a new policy entrepreneur. The chairman of DTO, Ben Smeets, was not well-known and only took on the position ad interim (Blyaert, 2017a). However, both Frank Robben (shift 1) and Alexander De Croo (shift 2) are still active during this period. Frank Robben is described as “*the man who computerized the Belgian federal government*” (Deckmyn, 2022), as “*the trigger of the wave of digitization in the federal government*” (Haeck & Bervoet, 2017) and Alexander De Croo was still Minister of Digital Agenda.

In sum, three institutional shifts occurred in the Belgian federal context of digital policy between 2000 and 2020. As summarized in Table 3, not every shift took place against the same background. The third institutional shift is not accompanied by a change in attention allocation or structure of the political system. However, every institutional shift is accompanied by a change in policy image. This confirms the principles of the PET once more. The theory states that images and institutions are linked to each other and even can reinforce each other over time (Baumgartner & Jones, 2009, p. 38). In addition, the first and third shift are changes in the administration, while the second shift is a political change. In the first shift, a top civil servant is the driver of the changes, while in the second shift it is a politician. Remarkably, there appears to be no policy entrepreneur in the third shift. The official civil servants or the appointed politicians do not seem to be gearing up for major changes.

	Policy image	Attention allocation	Structure of the political system	Policy entrepreneur
Shift 1 (2001)	X	X	X	X
Shift 2 (2014)	X	X	X	X
Shift 3 (2017)	X			

Table 3: Presence of changes in other potential explanatory factors according to the PET.

#### 4.2.2. Underlying mechanisms

To investigate the impact of those institutional shifts on digital policy, we look for smoking gun or doubly decisive evidence for the established underlying mechanisms of positive or negative feedback. The search for the evidence enables us to gain more insights into the mechanisms, without analyzing causality. In other words, it enables us to make the black box grayer, without analyzing in detail how entities engage in activities (Beach & Pedersen, 2013, 2016).

The first mechanism is one of positive feedback between the establishment of Fedict (p.12) and the creation of the electronic identity card (p.11). At the start of his Fedict chairmanship, Frank Robben listed three priorities. He wanted to set up a network for electronic data exchange between government services, introduce a unique identification number for people and companies, and create an electronic identity card (Eeckhout, 2001). To achieve these goals, Robben annually released 1,2 billion euros from Fedict's budget and assigned thirty specialists. There was a budget of 5 million euros specifically for the creation of the eID, which was, for example, significantly more than the 0,15 million invested by the service for administrative simplification (Rekenhof, 2012). The priorities of Robben combined with the number of staff and financial resources Fedict invested, is the first evidence for the relationship between Fedict as an institutional shift and the creation of the eID as the digital policy. In addition, there are also several smaller events that can be considered as evidence. For example, there is a report from the Court of Audit that describes the various roles of Fedict as *"main actor in the creation of the eID"*. On GitHub, an online platform for software development and version control, is proof that Fedict developed, maintained and managed the software for reading the eID (GitHub, 2022). By using this platform, Fedict even gave developers the opportunity to build eID-initiatives to increase e-government in various aspects (Fedict, 2009). Furthermore, Fedict was also the institution answering all questions from concerned citizens (Ysebaert, 2003) or the one selecting the municipalities for trial (De Tijd, 2002). The only thing Fedict did not seem to do, was the production of the card itself.

The second is a mechanism of positive feedback between the creation of the ministerial competence 'Digital Agenda' (p.13) and changes related to an integrated approach to e-government and accessibility (p.11). As with the first institutional shift, the priorities of the policy entrepreneur related to the institutional shift are smoking gun evidence. Alexander De Croo, then Minister for Digital Agenda, included both accessibility and the integrated approach to e-government in his government statement of 2014. The government statement included the emphasis on user-friendly tools, open data, and convenience of use for all visitors of websites and digital documents. It also addressed the need to lower the existing thresholds for data sharing and to develop a more horizontal model, which both regard to an integrated approach (Federal Government, 2014). Furthermore, his focus on accessibility and the integrated approach are also reflected in the international speeches he gave. For example, in his speech in 2015 to international diplomats he says that *"Making sense out of data is crucial. When resources are scarce, sufficient data is increasingly important"* and *"Digital technologies disrupt every facet of our society and therefore ask for collaboration"* (De Croo, 2015). In addition, there are also several smaller events that can be considered as evidence. Related to the accessibility, for example, the minister ensured the king can sign official documents online (De Standaard, 2014b) and registered items can be sent electronically (Blomme, 2015). He also succeeded in making government collected data available to the public, so government services can consult each other's data easily. According to De Croo that is *"the raw material for digital information products and services with a potential that has not yet been*

used” (Haeck, 2015). Related to the integrated e-government approach, the Minister for Digital Agenda brought together 22 CEO’s and experts from the digital sector to think about a digital plan for Belgium (De Tijd, 2015). Furthermore, the minister indicated that he wanted to take the same direction as Estonia, a country with a holistic approach to e-government (Mooijman, 2015).

The third and last mechanism is the one of negative feedback between DTO (p.13) and several incremental changes (p.12). As indicated earlier, there was no policy entrepreneur accompanying the third institutional shift. Yet, there were some key actors whose initiatives can also be used as evidence for the third mechanism. For example, the transition from Fedict to DTO was also the transition from Jan Deprest to Ben Smeets as chairman. If there had not been an institutional shift, Deprest would most likely still have been chairman of Fedict during this period, his term of office ran until 2020 (Blyaert, 2017). A link between Ben Smeets, as head of the new DTO, and the incremental policy pursued during that period is therefore evidence for the third mechanism. In an interview with GOV<sup>2</sup>, Ben Smeets explicitly stated he wants to focus on incremental changes to prepare for more transformational changes in the future. For example, he is committed to adjustments in regulation to provide new digital elements with a strong legal basis: *“We ensure common definitions in new legislation, while we try to harmonize existing legislation.”* (Beelen, 2018). Another example is increasing security in order to be able to handle more processes in the future: *“the security of the user’s identity is top priority”* (Van Nuffel, 2018). In these decisions, Ben Smeets is supported by Frank Robben, the first chairman of Fedict who is considered as a policy entrepreneur for digital policy in the early years of the analysis (De Tijd, 2017).

Since there is smoking gun evidence for every established mechanism between institutional shifts and digital policy, we can conclude that institutional shifts indeed do have an impact on digital policy. However, we must nuance that the institutional shifts on their own have no decisive role in the (in)stability of digital policy. They can lead to both mechanisms of positive feedback resulting in profound changes (mechanisms 1 and 2) and mechanisms of negative feedback resulting in an equilibrium (mechanism 3). As expected, based on the PET, it is the interaction and complementarity of several factors that determines the (in)stability of the policy process. Table 3 on page 14 shows that the difference in a mechanism of positive and negative feedback could be attributed to attention allocation and structure of the political system, or to the presence of a policy entrepreneur.

## **5. Discussion**

In this article, we aimed to investigate how institutional shifts impact digital policy within the context of the Belgian federal government over the period from 2000 to 2020. This was in order to gain insights

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<sup>2</sup> GOV is a magazine that offers insights on digital developments in society by, among others, government representatives.



into the mechanisms and (combination of) factors by which institutional shifts can support a digital policy adaptable to continuously changing technologies and expectations. Our results show that institutional shifts do indeed have an impact on digital policy but are not sufficient to explain the (in)stability of the policy process. Institutional shifts lead to both mechanisms of positive and negative feedback. Thus, as we expect based on PET, there are other factors that play a decisive role in determining the stability of digital policy. Resulting from our analysis, those factors are attention allocation, structure of the political system and/or the presence of policy entrepreneurs.

In the first part of our analysis, we mapped the evolution of Belgian digital policy to explore the mechanisms of feedback. Based on a distributional application of the PET, we found mechanisms of positive and negative feedback, and thus established that the Belgian digital policy follows a punctuated pattern with two periods of punctuation (2000-2003 and 2011-2015). To perform the distributional application, we combined three measures for digital policy (i.e. media coverage, regulations, and budgets) which enabled us to grasp the complexity of the policy process. The results confirm the findings of Baumgartner and his colleagues (2009) in two ways. First, in the analysis of the distribution, the Kurtosis value is the lowest in media coverage and the highest in budgets. This indicates that the deviation from normality increases as the policy process progresses from agenda-setting to policy formulation. Second, in the analysis of the heights, we find that punctuations indeed first show in media coverage, then in regulations and finally in budgets. Striking in our case is that both periods of punctuation are closed (2003 and 2015) by another punctuation in media coverage. This finding suggests that more research about the ending of a punctuated period should be done in the future. In the second part, we examined the established mechanisms to investigate the impact of institutional shifts on digital policy. Based on the performance of an explaining-outcome congruence case-study, we found three institutional shifts (2001, 2014 and 2017), and established that they all have an impact on digital policy. However, not every institutional shift resulted in a mechanism of positive feedback and thus punctuation in digital policy. Therefore, in line with the expectations based on the PET, our findings indicate that institutional shifts on their own, are not necessarily sufficient to explain the stability of the digital policy process.

As becomes apparent from the presence of the other potential explanatory factors summarized in table 3 on page 14 and from the reflections we make when analyzing the content of the mechanisms, both attention allocation and structure of the political system could be decisive factors as they changed at times of positive feedback and remained stable at times of negative feedback. The same applies to policy entrepreneurs. Policy entrepreneurs were present during periods of positive feedback, while there were absent during the periods of negative feedback. Contrarily, policy images are not a decisive factor in the context of this case. Changes in policy images occurred simultaneously with shifts in institutions and thus led to mechanisms of both positive and negative feedback. This latter finding is rather remarkable

because the PET suggests that a combination of institutional shifts and changes in policy image automatically leads to a mechanism of positive feedback and thus a destabilized policy process (p. 7). One possible explanation is the policy domain we analyzed. The PET received ample empirical support, but always within traditional policy domains such as education, health, or energy. In this article, we examined a policy that concerns the organization of the government (polity) and is conducted horizontally. Although we do not claim that this finding is generalizable outside the Belgian digital context, it does imply that the explanatory factors within the PET might interact differently in a polity compared to a policy (Braun et al., 2016).

Therefore, a first recommendation for future research is to elaborate the applications of the PET in polity. More applications should, in the long run, allow comparisons between countries and models of public administration. We do recommend that future research leverages data source triangulation through combining different measures able to represent every phase of the policy process. This complements existing approaches which commonly focus on budgets as a way to perform distributional applications (e.g. Flink, 2017; Li & Feiock, 2020). However, this is not to say that other measures are better but posits that the combination of different measures can lead to an even greater added value. A second recommendation is to further look for the conditions under which an institutional shift leads to a mechanism of positive feedback. More insights into the interplay between the various factors and the relationship between policy entrepreneurs and mechanisms of (positive/negative) feedback could further develop the PET as a theory. This leads to the need to investigate the causality of the relationships between the explanatory factors and policy change. A better understanding of what is going on between both, can inform evidence-based policymaking and permits practitioners to open up the black boxes of policymaking (van der Heijden et al., 2019). Since it remains important to conduct qualitative research, we suggest that future research investigates causality via qualitative methods such as process tracing or configurations methods such as Qualitative Comparative Analysis (QCA). In addition, the individual factors should be examined in more detail, so the PET is composed of more fine-grained theoretical concepts (J. Kuhlmann & van der Heijden, 2018). Based on our findings, for example, we consider that a shift in an administrative institution leads to a stronger punctuation compared to a shift in a political institution. Graph 1 on page 11 shows that the first period of punctuation (administrative shift) was more drastic than the second period of punctuation (political shift). Since we cannot make general claims based on our findings, we recommend that future researchers investigate the differences between administrative and political shifts.

Our findings also have some practical implications we do believe could be informative outside the Belgian context, to other governments seeking ‘digital government’. First, the results show that the presence of a policy entrepreneur could be a key factor in initiating a positive feedback mechanism. We therefore suggest that policymakers pay attention to the involved actors and strategically leverage the

role of policy entrepreneurs. When thinking about profound changes in digital policy, it could be crucial to engage someone who takes up the role of policy entrepreneur. If smaller changes are considered to ensure stability, a policy entrepreneur is not necessary or could even stand in the way. In the Belgian context, the absence of a policy entrepreneur in the period from 2016 to 2020 has enabled the involved actors to do preparatory work for a future profound change. It could be that the absence of a policy entrepreneur was used strategically to make future changes even more profound. Second, the results show that attention allocation could also play such a decisive role. Therefore, we suggest that policymakers consider developing a strong core of actors who are involved in digital policy on a daily basis. When more profound changes are desirable, this core could be temporarily expanded resulting in more attention to digital policy which increases the chances of profound changes in policy. The Belgian federal context is suitable for developing such a structure. The core actors are the employees of DTO within BOSA. When more profound changes are on the agenda, flexible employees within BOSA could complement the team. Here, it is important that the top of the organization (temporarily) pays more attention to the modernization of digital policy as well.

Before concluding, it is important to highlight some of the underlying limitations. First, in the distributional application of the PET, the delineation of the timeframe combined with the focus of the article only led to 21 observations in each measure, which is a relatively limited number of observations for a quantitative analysis. We have attempted to mitigate this by an in-depth qualitative examination of the patterns at hand. Qualitative studies within the PET are not new, but got into the background due to stochastic studies (Baumgartner et al., 2009; Breunig & Jones, 2011; Jones, 2003). Although the use of budgetary data has increased the ability to apply statistical methods within policy research (Mortensen, 2005), it remains at least as important to conduct in-depth analyses of the policy process (Baumgartner & Jones, 2009; J. Kuhlmann & van der Heijden, 2018; Workman et al., 2022). By combining both qualitative and quantitative methods, we highlight how mixed methods can be used in future PET research (Yildirim, 2022) and further emphasize the value of such methods (Workman et al., 2022). Another limitation is the variation of cases because we study a single case of evolution. Distributional applications of the PET often examine one phase of the policy process in different cases, while we have examined different phases in one case (Baumgartner et al., 2009). However, the analysis of one case enabled us to triangulate data which resulted in more reliable and valid findings.

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