

# **The Technological Phenomenon Framing Innovation in EU Policymaking toward MiCA**

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## **Abstract**

This thesis uses both philosophical views on technology and policy paradigms to understand the processes towards the European Union (EU) markets in crypto-assets regulation. As digital finance grows in complexity and significance, the EU has sought to establish comprehensive policy frameworks to address the regulatory challenges posed by innovations such as blockchain and decentralized finance. This study explores the question: To what extent do technological phenomena, and their compelling ideas, shape the policymaking process within the EU, particularly in the development of the Markets in Crypto-Assets (MiCA) regulation?

To address this question, the thesis combines philosophical and policy analysis. It draws on the works of Martin Heidegger, Arnold Gehlen, and Jacques Ellul, who argue that technology can fundamentally shape human ideas and societal structures. These perspectives are analysed alongside Peter Hall's theory of policy paradigms and social learning, which explains how evolving ideas and external crises can lead to shifts in policy. This interdisciplinary approach provides a unique framework for examining the influence of technology on regulatory paradigms within the EU.

Using the MiCA regulation as an empirical case study, the thesis explores how EU policymakers navigate the intricate interplay between technological imperatives and shifting policy ideas. The findings suggest that MiCA represents a significant regulatory response to the (perceived) challenges of digital finance, shaped by both technological determinants and changing policy paradigms. This research contributes to a deeper understanding of the role of technology and ideas in EU policymaking, offering insights for future studies on the regulatory implications of emerging digital technologies.

## Table of Contents

1. Introduction .....	5
1.1 General Introduction .....	5
1.2 Background and Rationale .....	7
1.3 Research Questions and Structure.....	8
2. Philosophical Frames on Technology and Social Learning in Policymaking.....	10
2.1 Heidegger’s Essence of Technology .....	11
2.2 Gehlen’s Anthropological View on Individuals, Society, and Technology.....	13
2.3 Ellul’s Concept of Technique and The Technological Society.....	16
2.4 Hall’s Concepts of Policy Paradigms and Orders of Policy Changes.....	20
2.5 Synthesis and Relevance of the Philosophical Insights .....	23
3. Mobilizing Policy Paradigms: Perceptions of Technology in EU Regulation .....	25
3.1 Policy Paradigms and Social Learning in the EU: The 2008 Financial Crisis and its Impact and Meaning for the EU.....	25
3.2 Case Study: From Crisis-control to Crypto-markets Regulation (MiCA) .....	32
4. EU Policymaking Towards MiCA: Linking Technological Perspectives to Policy Changes .....	48
4.1 Technological Enframing and Regulatory Changes.....	49
4.2 Anthropological Adaptation and Cultural Institutionalization .....	51
4.3 Technique and Policy Making.....	53
4.4 Synthesis and Discussion .....	55
5. Conclusion: Bridging Philosophical Insights and Regulatory Practice .....	58
5.1 Summary of Key Findings to the Sub-questions.....	58
5.2 Answering the Main Research Question .....	59
5.3 Implications and Limitations.....	61
Bibliography.....	63

Appendices .....	80
Appendix A: Establishment of a European System of Financial Supervision .....	80
Appendix B: A Short History from Bitcoin to the Libra-project .....	82
Appendix C: Official reports, Documents, and Statements on Digital Asset-Related Topics .....	95
Appendix D: The Developments and Challenges that MiCA Tackles .....	96
Appendix E: Compatibility and Tensions Among Philosophical Frameworks of Technology .....	98

## 1. Introduction

### 1.1 General Introduction

In both our personal lives and the societal structures we live in, the ideas we hold shape our understanding of the world and influence our decisions in it. Also in the sphere of public policy, ideas can be regarded as central to the formation, evolution, and eventual transformation of policies. Policy researcher Peter Hall developed a framework emphasizing how ideas drive policy changes on three levels: adjustments in specific policy settings, modifications to policy instruments, and more profound shifts in overarching policy goals.<sup>1</sup> The highest level, where changes in policy goals occur, often results in what Hall describes as a ‘paradigm shift,’ analogous to the shifts in scientific paradigms that Thomas Kuhn described.<sup>2</sup> Such transformative shifts in policy often emerge from 1) a reassessment of societal goals or 2) when policymakers change their view on their role in society, typically in response to crises or perceived policy failures — or 3) when the very individuals in power are replaced. These profound changes frequently are set in motion by persistently failing policies and interventions. Through Hall’s framework of social learning and policy paradigms, we can better understand how certain ideas compel policy changes.

Philosophers would be the last group of people that would contradict the importance of ideas in societal processes, including policymaking. Yet, some philosophers do not see ideas as the *principal* element that guides personal lives, or societal developments. They argue that the ideas we currently hold, about the workings of the world and our place in it, are under the grip of ‘the technological phenomenon,’<sup>3</sup> making the technological phenomenon the principal element which guides our ideas. The philosophies of Martin Heidegger, Arnold Gehlen, and Jacques Ellul all attribute a fundamental role to ‘technology,’ suggesting that it significantly shapes the ideas and paradigms that guide our understanding of the world.<sup>4</sup> For instance, Heidegger’s concept of ‘enframing’ suggests that Technology sets the terms under which issues are conceptualized and debated, potentially limiting the scope of policy discussions.<sup>5</sup> Gehlen emphasizes how technology shapes and institutionalizes social order, contributing to stability

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<sup>1</sup> Hall, Peter A. “Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain.” *Comparative Politics* 25, no. 3 (April 1, 1993): 275. <https://doi.org/10.2307/422246>.

<sup>2</sup> Kuhn, *The Structure of Scientific Revolutions: 50th Anniversary Edition*. In this book, Kuhn describes how scientific revolutions are what happens outside of ‘normal science,’ and instead as a result of anomalies that accumulate until an ‘incommensurable’ situation demands a large shift in scientific paradigm.

<sup>3</sup> ‘The technological phenomenon’ is a more explicit way to point at ‘technology’ in society. In (translated) writings from and about Ellul the term is often used to point at the (immaterial) societal force that is Technique (and its consequences), instead of the specific technological artifacts and innovations that are present in a society. Since the three philosophers all focus on this immaterial force/understanding/structuring, ‘the technological phenomenon’ is a more clear and accurate term I use, instead of ‘technology.’

<sup>4</sup> Technology, or rather our understanding of it. The fundamental role of technology relates to ‘the technological phenomenon’ (see footnote 3).

<sup>5</sup> Heidegger, *The Question Concerning Technology, and Other Essays*.

but also constraining the flexibility in policies.<sup>6</sup> Similarly, Ellul argues that *technique* has become a dominant force in society, one that influences collective choices and policy directions and challenges human values and freedoms.<sup>7</sup>

To explore these intersecting perspectives on the roles of ideas, policies, and technology, this thesis examines the development of crypto-assets and the European Union's response to this technological and social innovation. After years of theoretical discussions among cypherpunks and advocates of a free internet, Bitcoin was launched in 2009 as the first digital currency that could be exchanged securely without the need for a trusted third party. Crypto-assets and the underlying blockchain technology, of which Bitcoin was the first, have been created to challenge traditional financial markets and revolutionize global digital finance.<sup>8</sup> The appeal for the early adapters of crypto-assets, but also for many of the later market players, was the fact that these markets were decentralized, unregulated, and unsupervised.<sup>9</sup> However, in the European Union, the 2007-2009 financial crisis had underscored the importance of regulating and supervising financial markets, leading to a flurry of new goals, strategies, regulations, and directives aimed at financial fortification and digital enhancement.

The advent of new technologies and developments in the digital realm has made financial markets more instantaneous, interconnected, and responsive, prompting numerous regulatory interventions both within the EU and globally. Crypto-assets in particular, have introduced significant regulatory challenges and opportunities for policymakers. The EU's Markets in

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<sup>6</sup> Gehlen, *Man in the Age of Technology*. Gehlen sees Man using technology to get relief from the natural 'lacking' state (*Mängelwesen*). By objectifying the external world, lead to an increasing (potential) relief. This is the way man's need for security and stability can be met. However, this objectification of the external world also reduces the scope of the solutions and interventions. More on Gehlen in 2.2.

<sup>7</sup>Greenman and Schuchardt, *Understanding Jacques Ellul, Technology and Technique*. According to Ellul, Technique is dominating but he does not consider technique to be inevitable and deterministic per sé. In the foreword of this book, Ellul writes: "*The reader may be inclined to say that, if everything happens as stated in the book, man is entirely helpless—helpless either to preserve his personal freedom or to change the course of events. Once again, I think the question is badly put. I would reverse the terms and say: if man—if each one of us—abdicates his responsibilities with regard to values; if each of us limits himself to leading a trivial existence in a technological civilization, with greater adaptation and increasing success as his sole objectives; if we do not even consider the possibility of making a stand against these determinants, then everything will happen as I have described it, and the determinants will be transformed into inevitabilities.*" Ellul says here that freedom can only be attained in the face of necessity: "*Freedom is completely without meaning unless it is related to necessity, unless it represents victory over necessity.*" Ellul, *Technological Society*., xxix.

<sup>8</sup> Scott, *Cloudmoney: Cash, Cards, Crypto and the War for Our Wallets*, 15. "*Blockchain technology originally promised to provide a decentralised alternative to the growing finance and tech oligopolies [...] Its early development was directly inspired by concerns about the surveillance implications of a cashless society, and by the potential for the massive centralisation of state and corporate power in the digital age. However, blockchain technology possesses deeply ambiguous contradictions of its own. One of these is that, far from being repelled by it, financial institutions and mega-corporations seem increasingly eager to incorporate it into their operations. The same technology that can co-ordinate networks of ordinary people can be repurposed to coordinate oligopolies.*"

<sup>9</sup> For a timeline of major milestones in the development of crypto-assets, from Bitcoin's inception to the Libra project, see Appendix B.

Crypto-Assets (MiCA) regulation, implemented fully since 30 December 2024, will serve as a case study to examine these challenges. This thesis investigates how Hall's theory of policy paradigms, with its focus on ideas and social learning, can be applied to the policy changes in the EU since the financial crisis. And how these policy changes on the three levels interact with the views of technology (the role of the technological phenomenon) posited by Heidegger, Gehlen, and Ellul. The findings aim to bridge these philosophical and policy perspectives, offering insights into how technology, ideas, and policy influence each other.

This research concludes that the EU's Markets in Crypto-Assets (MiCA) regulation exemplifies how policy is shaped by both technological imperatives and evolving policy paradigms. By synthesizing philosophical insights from Heidegger, Gehlen, and Ellul with Hall's theory of social learning, the study illustrates the dual influence of compelling technological frames and adaptive policy ideas. The findings reveal that while 'technology' acts as a significant driver for ideas, the framing of these ideas within policy paradigms play a crucial role in navigating regulatory challenges. MiCA represents a pivotal case of institutional responses to digital innovation, balancing ideas on the need for oversight with the ambitions of technological neutrality and market integration. This duality underscores the dynamic interplay between technological phenomena and ideational (framing) shifts in EU policymaking, offering a nuanced lens for future regulatory strategies in emerging technologies.

## 1.2 Background and Rationale

Philosophical inquiry through the works of Heidegger, Gehlen, and Ellul, delves into the ways these philosophers understood how technology influences human culture, values, and worldviews. Their philosophies question the extent to which technology shapes not only practical realities, but also the fundamental ideas that govern societal organization and change. An essential examination in this is whether technology *drives* societal change or merely *reflects* deeper cultural and existential currents. This type of research is abstract and normative, exploring the ethical, ontological, and existential implications of technological advancements.

In contrast, public administration research, especially from the perspective of policymaking as social learning as articulated by Peter Hall, focuses on the iterative process by which governments and institutions adapt to social and technological changes. It emphasizes the role of policy as a dynamic, learning-oriented practice where feedback loops, evidence-based decision-making, and institutional learning shape effective governance. This empirical approach is concerned with how policies evolve in response to changing societal needs, technological developments, and the complex interaction between various stakeholders. Hall's framework highlights how evolving ideas contribute to the structural adaptation of policy

frameworks through processes of incremental change or, in certain crises, through paradigmatic shifts.<sup>10</sup>

This thesis integrates philosophical and policy viewpoints to examine the ‘fruits’ of the shared understanding of technology (the technological phenomenon) and social learning, in the regulatory framework of MiCA (and in the regulatory frameworks leading up to MiCA). It thereby connects abstract theory with practical governance. From a philosophical standpoint, examining how technology can be perceived as ‘an autonomous force’ enables a critical evaluation of the assumptions driving policy decisions. When combined with the social learning approach to policymaking, this analysis can illuminate how these technological imperatives are internalized, contested, or reshaped within the policymaking process. By considering technology as an autonomous influence – as Heidegger, Gehlen, and Ellul do – we gain a lens for examining the deeper motivations and limitations behind policy choices. This combination of philosophical and empirical analysis contributes to a nuanced understanding of how the EU, as a system governing institutions, interacts with technological phenomena that challenge traditional regulatory approaches.

### **1.3 Research Questions and Structure**

This thesis seeks to investigate the extent to which technological phenomena and their compelling ideas influence the EU policymaking process, particularly in the development of crypto-assets regulation under MiCA. The research question driving this study is as follows: How do technological phenomena and compelling ideas shape the EU’s regulatory response to crypto-assets? To answer this question, the research examines both philosophical and policy paradigms to trace how evolving perspectives on technology intersect with policy frameworks in practice. In this thesis, ‘compelling ideas’ refer to the embedded assumptions, beliefs, and paradigms that shape how issues are framed and addressed within policymaking processes. Drawing on Hall’s theory of policy paradigms, compelling ideas are seen as both explicit and implicit constructs that guide the interpretation of societal challenges, the selection of policy instruments and the establishment of overarching goals. These ideas often surface and evolve during critical junctures. Additionally, influenced by philosophical perspectives, compelling ideas are not merely cognitive frameworks but also embedded assumptions about the nature of technological progress and its role in society. By becoming more explicit in framing processes, these ideas not only reflect the dominant interpretive lens but also actively shape the direction and outcomes of policymaking.

To address the main research question, several sub-questions are posed. First, an examination of Heidegger’s, Gehlen’s, and Ellul’s philosophies reveals how technology shapes

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<sup>10</sup> Hall, “Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain.”



not only individual behaviours but also collective mindsets and societal values. Second, using Hall's framework of policy paradigms and social learning, this research examines the mechanisms through which ideas inform EU policy choices. Third, the thesis investigates how the 2007–2009 financial crisis and the subsequent shift towards financial fortification and digital regulation set the stage for Europe's crypto-asset regulation. Finally, the analysis of MiCA's development sheds light on how technology-driven changes are negotiated within EU regulatory frameworks.

The thesis is structured as follows: Chapter two discusses the theoretical background; the philosophical views on technology by Heidegger, Gehlen, and Ellul; and Hall's policy paradigms and social learning theory. The philosophical parts discuss the ways in which 'technology' influences societal organization and values. The three philosophers each offer distinct interpretations of technological phenomena and how these phenomena shape modern minds, ideas, and worldviews. The part on Peter Hall focuses on how ideas evolve and guide policy changes. Chapter three contains a short history of the recent evolution of policies and strategies leading up to the introduction of MiCA, beginning with the aftermath of the 2007-2009 financial crisis. This contextual analysis provides insights into the regulatory environment preceding MiCA and highlights the shifts in policy priorities and approaches over time. Understanding this background is crucial for assessing the factors that influenced the EU's approach to crypto-assets. In section 3.2, a more detailed case study of the discourses, frames, and choices surrounding the development of MiCA is given. This section aims to identify the specific ideas and frames that were detected in the regulatory discussions and how they reflect broader technological and philosophical influences. Chapter 4 applies these theories to analyse the EU's response to crypto-assets. It explores how the philosophical notions of technology's influence on ideas relate to Hall's concept of orders of change in policymaking. The analysis aims to bridge the theoretical and practical aspects of the research, providing a comprehensive understanding of the dynamic relationship between technology, ideas, and policy in the context of EU regulation. Chapter 5 synthesizes the findings, providing insights into the dynamic relationship between technology, ideas, and regulatory policies.

This structured approach ensures that the research addresses the multifaceted nature of the relationship between technology, ideas, and policymaking, offering a thorough exploration of the philosophical, historical, and practical dimensions of the topic. Through this inquiry, the thesis aims to contribute to a broader discourse on technology, ideas, and governance in an increasingly digital world, from the perspective of the EU.

## 2. Philosophical Frames on Technology and Social Learning in Policymaking

This chapter sets the theoretical foundation for analysing the EU's regulatory processes by focusing on the philosophical frames that underpin societal understandings of technology. By examining the works of Heidegger, Gehlen, and Ellul, it explores how technological phenomena influence societal structures and policymaking frameworks. These insights are complemented by Hall's theory of policy paradigms to provide a comprehensive lens for evaluating how technology interacts with regulatory processes. While the regulatory aspects are addressed in subsequent chapters, this chapter aims to establish the conceptual groundwork for how technology shapes societal and policy paradigms. Chapter four will then link the ways these philosophers perceive the technological phenomenon shaping modern minds, ideas, and worldviews to the frames and ideas that shaped the MiCA regulation.

The perception of technology, or the technological phenomenon, has significant implications for the development of societies and the paradigmatic logic that underpins policymaking processes. Heidegger, Gehlen, and Ellul see 'technology' as something to which we collectively ascribe an autonomous external logic. Only by following this technical logic (techno-logic) we can accelerate the development of technology, which is considered as something desirable because it 'drives progress' (either for us individually, as a society, or to come closer to the truth). As such, technology becomes something that compels the ideas we have about the world we are in, as a force which determines our actions, instead of the other way around.

By looking at technology from these perspectives and figuring out how they fit with the ideas that guide policy changes, we can find out how (much) the policies processes in the EU (on the way to MiCA) are affected by this autonomous logic that we place in technology. The three philosophers each possess a unique perspective on the essential elements of this process (of placing autonomous logic in technology) and the resulting consequences. After reviewing each of the philosophical perspectives, the last subchapter attempts to summarize and synthesize these ideas.

For Heidegger, there is a clear danger in the way we have completely adapted ourselves to a certain 'enframing' of technology. Heidegger views the history and role we attribute to technology in society—what we perceive as its essence—as dangerous. Our enframing of technology, and especially the 'destining' of this enframing, withholds us from having a more truthful relationship with the world around us. Heidegger suggests a theoretical approach to transcend the limiting perspective of the essence of technology, provided we discover a different approach to relating to it.

For Gehlen, technologies, and the whole artificial world around us that humans have created over time, are a natural consequence of our existential conditions. Human beings 'lack' a clear or complete sense of well-adjusted-ness. Technology is then a way to compensate and add to our unadjusted and/or incomplete natural capabilities. Gehlen's theory of institutions asserts that institutionalization is, much like the function of technologies, another way for humans to get relief from the burdens of life. Institutions 'exempt' human beings from overwhelming

choices and options and provide humans with fundamentals for guiding their lives (institutions as manifestations of culture). In modern times, institutions exaggerate their organizational functionality and have lost the connection with the direct experience of humans and the world around them. Man loses the ability to build a personality in reference to institutional frameworks.

With Ellul's concept of Technique, and by understanding its characteristics, we gain an appreciation for how a society guided by the technological phenomenon relinquishes freedom. Deluded by principles of efficiencies, 'technique' steers the course and consequently reduces multiple possible paths to one clear winner. Ellul argues that technique becomes the prime mover of all the rest: all knowledge, insight, and innovation is implemented to serve the goals of the technological phenomenon. As we are in the grip of this expanding power, as we live in the techno-tope, we willingly give up personal and collective liberties so that we get more predictable and controllable systems in return.

## 2.1 Heidegger's Essence of Technology

Martin Heidegger (1889-1976) was a prominent German philosopher known for his groundbreaking ideas on existentialism, phenomenology, and the nature of being, which have had a lasting impact on philosophy and many other fields.<sup>11</sup> He "raised anew the question into the meaning of Being"<sup>12</sup> in his book *Sein und Zeit*, in which he also introduced the currently well-established concepts such as 'Dasein' and the denomination of 'vorhanden' and 'zuhanden.' In his later work, Martin Heidegger also delves into the concept of technology, in which he argues that modern technology reshapes the way we perceive and engage with the world.

### The essence of technology

In 1953 Heidegger's *The Question Concerning Technology* was published, in which he explores the phenomenon of technology. His particular contribution with this book is that he concerns himself with 'the essence of technology,' as opposed to 'the technological' (our daily use of technological instruments and artifacts). He sees the essence of the being of technology as an 'enframing' force for us humans: something that reduces everything around us (in nature) to a calculable resource: as means for our ends. In surrounding ourselves with modern technology, we bring ourselves in a 'technological mode of Being.' In this state even our interactions with strictly non-technical objects, such as in socializing with others or thinking about organizational patterns, becomes a matter of means and ends: 'how could this contact be useful to me?' or 'how could trust be monetized?' If everything and everyone around us (all

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<sup>11</sup> "Martin Heidegger (Stanford Encyclopedia of Philosophy)."

<sup>12</sup>Heidegger, *Being and Time*, 21.

‘beings’) are all understood as measurable and manipulable, technology will ultimately reduce all beings to ‘not-beings.’ This transformational reduction leads us to ‘lose any feeling of sacredness or awe in the face of beings.’<sup>13</sup> Even more crucial is that we are indifferent to this loss as we “find a technological substitute for that feeling, in the form of ‘lived-experience,’ a drive for entertainment and information, ‘exaggeration and uproar.’”<sup>14</sup>

This technical mode of Being, although in some ways the result of active human thinking and doing, is not completely within our control and responsibility. As Heidegger later puts it, the “essence of man is framed, claimed and challenged by a power which manifests itself in the essence of technology, a power which man himself does not control.”<sup>15</sup> Heidegger names this power *Gestell*, ‘enframing,’ which is the modern way in which technology reveals the world to us. Modern technology reveals the world in a different way than technology (instruments and artifacts) revealed the world (‘the actual’) before; we now reveal the world as a resource, a ‘standing reserve.’ It is important to underline that, despite the fact that in answering to this challenge of enframing, when we engage in technological activity, “[such activity] never comprises enframing itself or brings it about.”<sup>16</sup> Enframing is a way of revealing, and ‘an ordaining of destining [*Geschik*]: “It is from this destining that the essence of all history [*Geschichte*] is determined.”<sup>17</sup> In other words, the power of the enframing force lies within our telling of history, of how we understand our current technological activity as destined by this certain telling of history.

#### The power within the essence of technology

Destining endangers us by setting us on a path, thereby blocking other possibilities of revealing (of truth). Heidegger therefore asserts that “when destining reigns in the mode of enframing, it is the supreme danger.”<sup>18</sup> It can conceal former ways of revealing (by technology, or art, or poetry), but it can also conceal revealing itself.<sup>19</sup> A crucial take-away is that Heidegger labels this destining of enframing (the locking in of the technical mode of being) as the dangerous element in modern societies, but that technology itself is not a danger.<sup>20</sup> In our relationship with technology, one different from nature as ‘standing-reserve,’ the world could be revealed to us in a more original way, letting us ‘experience the call of a more primal truth.’<sup>21</sup>

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<sup>13</sup> “Martin Heidegger (Stanford Encyclopedia of Philosophy),” ‘3.3. Technology.’

<sup>14</sup> Ibid.

<sup>15</sup> Der Spiegel, “Der Spiegel Interview With Martin Heidegger,” 107.

<sup>16</sup> Heidegger, “The Question Concerning Technology.”

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> “As soon as what is unconcealed no longer concerns man even as object, but exclusively as standing-reserve, and man in the midst of objectlessness is nothing but the orderer of the standing-reserve, then he comes to the very brink of a precipitous fall; that is, he comes to the point where he himself will have to be taken as standing-reserve. Meanwhile, man, precisely as the one so threatened, exalts himself and postures as lord of the earth.” Ibid.

<sup>20</sup> “The destining that sends into ordering is consequently the extreme danger. What is dangerous is not technology. Technology is not demonic, but its essence is mysterious.” Ibid.

<sup>21</sup> Ibid.

In this danger (rooted in technology's essence) then also lies the 'saving power,' according to Heidegger. After all, we ourselves have 'granted' this essence to technology. And if enframing is (makes) the essence of technology, then the destining of this enframing is what grants this essence. If we pay heed to the essence of technology, to the enframing that brings us into the technical mode of being, we can clear ourselves from the danger in it: "through our catching sight of the essential unfolding in technology, instead of merely gaping at the technological."<sup>22</sup> Finally, Heidegger points out that the only way to be sure that other ways of revealing through technology are possible (and are not unconscious ways of enframing) is to have an alternative 'more primally granted' revealing that brings forth truth. This alternative revealing, or 'bringing-forth, would be the arts:<sup>23</sup> "the bringing forth of the true into the beautiful."<sup>24</sup>

## 2.2 Gehlen's Anthropological View on Individuals, Society, and Technology

The German anthropologist, sociologist, and philosopher Arnold Gehlen (1904-1967) believed that philosophical anthropology should be about defining the particular place of man in the world. Gehlen himself approached his assignment by first placing his focus on the 'real conditions' of human existence and rejecting any abstract or partial definitions of man.<sup>25</sup> The relationship between man and technology can be explained through understanding these existential conditions of human life. For Gehlen, the necessity for institutions, as well as their natural role, follow from this 'existential approach' as well.

### Technology as a way for the *Mängelwesen* to conduct and ordain in life

Central to Gehlen's argument is the idea that man is marked by his shortcomings; the human being is a *Mängelwesen*. 'Mängel' does not merely point as a shortcoming in terms of an absence of something that was supposed to be there, but instead points at "a more complex condition of poverty or inadequacy."<sup>26</sup> According to Gehlen, human beings cannot simply exist in nature. We suffer from (and through) this 'organic deficiency:' our natural organic structure and abilities need to be supplemented by external instruments. But this existential shortcoming is also somewhat of a blessing in disguise. The external instruments that we reach out for, 'technologies,' allow man to 'actively conduct himself in life'<sup>27</sup> and to adapt himself to all kinds of environments. The human being is not 'specialized'; not designed or evolved for a

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<sup>22</sup> Ibid.

<sup>23</sup> "'The arts' as they were understood amongst the ancient Greeks: "The arts were not derived from the artistic. Artworks were not enjoyed aesthetically. Art was not a sector of cultural activity. What was art – perhaps only for that brief but magnificent age? Why did art bear the modest name *technē*? Because it was a revealing that brought forth and made present, and therefore belonged within *poiēsis*." Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Grigenti, "Arnold Gehlen – Inadequacy And Technology," 48.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

particular natural environment.<sup>28</sup> But, with instruments and with the help of technological manipulations, humans are capable of compensating for, or substituting, the missing natural abilities. In this way, man can appropriate himself for all kinds of particular circumstances. In unforeseen situations, man needs to manage himself and can ‘exempt’ himself from his natural circumstances through action and the use of instruments. Gehlen refers to this inevitable attitude of man by calling it ‘the principle of exemption.’

From this biological approach to the human condition, man’s higher cognitive functions are simply ‘vital need inseparably in the living human body.’<sup>29</sup> These circumstances and these capabilities come together in what Gehlen sees as ‘Man’s task in life.’ A task of creating and maintaining order in life:

According to Gehlen, man’s task (Aufgabe) in life is to equip himself (verfügen) and conduct himself (verhalten), both verbs that clearly express a reflexive activity (in the English language too). So the German terms for simply placing (fügen) and merely holding (halten) would not suffice; we need to speak of man putting himself in order (ver-fügen) and keeping himself in order (ver-halten).<sup>30</sup>

Putting ourselves in order and keeping ourselves in order is not a mundane task. It requires forward thinking, risk assessing, relationship building, etc. In order to truly liberate ourselves as *Mängelwesen*, humans create an artificial world. It is a world of systems, habits, traditions, and technologies with which human beings can escape or ease this burden that stems in our natural condition. By exempting ourselves, we can relieve ourselves from some of the burdensome aspects of life and create freedom to think and act. Presenting man as ‘unspecialized’ (or, in other words, ‘uncomfortable’ in nature), Gehlen argues that that characteristic is what distinguishes man from animal. According to Gehlen, man is (unlike animals) *not* a natural being but a priori a cultural being. In other words, human beings derive their ‘specialization’ (their ‘place’ and to a large extent their ‘meaning’) from the artificial culture around them, by technologies, and by institutions.

#### The freeing relation between institutions and man

Next to exempting ourselves through systems, instruments, and other techniques, human beings also exempt themselves through *institutionalization*. Just as other forms of culture, institutions influence the life of every human being in important and necessary ways. And according to Gehlen, it is impossible to break the bond between man and institution. In modern industrial societies, where the struggle for survival and long days of physical work (in order to manage our existence) are no longer the first thing at hand, strong institutions provide the

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<sup>28</sup> The ‘Unspezialisierung’ of humans: human beings are evolved towards an undefined (and, in essence, unfinished) being. This is a ‘blessing in disguise’ because our creative minds can supplement the required abilities in many circumstances: “*It is through integration, intensification and facilitation that tools and machines compensate for man’s natural organic shortcomings. In Gehlen’s anthropology machines are simply the exact reflection of our weaknesses, a sort of nature artificielle.*” Ibid., 47.

<sup>29</sup> ‘Higher cognitive function’ is a broad definition that includes imagination, languages, and intellectual thinking. Ibid., 48-49.

<sup>30</sup> Grigenti, “Arnold Gehlen – Inadequacy And Technology,” 48.

essential stability for life in society.<sup>31</sup> They do this through the creation of frameworks, rules, and order. Again, these structures are not limitations to freedom for Gehlen. Instead, he regards them as guarantors of security and development. Institutions provide relief (exemption) from having to make too many decisions at each turn, and thereby gives man freedom to act and to create a private life.

By the undermining the claims of the state to rule society, the institutions in it are weakened. Weakened institutions threaten the social life of man (and consequently also the private life of man): “The weakening or collapse of institutions is not a strategic but also an anthropological problem, because it undermines the basis of the existence of man as a social being.”<sup>32</sup> Societies and cultures are always subject to changes, but human beings remain in their essence cultural beings. This cultural aspect in something we cannot rid ourselves of, according to Gehlen. Therefore, it is important to evaluate to which extent digital decentralized and private technologies are some kind of a cultural change or a way to undermine existing institutions without replacing them (and their social-cultural function). Reading Gehlen, he seems to see existing institutions eroding under the pressure that these types of technologies apply.

In modern times, Gehlen observes an 'explosion of subjectivity' stemming from the 'alienation from everyday life' through the rapid changes and the streams of expeditious information.<sup>33</sup> Only strong institutions can oppose this chaos, as they can direct our energy towards development. Just as is the case for Foucault, institutions are primarily productive (instead of repressive) for Gehlen. The institutions that are formed by the state might be the type of institutions that come to mind first, but Gehlen also refers to other crucial institutions in this theory, such as the church, the army, family, and systems of justice.<sup>34</sup> Through these institutions, man's behaviour, sensations, thoughts, and understanding of the self are shaped. But also the other way around, Gehlen argues, can our ideas and ideals only take shape by embodying them in institutions.<sup>35</sup> Institutions, therefore, form the basis of all historical transformations in the human understanding of the world and our place in it. When man uses these institutions as a basis for acting in certain ways, or for taking on certain roles, institutions show their inherent power (*Selbstmacht*).<sup>36</sup>

When institutions erode, as Gehlen witnesses happening in modern times, institutions become organizations. These organizations are then solely in place to procure efficiency and manage systems. They legitimize their existence through their functionality but have lost sovereignty and their ability (through a loss of credibility) to embody societal ideas and ideals. For man in modern times, who adjusts himself to the system, this means becoming a '*Funktionsträger*' in these systems. The experience of man has become completely secondary

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<sup>31</sup> Horonziak, “Institutions as the Forces Stabilizing State. Contemporary Look at Arnold Gehlen’s Theory of Institutions,” 121.

<sup>32</sup> Ibid., 118.

<sup>33</sup> Ibid., 119.

<sup>34</sup> Lemmens, "Arnold Gehlen (1904-1976): Denkers en Thema's voor de 21<sup>e</sup> Eeuw."

<sup>35</sup> Ibid., 4-5.

<sup>36</sup> Ibid., 5.

in this system, and man can therefore no longer ordain himself *and* no longer free himself from the more existential and ideological burdens which are needed to act and form a personality of one's own.<sup>37</sup>

### 2.3 Ellul's Concept of Technique and The Technological Society

In Jacques Ellul's (1912-1994) most influential and well-known work *La technique, ou l'enjeu du siècle*<sup>38</sup> he introduced the concept of 'technique.' According to Ellul, technique, or the technological phenomenon, is the steering force behind the shaping of modern societies. Technique's role and function in society comes with several characteristics of the phenomenon: as a collection of technological methods, rationale, procedures and organizing forces. The seven characteristics that Ellul ascribes to technique are rationality, artificiality, automatism of technological choice, self-augmentation, monism, technical universalism, and autonomy.

#### Pursuing *Technique* as the main preoccupation of our time

The first two characteristics, rationality and artificiality, are not entirely unique to the modern technological society. With these two first characteristics Ellul refers to how, when we systemize and set standards and norms, we focus on what is the logical method. And by dedicating ourselves to the logical and the rational, a society necessarily reduces knowledge and experience to those things that can be grasped logically. This is at first an expression of rationality, but artificiality immediately follows. The rational logic leads us to create (with technical means) an artificial logical world that "destroys, eliminates, or subordinates the natural world."<sup>39</sup>

The next characteristic, automatism of the technical choice, points out how technique *itself* selects which technical means to utilize. This 'automatic' choice is a further implication of rationalization: the technical choice is not a personal one, but a choice based on the reckoning of what is the most efficient way. We can always come up with several (technical) solutions, but in choosing between these options we are always looking for what would be the most efficient one. This process, that Ellul calls 'automatism,' is then a new social convention. However, this convention clashes with what is considered a basic human freedom to apply

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<sup>37</sup> Gehlen, *Die Seele Im Technischen Zeitalter: Sozialpsychologische Probleme in Der Industriellen Gesellschaft*, 96–99.

<sup>38</sup> 'Technique, or the stake of the century' The title of the English translation of the work is 'The technological society.' The reason we refer to Ellul's concept in the French term 'technique' is that the English translation can cause confusion, which Ellul realized himself as well. 'Technique' is translated to English as 'technology,' but so is the French word 'technologie.' The difference in meaning of these words in French is similar to the difference between 'society' and 'sociology,' or the 'the concrete thing' versus 'the discourse on the subject.' When Ellul speaks of technique, he speaks of neither of those two things, but instead of 'the technological phenomenon' or 'the reality of the technological' (Ellul and Garrigou-Lagrange, *In Season Out of Season: An introduction to the Thought of Jacques Ellul*, 32-33).

<sup>39</sup> Ellul, *The Technological Society*, 79.



one's own reasoned (or emotional) human judgement and choice to decide on ways of doing something.<sup>40</sup> But the advantages of technique, clear to all, constantly suppress the personal choice that does not align with the technical choice:

Consciousness shows clearly, and to everybody, the advantages of technique and what it can accomplish [...] The direct result is that he [the technician] seeks to apply the new methods in fields which traditionally had been left to chance, pragmatism, and instinct.<sup>41</sup>

The pursuit for 'the one best way in every field' is what Ellul calls the 'technical phenomenon,' and it is the main preoccupation of our time.<sup>42</sup> Today, it is also (or again) visible in how we assume that using the right *means* in every aspect of our lives will lead to obtaining the 'right' (i.e. idealized) *ends*. For example, that there are algorithms and rational underpinnings to achieve fulfilling relationships, professional success, and for establishing functional democracies.

#### Everything which is *technique* is necessarily used

Ellul formulates the following characteristic of technique, self-augmentation, in two 'laws:' "1) In a given civilization, technical progress is irreversible [and] 2) Technical progress tends to act, not according to an arithmetic, but according to a geometric progression."<sup>43</sup> With this second law, Ellul points at how technological discoveries entail progress in not just one, but several branches, as new techniques are applied wherever they can increase efficiency.<sup>44</sup> Blockchain and distributed ledger technologies (DLTs) are a good example of how this second law works in our society today; their invention in the Bitcoin-protocol does not mean people do not seek to apply the technology in many other areas than cryptocurrencies. But other practices also exemplify how techniques self-augment geometrically, such as the gathering of (consumer) data, personal advertising, or the idea of needing a digital personality and identity. By applying techniques in other sectors, with other demands, there is a continuous and self-engendering development of techniques. The new technical problems that are encountered in applying techniques to other sectors demand technical solutions in return.

Next, Ellul characterizes technique as monistic: the technical phenomenon is one whole. We cannot, and should not, distinguish techniques, as they all embody the same principles. Ellul condemns the tendency of many to "distinguish between technique and the use to which it is put."<sup>45</sup> Ellul finds that man cannot separate the use of a technique from the presence of it, and this also means to him that people cannot direct or steer techniques to good or ill use.<sup>46</sup> Presence (existence) and use are intertwined to such a degree that Ellul formulates

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<sup>40</sup> Greenman, Schuchardt, and Toly, *Understanding Jacques Ellul*, chap. Technology and Technique.

<sup>41</sup> Ellul, *The Technological Society*, 21.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid., 89.

<sup>44</sup> Ibid., 90.

<sup>45</sup> Ibid., 95.

<sup>46</sup> Greenman, Schuchardt, and Toly, *Understanding Jacques Ellul*, chap. Technology and Technique.

'the principle law of our age' as follows: "Everything which is technique is necessarily used as soon as it is available, without distinction of good and evil."<sup>47</sup> After all, technique offers a rational option, 'the one best way.'

As all techniques operate to these same principles, and are put to use as they are invented, an *automatism* of the technological phenomenon is incited. Since following the logic, as Ellul puts it: "it would be foolish not to use the available means."<sup>48</sup> After all, the problems of our day are so pressing that we seek to counteract as quick as possible, without the time nor the means to foresee all the inevitable side effects of proposed solutions. This is way Ellul contends that techniques are put to use without real distinction of good and evil.<sup>49</sup>

### Technique becomes a universal trajectory

Ellul compares this worldwide absorption of technique to all societies joining in on the same 'path:' "Today all peoples follow the same road and the same impulse [...] they are situated at different points along the same trajectory."<sup>50</sup> Technique is unimpressed by borders or cultures. The only way for these other nations to move forward, to 'grow,' to collaborate, to compete, or to coexist among those more 'advanced' nations, is by following the same rules. Ellul sees phenomena such as commerce and wars as accelerators of the worldwide adoption of techniques. But the way in which the West has colonized, and de-colonized, other parts of the world stimulated this 'equipping' of other societies with the efficient methods of techniques, Ellul asseverates as archetypical for this process.<sup>51</sup> The initiation onto the path of technique will lead to the destruction of the other ways of structuring life in society, for good.<sup>52</sup> Societies respond differently to the effects of technique, and the effects of technique are nowhere identical or predictable. "However," Ellul clarifies, "behind this diversity is to be noted an absolute incompatibility between the technical type of civilization and all the others."<sup>53</sup> The characteristic of technical universalism also applies to qualitative aspects of civilizations in

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Ellul criticizes Lewis Mumford's discussion of the printing press and the newspaper that comes from it, a criticism which is also applicable to functions of the internet. Mumford sets the 'impersonal, cooperative, objective' machine against the 'limited, subjective, recalcitrant' content of the papers, thereby applauding the existence of the printing press and disdaining the (ab)use of it. But according to Ellul, the content is "*necessitated by the social form imposed on man by the machine.*" The newspaper in 1964, or the internet in 2023, is an "*indispensable instrument for releasing [our] repressed passions.*" (Ellul, *The Technological Society*, 95-96).

<sup>47</sup> Ellul, *The Technological Society*, 99.

<sup>48</sup> *Ibid.*, 105.

<sup>49</sup> As Ellul writes in *The Technological Society*: "It is only after a period of dubious experimentation that a technique is refined and its secondary consequences are modified through a series of technical improvements. Henceforth, someone will say, it will be possible to tame the monster and separate the good results from the operation of the bad. That may be. But, in the same framework, the new technical advance will in its turn produce further secondary and unpredictable effects which are no less disastrous than the preceding ones." (p. 107).

<sup>50</sup> *Ibid.*, 117.

<sup>51</sup> *Ibid.*, 118.

<sup>52</sup> *Ibid.*, 121-122.

<sup>53</sup> *Ibid.*, 124.

which technique is embraced. In other words, the introduction of *technique* changes citizens' whole way of life in society: "Man is overpowered by technique and becomes its object."<sup>54</sup>

### People become the objects of technique

The moment technique is no longer the object of people, but people have become the object of technique, the technical civilization is formed. Technique acts as an internal influence, and "technique is itself civilization."<sup>55</sup> Therefore, the last characteristic that Ellul ascribes to technique is *autonomy*. Technique develops autonomously, independent from politics, economics, and the social situations. And although many people like to believe that these aspects of life in society determine the developments in technical means and procedures, Ellul sees these aspects as the consequences, and technique as the 'prime mover of all the rest.'<sup>56</sup> The autonomy of technique is also evident, again, in the realm of morality and spirituality. Technique concerns itself with technical problems, and it does *not* concern itself with bringing forth that which is good (or bad). Morality is 'a judgement from without,' a potential limitation that technique disregards: "technique is beyond good and evil [...] and can therefore do what it will. It is truly autonomous."<sup>57</sup>

At last, one could say, that technique is not beyond the laws of physics or biology. But technique does not simply abide to these laws either. Instead, technique seeks to dominate them. Technique can dominate, or govern, by either replacing autonomous organisms by a machine, or by modifying the organism (organic structure) in such a way that it manifests as in-organic.<sup>58</sup> This same procedure applies to the relations between techniques and man. Here, technique becomes increasingly autonomous from the control of man (the working of which the characteristic of self-augmentation has already clarified). Man's role in the commanding and regulating of technique is persistently diminishing. But, importantly, this is *not* happening involuntarily. Because eventually, man – regardless of his education, experience, or expertise – is seen as 'a source of error and unpredictability,' legitimizing technique to predominate.<sup>59</sup>

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<sup>54</sup> Ibid., 127.

<sup>55</sup> The aspect of technique is what makes it civil: "*The external structures imposed by technique can no longer, by themselves modify the components of a society; here the internal influence of technique on human being becomes decisive. Henceforth, every component of civilization is subject to the law that technique is itself civilization. Civilization no longer exists of itself. Every activity – intellectual, artistic, moral – is only a part of technique.*" (Ibid., 130).

<sup>56</sup> Ibid., 133.

<sup>57</sup> Ibid., 134.

<sup>58</sup> Ibid., 135.

<sup>59</sup> Minimizing or eliminating this risk of human error is an end inherent to technique: "*The combination of man and technique is a happy one only if man has no responsibility. Otherwise, he is ceaselessly tempted to make unpredictable choices and is susceptible to emotional motivations which invalidate the mathematical precision of the machinery. He is also susceptible to fatigue and discouragement. All this disturbs the forward thrust of technique.*" (Ibid., 136).

## 2. 4 Hall's Concepts of Policy Paradigms and Orders of Policy Changes

Policy scholars in the twenty-first century make use of various theoretical frameworks to understand policymaking processes. These theories examine how relevant actors interact and influence each other, leading to specific policy outcomes. Daigneault (2015) highlights that many of these theoretical frameworks emphasize the importance of *ideas*. But ideas (and the role they play) are also notoriously difficult to define in policy studies, as Carney and Weible have argued.<sup>60</sup> Among these 'ideational frameworks,' Peter Hall's concepts of 'policy paradigms' and 'social learning' in the policymaking process have become particularly influential. Daigneault attributes the popularity of Hall's framework to "its ability to illuminate the connection between ideas and various degrees of policy change."<sup>61</sup> For Hall, 'ideas' differ from 'institutions,' or 'interests,' or 'socio-economic conditions,' which are all also elements in policymaking and constitute the context. Importantly, 'ideas' encompass a broad range of collective thoughts and beliefs, such as worldviews, ideologies, cognitive filters, and causal beliefs regarding policy change.<sup>62</sup>

In 1993, Peter Hall wrote an article on what would become one of the best-known theoretical frameworks on major policy change.<sup>63</sup> It was a reaction to the theories of state that were unable to clarify the policymaking process, as they could escape a certain dilemma according to Hall. Namely, whether policy makers are responding to social interests and operate based on related subjective preferences, or whether the policy they are producing is the outcome of bureaucratic politics and state structures. His response encompasses the introduction of a theory of state that understands policymaking as 'social learning.' Hall saw the promise of such a theory, but also how it did not clarify better how ideas fit into the policy making process, or how 'social learning' solves the division between state-centric and state-structural analyses of the state and policymaking.

Therefore, Hall built on Hugo Hecló's work on policymaking as social learning. As Hecló's work emphasises 1) the role of previous policy, 2) the role of experts' opinions, and 3) the capacity of states to act autonomously of societal pressures (so state-centric, in which outside-forces play no 'primary role in the development of social policy').<sup>64</sup> With his article, Hall aims to clarify what social learning in policymaking is, and how it takes place. By doing this, he provides a model of a structure and order that shows how ideas come to change policy.

### Interpretive frameworks in policymaking: introducing 'policy paradigms'

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<sup>60</sup> Paul Cairney and Chris Weible (2015) 'Comparing and Contrasting Peter Hall's Paradigms and Ideas with the Advocacy Coalition Framework' in (eds) M. Howlett and J. Hogan *Policy Paradigms in Theory and Practice* (Basingstoke: Palgrave)

<sup>61</sup> Ibid.

<sup>62</sup> Daigneault, "Can You Recognize A Paradigm When You See One? Defining And Measuring Paradigm Shift".

<sup>63</sup> Hall, "Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain."  
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In order to comprehend how ideas play a role in policymaking, Hall makes the definition of 'social learning' more applicable: "a deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information."<sup>65</sup> To make this definition helpful and meaningful for our understanding, Hall 'disaggregates' this conceptualization of social learning. If we understand policymaking and changes in policy as phenomena that are happening on three levels, or as a process that involves three variables, we can also distinguish between the different learning processes associated with different levels of policy changes. The three variables that Hall describes are: "[1] the overarching goals that guide policy in a particular field, [2] the techniques or policy instruments used to attain these goals, and [3] the precise settings of these instruments."<sup>66</sup> These three variables are then transposed to levels or orders of change.

Changes that are made to this third variable, to the 'settings' of policy instruments (or the ways in which these instruments are put to use), are changes of policy of the *first* order. When the goals remain the same, but changes are made in the choice of policy instruments or techniques to attain those goals, changes of the *second* order made. Policy changes of the *third* order occur relatively rarely, but in that case all three components of policy are changed as a consequence of a new experience and/or on attaining new information: the (hierarchy of) goals behind policy and the instruments and their settings all shift in that process.<sup>67</sup> It is important to notice that all these changes happen within situational contexts, as results of 'social learning.' The context determines the (realization for the) need to make changes, and/or how a big event provokes a certain response. The changes of which Hall speaks are as small as they can be big, and can also be happening constantly and gradually over time. This will be demonstrated in chapter three with the EU recent history of financial and digital policies choices and changes since the 2008 financial crisis.

On all three levels of social learning, *ideas* are the facilitators of change. As ideas never exist as singular things, but always in lines and systems of thought, so do the ideas on the process and content of policy. The actors involved in policymaking apply systems of ideas and systems of standards in their work. "More precisely," says Hall, "policymakers customarily work within a framework of ideas and standards that specifies not only the goals of policy and the kinds of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing."<sup>68</sup> This makes for the interpretive frames of the actors that are involved in the policymaking processes, and Hall calls these interpretive frames 'paradigms.' Cairney and Weible point out that the uses of 'ideas' differ in the literature, but they organize those usages in three ways. These three modes of ideas help show how Hall sees ideas as the shaping force behind these interpretive frames: 1) ideas as relating to persuasion and argumentation (which happens in framing activities, problem definition, and agenda setting), 2) ideas as a shared language (shaping the abstract frameworks or an ideology), and 3) ideas as

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<sup>65</sup> Ibid., 278.

<sup>66</sup> Ibid.

<sup>67</sup> Ibid., 279.

<sup>68</sup> Ibid.

proposed solutions to problems (which arise as the (only) conceivable and feasible solutions within a paradigm).<sup>69</sup>

### Policy paradigms

Hall uses the concept of policymaking paradigms to make the analogy to Kuhn's scientific paradigms and changes in the development of science. For instance, he suggests that, similar to Kuhn's theory of scientific progress, changes of the first and second order can be seen as 'normal policymaking.'<sup>70</sup> In those cases, the overarching terms of given policy paradigms remain unchallenged. Only changes of the third order would implicate a paradigm shift.

There are several things about policymaking paradigms in Hall's framework that should be underscored here. Firstly, since paradigms are systems of ideas about how the world operates, and these ideas can differ greatly, there cannot be a single language or collection of data and facts that underpins different paradigms. And for advocates of different paradigms, this makes approaching one another complicated. This means three things for the way in which great paradigms in policymaking shift, according to Hall. First, policymaking paradigms are not based on scientific grounds as much as they are based on sociological ones. Therefore, shifts in policy paradigms are often influenced by shifts in the political climate and the relative advantages of certain actors or experts within the institutional structure, or by external factors that influence the distribution of power. Second, and connected to the first, are contests of authority, especially when the policy topics are more specific and technical (when they require technical or scientific expertise). In those cases, shifts in authority directly influence the direction and instruments of policy. For example, in the regulating of crypto-asset markets, this contest of authority manifested itself in the behaviour and conclusions of experts from central banks tech-optimists in the European parliament, and entrepreneurs or investors from the crypto-community. Another important effect of paradigms having different bases is that bigger changes in paradigms often happen after policies are tried out and/or fail. When the policies that follow a certain paradigm fail to produce the expected results, and anomalies occur, the explanatory power (or the 'intellectual coherence') of the paradigm is weakened. "Therefore," Hall writes, "the movement from one paradigm to another that characterizes third order change is likely to involve the accumulation of anomalies, experimentation with new forms of policy, and policy failures that precipitate a shift in the locus of authority over policy and initiate a wider contest between competing paradigms."<sup>71</sup> Once defenders of another paradigm secure the positions of authority over policymaking, a new paradigm is able to be institutionalized. How far this applies to the case of regulating markets in crypto-assets in the European Union will be further clarified in section 3.2.

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<sup>69</sup> Cairney and Weible, pp. 85-86.

<sup>70</sup> Ibid.

<sup>71</sup> Hall, 280.

## 2.5 Synthesis and Relevance of the Philosophical Insights

Heidegger, Gehlen, and Ellul all see technology as a part of modern society as something – a phenomenon, an extension, a force – that fundamentally shapes our ideas, us as humans and our societies, and not the other way around. According to these philosophers, this does not *have to* be a bad thing for a society, as long as a critical stance (necessarily a conscious stance) towards this process can be held. This is crucial for retaining our own power to prioritize other values and principles over those that are promulgated by technology.<sup>72</sup>

Heidegger argues that technology shapes how humans perceive and interact with the world, often reducing it to a resource that requires management and control. If this is the case, this sentiment or frame, would reappear in policymaking processes related to technologies. But in that case, it is equally true that major changes in policies would then signal changes in the enframing of technology. According to Heidegger, we should also be able to detect how technological advancements steer what policymakers consider achievable or desirable.

Gehlen showed how, as humans rely on technologies to compensate for biological deficiencies, institutions become crucial for managing the complexities of living in a society of fast technological advancements. This also means that the way in which our institutions respond to (technological) challenges, can tell us something about the worldviews and ideas the institutions embody. Institutions themselves also integrate new technologies for their own policy instruments, which then become part of how the institutions understand their role in and potential for society. Or would the European institutions already have lost their power to uphold ideals to become mere highly functional, efficient ways of systemizing?

And if technique has become the autonomous force Ellul considers it to be, most policymakers would also work with worldviews in which the logic and standards of technique dominate the positions and actions of actors. In the upcoming chapter, we will examine the extent to which policymakers are compelled to accept crypto-assets and their technology as an innovation that will ‘necessarily be put to use.’ In other words, to what extent we can see the crypto-assets case study as exemplary of the autonomy of technique.

Linking Peter Hall's framework for understanding policy change to the philosophies of technology by Jacques Ellul, Arnold Gehlen, and Martin Heidegger can provide another dimension to understanding how technological factors influence policymaking. Heidegger's concept of ‘enframing’ can be connected to policy paradigms as ways of understanding and interacting with the world. Similar to enframing, a policy paradigm shapes our perception of technology's role in the world, influencing what we perceive as problematic and the solutions we conceive. A shift in paradigms (third-order change) can then be seen as a shift in enframing. When the dominant technological mode of revealing no longer suffices, a new paradigm slowly

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<sup>72</sup> For a comparative analysis of the compatibility and tensions among Heidegger's, Gehlen's, and Ellul's frameworks on technology, see Appendix E.

emerges among certain actors, gradually gaining more ground as it competes with the existing paradigm, and ultimately altering the approach to policymaking. But also within a paradigm, policy goals can be redefined as a result of technological changes. Although changes of the third-order are considered rare by Hall, the (reflective and critical) effort a renewed enframing of technology would cost, makes such a shift even more seldom.

Gehlen's philosophy of institutions as mediators of technological impacts can also be related to Hall's view of policy paradigms. Institutions embody these paradigms and facilitate social learning by structuring how policymakers interpret and respond to challenges. Although this notion of institutions as a 'structure-binding-ideas,' and the nature of institutions more generally, is under scrutiny by scholars.<sup>73</sup> However, Gehlen's theory on the birth and existence of institutions can also provide a philosophical approach and addition to this debate. Because next to how Gehlen sees institutions as (originally) embodying ideas, his theory also supports the relevance of how technological developments alter the choices in policy instruments. As technologies evolve, they become integral to the tools available for first- and second-order policy changes and thereby affect the development of and changes in policies.

Ellul gives us clues about the possibly "subconscious" or uncontrollable thoughts that shape how we see things: how technological paradigms change on their own and the conditions under which they do so. Ellul's idea that technique evolves autonomously and becomes self-perpetuating can explain why policy paradigms can seemingly become entrenched and resistant to change. This lock-in effect aligns with Hall's observation that policy paradigms persist until a significant crisis prompts a third-order change.

The philosophical perspectives presented in this chapter underscore the profound influence of technology on societal and institutional structures. These perspectives frame technology as both a driver and a constraint in regulatory policymaking. To connect this theoretical groundwork with empirical policymaking in the EU, Hall's concept of policy paradigms offers a critical lens. It highlights the dynamic interplay of ideas, crises, and technological imperatives in shaping regulatory frameworks (explored in more detail in the following chapter).

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<sup>73</sup> Cairney & Weible, pp. 87-88.



### **3. Mobilizing Policy Paradigms: Perceptions of Technology in EU Regulation**

Building on the theoretical insights into technology's influence on societal structures, this chapter mobilizes Hall's policy paradigm theory to examine how ideas about technology are perceived and operationalized in EU regulatory processes. Hall's framework of 'orders of policy change' will be applied to an analysis of the EU's response to the 2007-2009 financial crisis and the subsequent strategies for recovery and growth. The post-crisis period saw changes across all three orders of policy change, albeit incremental. The strategies, institutional structures, and policy instruments developed in the decade following the crisis provide the context for the approach to regulating crypto-assets.

Analysing the interactions between technological phenomena, crises, and regulatory responses, reveals the mechanisms through which paradigms of understanding shape EU policymaking. The MiCA regulation is explored as a case study to illustrate the dynamics. In 3.2, the process leading to the MiCA regulation is outlined, focusing on the framing activities of different actors and their responses to events. Hall's framework is applied to this policymaking process to clarify how ideas, understandings, and worldviews, and their interactions, shape the choices that result in policy outcomes.

The fourth chapter synthesizes philosophical arguments about the technological phenomenon, compelling ideas about the role of technology in society, and the policymaking process, driven by the persuasive force of circulating ideas among policymakers and regulators.

#### **3.1 Policy Paradigms and Social Learning in the EU: The 2008 Financial Crisis and its Impact and Meaning for the EU**

The global financial crisis, that started in the United States in 2007, is an important crisis in the history of finance. The repercussion in Europe were equally serious, and we aim to investigate to what extent we can understand it as a catalyst for a paradigm shift in European financial and economic policymaking. The crisis made regulators aware of their underestimation of the risks of underregulated and under-supervised financial institutions and financial instruments. And, importantly, of misleading representation of the risks of certain financial instruments. The EU, as a result, would introduce new strategies, new directives, regulations, and would re-sharpen existing regulatory instruments, developing the union's identity around prudential regulation.

The global financial crisis also set the stage for the introduction of crypto-assets. Over the course of a decade, these new financial substitutes/instruments would emerge as an autonomous force by itself. Eventually, the size of the markets and the risks attached to the popularity of 'stablecoins' would drive new regulatory action in the EU. Since the crypto-asset markets operate and develop according to a different logic than the traditional financial markets, regulators struggled to formulate the new regulation that is now known as MiCA.

After looking into how much the financial crisis of 2007–2009 can be seen as a cause for policy changes of a third order (a paradigm shift), we look at the European strategies that followed. Naturally, these strategies also established the regulatory foundation for the policies and instruments pertaining to markets in crypto-assets (MiCA), as we will discuss in section 3.2.

### A shift in policy paradigms: Orders of change

Applying Hall's framework, we can understand the financial crisis as a type of catalyst for policy change in the EU. But to what extent can we understand the crisis as a cause for a paradigmatic shift as well?

At first, as the crisis unfolded and reached the EU from the United States, the 'settings' of policy instruments were changed, as many quantitative easing strategies were applied. Initially, the EU seemed to recover quickly from the recession, but not long after that initial 'artificial' bounce back, several member states succumbed to a sovereign debt crisis.<sup>74</sup> And the combination of these two successive crises made a big and lasting impact on economic growth and prosperity in the European Union. Importantly, it "highlighted the potentially vicious circle between banks and sovereign debt" in the EU.<sup>75</sup> This failure of the policy intervention on the long term gave cause for a second-order policy change. The European Commission believed that, in order to stay out of that vicious circle, the economic and monetary union - the fact that the Member States share one currency - demanded a more integrated approach than one that solely focused on a strong financial sector. This meant "ensuring centralized delivery of the rules for all 28 Member States."<sup>76</sup> For the EU leadership, the financial crisis served as a wakeup call for better regulation and supervision of the financial sector. This collective realization of the failing of policies (resulting from the anomaly) helped in shaping a new vision for the 'European Single Market:

It is the reason why the European Commission has since 2010 proposed nearly 30 sets of rules to ensure all financial actors, products and markets are appropriately regulated and efficiently supervised. These rules are the basic framework for all 28 Member States of the EU and underpin a properly functioning Single Market for financial services.<sup>77</sup>

A new shared framework was necessary as the pre-crisis framework had proven to be incapable of responding to the systemic nature of the crisis. For example, there were no instruments in place for a structured response to large cross-border banks collapsing.<sup>78</sup> The European Commission voiced their concerns about the fact that under-regulated and under-supervised banking practices would keep threatening financial stability in the Union if no big

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<sup>74</sup> Szczepanski and European Parliament Research Service, "A Decade on From the Crisis: Main Responses and Remaining Challenges."

<sup>75</sup> "A Comprehensive EU Response to the Financial Crisis: Substantial Progress Towards a Strong Financial Framework for Europe and a Banking Union for the Eurozone."

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

<sup>78</sup> Ibid.

changes would be introduced. European taxpayers would then have to keep footing the bill for the mistakes of (commercial) banks. As they had to for this financial crisis: “between October 2008 and 31 December 2012, European countries have mobilized €591.9 billion – 4.6% of EU 2012 GDP- in public capital support to their banks.”<sup>79</sup> The main issue about the pre-crisis framework, that caused the complexity of the response, was the fact that in 2008 there were “27 different regulatory systems for banks in place largely based on national rules and national rescue measures, although some limited European minimum rules and coordination mechanisms already existed.”<sup>80</sup> The development in the understanding of the versatility of existing policy instruments and their setting are a great example of both first- and second-order policy changes, but also of how new policies are formulated and justified in terms of the outcomes of the preceding policy.

But some argued that this shift in the type of instruments that policy makers should apply also came with new policy *goals*, and that the financial crisis also caused a more fundamental paradigmatic shift in European policymaking.<sup>81</sup> For them the conclusion that should be drawn from these years of crisis was that the EU should really go into a new direction. Konvitz (2020), for example, argues that the high level of uncertainty before the crisis was already an indicator that change was ahead. But it was the crisis that really caused policymakers to shift focus to better coordination, increased solidarity between member states, and a renewal of the beheld responsibilities. The new direction in fiscal policy also looked beyond the fiscal markets: “in other words, fiscal responsibility should be combined with economic effectiveness and social fairness.”<sup>82</sup> But others suggest that, even though the crisis demanded some exceptional measurements, it did not affect the status quo as much (as did, for instance, the 1929 crisis).<sup>83</sup> The initial European response was typically Keynesian, and even though it did not prevent a further crisis, it functioned as shock absorbers for a more profound economic and political change.<sup>84</sup>

However, it could be argued that the EU's status quo *was* affected. For instance, as it took on (and institutionalized) a more supervisory role in financial markets. As a 2014 EC memo reads: “regulation alone is not enough. Without good supervision, regulation can be worthless.”<sup>85</sup> For this purpose, the new supervisory architecture was established in response: a European System of Financial Supervision (ESFS). This architecture is a network that consists of the European Systemic Risk Board (established in 2010), three European Supervisory Authorities (ESAs; which were established on the first of January 2011), and national

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<sup>79</sup> Ibid.

<sup>80</sup> Ibid.

<sup>81</sup> “Paradigm Shifts - Fondapol.”

<sup>82</sup> Foundation for European Progressive Studies, “The Eurozone and the Need for a Paradigm Shift - Foundation for European Progressive Studies.”

<sup>83</sup> Moschonas, “Paradigm Shifts in the Light of the Past: The 1929 Crash, the Great Recession of 2008 and the COVID-19 Crisis.”

<sup>84</sup> Ibid.

<sup>85</sup> “A Comprehensive EU Response to the Financial Crisis: Substantial Progress Towards a Strong Financial Framework for Europe and a Banking Union for the Eurozone.”

supervisors.<sup>86</sup> The renewal of the European Single Market strategy in 2011 can also be understood as a rather profound economic and political change for Europe. This new overarching strategy was based on 12 'levers' which addressed the economic effectiveness and the social fairness that were mentioned in the previous paragraph. In other words, with this renewed single market strategy new policy instruments (second-order) were introduced based on new policy goals (third-order).

#### New overarching strategy: 2011's Single Market Act (SMA)

Although the concept of the single market had been part of the workings of the EU since 1993, the 'new reality' that the 2007-2009 financial and economic crisis had made apparent, prompted a Single Market Act (SMA) which was introduced in 2011.<sup>87</sup> Almost twenty years after its first implementation, in April 2011, the EC identified problematic issues that stood in the way of the evolved single market reaching its full potential. The SMA set out "12 levers to boost growth and strengthen confidence in the economy."<sup>88</sup> The Commission expressed how the SMA would entice the urgent union and national structural reforms that were needed to 'put an end to market fragmentation and eliminating barriers and obstacles to the movement of services, innovation and creativity' and that would 'strengthen citizens' confidence in their internal market and ensure that its benefits are passed on to consumers.'<sup>89</sup> The European Commission thus saw it as the Union's responsibility to leverage the growth potential of the European Single Market.

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<sup>86</sup> To understand the broader context in which the EU developed its regulatory response to crypto-assets, it is useful to examine the establishment of the European System of Financial Supervision (see Appendix A).

<sup>87</sup> European Commission, "Single Market Act Twelve Levers to Boost Growth and Strengthen Confidence 'Working Together to Create New Growth.'"

<sup>88</sup> Ibid.

<sup>89</sup> Ibid. "To remedy these shortcomings we must give the single market the opportunity to develop its full potential. To this end, a proactive and cross-cutting strategy should be developed. This means putting an end to market fragmentation and eliminating barriers and obstacles to the movement of services, innovation and creativity. It means strengthening citizens' confidence in their internal market and ensuring that its benefits are passed on to consumers. A better integrated market which fully plays its role as a platform on which to build European competitiveness for its peoples, businesses and regions, including the remotest and least developed. There is an urgent need to act. Despite the European Union's swift reaction to the crisis and the reforms which are now well under way (especially in financial markets and economic governance), the crisis could have a lasting effect on potential growth and on unemployment, affecting both the standard of living of Europeans and their future. In response, the European Union has adopted a strategy – Europe 2020 – setting itself ambitious goals for smart, sustainable and inclusive growth. But these objectives can be achieved only if the Union and the Member States carry out urgent structural reforms. Priority must be given to those measures likely to foster growth and employment. In its Annual Growth Survey the Commission stressed the need for a global response to the crisis, to which the single market is called upon to contribute decisively by leveraging its growth potential. The European Council stressed this role in its Conclusions of 24/25 March 2011: "The Single Market has a key role to play to deliver growth and employment and promote competitiveness ... Particular emphasis should be laid on measures which create growth and jobs and bring tangible results to citizens and businesses". The single market provides the framework and the tools for implementing these reforms."

Several levers capture a logic that not only aligns with the logic of crypto-assets and markets, but that also with the rhetoric that reappears in the MiCA regulation. ‘Access to finance for SMEs,’ for example, is one lever which is aimed at making it easier for EU Member State venture capital funds to invest in another Member State ‘without obstacles or additional requirements.’<sup>90</sup> Another lever, unionized ‘intellectual property rights,’ is aimed at simplifying the securing multilateral patents. A system of national patent litigation systems is inefficient and costly and generates legal insecurity.<sup>91</sup> Levering ‘consumer empowerment’ will lead to more confident consumers as they can assume that the goods that they buy are reliable. Here the EU assumes the responsibility of regulating general product safety by applying the same rules and standards across the EU.<sup>92</sup> The ‘services’-lever stresses the need to facilitate easier cross-border provision of services.<sup>93</sup> With the ‘digital single market’ one of the main objectives is to “make secure, seamless electronic interaction possible between businesses, citizens and public authorities, thereby increasing the effectiveness of public services and procurement, service provision and electronic commerce (including the cross-border dimension).”<sup>94</sup> The EC highlighted that for the digital single market the EU and its citizens need to have trusted electronic services “that respect privacy, provide legal certainty, ensure that transactions are secure, work across borders and are recognized by all sectors of activity, but which are cheap and easy to use and which are under the strict control of the transaction parties.”<sup>95</sup>

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<sup>90</sup> A way to achieve this would be by making sure that EU proposals for the regulation of financial services do not negatively impact SMEs. But also facilitating access to funding for rapidly growing SMEs was one of the proposed ways, “*because such SMEs – and innovative SMES in particular – play a crucial role in the development of an innovative, sustainable economy*” (European Commission, “Single Market Act Twelve Levers to Boost Growth and Strengthen Confidence ‘Working Together to Create New Growth.’”). The Transparency Directive, the Prospectus Directive, and the Market Abuse Directive would also all have to be reviewed for SMEs in order not to impede these businesses with unproportional obligations.

<sup>91</sup> As a lot of the value of businesses (especially in the creative and services sectors) is linked to intellectual property rights, creating a EU patent system increases the value and improves the working of the Single Market: “The new flexibility provided by an updated legal framework will enable new business models to emerge, leading to a wider and targeted distribution of creative content to more mobile consumers” (European Commission, “Single Market Act Twelve Levers to Boost Growth and Strengthen Confidence ‘Working Together to Create New Growth.’”).

<sup>92</sup> This lever is not only focused on protecting consumers’ ability to trust in the products they buy, but also of the financial services they use “*with particular regard to the transparency of bank fees and better protection of borrowers in the mortgage market*” (Ibid.).

<sup>93</sup> The commission particularly has business-to-business services in mind (logistics or facility management services), but also sees a well-functioning Single Market in services as a prerequisite for generating growth and

employment (Korte, “The Legal Framework of the Single Market Acts I and II: The Market Levers for the Internal Market as a Tool for Economic Growth,” 131).

<sup>94</sup> European Commission, “Single Market Act Twelve Levers to Boost Growth and Strengthen Confidence ‘Working Together to Create New Growth.’”

<sup>95</sup> Ibid. The way to achieve this for the Commission was by proposing a new legislative framework, but importantly, this framework would have to be general enough that there is ‘technology neutrality’ (applies to all technologies and favors none), which also means that a ‘digital single market’-framework includes all types of communication channels (including but not limited to the Internet and telecom).

Importantly, with the ‘digital single market,’ the commission also focuses on a lever which should ‘boost growth and employment’ in the EU in more than one way, all brought together in the ‘Digital Agenda for Europe:’

The development of digital technology is one of the main levers for boosting growth and employment in the EU in various respects: the information and communications technology industry (whose added value to the European economy was approximately EUR 600 billion in 2007), an increasing number of Europeans who use the Internet on a regular basis or even daily (65% and 53% respectively in 2010), a broadband market which was a world-leader in 2010, a market for public-sector information estimated at EUR 27 billion, to name just a few. The flagship initiative "A Digital Agenda for Europe" presents a complete set of actions which are designed ultimately to bring the digital single market into being.<sup>96</sup>

In order to bring the digital single market into being, the 'business environment' is another important lever. The European Council had advised to reduce the regulatory (administrative) burdens for SMEs at both EU- and member-state-level.<sup>97</sup>

These highlighted elements and strategies in the SMA of 2011 provide insight into the European mindset, the role of politicians and policymakers, and the establishment of regulatory and supervisory institutions. The aftermath of the financial and economic crises shook the foundations of some of the dominant paradigms to such an extent that the EU leadership had to adopt a new perspective, assuming and institutionalizing new responsibilities regarding the level of harmonization within the EU and among Member States. With the SMA, a new perspective led to a renewed focus on European economic growth, emphasizing the need for a robust and equitable European market that is competitive with the external economies.

#### New structures and institutions: The single market and the European Banking Union (EBU)

As mentioned before, the EU, in the aftermath of the financial and fiscal crises, sought to stay out of the potentially vicious circle between banks and sovereign debt by further integration of the economic and monetary union (EMU) beyond the financial sector (financial supervision and market regulation). Further integration by means of a ‘banking union’ had been a long-standing idea, but in June of 2012 there was finally enough political will, when in the European Council meeting the Heads of State committed to this idea.

Previously, in the absence of a European Banking Union (EBU), the EU had a ‘hybrid financial architecture,’ which was based on a European single currency and a European single market, but in which Member States had their own financial safety nets and their own banking supervision and regulation.<sup>98</sup> Although this hybrid system seemingly worked well enough in the years before the crisis, the deeper tensions became clear during and after the financial shocks. The European banking market was highly interconnected, but banking practices also

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<sup>96</sup> Ibid.

<sup>97</sup> "The objective of Single Market policy is to facilitate free movements not only through the abolition of market barriers, but also through the creation of a regulatory environment which minimizes administrative burdens." Ibid.

<sup>98</sup> Tresselt, “Chapter 9. Banking Union and Single Market: Consistent Setup and Risk Mitigation.”

differed strongly between countries. The result of these differing national paradigms in banking means the EU's quantitative easing strategy had different outcomes for different Member States.<sup>99</sup> A strong banking union would mean that the strength and credibility of safety nets are not different for different member states and would not leave certain banks (banks in certain member states) overexposed to risks. This also means that policies and interventions by the ECB would work its way to private sectors in Member States more directly and more evenly. By strengthening the European banking system and make banks and sovereign less dependent on each other, the EU also hoped to enhance citizens' confidence in the sector by establishing the EBU. After a process of 2 years, the banking union and its pillars were established in 2014. The two (operational) pillars of the EBU are the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM). A third pillar, which would provide a common system for deposit insurance, is still in (a new) proposal phase. The SSM centralizes the supervision of significant banks within the Eurozone under the authority of the European Central Bank (ECB). This centralized supervision aims to ensure consistent and effective oversight of banks, thereby promoting financial stability across the Eurozone. The SRM provides a framework for the resolution of failing banks. It includes a Single Resolution Board (SRB) responsible for making resolution decisions and a Single Resolution Fund (SRF) funded by the banking industry to cover the costs of resolving banks. The SRM is designed to prevent taxpayer-funded bailouts and ensure a more orderly resolution process. The third pillar would 'complete' the functioning of the EBU. By a uniform strengthening of depositor protection, depositors can have more confidence in all the banks in the banking union. In April 2023, the Commission put forward a proposal for a reform of the Crisis Management and Deposit Insurance (CMDI) framework that would shield depositors in when a banking crisis occurs.<sup>100</sup>

Establishing a banking union institutionalizes some of the key ideals or 'pillars' of the European Union, including integration, stability, solidarity, and risk-sharing. The EBU further integrates the financial system by centralizing certain aspects of banking supervision and resolution. This integration is in line with the broader goal of economic and monetary union within the EU. Stability is also essential for the proper functioning of the EMU. The EBU improves the overall stability by enhancing the supervision and resolution of banks. And the concept of common frameworks, such as the Single Resolution Fund, involves sharing the burden of dealing with failing banks and reinforces a sense of solidarity among Eurozone

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<sup>99</sup> "Private borrowing costs rose with those of sovereigns, imparting procyclicality (costs rose as conditions deteriorated and capital flew out) and impairing monetary transmission (as rate cuts had limited or no effect in countries that needed them the most). This amplified financial fragmentation [...] and volatility, and thus exacerbated the economic downturn."Ibid., 173.

<sup>100</sup> In a press release, the European Commission clarifies: "*[The] proposal will enable authorities to organize the*

orderly market exit for a failing bank of any size and business model, with a broad range of tools. In particular,

it will facilitate the use of industry-funded safety nets to shield depositors in banking crises, such as by transferring them from an ailing bank to a healthy one. Such use of safety nets must only be a complement to the banks' internal loss absorption capacity, which remains the first line of defense." European Commission, "Banking Union: Commission Proposes Reform of Bank Crisis Management and Deposit Insurance Framework."

member states. The establishment of the European Banking Union therefore reflects the EU's commitment to deeper integration, viewing centralized mechanisms as essential to overcoming systemic weaknesses revealed by the financial and fiscal crises. By institutionalizing stability through the Single Supervisory Mechanism and Single Resolution Mechanism, the EU sought to enhance oversight and resilience across the Eurozone. The inclusion of shared frameworks like the Single Resolution Fund underscores a paradigm of solidarity and risk-sharing, ensuring that financial burdens are distributed equitably among member states. At the same time, the stepwise implementation of the EBU, with two operational pillars and ongoing negotiations for a common deposit insurance scheme, demonstrates a pragmatic approach to navigating institutional and political constraints. Through these measures, the EU reinforced the credibility of its supranational institutions, empowering them to address transnational risks while fostering citizens' trust in a unified financial system.

### 3.2 Case Study: From Crisis-control to Crypto-markets Regulation (MiCA)

In this section, first, the development in European financial policies is presented. This will help understand to what extent MiCA is a result of previous policies. From the announcement of the FinTech Action Plan (FTAP), the actors and frames that play relevant parts in the shaping of the MiCA proposal are described. For this, we integrate the frames and framing activities that Frausing identified. She researched how MiCA can be seen as “a manifestation of the preferred political interpretation of technology, constructed by various institutional actors throughout a frame negotiation process.”<sup>101</sup> After having gone through the policymaking process of MiCA and the parallel frame negotiation process, a link to Hall's framework is made at the end of this chapter.

#### Early digital finance policies

In 2008, the European Commission published the European Recovery Plan (ERP).<sup>102</sup> The ERP was put in place to halt (and redirect) the economic trend that was set towards an even deeper recession.<sup>103</sup> The European Commission asserted that in difficult times the "levers of government, the instruments of the EU [and] the influence of intelligent coordination" are the means to redirect the European economy to growth. By 2010, a few Member States had

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<sup>101</sup> Frausing, “A Framing Contest,” 122.

<sup>102</sup> European Commission, "A European Economic Recovery Plan." The ERP meant a major monetary injection (of €200 billion), as well as a ‘smart investment’ program: “*investing in the most important skills for future productivity and growth.*” (141 Weißschnur, *The Proportionality of State Intervention*, 214.) The focus was directed towards energy efficiency and clean technologies based on low carbon emissions. This second part of the recovery plan was intended to become less reliant on imported energy and, by increasing the European infrastructures and interconnectedness (including enhancing internet skills and use of internet), increase innovation and productivity. The monetary relaxation was meant to support this increase.

<sup>103</sup> Weißschnur, *The Proportionality of State Intervention: EU Responses to the Global Economic Crisis, 2008-2020*, 213.



recovered economically, whilst others were still in deep recession. In 2009, the OECD “commented on the lack of progress regarding the EU innovation targets set in 2000 and again with the ERP” suggesting that “relying on measuring innovation inputs, rather than the outputs they produced, was the flaw in the plan, since measuring output provided the knowledge to amend the innovation policy effectively.”<sup>104</sup> In 2010, the '2020 Growth Strategy' was devised, which was essentially a re-formulation of longer-term goals that were in itself much in line with the objectives of the ERP.<sup>105</sup> The 2011 Single Market Act (and the 2012 amendment) was developed in light of the goals set in the 2020 Growth Strategy. One of the levers (or 'drivers') in the SMA is the "driving of the digital economy within Member States to enhance productivity and creativity."<sup>106</sup> The emphasis on the development of the European digital economies would lead to the Commission's publication of the Digital Single Market (DSM) strategy in 2015.

This DSM strategy from 2015 underscored three principles: 1) access, 2) economy and society, and 3) environment.<sup>107</sup> The idea behind the DSM, reiterated by then Chair of the Commission Jean Claude Juncker, was to remove digital borders, make Europeans more interconnected through ICT technologies, and facilitate cross-border European buying and selling of goods and services. The DSM strategy would create ‘a fair level playing field,’ “where all companies offering their goods or services in the European Union are subject to the same data protection and consumer rules, regardless of where their server is based.”<sup>108</sup> Furthermore, the Commission states in the DSM that it regards ICT technologies as the "foundation of all modern economic systems,"<sup>109</sup> and that the transition to digital societies will bring 'immense opportunities for innovation, growth, and jobs.' Since this goes for all European Member States, and going through this transformation as sovereign Member States would mean that they all run into the same policy challenges and problems, only a coordinated EU action would make optimal use of the benefits of scale. In the DSM strategy that the Commission lays out, they focus on three main pillars: 1) "better online access for consumers and businesses across Europe,"<sup>110</sup> 2) "creating the right conditions and a level playing field for advanced digital networks and innovative services,"<sup>111</sup> and 3) "maximizing the growth potential of the digital

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<sup>104</sup> Ibid., 222.

<sup>105</sup> The Growth Strategy concerned socio-economic goals such as employment levels, improving educational levels of the EU workforce, reducing poverty levels, but also more socio-technical goals such as investment into innovative R&D, and reducing carbon emissions whilst enhancing both renewable energy usage and energy efficiency by 20%. Member States were encouraged to reformulate these European targets to national targets. (Ibid., 217).

<sup>106</sup> European Commission, "Single Market Act II."

<sup>107</sup> Weißschnur, *The Proportionality of State Intervention*, 223.

<sup>108</sup> European Commission, "A Digital Single Market Strategy for Europe," 2.

<sup>109</sup> Ibid., 3.

<sup>110</sup> Part of this pillar are: ‘Cross-border e-commerce rules that consumers and business can trust,’ ‘Affordable high-quality cross-border parcel delivery,’ ‘preventing unjustified geo-blocking,’ ‘A modern, more European copyright framework,’ ‘reducing VAT related burdens and obstacles when selling across borders.’

<sup>111</sup> Part of this pillar are: ‘Making the telecom rules fit for purpose,’ ‘a media framework for the 21st century,’ ‘a fit for purpose regulatory environment for platforms and intermediaries,’ ‘Reinforcing trust and security in digital services and in the handling of personal data,’

economy."<sup>112</sup> Another aspect that is mentioned in the strategy which contributes to maximizing the growth potential is the further international and global dimension of a European Digital Single Market: "The scale provided by a completed Digital Single Market will help companies to grow beyond the EU internal market and make the EU an even more attractive location for global companies."<sup>113</sup>

### 2017-2019: The FinTech Action Plan and reports by European authorities

In 2017, the European Parliament adopted an own-initiative resolution and called upon the Commission to formulate an action plan on financial technology (FinTech). The action plan would fit within the framework of the readily established digital strategies (the DSM) and within the framework of the capital markets union (CMU). The FinTech Action Plan (FTAP) was published by the Commission on 8 March 2018, and aims to "enhance supervisory convergence toward technological innovation and prepare the EU financial sector to better embrace the opportunities brought by new technologies."<sup>114</sup> The FTAP would make European financial markets become more integrated, safer, and easier to access. For instance, by increasing the digitization of information and by interconnecting national databases.<sup>115</sup>

The enhanced integration of the markets should also foster a more competitive European financial sector, including the development of an EU market in crypto-assets.<sup>116</sup> The 2018 FTAP was also the first time the Commission acknowledged that "crypto assets had become a worldwide phenomenon and a promising new type of financial asset; however, their high volatility, fraud, operational weaknesses and vulnerabilities posed many risks [and] that it was necessary to assess the suitability of the EU regulatory framework regarding crypto assets."<sup>117</sup> Together with EUBlockchain, FTAP would formulate a strategy on DLT and blockchain. In FTAP, the Commission asserts that "[i]n the financial sector, firms are authorized and supervised based on their activities, services or products, regardless of whether they use traditional or innovative means to deliver those services."<sup>118</sup> Therefore, the Commission voiced an interest in finding out how suitable the application of the then existing EU legal framework

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<sup>112</sup> Part of this pillar are: 'Building a data economy,' 'boosting competitiveness through interoperability and standardization,' 'an inclusive e-society.'

<sup>113</sup> European Commission, "A Digital Single Market Strategy for Europe," 18.

<sup>114</sup> The European approach is justified by the fact that it would "This should enable innovative digital finance solutions to be rapidly rolled out across the EU and benefit from the scale economies of the single market, while preserving financial stability and ensuring consumer protection."

European Commission, "FinTech Action Plan: For a More Competitive and Innovative European Financial Sector."

<sup>115</sup> European Commission, "FinTech: Commission Takes Action for a More Competitive and Innovative Financial Market."

<sup>116</sup> European Commission, "FinTech Action Plan: For a More Competitive and Innovative European Financial Sector."

<sup>117</sup> Ferreira and Sandner, "Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets' Infrastructure," 5.

<sup>118</sup> "Depending on the services and products offered, firms can be authorised and regulated under EU or national law, or not be subject to any financial services specific regulation." (1. - 1.1) European Commission, "FinTech Action Plan: For a More Competitive and Innovative European Financial Sector."

would be for crypto-assets, and where possible regulatory gaps were.<sup>119</sup> The ESAs were to initiate investigations into those areas.<sup>120</sup> The actors from the European supranational level would “play an influential role in shaping the views for the EC to engage in discussions around policy developments on crypto-assets” and themselves “engage in different framing activities on constructing meaning about crypto-assets.”<sup>121</sup>

The EBA and the ESMA both published reports with recommendations in January of 2019.<sup>122</sup> ESMA’s report answered the question to what extent crypto-assets are financial instruments. The EBA investigated whether crypto-assets functioned like e-money or funds as defined in existing regulations such as the EMD2, PSD2 or MiFID2. The ESAs describe in these reports how the crypto-assets markets are unstable, that the technology promotes money laundering, facilitates terrorist financing, and causes risks through the lack of consumer and investor protection. The analyses focus on how the *technology* of crypto-assets cause these issues. The innovative technological form of these assets makes them “new types of interpretive-hybrid financial instruments leading to new types of decentralized business models that could increase the risk of dealing with non-liable operators,” according to the ESMA report.<sup>123</sup> The EBA, however, did find that some crypto-assets function as e-money, and that some do fall within the scope of the EMD2. The EBA also concluded that crypto-asset related activity in the EU was regarded as relatively limited and, at that time, such activity did not appear to give rise to implications for financial stability.<sup>124</sup> The ESMA advised the EC in 2019 that a ‘bespoke regime’ for crypto-assets would be premature, and that defining crypto-assets as financial instruments could give them undue legitimacy (and without a supervisory framework in place).<sup>125</sup>

Later in 2019, shortly after the reports from the ESAs, the ECB also reported on its position on crypto-assets. In it, the ECB’s frame was clearly focused on separating the markets in crypto-assets from the traditional financial markets. An important aspect which the ESAs had also emphasized in their reports was the lack of clear definitions of crypto-assets. The ECB problematized this issue in their report and suggested a new definition, which shows their aim of isolating markets in crypto-assets from traditional markets: “A crypto-asset is defined as a new type of asset recorded in digital form and enabled by the use of cryptography that is not and does not represent a financial claim on, or a liability of, any identifiable entity.”<sup>126</sup> The ECB sees the lack of an underlying claim or liability as the element that sets crypto-assets apart

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<sup>119</sup> Read and Diefenbach, "The Path to the EU Regulation Markets in Crypto-Assets (MiCA)," 12.

<sup>120</sup> For a comprehensive list of EU documents and statements that outline the evolving policy discourse on digital assets, see Appendix C.

<sup>121</sup> Frausing, “A Framing Contest between Institutional Actors on Crypto-Asset Policymaking in the EU,” 85.

<sup>122</sup> Ibid. Stablecoins were not (yet) mentioned in the ESMA report and mentioned only once in the EBA report.

<sup>123</sup> Frausing, “A Framing Contest between Institutional Actors on Crypto-Asset Policymaking in the EU,” 86.

<sup>124</sup> ESMA, 2019, 21

<sup>125</sup> ESMA, 2019, 21

<sup>126</sup> ECB, 2019, 3

and mainly problematizes this, and not so much the underlying technology. Next to this, the lack of institutions which would protect their value (and protect customers/investors) also makes crypto-assets undefinable as money, for the ECB. In the report, the ECB advised policymakers to regulate the places where markets in crypto-assets touch or interact with the traditional financial markets. Places such as the trading platforms and exchange services.

### Initial policy frames

In this period, roughly from 2017 till the second half of 2019, ‘crypto-assets’ had been given different meanings, and had been framed in different ways, by actors involved. Nina Frausing researched these framing activities by observing in a crypto-asset industry working group.<sup>127</sup> The frames we discuss in the remainder of this chapter will be largely based on her categories of frames. On the side of the institutions three frames can be identified: the privacy-frame, the criminality-frame, and the sustainability-frame. On the other side, the crypto-industry also used framing to further their cause. They argued from, what Frausing calls, a ‘de-risking-frame.’<sup>128</sup>

The privacy frame problematized the use of crypto-assets as it would be impossible to erase data on the blockchain, and as personalized crypto-asset addresses (and wallets) could cause personal data breaches. As the General Data Protection Regulation (GDPR) was just installed in 2018, policymakers were particularly schooled and sharp on the (importance of) European privacy laws. The concern surrounding the privacy of Europeans largely stemmed from the 2018 report from the EU Blockchain Observatory and Forum.<sup>129</sup> The representatives from the industry responded by maintaining that crypto-assets networks do not contain any personal information, and if anyone, the ‘gatekeepers’ (service platforms) would be the ones who would need to be regulated to safeguard private information of users.<sup>130</sup>

The criminal frame focused on the use of crypto-assets for money laundering and terrorist financing. According to Frausing, this framing was initially done by various media outlets, which would then catch on with ministers in the Council and policymakers leading to the fifth AMLD package.<sup>131</sup> In 2019, the traceability of crypto-assets became an added aspect of this criminality framing. The Financial Action Task Force (FATF), established by the G7 in 1989 to combat money laundering, made plans to recommend strict rules on information of the receiver of crypto-assets in transfers; the so-called ‘travel rule’ that would be issued in the summer of 2019. The representatives from the industry saw (and framed) these FATF

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<sup>127</sup> The working group was composed out of different Crypto-Asset Service Providers (CASPs); wallet providers, exchange platforms, payment processors, market makers, and transaction-tracing companies. (Frausing, “A Framing Contest,” 64.)

<sup>128</sup> Frausing, “A Framing Contest Between Institutional Actors on Crypto-Asset Policymaking in the EU,” 88.

<sup>129</sup> EU Blockchain Observatory and Forum, “Blockchain and the GDPR.” [https://blockchain-observatory.ec.europa.eu/publications/blockchain-and-gdpr\\_en?prefLang=nl](https://blockchain-observatory.ec.europa.eu/publications/blockchain-and-gdpr_en?prefLang=nl)

<sup>130</sup> Frausing, “A Framing Contest,” 92.

<sup>131</sup> *Ibid.*, 93.

obligations as “technically unfeasible, non-compliant with GDPR, and not required due to the nature of the direct transfers of crypto-assets.”<sup>132</sup>

The sustainability frame was introduced in the 2019 EBA’s advice to the Commission and that years EU Blockchain Observatory and Forum’s paper on Blockchain and GDPR. It concerns the energy consumption needed for the production and transacting of crypto-assets. In this framing, Proof-of-Work (PoW) based crypto-assets were framed as significantly less energy-intensive than Proof-of-Stake (PoS) based ones.<sup>133</sup> With the more general (political) trend of paying attention to sustainable practices in financial services, this frame would prove to be difficult to challenge by the industry. The representatives aimed to do this by arguing that the technology would improve on this front through innovations, and that regulating based on demands for sustainability would not be a technology-neutral approach. And further that in innovating, the priority should be on the security of the crypto-consensus mechanisms, and not on their energy consumption.<sup>134</sup>

The de-risking frame was introduced by the representatives from the industry to mobilize support from policymakers to make it easier for the industry to establish banking relationships.<sup>135</sup> Without a public authority approving the use of crypto-assets, banks made little effort to understand the function of crypto-assets and the underlying technologies. They would consider the crypto-markets as risky spaces and assets, and therefore withhold from financing industry players.

At this point in time, the “divergent meanings, a lack of standardized definitions and a largely unregulated market”<sup>136</sup> made any attempt at EU-level policymaking very challenging. Regulators and the banking-sector would need a bigger wake-up call to rise to these challenges. This wake-up call would come in the form of stablecoins, and particularly the announcement of the largest social media platform issuing one.

#### 2019: The rising popularity of stable coins and the ‘Diem’

‘Stablecoins’ are a type of crypto-asset invented to overcome the problem of the volatile value of cryptocurrencies. By developing stablecoins, revenues earned from crypto-asset investments can be protected from serious price drops.<sup>137</sup> There is no strict definition of stablecoins, but what sets them apart from other types of crypto-assets is that their value is not determined by the (trust within a) network of ‘users.’ Instead, the value of stablecoins is backed by something (you can point at) of value (i.e., independent/ established value); such as gold or

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<sup>132</sup> Ibid.

<sup>133</sup> Ibid., 94. For an explanation on PoW and PoS, see Appendix C.

<sup>134</sup> Ibid., 94.

<sup>135</sup> Ibid., 95.

<sup>136</sup> Ibid., 96.

<sup>137</sup> Houben and Snyers, “Crypto-Assets: Key Developments, Regulatory Concerns and Responses.”

government issued fiat currencies (collateralized stablecoins),<sup>138</sup> algorithms (algorithmic stablecoins),<sup>139</sup> or funds (tokenized funds). Importantly, the issuers of stablecoins are typically identifiable and can be held accountable, although the connection can be made harder to unveil.<sup>140</sup>

Global stablecoins have a much higher risk of impacting the stability of traditional financial systems, and of becoming a source of systemic risk, than other types of crypto-assets. Stablecoins have the potential to “grow quickly as a means of payment or a store of value [and] their potential user base may be large, particularly if they are linked to other digital services offered by BigTech firms.”<sup>141</sup> The potential for stablecoins to be used as a means of payment or a store of value lies in their characteristics of having a relatively low volatility and a greater scalability. Furthermore, stablecoins can be employed for different financial services as they carry some of the different characteristics that different financial services in the traditional system provide.<sup>142</sup> But this comes with risks for financial stability, because all the different applications can create many impactful linkages to the existing financial system.<sup>143</sup> The combination of the growing impact of stablecoins (and other crypto-assets) and their underregulated status (either not compliant with regulations or unregulated) induced responses from several European regulatory and supervisory organizations, such as the ECB, FSB, G7, and the BIS.<sup>144</sup>

On the 18th of June 2019, Facebook (now ‘Meta’) officially announced its plans to issue ‘Libra,’ their own global cryptocurrency, within a year’s time.<sup>145</sup> The stablecoin would later be renamed ‘Diem.’ Due to the size of the user base of the social media platform and of the other

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<sup>138</sup> Collateralized stablecoins can also be backed by assets in digital form (for example, by other crypto-assets, such as DAI).

<sup>139</sup> Algorithmic stablecoins are backed solely by users’ expectations about the future purchasing power of their holdings: “They seek to maintain par value with a currency of reference through algorithmic trading, i.e., by automatically adjusting the supply of stablecoin units. Algorithmic stablecoins do not require the accountability of any party, nor the custody of any underlying asset.” Houben and Snyers, “Crypto-Assets: Key Developments, Regulatory Concerns and Responses,” 37.

<sup>140</sup> *Ibid.*, 35.

<sup>141</sup> Financial inclusion can be achieved using stablecoins “due to the use of widespread end-user technology (e.g. smartphones) to initiate transactions.” Financial Stability Board, “Regulatory Issues of Stablecoins,” 3.

<sup>142</sup> *Ibid.*, 2.

<sup>143</sup> If stablecoins (their code and their reserves) are not managed with prudence, and the reserved assets prove insufficient at crucial times, it can make unexpected demands on the fiat system. Furthermore, bank funding mechanisms would have to be altered in case of large scale stablecoin usage. This would be insensible in case that these stablecoins are unregulated themselves, or when the jurisdiction under which the banks operate do not acknowledge or incorporate this type of crypto-asset. Stablecoins can also impact the stability of the financial system by affecting the confidence and trust other ‘traditional finance’ agents can have in the system. These agents can lose confidence “due to concerns about market manipulation and lack of market integrity, anticompetitive behavior, lack of adequate data protection, concerns about money laundering, terrorism financing and other illicit financing activities” (*Ibid.*). Although this is a more fundamental political and ideological issue, it is equally problematic for the stability of the global financial system.

<sup>144</sup> Appendix C

<sup>145</sup> Boorstin, “Facebook Launches a New Cryptocurrency Called Libra.”; Libra Association, “Introducing Libra: a simple global currency and financial infrastructure that can empower billions of people.”

Meta Platforms' holdings (creating a potential user base for Libra of 2.4 billion users), the global reach and scope of this cryptocurrency would instantly result in high impact and high risks for financial markets worldwide.<sup>146</sup> For this reason, regulators all over the globe voiced their concerns about this plan within weeks after the announcement. According to Facebook, the project would help many of its users who are unbanked participate in digital financial activities. The blockchain-based currency would enable these people (next to 'banked users') to profit from low transaction fees and speedy cross-border financial transactions. The coin would not be issued and managed by Facebook, but by a non-profit organization, supported by a range of partner companies, and would be based in Switzerland. Regulators immediately pointed out how irresponsible and naive this aim was; wanting to function as a major financial service company without any regulatory oversight in place.<sup>147</sup>

In Europe, the memory of the irresponsible handling of personal data by Facebook was still fresh in regulators' minds. Now that the same organization produced such an influential project, which would entail large quantities of data and essential services to people worldwide, regulators univocally condemned the enterprise. In January 2022 Meta Platforms abandoned the Diem project, after it had become clear that the backlash was too fierce. But for European Legislators, the Diem-project had nevertheless brought a sense of urgency to regulate crypto-assets, especially the potentially influential stablecoins (or EMTs: 'Electronic Money Tokens'). A joint statement by the Council and the Commission on stablecoins in December 2019 reads that: "no global 'stablecoin' arrangement should begin operation in the European Union until the legal, regulatory and oversight challenges and risks have been adequately identified and addressed."<sup>148</sup> They seem to have the Libra project in mind when they stated that: "Some recent projects of global dimension have provided insufficient information on how precisely they intend to manage risks and operate their business. This lack of adequate information makes it

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<sup>146</sup> The rapid evolution of crypto-assets, from Bitcoin to stablecoin initiatives like Libra, highlights the transformative impact of digital assets on the financial landscape (see Appendix B).

<sup>147</sup> In the eyes of, for example, ECB board member Yves Merch it was clear that the Libra Association was wholly unprepared and in over their heads. (Smith, "Regulators Hobble Libra, But See Some Upside in Digital Currencies.") Beyond the ECB, Facebook's ambitious plans to shake up the global financial system "managed to rally the whole of the G7 against it by the time the countries' finance ministers met in July [2019]." (Ibid.) Stefan Berger, a German lawmaker who would later negotiate the MiCA framework for the European Parliament, was also "among the many legislators who perceived Diem[Libra]'s plans as a threat to monetary sovereignty: "Zuckerberg's attempt to become a central bank has not been successful, [...] Facebook has tried to reach for the stars with a project which cannot meet the necessary regulatory requirements when nothing less than the stability of the financial system is at stake." (Smith-Meyer, "How Diem Became Crypto's Sacrificial Lamb.") On the other hand, Smith writes in Fortune Magazine: " *And yet it's not that the project doesn't have friends. Even the central bankers whose own payment systems and monetary policies are threatened by it acknowledge the benefits of making payments faster, cheaper and easier. The Federal Reserve wants to launch a new system, called "FedNow", to do just that. But its launch date is years away. The ECB's deepest thinker, Benoit Coeure, wishes central banks' systems worked so well that people didn't need to resort to crypto assets. [...] All are haunted, to greater or lesser degrees, by the fear that squashing innovation in digital assets will one day hand control of the global financial system to China, where closer cooperation between the private and public sectors has allowed faster progress to be made.*" (Smith, "Regulators Hobble Libra, but See Some Upside in Digital Currencies.")

<sup>148</sup> Council of the European Union and European Commission, "Joint Statement by the Council and the Commission on 'Stablecoins.'"

very difficult to reach definitive conclusions on whether and how the existing EU regulatory framework applies."<sup>149</sup>

### The transformative potential of DLTs

For EU politicians and policymakers, there are also several perceived opportunities (or a certain potential) connected to crypto-assets and the underlying blockchain technology. For example, a more efficient and globalized way of banking, next to the general hopes and promises that come from (financial) innovation, as current systems also have their imperfections. Plus, investing in the promises of this technology creates European jobs and can grant the EU some sort of forerunner role in developing (or in regulating) the crypto-space. The EU institutions also acknowledged the transformative potential of blockchain and distributed ledger technologies (DLTs) for banking practices. But implementing this technology for banking also comes with risks and challenges. Certainly, before MiCA, there was no clarity and united understanding within EU jurisdiction (from the EU or within/between the Member States) whether the different types of crypto-assets qualified as financial instruments or not. In the absence of a real and clear understanding, regulation and oversight could easily be avoided, causing crypto-assets to become a tool for tax evasion, money laundering, and terrorist financing.<sup>150</sup> Understanding the technology and the systems behind different crypto-assets, and understanding their potential, would require lots of talking with and learning from experts. At the same time, there seemed to be a shared belief amongst the majority of policy-advisors and -makers that the fraudulent activities facilitated by the technology are not due to fundamental aspects of that technology, but the result of the unregulated and unclear applications of it. To harness the benefits of the innovation in (financial) instruments, regulators aimed to create a framework that fosters 'responsible development.' Such a new framework connected to a new digital finance strategy would "help relaunch and modernize the European economy."<sup>151</sup>

### New frames

In a way, the 'Diem-affair' served as a wake-up call for policymakers in the European institutional environment, causing shifts in the framing of crypto-assets. As a direct result of the intensified attention for stablecoins, a 'global stablecoin frame' emerged. In the months following the Libra-announcement, stablecoins would be the main topic in discussions amongst policymakers and regulators, where it had not been a big topic before. Frausing explains that this shift in framing intensified EU policymaking processes in three ways. First, the

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<sup>149</sup> Ibid. Furthermore, they stress the need for a coordinated global response to 'global stablecoins'; a framework "based on general principles" that would be applicable to "all 'stablecoin' arrangements" and which has a "sound evidence base."

<sup>150</sup> "Owing to its anonymity, cross-border nature and quick transferability, the use of blockchain in cryptocurrencies is well suited to illicit activities such as fraud and manipulation, tax evasion, hacking, money

laundering, and funding for terrorist activities." Martino, *Blockchain and Banking*, 72.

<sup>151</sup> Pavlidis, "Europe in the Digital Age: Regulating Digital Finance Without Suffocating Innovation," 8.



problematizations of crypto-assets would now be mostly situated on a global scale, instead of a more local one (in the EU and its Member States), as regulating stablecoins would require global harmonization.<sup>152</sup> Secondly, the risks that crypto-assets could form for financial stability and monetary policy, which were considered ‘relatively limited’ months before (considering the market cap), were now on the agendas again. This ‘potential risk’ became an important aspect of the global stablecoin framing. Frausing observed how “[f]rom that point in time, it was almost impossible to talk about crypto-assets without mentioning the risks to financial stability or monetary policy.”<sup>153</sup> A third important way in which the policymaking process was affected was in the regulatory approach. Prior to the Libra announcement, regulators were primarily looking at applying existing regulatory mechanisms to control crypto-assets, like the AMLD and the GDPR (inspired by the ESA reports). Which would have been a first-order change in Hall’s framework. But with the global stablecoin frame, and the developed sense of urgency, that approach changed towards establishing a new bespoke regulation covering all crypto-assets.<sup>154</sup> By introducing such a bespoke regulation a second-order change would occur.

Also, on the side of the industry representatives, the framing shifted. The pre-libra de-risking frame extended into two new frames: a hybridity frame and an economic impact frame. The hybridity frame took shape as policymakers were developing a regulatory approach by categorizing crypto-assets based on their use-function, so either as 1) investment-tokens, 2) payment-tokens, or 3) utility-tokens. But, as industry representatives emphasized, crypto-assets have an inherent *hybrid* nature. Since the transferability is built into the blockchain-technology, also, for instance, for utility tokens. As the industry representatives sensed a continued lack of knowledge amongst policymakers, the used the hybridity frame to question the practical implementation of the suggested categorization.<sup>155</sup>

As the urgency to regulate crypto-assets increased on national and international levels, the industry representatives also started to emphasize the economic opportunities tied to the crypto-asset-markets through an economic impact frame. The crypto-asset markets could create jobs for Europeans, developing and strengthening the markets in the EU, and thereby also ‘Europeanize’ these markets. Without any policy changes, the industry argued, these markets would be de-legitimized and labelled as high risk, thereby further restricting the access to banking for the industry.<sup>156</sup> But banks also played an instrumental role for customers to gain access to the crypto-space, as the initial transactions with crypto-asset service providers (CASPs) would often be blocked by banks, according to the industry representatives.<sup>157</sup> The classification of crypto-assets as ‘high risk’ was a result of a lack of understanding of these

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<sup>152</sup> “Especially international intergovernmental bodies (FSB, FATF, G20) were active in developing the concept of global stablecoin arrangements.” Frausing, “A Framing contest,” 97.

<sup>153</sup> Ibid., 98.

<sup>154</sup> Ibid., 99.

<sup>155</sup> Ibid., 100-101.

<sup>156</sup> Ibid., 101

<sup>157</sup> Ibid., 102

assets and the business operations, according to the industry representatives.<sup>158</sup> To redirect the discussions that were focusing on these perceived risks, the industry representatives would bring up the potential economic impact, and the necessity to empower innovation through ensuring a level-playing field.

The many consultation reports in 2019 and 2020 would contribute to the EC publication of its Digital Finance Strategy (DFS) Package in September of 2020.<sup>159</sup> A proposal of the Markets in Crypto-Assets regulation (a bespoke regulation aimed at covering all crypto-assets) was part of this package:

Taking account of the stated priorities of the European Commission's digital agenda, the advice of the European Supervisory Authorities (ESAs), the outcome of various public consultations and other important inputs, on 24 September 2020, the Commission followed up on its commitment by adopting a comprehensive package on digital finance, including: - a communication on a Digital Finance Strategy (DFS); - a communication on a renewed strategy for modern and safe retail payments.<sup>160</sup>

The DFS has four explicit objectives: 1) to further integrate the DSM for financial services, 2) to ensure that the EU facilitate digital innovation “in the interest of consumers and market efficiency,”<sup>161</sup> 3) to promote data-driven innovation by creating a European financial data space, and 4) to address new challenges and risks “in particular to ensure conformity with the 'same risk, same rule' principle.”<sup>162</sup>

### 2020: The MiCA proposal

On the 24<sup>th</sup> of September 2020, the Commission published the legislative proposal for the MiCA regulation. The Commission formulated four clear objectives for the proposal (much in line with the four objectives of the DFS): 1) reduce fragmentation in the Digital Single Market for Financial Services (legal certainty), 2) promote digital innovation for the benefit of consumers and market efficiency (safe and proportionate legal framework), 3) establish a European financial data space (increase data sharing and open finance within the EU), and 4) address the new challenges and risks that are associated with the digital transformation (ensure financial stability).<sup>163</sup> Although there were already various directives and regulations that

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<sup>158</sup> Frausing quotes the position paper of the working group in which they state: “The banks in question have little understanding of our industry and also seem to be unaware of the processes we have in place to adhere to the 4<sup>th</sup> and 5<sup>th</sup> AMLD; as a consequence, crypto related businesses are automatically classified as high risk without any clear understanding of how their business operate.” Ibid., 102.

<sup>159</sup> European Parliament, “Digital Finance Strategy for the EU | Legislative Train Schedule.”

<sup>160</sup> Ibid.

<sup>161</sup> Dandea, “Opinion of the European Economic and Social Committee on ‘Communication From the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – a Digital Finance Strategy for the EU.’”

<sup>162</sup> European Parliament, “Digital Finance Strategy for the EU | Legislative Train Schedule.”

<sup>163</sup> Van Der Linden and Shirazi, “Markets in Crypto-Assets Regulation: Does It Provide Legal Certainty and Increase Adoption of Crypto-Assets?,” 11-12.

governed financial markets in the EU<sup>164</sup> – and some of them relevant for certain crypto-asset activities – MiCA was supposed to bridge a gap in regulation. After all, these former regulations and directives were formulated for the traditional financial system. In order to succeed in its goal to provide a clear regulatory framework for *all* crypto-assets, policymakers and regulators would first have to agree on clear, yet flexible (‘future-proof’), definitions and categorizations of crypto-assets.<sup>165</sup>

The MiCA proposal, spanning 168 pages and 126 articles, aimed to ensure legal certainty, support innovation, protect consumers and investors, and maintain market integrity. Following the principle of "same activity, same risk, same regulation," it was directed towards harmonization of crypto-asset regulations with existing financial legislation by clearly defining and classifying crypto-assets. The MiCA proposal provided definitions and classifications for crypto-assets to establish a uniform regulatory framework across the EU. Although it excludes crypto-assets that already fall under existing EU financial legislation like MiFID2 and EMD2, MiCA aims to reduce ambiguity for issuers, traders, investors, and platforms. However, due to the directives' flexibility, Member States may implement them differently, causing potential complexities.

In article 3 of the MiCA proposal, key terms are defined, and crypto-assets are categorized into asset-referenced tokens (ARTs), electronic money tokens (EMTs), and utility tokens.<sup>166</sup> ARTs maintain stable value by referencing multiple assets,<sup>167</sup> EMTs serve as exchange means with value tied to fiat currency, and utility tokens provide digital access to services. These definitions help ensure comprehensive regulation coverage.

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<sup>164</sup> Legislation on crypto-assets that is relevant (next to MiCA): MiFID2 (crypto-assets that can be understood as ‘financial instruments as under MiFID: transferable securities, money-market instruments, units in collective investments, and various derivative instruments), AMLD5 (crypto-assets that can be understood as virtual currencies as under the AMLD, also applies to fiat-to-crypto exchanges), EMD2 (crypto-assets that can be understood as ‘electronic money’ as under the EMD), and PSD2 (innovations and competition in payments market). (Van Der Linden and Shirazi, “Markets in Crypto-Assets Regulation: Does It Provide Legal Certainty and Increase Adoption of Crypto-Assets?,” 8)

<sup>165</sup> Ferreira and Sandner, “Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets’ Infrastructure,” November 1, 2021, 12.

<sup>166</sup> ‘Detailed explanation of the specific provisions of the proposal’ Proposed MiCA Regulation European Commission, “Proposal for a Regulation of the European Parliament and of the Council on Markets in CryptoAssets, and Amending Directive (EU) 2019/1937,” 10. The Commission defines ‘crypto-asset’ as “*a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology.*” (Art 3(1). European Commission, “Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937.”)

<sup>167</sup> The EC defines ‘Asset-referenced tokens’ (ARTs) as a type of crypto-asset that “purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities or one or several crypto-assets, or a combination of such assets.” (‘purporting’ is a surprising choice of words since it refers to the (false) appearance or the intention of something, in this case of value. In other words, tokens express or imply value, but whether there is any actual value seems to be irrelevant for the application of MiCA. Ibid., Art 3(1).)

Titles 2, 3, and 4 outline regulatory requirements for issuers. Issuers must publish detailed 'white papers' and adhere to cybersecurity standards. 'Significant'<sup>168</sup> stablecoin issuers face additional rules and supervision. Issuers must be legally established in an EU Member State, creating varied compliance burdens depending on their financial sector experience. MiCA also regulates crypto-asset service providers (CASPs), who must receive authorization from a Member State to operate across the EU. Authorized CASPs are listed in an ESMA register and must follow prudential safeguards, organizational requirements, and client asset safekeeping rules.

The MiCA proposal also included provisions to prevent market abuse. For example, issuers had to disclose inside information timely, and insider dealing, unlawful disclosure, and market manipulation were all explicitly illegalized with the proposal. Title 7 defined the roles and powers of competent authorities, the EBA, and the ESMA in authorizing and supervising issuers and CASPs. Significant stablecoin issuers receive dual supervision from NCAs and the EBA, ensuring stringent oversight. And all issuers must notify the relevant NCA before publishing their white paper.

#### 2020-2022: Negotiating MiCA

With the EC's draft regulation published, a period of stabilization in the framing of crypto-assets took place, according to Frausing.<sup>169</sup> Having decided on definitions and categorizations, a dominant interpretation of crypto-assets was formed. The classification of crypto-assets into ARTs, EMTs and utility tokens was the result of a complex series of actions and events, which are generally outlined in the previous sections. The process makes clear how the (defining and) classification is based on political grounds, instead of technical grounds. Definitions are designed so that certain assets fall under existing regulations and directives, for example how e-money (EMTs) are defined as funds, but ARTs are not. Frausing recognizes such processes as capturing how "institutional actors work to align frames across areas of concern and rhetorically settle interpretations about crypto-assets."<sup>170</sup>

The industry representatives identified nine 'areas of concern' out of all the 126 articles of the draft. Most of these concerns related to the economic impact frame, which broadened and

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<sup>168</sup> The EBA classified asset-referenced tokens as 'significant' when: "at least three of the following criteria are met: (a) the size of the customer base of the promoters of the asset-referenced tokens, the shareholders of the issuer of asset-referenced tokens or of any of the third party entities referred to in Article 30(5), point (h); (b) the value of the asset-referenced tokens issued or, where applicable, their market capitalisation; (c) the number and value of transactions in those asset-referenced tokens; (d) the size of the reserve of assets of the issuer of the asset-referenced tokens; (e) the significance of the cross-border activities of the issuer of the asset-referenced tokens, including the number of Member States where the asset-referenced tokens are used, the use of the asset-referenced tokens for cross border payments and remittances and the number of Member States where the third-party entities referred to in Article 30(5), point (h), are established; (f) the interconnectedness with the financial system." European Commission, "Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937," 70.

<sup>169</sup> Frausing, "A Framing Contest," 103-104.

<sup>170</sup> *Ibid.*, 110.

strengthened this framing on the side of the industry. The two biggest concerns with the MiCA draft were 1) demands on the industry that can only be attainable if the access to banking would be ensured, and 2) MiCA prohibiting users of ARTs from receiving interest (to ensure these tokens are used as means of exchange and not as a store of value<sup>171</sup>).<sup>172</sup>

In the proposal, the European Commission protects the claims of holders of EMTs by stipulating a contractual right to redeem their electronic money at any moment against official currencies.<sup>173</sup> For CASPs, this means that they should be able to hold their users' funds in fiat bank account, so CASPs can always make that exchange. The industry representatives debated heavily with policymakers to get a legal provision guaranteeing access to banking for CASPs, either with commercial banks or national banks.<sup>174</sup> On the other side of this were the 'global stablecoin'-framing activities of the ECB, who responded to the MiCA proposal reiterating the multiple risks of the (widespread) use of stablecoins for the EU's monetary policy and the Euro-system. The opinion of the ECB is that stablecoins can affect the stability of credit institutions when deposits are substituted by crypto-assets on a large scale or very suddenly.<sup>175</sup> As the ECB's fields of competence are precisely the conduct of monetary policy in the EU and the prudential supervision of credit institutions as to ensure stability of the financial market system, the ECB voices a desire to have more binding interventional means.<sup>176</sup> The ESAs (EBA, ESMA, and EIOPA) also kept framing crypto-assets as highly risky and speculative.<sup>177</sup>

The prohibition for users to gain interest from storing crypto-assets (and for crypto-platforms to pay interest) means prohibiting certain types of business models all together. The industry representatives did not only consider this prohibition as limiting a whole branch of innovations, the wish to prohibit it also served as proof for them that policymakers did not have a correct understanding of the fundamental consensus mechanisms of crypto-assets. In the crypto-space, the running of the protocols pays interest as a function of the POS and POW systems, only it is called 'staking' instead, they argued. Despite it not being 'interest' in the traditional sense, staking is as essential to the crypto-systems as interest is to the traditional financial systems. It is the way by which the systems reward users, and that makes it interesting

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<sup>171</sup> European Commission, "Markets in Crypto-Assets," 24.

<sup>172</sup> Frausing, "A Framing Contest," 105.

<sup>173</sup> European Commission, "Markets in Crypto-Assets," 17.

<sup>174</sup> Frausing, "A Framing Contest," 105.

<sup>175</sup> European Central Bank, "Opinion of the European Central Bank of 19 February 2021 on a Proposal for a Regulation on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937 (CON/2021/4)."

<sup>176</sup> In their response to the MiCA proposal, the ECB recommends that "the ECB's intervention should not be limited to the issuance of a non-binding opinion in these areas of exclusive competence of the ECB." The ECB wants to issues binding opinions instead: "[b]y the same logic, where asset-referenced tokens can have an impact on the conduct of monetary policy or the smooth operation of payment systems in Member States whose currency is not the euro, the central banks of these Member States, which under the Treaty retain their powers in the field of monetary policy according to national law, should also be able to issue a binding opinion." (Ibid., 4-5)

<sup>177</sup> <https://www.eba.europa.eu/publications-and-media/press-releases/eu-financial-regulators-warn-consumers-risks-crypto-assets>

to participate.<sup>178</sup> The prohibition of interest remained in the final version of MiCA, and industry representatives voiced fear and frustration over the uncertainty it brings for the future of the ‘majority of crypto-assets’ which run on these protocols.<sup>179</sup> With the prohibition of interest, regulators want to 1) prevent CASPs from acting as banks, withholding them from paying interest by the returns on investments made with users’ funds, and 2) prevent people from having their savings in crypto instead of euros. The most likely consequences of the prohibition of granting interest by issuers and by CASPs are that “the business models behind ARTs and EMTs become unattractive and issuers providing these services will most likely not reside or seek an EU MiCA license.”<sup>180</sup>

### Final remarks on the case study

Briefly circling back to Hall, the case study has certainly made clear that ‘governments also puzzle.’ Policymakers and regulators depart from their paradigms and conceptions of the roles they play in the existing system and the transition to a future of increasingly digitalized finance. Next to this, the crypto-space operates on very different protocols and technological instruments, which make for a steep learning curve. Policymakers and regulators rely on technological and industry experts to anticipate the futures of digital (and decentralized) finance. But these experts are also serving their own agenda’s. Framing activities, plus the confusion that is spread by making constant analogies to the traditional financial system, do not help getting paradigms to approach each other. The case study also shows how the concerns of policymakers and regulators changed throughout the process. At the beginning, policymakers and regulators were not concerned about financial stability and the risks that crypto-assets would pose, as they understood the problematic aspects of crypto to include criminal activities, privacy breaches, and unsustainable practices. But through new understanding of the crypto-space, that framing shifted completely. Also, the shift that policymakers made from using existing regulations and directives to a bespoke regulation is highly significant. It meant regulators had to seriously ‘level up’ in understanding the technologies and systems, relying on different experts for insights.

Considering some of the hesitations from the industry representatives and regulators,<sup>181</sup> we can anticipate that MiCA will have some foreseen and unforeseen effects on the crypto-asset markets and traditional financial markets. Updated versions of the regulation are expected in the coming years following these effects. But eventually, a continuous failing of the policies for FinTech, in combination with framing contests and shifts in loci of expertise and authority could lead to a paradigm shift. This is how Hall understands the interaction between ideas (paradigms), leading to policy changes, which affect the development of technologies. In the next chapter, we go back to the philosophers of technology, who understand that interaction in reverse; they all see technologies as guiding (determining) ideas and our understanding of how

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<sup>178</sup> Frausing, “A Framing Contest,” 106.

<sup>179</sup> Ibid., 107.

<sup>180</sup> Ibid., 108.

<sup>181</sup> See Appendix D for the hesitations voiced by some of the regulators in response to MiCA.

the world works (paradigms). We look at the case study of regulating crypto-assets from their points of departure, selectively, followed by a synthesis with Hall's framework to get an encircling understanding of paradigms, technologies, and policymaking.

#### **4. EU Policymaking Towards MiCA: Linking Technological Perspectives to Policy Changes**

From a philosophical point of view, this chapter looks at how the technological phenomenon shapes ideas about life in society and technology's role in it. It also looks at how the EU makes decisions about MiCA, which can be seen as a social learning process. We examine how the ideas of Martin Heidegger, Arnold Gehlen, and Jacques Ellul resurface in the decisions and options (pathways) made by policymakers when it comes to crypto-assets in the digital and financial sectors.

Heidegger's concept of 'enframing' suggests that technology shapes our understanding of the world, making it a resource to be used and optimized. This worldview is reflected in the EU's digital innovation strategies, where technological progress (dissolving trade barriers, better transaction processes) is seen as essential for economic stability and growth. The Digital Single Market strategy (DSM) and the FinTech Action Plan (including MiCA) illustrate how the EU's long-term goals are intertwined with pursuing technological advancement, reflecting Heidegger's idea that our technological way of living sets a predetermined 'destined' path, prescribed by our technological mode of Being.

Next, Gehlen's theory of institutionalization underscores the existential grounds of institutions in managing human (existential) conditions, providing a framework within which technological innovations can be integrated and regulated. The EU's approach to crypto-assets, through the policymaking process of MiCA, exemplifies this. By incorporating new and uncertain digital technologies into existing institutional frameworks, the EU aims to maintain social order and stability in the face of unpredictable and unstable technological change. However, Gehlen would question to what extent this incorporation is the result of political vision and leadership, or of retaining organizational power.

Finally, Ellul's critique of technique highlights its self-augmenting, autonomous, and impersonal nature. These characteristics are evident in the EU's regulatory ingrained emphasis on efficiency, standardization, and market integrity. The push for a coherent legal framework to manage the use of crypto-assets reflects Ellul's notion of technique as an autonomous force, which has the power to shape policy goals and processes.

Linking these philosophical insights to Peter Hall's social learning framework, we see how policy changes – first-, second-, and third-order – arise from the compelling force of technology. The EU's policies on digital innovation and financial technologies are not merely responses to technological advancements but are fundamentally shaped by underlying ideas about technology and society.



## 4.1 Technological Enframing and Regulatory Changes

Heidegger perceives a profound danger in our complete adaptation (a ‘destining’) to a particular ‘enframing’ of technology. This enframing keeps us from forming a more truthful and authentic relationship with the world around us. Heidegger suggests that only the cultivation of an alternative relationship to technology – ascribing an alternative essence to it – could potentially free us from our ‘technological mode of Being.’ His theory, which posits that our enframing guides our ideas and worldviews, resonates with the frames identified in the previous chapter. The question now is whether we can discern how the technological developments of crypto-assets (blockchain and other DLTs) influence what policymakers consider achievable or desirable.

### Challenges posed by crypto-assets in the technological mode of Being

Immersed in technologies, we inevitably adopt a technological mode of Being, wherein everything becomes measurable, controllable, and utilitarian, according to Heidegger. We perceive the world as a ‘standing reserve’ of means to our ends, as explained in section 2.1. This perspective is especially pronounced in the digital realm, characterized by an insatiable desire for more information, faster connections, and expansive networks. The technologies reveal and expand the (digital) world for us, which drives investment and innovation. As these technologies improve – enhancing communication, speed, and reach – we interpret this trajectory as our destiny (progress). As such, our current technological pursuits are predetermined by our historical depictions.

The EU's fundamental commitment to innovation, particularly in ICTs for financial services, aligns with this destined trajectory.<sup>182</sup> The DSM initially conveyed this ambition, positing ICTs as ‘the foundation of all modern economic systems’ and heralding the transition to digital societies as a source of ‘immense opportunities for innovation, growth, and jobs.’ These aspirations were reiterated in the FinTech Action Plan, which advocated for enhanced ‘supervisory convergence toward technological innovation,’ and for developing the European market in crypto-assets.<sup>183</sup> This destining, however, potentially jeopardizes possible futures for Europe as it sets us on a predetermined path. It represents a type of voluntary lock-in, assuming this destining was entirely in our control.

After the financial crisis, the digitalization of financial markets and the digital single market were identified as ways to ensure economic growth, stability, and sovereignty. Heidegger would critique this powerful ‘enframing’ of the essence of technology, presenting digital transformation as inevitable and inherently beneficial. This framing aligns conspicuously well

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<sup>182</sup> The EU integrates innovation into its legal frameworks, policies, and funding priorities. While not a standalone constitutional principle, innovation is key to its goals of competitiveness, sustainability, and cohesion, as reflected, for example, in the Lisbon Strategy, Europe 2020, and TFEU Articles 173 and 179.

<sup>183</sup> European Commission, “FinTech Action Plan: For a More Competitive and Innovative European Financial Sector.”

with the cyberlibertarian framing of digital technologies that Langdon Winner critiqued in the 1990s.<sup>184</sup> Both Heidegger and Winner highlight how an uncritical embrace of technological innovation can obscure critical questions about power, equity, and alternative futures. The EU's approach to ICTs and FinTech echoes Winner's critique by framing digital innovation as an unassailable good, ignoring the potential for such a 'voluntary lock-in.' Like Heidegger's destining, the EU's policies risk predetermining Europe's future, leaving little room for critical reflection or alternative paths. Winner's concerns about cyberlibertarians' disregard for social consequences mirror Heidegger's warning about technology obscuring other ways of being. The fact that the cyberlibertarian ideology (from which the first crypto-assets sprung) corresponds so well with the current EU attitudes on digital technologies could be considered unnerving.

### The European regulatory approach

Our understanding of the essence of technology and, by extension, of our own essence, forms the foundation of the European approach to stimulating innovation. Initially, regulators viewed crypto-assets as threats, because of their potential to facilitate money laundering, terrorism financing, and other financial crimes. As crypto-asset markets were ways to circumvent the traditional financial system and its safeguards, these unregulated markets were seen as undermining the efficiency and control of traditional financial systems. This resulted in regulators and policymakers investigating ways to integrate crypto-assets into existing regulations and directives. However, as the market capitalization of crypto-assets increased, drawing in more investors and companies, the potential opportunities of this technology became evident. The prospect of Facebook offering financial services via a stablecoin, prompted regulators to reevaluate their initial approach, recognizing the need for a bespoke regime for crypto-assets to protect citizens. In addition, politicians and policymakers audibly acknowledged the economic growth opportunities for the EU.

Later, the ecological impact of the technological workings of crypto-assets was problematized with the 'sustainability-frame,' briefly framing technology as potentially regressive. However, the argument that more innovation would lead to improvements in sustainability, and that regulating the technology based on demands for sustainability would not be a technology-neutral approach, would prove to be convincing enough to for the sustainability-frame to disappear to the back.

The EU's regulatory approach emphasises the principles of technology neutrality and creating a level playing field. The FinTech Action Plan acknowledged the drawbacks of crypto-assets but attributed these issues to their unregulated use rather than the technology itself. This enframing of technology underlies the belief that legitimized and supervised actors can mitigate harm.<sup>185</sup> It supports the frame that technology is neutral and technological innovation is

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<sup>184</sup> Appendix B

<sup>185</sup> "In the financial sector, firms are authorized and supervised based on their activities, services, or products, regardless of whether they use traditional or innovative means."

inherently progressive. This technology neutral approach is problematic from a Heideggerian perspective as it encourages an uncritical stance. However, these principles are embedded in MiCA, which aims to provide legal certainty, support innovation, protect consumers and investors, and maintain market integrity, without seeking to control the technology itself. All suggestions of technologically restraining crypto-assets were rejected, emphasizing a regulatory framework that integrates rather than constrains technological innovation.<sup>186</sup>

## 4.2 Anthropological Adaptation and Cultural Institutionalization

As discussed in chapter two, Gehlen begins his exploration of what it is to be human by considering Man's place in the world and his further existential circumstances. He posits that institutionalization is a necessary consequence of human's inherent nature as cultural beings. Culture, according to Gehlen, is humanity's response to the existential task of creating and maintaining order. The cultural (and artificial) world we construct – comprising traditions, habits, systems, and technologies – serves as the framework within which we conduct our lives. It also serves to enhance and supplement our natural organic structures and abilities.

### Constructing a digital culture

The systems and technologies we use, shape the circumstances in which Man finds himself, defining our societal roles and what constitutes meaningful contributions to society and culture. Digital ICTs that enable easy and always available contact with others – but also the instant possibilities to look up information or to immediately transfer funds – exemplify how digital technologies mitigate the limitations of the physical world. However, the evolution of digital culture has also been posing significant challenges to traditional 'analogue' cultures, both in Europe and globally. The expedient and the continuous nature of the digital space has exacerbated the challenges. The internet, cloud computing, and software, often unregulated and managed ('institutionalized') by private organizations, introduce elements of chaos into the societal order, and in individuals' personal lives. This chaos necessitates the subsequent initiatives by (European) institutions to establish standards, norms, and regulations governing digital activities, products, and services. But according to Gehlen, European citizens might have expected more from institutional forces.

### Institutions and the private life

Traditional financial systems, having been long institutionalized, provide a form of 'relief' for European citizens by simplifying decision-making processes and mitigating risks. In other words, they ideally make decisions easier or take away the need to decide at all. They serve

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<sup>186</sup> For example, the suggestion to refuse PoW-based (or other very energy-intensive) blockchains.

citizens by doing some of the risk assessing and forward thinking for them, so that people have more freedom to think, act, and create in their personal lives.

In contrast, the unregulated and clandestine markets in crypto-assets were aimed at undermining these established institutions and were driven by the idea that markets should regulate markets (instead of governmental institutions regulating markets). Such markets, characterized by rapid change and overwhelming information flow, create disorder rather than a stable order, alienating individuals from everyday life and fostering what Gehlen describes as an 'explosion of subjectivity.'<sup>187</sup> Without a stable cultural order to fall in line with, individuals become Gehlen labelled a '*Functionsträger*' – carriers of functions – in a system of issuing, buying, and selling of digital assets.

By incorporating markets in crypto-assets into the legislative and supervisory power of the existing institutions, they reclaim their roles as guarantors of security and development. Regulating these markets can thus be seen as a strategic move, with MiCA's definitions and roles potentially providing a basis for individuals to adopt specific behaviours and roles. That is how institutions exercise an inherent power (*Selbstmacht*), according to Gehlen.

#### Ideas and ideals

By regulating these markets with MiCA, the EU and its Member States legitimize the logic and rationale of markets in crypto-assets. Gehlen viewed modern institutions as 'eroded,' legitimized in their existence only by their functionality and lacking a real ability to embody societal ideas and ideals. Embracing innovative technologies risks institutions embodying the ideas and ideals embedded within these technologies. Incorporating crypto-asset markets into legislative and supervisory roles appears to be a continuation of financial system management rather than an alignment with the innovative potential of these technologies. This focus on organization power and control resonates in the complaints by industry representatives. In their eyes regulators lack the knowledge about the fundamentals and workings of different crypto-assets.

Looking at the shift in the regulatory approach as a response to the Libra project and the 'global stablecoins'-frame suggests that bespoke regulation is driven by fears of destabilization rather than a desire to integrate privately produced and distributed stablecoins into the financial system. Initial perspectives on crypto-assets – seen as threats to privacy standards, facilitators of criminal activities, and unsustainable transaction methods – indicate a misalignment with the ideals of the technological innovation of crypto-assets. This reflects a broader trend where digital innovations challenge, rather than reinforce, societal order. Thereby necessitating institutional intervention to stabilize and manage the impact on the cultural world.

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<sup>187</sup> Gehlen believed that “an exchange of individual subjective opinions cannot invest human behavior with stable supra-personal forms and can only result in self-destruction chaos.” Halák and Klouda, “The Institution of Life in Gehlen and Merleau-Ponty: Searching for the Common Ground for the Anthropological Difference.”

### 4.3 Technique and Policy Making

In chapter two, Ellul's characteristics of technique were presented. Technique, as Ellul posits, transcends technology as tools and methodologies, and evolves into a dominating force that dictates societal values and decision-making processes. In this section, we look at how the characteristics of technique (as Ellul's conceptual framework) are mirrored in the paradigms and regulatory approaches of European policymakers, particularly in the realm of digital innovation and financial technologies.

#### Technique as self-augmenting and autonomous

Ellul characterizes technique as inherently self-augmenting, perpetually seeking efficiency and optimization, ultimately as an autonomous force. This last characteristic is evident in the divergence between the communicated motivations for the MiCA regulation and the internal discussions among EU regulators and policymakers. In official communications concerning the DSM or the FTAP, ICTs are presented as 'the foundation of all modern economic systems,' with a continuous push for digital advancements expected to foster 'immense opportunities for innovation, growth, and jobs.' The DFS (the overarching strategy of the MiCA proposal) also communicates the aim of advancing digital and data-driven innovation. However, regulators and policymakers primarily focused on the challenges posed by the 'global stablecoin frame' during the discussions leading up to the MiCA proposal. This framing perceived the crypto-asset systems as something of an autonomous force capable of causing significant disruptions to financial systems globally. As such, Ellul's understanding of the technological phenomenon as a self-augmenting force is evident in two key aspects: 1) the EU political institutions' belief that technological advancement serves as a legitimate and compelling rationale for implementing strategies and regulatory instruments, and 2) their recognition that technologies such as crypto-assets possess the inherent power to establish themselves and shape the trajectory of societal and financial systems.

Ellul further emphasizes the deterministic nature of technique, suggesting that once a society embraces technological progress, it becomes practically bound to its trajectory. This is reflected in the European regulatory approach, where digitalization is rationalized as an inevitable path to economic growth and stability. The convincing power of global stablecoin frame is related to this deterministic nature, as it relies on the idea that crypto-asset adoption is evenly likely to happen in one country or the next. Even though the adoption of ICTs is heavily dependent on cultural and societal factors.<sup>188</sup> This links to the remarkable fact that, in the context of the 'global stablecoin'-frame, regulators and policymakers worldwide (with few exceptions) share a common understanding of the problems markets in crypto-assets present. The idea that crypto-asset adoption is a universal potential was reinforced by global popularity of crypto-assets, especially of stablecoins. This indicates to policymakers that the drive for this digital innovation is a worldwide phenomenon, and apparently that both risks and opportunities

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<sup>188</sup> Erubamban & De Jong, "Cross-country Differences in ICT Adoption."

remain the same, regardless of where the technology lands. For example, that it will mean growing markets and job opportunities, more so where the technology is embraced most by the authorities.

Therefore, this determinism (of the trajectory of technique) is also apparent in the EU's inability to fully discard a technology such as crypto (or DLTs). In the aftermath of the financial crisis, the digitalization of financial markets was marked as a strategy to ensure sovereignty and prosperity, echoing Ellul's assertion that technological progress is perceived as a predestined route. The EU's focus on integrating innovative technologies into financial services underscores this deterministic outlook, reinforcing the belief that technological evolution is both necessary and unavoidable. Notably, the broader narrative of advancing technological techniques largely overlooked the negative associations of crypto-assets, such as their facilitation of financial crimes like tax evasion, money laundering, and terrorism financing.

### Efficiency over control

Efficiency, another core characteristic of technique identified by Ellul, is a central theme in European regulatory frameworks. The call in the FinTech Action Plan for 'supervisory convergence toward technological innovation' reflects a desire for standardized, efficient regulatory practices that can keep pace with (or even anticipate) rapid technological advancements. This pursuit of efficiency manifests in the development of the Markets in Crypto-Assets (MiCA) regulation, which aims to create a coherent legal framework to support innovation while ensuring consumer protection and market integrity. The emphasis on efficiency and standardization aligns with Ellul's view that technique imposes a homogenizing influence, prioritizing streamlined processes and uniformity.

Ellul's critique of the technological society includes the notion that technique fosters an illusion of control. Despite the comprehensive regulatory frameworks, there is a recognition that technology often escapes full oversight, leading to unforeseen consequences. This is particularly evident in the EU's handling of crypto-assets. Initially perceived as threats due to their potential to facilitate financial crimes and undermine traditional markets, crypto-assets have now been integrated into regulatory frameworks to harness their economic potential. However, this integration highlights the tension between the desire to control technological development and maintaining a stance of technological neutrality, which leads to inherent unpredictability and rapid evolution of such technologies.

### Adapting to impersonal and autonomous systems

Ellul contends that technique engenders impersonal and autonomous systems, where human agency is subsumed by technological imperatives. This phenomenon is particularly evident in the rise of decentralized crypto-systems. These systems operate on the complex logic of the majority within a computerized network, effectively removing individual discretion and replacing it with algorithmic consensus. The decentralized nature of blockchain technology exemplifies this shift, as decisions and validations are made through majority agreement of the network's nodes, rather than through centralized human authority.

In the context of crypto-asset markets, this transition leads to the 'technologization' or 'computerization' of fundamental social concepts such as trust, value, and personal connection to assets (property). Traditional financial systems rely heavily on trust in institutions and intermediaries, such as banks and regulatory bodies, to ensure the integrity and security of transactions. In contrast, decentralized crypto-systems operate without the need for trust since it is a technological mechanism of cryptographic protocols and consensus mechanisms, effectively depersonalizing this essential element of economic interaction. Value, traditionally a subjective and socially constructed concept, is also redefined within these autonomous systems. Complex algorithms and the collective behaviour of market participants determine the value of crypto-assets, often generating volatility that reflects the impersonal nature of these markets. Moreover, the connection between individuals and their assets undergoes significant transformation in the crypto-asset paradigm. Ownership and control are mediated through digital wallets and private keys. This digitization of ownership means that individuals must now engage with a computerized system to access and manage their assets, a process that is inherently impersonal and detached from traditional notions of property. The 'decentralized' nature of the system is also easily overestimated, since the *markets* in crypto-assets (as soon as crypto-assets interact with government-issued currencies) are, in contrast to the technology, relatively centralized and still dependent trust in trading relationships.

The European regulatory approach to these developments underscores the tension between embracing technological advancements and mitigating their impersonal effects. The MiCA regulation aims to integrate crypto-assets into the existing financial framework while addressing issues of consumer protection and market integrity. However, it must also grapple with the inherently decentralized and impersonal nature of these technologies, which challenge conventional regulatory paradigms.

#### 4.4 Synthesis and Discussion

The application of Heidegger, Gehlen, and Ellul's theories within Hall's social learning framework elucidates the multi-layered nature of the EU's policy processes. The EU's approach to digital innovation and financial technologies encompasses instrumental adjustments, the development of new techniques and institutional frameworks, and profound ideological shifts. Heidegger's insights into the technological mode of Being, Gehlen's theory of institutionalization, and Ellul's characteristics of technique all highlight the complex interplay between technology and policy.<sup>189</sup>

##### Connecting Heidegger, Gehlen, and Ellul to Hall's framework

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<sup>189</sup> Appendix E provides a more detailed exploration of how these philosophical perspectives may complement or contradict each other in framing policy responses to technological change.

Heidegger's concept of "enframing" suggests that technology shapes our understanding and interactions with the world, making it a "standing reserve" of resources. In Hall's framework, Heidegger's ideas resonate with the third order of change, where the overarching goals and ideologies behind policies are influenced by our destining of the essence of technology. The EU envisions economic growth and societal progress through promoting innovation and pursuing technological advancement, which informs its digital innovation policies. Heidegger's view that our technological mode of Being becomes an inevitable path aligns with the EU's long-term digital strategies, like the Digital Single Market, but also in the new MiCA regulation. These policies are not just about using new tools (first order) or refining their use (second order) but about constantly amplifying what constitutes societal progress and economic stability.

Gehlen's theory that institutions are necessary to manage human beings' existential conditions, and particularly when institutions become organisations, aligns with Hall's second order of change. When they are focusing on the techniques and institutional frameworks developed to implement policies and thereby retain organization power. The EU's regulatory approach, which seeks to integrate crypto-assets within existing financial frameworks, mirrors Gehlen's concept of institutionalization as a way to manage the cultural and technological landscape. Policies like MiCA are designed to provide a stable, institutional framework that mediates the relationship between citizens and digital technologies, thus enhancing societal order and predictability. This institutionalization process highlights the EU's efforts to create a structured environment in which technological innovations can be managed and regulated effectively.

Ellul's analysis of technique as self-augmenting, autonomous, and fostering impersonal systems connect to Hall's concepts of first and second orders of change. What Hall would consider as 'normal policymaking' (government organizations make first and second order changes), for instance toward 'data-driven decision making' and information- and data-management, could be seen as a manifestation of technique from the Ellulian perspective. Ellul's insights into how technology drives continuous optimization (first order) and imposes standardized, efficient processes (second order) can be seen in many of the workings of European governments. And generally, in the EU's push for regulatory frameworks that emphasize efficiency and market integrity. The FTAP's and MiCA's focus on legal certainty and consumer protection reflect a recognition of the pervasive influence of some financial technologies. For this reason these policies aim to harness technological benefits while mitigating its risks (caused by misuse).

#### The policy processes: orders of change integrated with philosophical insights

The integration of Heidegger, Gehlen, and Ellul's theories within Hall's social learning framework provides a nuanced understanding of the EU's policy processes, particularly regarding digital and financial technologies. The EU's policy initiatives, like the updating of directives for Markets in Financial Instruments (MiFID) and Electronic Money (EMD), represent first-order changes. These are practical responses with existing instruments to new technological capabilities, aimed at updating the tools and mechanism of financial markets.



The focus on innovation and digital transformation highlights the instrumental adjustments the EU is making to remain competitive in a globalized economy.

Second order changes are evident in the EU's efforts to develop new comprehensive regulatory frameworks like MiCA, which standardize and oversee the use of digital technologies in financial services. These policies are designed to ensure that technological advancements are integrated into existing institutional structures, maintaining market integrity and consumer protection. This reflects Gehlen's idea of institutionalization, where new techniques are employed to manage the evolving technological landscape.

Heidegger's concept of enframing and Ellul's notion of the power of technique illustrate changes on the third order in the EU's policy processes. The overarching goals guiding EU policies are increasingly shaped by a vision of technological progress as central to economic growth and societal development, caused by an uncritical stance regarding technology. This is not a sudden or abrupt change, but one that has been manifesting gradually. This ideological shift towards embracing digital innovation reflects a broader transformation in how the EU conceptualizes its future, aligning with Heidegger's idea that technology fundamentally shapes our understanding of the world and our place within it.

In conclusion, the EU's regulatory strategies reflect the transformative potential of technology, consistently aiming to harness technological benefits while managing its perceived risks. By understanding these processes through the lens of social learning, we gain a clearer picture of how the EU navigates the challenges and opportunities of the digital age, and the role that ideas play in the navigational 'puzzle.' It shows how our understanding of technology, and its significance to humanity, shapes our ideas about the challenges and opportunities of the digital age at all policymaking levels.

## 5. Conclusion: Bridging Philosophical Insights and Regulatory Practice

This thesis explored how philosophical perspectives on technology manifest within the European Union's evolving approach to digital finance regulation, particularly from the financial crisis of 2007/2008 to the establishment of the Markets in Crypto-Assets (MiCA) regulation. By drawing on some philosophical insights and concepts from Martin Heidegger, Arnold Gehlen, and Jacques Ellul, this research examined how technology shapes societal values and regulatory frameworks, not merely as a tool but as an autonomous force that influences policy direction. Utilizing Peter Hall's framework of social learning as an interpretative lens, this study organized the analysis across different layers of policy change, capturing both the incremental and the transformative impacts of technology on EU policymaking. This approach underscores the significance of ideas as guiding forces in policy, particularly when these ideas can be retraced to philosophical views and forecasts on technology's role and impact in modern society from the previous century.

### 5.1 Summary of Key Findings to the Sub-questions

This research identified that each of the three considered philosophers provided a distinct framework for understanding technology's role in society. These can, to a certain extent, be mapped onto Hall's layers of policy change to understand the dynamics within the EU's evolving digital finance regulations. Heidegger's concept of *enframing* reveals technology as a constraining force, encouraging society to view everything, including regulatory and supervisory frameworks, as resources for optimization. When the EU redefines policy goals (a third-order change) with technology as an enabler of economic growth and societal progress, this concept of Heidegger resurfaces. The EU's commitment to digital innovation, from the Digital Single Market act to the MiCA regulation, demonstrates this shift, and shows how technology redefines the EU's aspirations for stability and integration. In this sense, the approaches and ideas that led to MiCA are not solely about creating a regulatory structure but is also a reflection of the EU's adaptation to a worldview where digital finance holds intrinsic value.

Gehlen's notion of institutionalization emphasises the role of institutions in managing societal complexities, which is particularly relevant and applicable to the EU's approach (and relevance) to regulating crypto- assets (markets). MiCA is also an exemplary case of a 'second-order change', as it is a new regulatory framework that seeks to incorporate technological advancements and potential, that could not be grasped in existing policy instruments, while managing the social and financial risks. Gehlen's view aligns with the EU's need for structured and levelled regulations, like MiCA, to integrate crypto-asset markets into the traditional financial system and ensure stability and predictability. This approach reflects a view of technology as an essential part of modern institutions that requires formalized responses to control its disruptive potential, ensuring that technology's role aligns with the EU's larger regulatory goals and complex societal needs.

Ellul's concept of *technique* identifies technology as an autonomous and self-augmenting force that drives continuous efficiency and standardization. Especially in connection to Hall's 'first-order changes,' Ellul's ideas resonate in the EU's pursuit of regulatory measures that standardize financial processes while supporting market integrity and consumer protection. MiCA's emphasis on standardized classification and (broad) definitions for types of crypto-assets and crypto-asset activities aligns with Ellul's notion of technique, as it (intendedly) ensures that technology operates within an efficient and predictable framework. By emphasizing standardization and operational efficiency across the EU, MiCA demonstrates how EU policies are influenced by the drive for consistency and risk mitigation (characteristic to Ellul's autonomous technique) thus further embedding a technological rationale into the EU's regulatory ethos.

Peter Hall's theory on policymaking as social learning can be applied to the developments of EU policy, and thus how these transition through first, second, and third-order changes to technological and societal 'pressures' (through ideas). The 2007-2009 financial crisis marked a pivotal moment, exposing gaps in regulatory and supervisory frameworks and highlighting the dangers and risks of underregulated markets. The EU's initial response focused on first-order changes, adapting existing tools to stabilize financial markets. But the sovereign debt crises in several European countries that followed and had economic consequences in all Member States, set the stage for more profound policy restructuring and rethinking of the EU's regulatory scope. Through reforms such as the SMA and greater regulatory oversight, the EU began transitioning toward a more proactive and resilient framework.

MiCA can be seen as a kind of culmination of the EU's policy evolution in the decade that followed, linking the EU's focus on financial stability with the focus on technological innovation. MiCA addresses the challenges of a new digital financial landscape and provides more legal clarity and a framework to govern the markets in this landscape. In a nutshell, the development of MiCA aligns with the philosophical perspectives offered by institutionalizing crypto-asset regulation (Gehlen), creating standardized frameworks (Ellul), and embedding a forward-looking, technological vision in policy (Heidegger).

## **5.2 Answering the Main Research Question**

This thesis addressed the main research question through the applied philosophical perspectives, demonstrating how technological imperatives have shaped the layered evolution of EU policies from the financial crisis to the MiCA regulation. The 2007-2009 crisis acted as a catalyst for the EU's need and desire for a more cohesive and resilient regulatory framework. Between this crisis and the establishment of MiCA, numerous first- and second-order policy changes occurred. The initial response after the financial crisis, for example, can be seen as changes of the first order. By the time MiCA became part of the Digital Finance Strategy (DFS), the EU had begun incorporating second-order changes, integrating new technologies like crypto-assets into regulatory structures. However, the cumulative effect of these varied first and second changes arguably reveals an underlying third-order shift – a paradigm shift that

reorients the EU's core policy goals around (DeFi) technology itself, aligning with Heidegger's enframing and Ellul's technique. By interpreting technology as both a source of risk and a driver for future growth, the EU illustrates an ideological shift where regulatory frameworks do not merely contain technology but actively incorporate it (and its potential) into the vision of a stable, integrated, and future-oriented European economy.

Between 2017 and 2019, the EU began formulating its regulatory approach to FinTech, with a specific focus on the emerging crypto-assets market. This effort was catalysed by the European Parliament's call for an action plan, leading to the release of the 2018 FinTech Action Plan (FTAP). The FTAP marked the first instance where the EU recognized the need to assess whether existing regulations adequately addressed crypto-assets, identifying potential regulatory gaps. This prompted EU authorities, including the European Supervisory Authorities (ESAs) and the European Central Bank (ECB), to examine crypto-assets more closely. Despite some overlaps with e-money, the EBA noted in early 2019 that crypto-assets remained limited in scale and posed no significant risk to financial stability.

During this period, framing efforts from various stakeholders began to influence regulators' understanding of crypto-assets. European institutions focused on privacy, criminality, and sustainability, while industry groups emphasized 'de-risking' to ease banking access for crypto businesses. The 2019 announcement of Facebook's Libra project intensified concerns, leading to a "global stablecoin" frame that highlighted potential systemic risks. This shift ultimately contributed to the 2020 proposal of the Markets in Crypto-Assets (MiCA) regulation, a comprehensive framework intended to safeguard markets, ensure consumer protection, and foster innovation across the EU's crypto-assets landscape. These framing activities are emblematic of a shift in the EU's approach to technology regulation, aligning with philosophical perspectives that view technology as both a regulatory subject and an opportunity for economic growth. By systematically incorporating diverse stakeholder insights, the EU adapted its regulatory framework to a more technologically integrated model.

The EU's regulatory response to crypto-assets is deeply shaped by technological phenomena and compelling philosophical ideas, which influence both the substance and processes of policymaking. The dynamic between ideas, technology and society is evident in the development of the Markets in Crypto-Assets Regulation (MiCA), where the EU's approach reflects philosophical interpretations of technology's role in society, institutional adaptation, and the autonomous nature of technique. EU policies emphasize technological innovation as inevitable and essential for economic stability and growth, mirroring Heidegger's notion of a "technological mode of Being." The EU's framing of digital transformation as a pathway to progress underscores its commitment to technological advancement. MiCA draws on this logic and follows this path, risking that societal implications are overshadowed by an uncritical embrace of innovation. Arnold Gehlen's theory of institutionalization posits that institutions manage the existential conditions of humanity by integrating and regulating (or even embodying) technology. By providing stability and predictability through MiCA, the EU seeks to address the volatility and unpredictability of crypto-markets. However, this institutionalization reflects a tension: while it aims to integrate innovative technologies, it also raises questions about whether such frameworks serve broader societal ideals or merely

reinforce organizational power and control. Jacques Ellul's critique of technique as autonomous and self-augmenting resonates with the EU's regulatory approach. The development of MiCA illustrates how regulatory policies prioritize efficiency, standardization, and market integrity. This aligns with Ellul's view that once a technological trajectory is embraced, it becomes deterministic, shaping societal values and policy goals. The EU's emphasis on integrating crypto-assets reflects a belief in technological progress as inevitable, even as it acknowledges the challenges posed by decentralized and impersonal systems like blockchain technologies.

By framing innovation as central to progress, institutionalizing digital technologies, and responding to the autonomous nature of technique, the EU answers to the challenges and opportunities of 'the digital age.' The aim and the process demonstrate how the technological phenomenon and its compelling ideas fundamentally influence policymaking. According to Heidegger, Gehlen, and Ellul, the influence of the technological phenomenon and compelling ideas could decrease by fostering critical reflection, re-establishing human agency, and challenging the deterministic trajectories of technological progress. In essence, these philosophers collectively call for a more reflective, human-centred approach to technology, challenging its deterministic influence by prioritizing ethical, cultural, and existential considerations in policymaking and societal development.

### **5.3 Implications and Limitations**

The interdisciplinary approach in this thesis offers insights for both theoretical frameworks and practical policy design. By connecting philosophical perspectives and concepts on technology to Hall's social learning theory, this thesis aimed to demonstrate that EU policymaking is fundamentally influenced by (and not reactive to) evolving paradigms about technology's role in society. The results suggest that for EU policymakers to be good at governing in the digital age, they need to be both proactive with regulations and critically aware of the values embedded in (ideas about) technological progress. Policymakers should be apprehensive about the moral and social implications of institutionalizing technologies and technological structures, and not concentrate solely on efficiencies or on control.

This research, while comprehensive in purview and dimensions, was also limited by the scope of technological and policy examples and by the range of philosophical perspectives (by focusing on the more deterministic philosophers of technology). Future studies could expand on these findings by exploring additional philosophical perspectives, or by conducting comparative analyses of regulatory shifts in other jurisdictions. Next to this, the evolving nature of crypto-asset markets over the past 15 years could have been elaborated upon more, or even the further history of ideas about decentralized e-money systems. Future studies can also be aimed at assessing the effectiveness of MiCA in balancing technological innovation with regulatory control, and explore whether this careful balance between prudential regulation and supporting innovation and competitiveness for a tech-driven world is sustainable.

Another implication/limitation of this research is connected to the fact that interdisciplinary approaches do not necessarily lead to an integral understanding, even though that often seems to be the aim (in science). In a way, this research is more aimed at diverging the understanding of the policy making process than at encompassing it. Throughout the thesis it becomes clear how the philosophical perspective and the policy perspective are in ways also irreconcilable; e.g. where the regulators aim to act based on a coherent vision, the philosophers in this thesis see this aim (of manageability and integrality) as inherently modern and a result of the technological phenomenon itself. Applying several philosophical concepts and theories to the regulatory trajectory of MiCA can therefore by no means be ‘conclusive,’ instead the philosophical reflection aims to open up the thinking on regulation of technologies.

In conclusion, the EU’s regulatory journey from crisis management to digital governance, exemplified by the MiCA regulation, reflects a profound shift in how technology is integrated into policy frameworks. As the EU continues to address new digital and financial innovations, philosophical perspectives such as those of Heidegger, Gehlen, and Ellul provide guidance for critically engaging with the role of technologies in society. By testing future regulatory approaches (alternatives) to these kinds of reflective insights, the EU can advance a more conscious and critical approach to digital transformations, which are typically rapid and complex. By grounding its regulatory frameworks in a nuanced understanding of technology’s role, the EU can perhaps redirect the digital transformation to ensure that technology is a tool for societal benefit rather than an autonomous force.

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## Appendices

### Appendix A: Establishment of a European System of Financial Supervision

In November of 2008, the Commission appointed a High Level Group (HLG) to formulate recommendations on “how to strengthen European supervisory arrangements with a view to better protecting the citizen and rebuilding trust in the financial system.”<sup>190</sup> The HLG served as a highlevel panel of European (former) ministers or presidents of financial institutions, and was chaired by Jacques de Larosière, who had held (inter alia) a former position as chief at IMF. In the final ‘de Larosière report,’ the HLG recommended setting up what would become the European Systemic Risk Board (ESRB): “a Union level body charged with overseeing risk in the financial system as a whole.”<sup>191</sup> The ESRB would be responsible for the macroprudential oversight, meaning monitoring and assessing systemic risk and “mitigating the exposure of the system to the risk of failure of systemic components and enhancing the financial system’s resilience to shocks.”<sup>192</sup> In its establishment, the ESRB’s global ties were also highlighted. Namely by their cooperations with the IMF, the FSB, and the partners in the G-20, and by the ESRB’s responsibility to implement their recommendations.<sup>193</sup>

#### European Supervisory Authorities

The European Supervisory Authorities (ESAs) work on a European rulebook for financial regulation and prevent the build-up of risks, thereby restoring confidence in the financial markets. The three ESAs that were established are: 1) the European Banking Authority (EBA), which deals with banking supervision of the recapitalization of banks, 2) the European Securities and Markets Authority (ESMA), which deals with the supervision of capital markets and carries out direct supervision with regard to credit rating agencies and trade repositories, and 3) the European Insurance and Occupational Pensions Authority (EIOPA), which deals with insurance supervision.<sup>194</sup>

The new framework concretely meant that hedge funds had to comply with stricter rules, and that stricter rules were also established for financial activities such as short selling and credit default swaps. Next to this, a new comprehensive set of rules for derivatives was created. Furthermore, several existing frameworks were revised, such as the framework for reliable high quality credit ratings and the framework for market abuse (plus a directive on criminal

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<sup>190</sup> The European Parliament and the Council of the European Union, “Regulation (EU) No 1092/2010 of 24 November 2010 on European Union Macro-Prudential Oversight of the Financial System and Establishing a European Systemic Risk Board,” 1.

<sup>191</sup> Ibid.

<sup>192</sup> Ibid., 2.

<sup>193</sup> Ibid.

<sup>194</sup> “European System of Financial Supervision (ESFS) | Fact Sheets on the European Union | European Parliament.” It is important to note that “[t]he European Central Bank closely cooperates with all the ESAs, especially the European Banking Authority (EBA). The ESFS covers both macro-prudential and micro-prudential supervision.” (European Central Bank, “European System of Financial Supervision.”).



sanctions for market abuse). It was decided that the audit sector had to be reformed, as part of a review of the reform of the structure of the banking sector. Rules on markets in financial instruments were revised together (MiFID 1 → MiFID 2) with the governance of market benchmarks.<sup>195</sup>

This new framework was voted for unanimously in June 2009 by the European Council. The crisis stressed the need for comprehensive and complementary rulebooks in order to have a functional EU Single Market. Together, the rulebooks covered all financial institutions in the Single Market as well as all financial actors and products. In light of the financial crisis of 2008 and 2009 the focus of regulators was mostly on banks: “banks have to comply with one single set of rules across the Single Market. This is crucial to ensure that there is good regulation everywhere, without loopholes, in order to guarantee a level playing field for banks and a real integrated Single Market for financial services.”<sup>196</sup>

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<sup>195</sup> “A Comprehensive EU Response to the Financial Crisis: Substantial Progress Towards a Strong Financial Framework for Europe and a Banking Union for the Eurozone.”

<sup>196</sup> Ibid.

## Appendix B: A Short History from Bitcoin to the Libra-project

### Satoshi Nakamoto's white paper

Ideas for digital money and how it would affect people's lives have been shared and discussed all throughout the second half of the twentieth century, together with the ideas about what the Internet would bring to the world. As a result, some enthusiasts had elaborate scenarios of future which would have completely internet-based currencies (and how this would be beneficial) by the 70s and 80s.<sup>197</sup> The idea of 'cryptocurrency' (digital currencies based on cryptography-software) was first described in 1989 by the American cryptographer David Chaum.<sup>198</sup> But the first actual cryptocurrency, the 'bitcoin,' was introduced into the world in 2009 by Satoshi Nakamoto. He/She/They (the identity of Satoshi is famously anonymous) published the bitcoin white paper on November 1, 2008.

Despite the longer history of e-money and cryptographic coding, the timing of the publication was very much linked to the financial mayhem the world was in. In the genesis block of bitcoin (i.e. the first block on the blockchain, the first page of the digital public ledger) that Satoshi brought into the world on the 9th of January, a quote was incorporated in reference to the bailing out of banks that was happening in early 2009: "The Times 03/Jan/2009 Chancel on brink of second bailout" quoted from The Times that was published 6 days before.<sup>199</sup> There are several explanations for the use of this particular quotation. First, it functions as proof that the genesis block was 'mined' (created) on or after the 3rd of January 2009, since the headline and its place and time of publication was not known before. It proves that Satoshi did not - and could not - mine any bitcoins before that date.<sup>200</sup> Next to this, the subject of the article undoubtedly points at a frustration with the centralized banking system that allows this type and scale of bailing out banks. Phil Champagne, author of The book of Satoshi, explains the quote in reference to a particularly libertarian view on the unwelcome move of bailing out banks, referring to the saying that banks 'privatize the gains and socialize the losses.'<sup>201</sup> In other words, when banks are making profitable investments, the profits go to shareholders and employees, but when banks are on the opposite side of the scale, they foist their lack of credit onto taxpayers who rescue them via state-funded bailouts.<sup>202</sup> Of course, Satoshi's issues and frustration with the traditional financial system went beyond this British/EU practice of bailing out banks in the aftermath of the initially American financial crisis. The motives of Satoshi to create a digital decentralized currency were established way before the crisis started and were

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<sup>197</sup> Brunton, *Digital Cash: The Unknown History of the Anarchists, Utopians, and Technologists Who Created Cryptocurrency*

<sup>198</sup> Guardian Nigeria, "The Idea and a Brief History of Cryptocurrencies."

<sup>199</sup> "Chancellor Alistair Darling on brink of second bailout for banks: Billions may be needed as lending squeeze tightens" was the full title of the article Satoshi referred to. Elliott, "Chancellor Alistair Darling on Brink of Second Bailout for Banks."

<sup>200</sup> Many 'altcoins' are accused of mining coins before releasing their genesis block, thereby ensuring some sort of financial gain from increase in value of their coin.

<sup>201</sup> Champagne, *The Book of Satoshi: The Collected Writings of Bitcoin Creator Satoshi Nakamoto*, 4.

<sup>202</sup> Finextra, "Calling BS on Banks Privatize Profits and Socialize Losses."

based on utopian ideals. But the practice of bailing out banks, and the idea that banks privatize gains and socialize losses, would certainly awaken a sentiment in many people and draw them to cryptocurrencies.

### Bitcoin's ideological fundamentals

What is certain is that the underlying ideology and worldview of the proposed solution (bitcoin) is based on cyberlibertarian ideals and Austrian economics. Cyberlibertarian ideas circle around the central belief that governments should not regulate the Internet.<sup>203</sup> Because 'freedom' will emerge inherently from the increasing development of digital technology.<sup>204</sup> In 1996, libertarian activist and Electronic Frontier Foundation (EFF)<sup>205</sup> John Perry Barlow, wrote the 'Declaration of Independence of Cyberspace' in which he represents the cyberlibertarian thoughts notably explicit, declaring that governments of the industrial world are not welcome in - and have no sovereignty over - the digital realm.<sup>206</sup> To this day, this Declaration is used as a reference in online 'cryptocommunities.'<sup>207</sup> For example, on popular bitcoin/crypto-assets substacks:

[B]itcoin represents a new protocol that better protects the freedoms and rights of the users instead of favoring corporations and government entities. This shift of power back into the hands of the users in cyberspace will create a world that will hopefully more closely resemble John Perry Barlow's vision laid out in his piece A Declaration of the Independence of Cyberspace (02/08/1996). bitcoin is the ultimate tool for us to take our digital freedoms back.<sup>208</sup>

The declaration we are referring to here was originally typed up as an email. In it, Barlow states that governments have no sovereignty in Cyberspace. In other words, governments cannot and should not attempt to govern the Internet.<sup>209</sup> The cyberlibertarian view on the (attempts for) regulation of the Internet was still relevant in 2008-9, after the financial crisis, when governments responded to the crisis with a growth- and innovation-agenda that was heavily focused on the economic potential of digital and networked technologies. In 2011, France's then president Nicolas Sarkozy called for a 'civilized Internet' at the e-G8 meeting, "but this [...] has long been a nightmare for those who worry that 'civilization' is really a cod for 'regulations favourable to big business and the national security state.'"<sup>210</sup> Author and activist Cory Doctorow<sup>211</sup> was also invited to this e-G8, but declined: "I believe it's a whitewash, an attempt to get people who care about the Internet to lend credibility to regimes

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<sup>203</sup> Malcolm, "Internet Freedom in a World of States."

<sup>204</sup> Columbia, *The Politics of Bitcoin: Software as Right-Wing Extremism*, 3.

<sup>205</sup> [A] leading 'digital rights' and technology industry advocacy organization" Ibid.

<sup>206</sup> Ibid.

<sup>207</sup> Greenberg, "It's Been 20 Years Since This Man Declared Cyberspace Independence."

<sup>208</sup> Klippsten, "TDB: A Declaration of the Independence of Cyberspace by John Perry Barlow."

<sup>209</sup> Greenberg, "It's Been 20 Years Since This Man Declared Cyberspace Independence."

<sup>210</sup> Anderson, "France Attempts to 'Civilize' the Internet; Internet Fights Back."

<sup>211</sup> Cory Doctorow is a science fiction novelist, journalist and technology activist who believes in the liberalization of copyright laws on the Internet. He is a special advisor to the Electronic Frontier Foundation (eff.org), a nonprofit civil liberties group that defends freedom in technology law, policy, standards, and treaties. (craphound.com)

that are in all-out war with the free, open ‘Net.’<sup>212</sup> The question as to what extent the Internet can truly be governed by governments of sovereign states is an interesting one, which we will briefly return to in the final chapter. But first, in order to see the ways in which these ideologies influence the technology behind bitcoin, a short description of bitcoin as Nakamoto laid out in the white paper, and why it would ‘better protect the freedom and rights of the users.’

### The technological workings of bitcoin

In the white paper, Satoshi proposes in a relatively concise way (in only 9 pages) a ‘peer-to-peer electronic cash system.’ Satoshi explains the working of a blockchain, although the term ‘blockchain’ is never used in the paper (Satoshi explains the working of collaborating ‘nodes’). ‘Peer-to-peer’ means that “online payments can be sent directly from one party to another without going through a financial institution.”<sup>213</sup> The paper explains how the double-spending problem can be solved, without the intervention of a trusted third party, by using encrypted public keys and a decentralized network of connected computers that collectively maintain the public ledger.

The innovative feature of bitcoin is this solution to the double-spending problem that Satoshi proposes with the ‘peer-to-peer distributed timestamp server.’ The distributed server is able to generate computational proof of the chronological order of transactions using ‘timestamped hashes.’ Simply put, hashes are encrypting mathematical functions that determine how information is secured.<sup>214</sup> The information needed for making transactions in bitcoin consists of only three elements: 1) the bitcoin address of the payer, 2) the bitcoin address of the receiver, and 3) the amount of bitcoin that is transferred. These addresses are anonymous and encrypted with ‘public key encryption.’ A transfer is then made when an agent digitally signs a hash containing “the previous transaction and the public key of the next owner and adding these to the end of the coin [blockchain],” as Nakamoto shows in this figure in the bitcoin white paper.<sup>215</sup>

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<sup>212</sup> Anderson, “France Attempts to ‘Civilize’ the Internet; Internet Fights Back.”

<sup>213</sup> Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System.”

<sup>214</sup> Investopedia Team, “What Is a Hash? Hash Functions and Cryptocurrency Mining.”

<sup>215</sup> Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System,” 2.

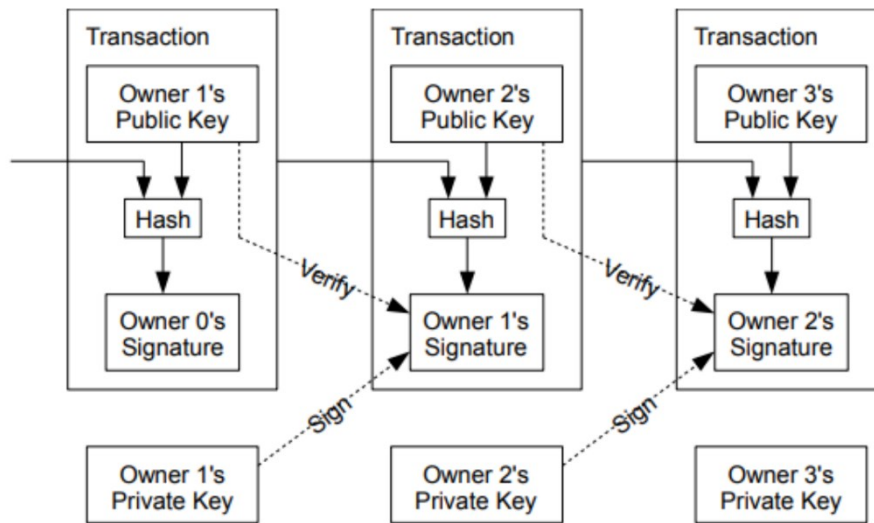


Figure 1: Making bitcoin transactions.<sup>216</sup>

By timestamping these hashes a reliable blockchain is created; all transactions are public and the system agrees on a 'single history of the order' of transactions.<sup>217</sup> In a system without one trusted party to decide on that single history, the network decides on it 'democratically:' 50%+1 of the networked system needs to have consensus on the order of transactions (more accurately, it is 50%+1 of the CPU (Central Processing Unit) power). The 'proof-of-work'-system behind blockchain means essentially that one CPU is one 'vote': "The majority decision is represented by the longest chain, which has the greatest proof-of-work effort invested in it."<sup>218</sup> As long as 'honest nodes' control over half the CPU power in the bitcoin network, the 'honest chain' will grow fastest and outpace any attempt from a hacker to modify the chain.

On the distributed ledger, public keys are visible for everyone to see, but in order to make changes on the blockchain (to transact) agents need their corresponding private key. The 'encryption' is basically a mathematical puzzle that is extremely difficult to solve in one way, but easy to solve in the opposite way: "It is easy for the algorithm to create a private key and to derive its corresponding public key. However, determining a private key from the corresponding public key is computationally unfeasible, thus allowing the public key to, as its name implies, be made public."<sup>219</sup> The computers in the network that run the bitcoin software, and hold and verify the complete bitcoin blockchain, are called (full) 'nodes.' These nodes use all the blocks of transactions that have been made on the blockchain since the establishment of the genesis block, use it to calculate the credit that each address holds, and determine whether a transaction between two agents is possible. Agents' only access to their credit is with their

<sup>216</sup> Ibid.

<sup>217</sup> Ibid.

<sup>218</sup> Ibid., 3.

<sup>219</sup> Champagne, *The Book of Satoshi*, 12.

private key (a long series of digits) and they can store and manage their bitcoin in their ‘wallets.’ The wallet is password protected software on the computer (or on a server and accessed through a web application). The ‘wallet’ is a subprocess of the bitcoin software and solely allows an agent to store, send, and receive bitcoin. Whereas nodes need to be in constant connection to the rest of the network of nodes to be able to verify the transactions, wallets can be kept offline and do not contribute to maintaining the integrity of the blockchain network.<sup>220</sup> It is the work these ‘nodes’ do (of sharing and maintaining a public ledger: finding consensus on the single history of transactions) that shapes the process of decentralization.

### Technology, ideology, and circumstance

Striving for a decentralized system to transact, without the need for a trusted third party, is an ambition with an ideological background. How can we understand or interpret the coming together of the ideology and technological possibility with bitcoin, and the moment in history in which it came to be?

The influence of cyberlibertarian thought on bitcoin (and in extension all crypto-assets that came after) should not be underestimated, even though many people who subscribe to cyberlibertarian ideology often do not call themselves a (cyber)libertarian.<sup>221</sup> There is no doubt however that the cyberlibertarian understanding and defining of freedom, government, social life, economics, and politics can be traced in 1) forum posts in the time leading up to the bitcoin white paper, 2) in the bitcoin white paper itself, 3) and in all the social media posts and videos, websites, and platforms that have been published since that white paper (which will be discussed in the next section). It is this ideology that inspired prominent participants of the early Internet - who could technically come from all over the world, but were in reality mostly from the Silicon Valley area - to think of computational ways of making a system based on these ideological values.<sup>222</sup> Other people (nowadays) do this too, sometimes without explicitly knowing it: They “accept definitions of some fundamental terms that come from the political right, especially when digital technologies are at issue.”<sup>223</sup> The (cyberlibertarian) challenge for which bitcoin offered a solution was ‘how to create a digital system, based on a highly private and secure asset, for which no third party intervention was needed?’ Finn Brunton understands this as the challenge to make ‘digital cash’:

The work of making cash digital means creating an object that is trivial to transact over networked computers and easy to verify - to prove that it is what it appears to be - but impossible to forge or duplicate, and that can carry the information about what it is and what it is worth, without generating any information about how it is used and by whom. This is a set of seemingly paradoxical and impossible

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<sup>220</sup> Ibid.

<sup>221</sup> Golumbia, *The Politics of Bitcoin*, 5

<sup>222</sup> Brunton, F. (2019) *Digital cash*.

<sup>223</sup> Golumbia, *The Politics of Bitcoin*, 5.

demands: it must be available but scarce, unique and anonymous but identifiable and reliable, and easy to transmit but impossible to copy.<sup>224</sup>

The paradoxicality and irony of these demands is that cyberlibertarians sought to build this unforgeable and possessable object in the Internet environment. A technology built on the premise of providing ‘free,’ immediate, and perfect copies of information globally.

When speaking of ‘cyberlibertarianism,’ this term functions as a conglomerate for ideology that is also connected to – or shared with – the thoughts of groups such as technocrats, cypherpunks, agorists, extropians, anarchists, micro-nationalists, and sovereign individuals. All these groups, in their ideas about future systems, thought about decentralized (digital) currencies, and inspired this type of thinking for which ‘cyberlibertarianism’ can be used as an umbrella term. There are more definitions of cyberlibertarianism (which I believe do not undermine this use of it) that can clarify the mindset and narratives of the person(s) that Satoshi Nakamoto could be.<sup>225</sup> In 1997, Langdon Winner described ‘cyberlibertarianism’ as: the belief that:

[...] the dynamism of digital technology is our true destiny. There is no time to pause, reflect or ask for more influence in shaping these developments [...] In the writings of cyberlibertarians those able to rise to the challenge are the champions of the coming millennium. The rest are fated to languish in the dust.<sup>226</sup>

With this description, Winner makes apparent that cyberlibertarianism is, above all, a prediction/narration of a future (which is generally accompanied by a narrated past). The popularity (and valuation) of bitcoin - and later of other crypto-assets - reflects the belief in such a future. The banking crisis of 2008 is extremely significant for this purpose, because it is an event (or series of events) that serves as a pivotal moment in our financial history, and it can be explained in such a way to serve the ‘cyberlibertarian agenda.’ Next to this, the crisis affected many people and businesses and caused great dissatisfaction with the system in which that could happen. This can be seen, for example, in Meyers argumentation defending the ‘blockchain audit’:

The majority of the world’s business and financial information is filed by public and private enterprises with regulators in 50 major jurisdictions after an annual audit and a periodic review is completed. Traditional audit methodology only requires one accounting firm to take a sample of data across a sample of accounts and focuses on materiality. In other words, once a year, four accounting firms examine a small fraction of the transactions that comprise the world’s business and financial information and render an opinion if it is “fairly presented.” This is certainly NOT how a blockchain works. Would you trust a blockchain with that architecture? On a blockchain, an army of miners or “validators” confirm

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<sup>224</sup> Brunton, *Digital Cash: The Unknown History of the Anarchists, Utopians, and Technologists Who Created Cryptocurrency*, 1.

<sup>225</sup> For an extensive description and explanation of the discourses surrounding ‘crypto,’ starting in the 1970’s, see Hellegren, “A History of Crypto-Discourse: Encryption as a Site of Struggles to Define Internet Freedom.”

<sup>226</sup> Winner, “Cyberlibertarian Myths and the Prospects for Community.”

100% of all transactions.<sup>227</sup> 100% of all account balances are proven all the way back to the genesis block. Disclosure is rendered in real time. Therein lies the key to new audit methodology, yet the £500 billion per year accounting and audit services profession has yet to adopt it for the betterment of society.<sup>228</sup>

Meyers questions the existing system, arguing that many decentralized anonymous moderators that check all transactions is preferred over a few known auditors doing this based on a sample of transactions. Meyers also questions the interests these traditional auditors have at heart: can we trust centralized authorities to have the community's (or majorities,' or national, or citizen's, etc.) interests at heart? This is a type of question that many people pondered on in the aftermath of the financial crisis of 2008, but which is also typically a much-hailed criticism on centralized governance from the 'right-wing.'

### Wikileaks and Silk Road

Satoshi Nakamoto did not instantly disappear after establishing the bitcoin blockchain. The last posts from Nakamoto were in 2010, and one of them concerned Wikileaks:

The project needs to grow gradually so the software can be strengthened along the way. I make this appeal to WikiLeaks not to try to use bitcoin. bitcoin is a small beta community in its infancy. You would not stand to get more than pocket change, and the heat you would bring would likely destroy us at this stage.<sup>229</sup>

Despite this plea, Wikileaks had to deviate to payments in bitcoin. For half a year later, major payment platforms (e.g. PayPal) had been forced to stop allowing payments to Wikileaks after confidential military information about the Afghan war had been posted.<sup>230</sup> In order to keep Wikileaks alive, people needed to be able to support the platform financially through a different asset, and that is where bitcoin came into the picture. Nakamoto was clearly not enthusiastic with the attention for bitcoin coming from this context, fearing it would get on the

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<sup>227</sup> “Although all miners are working on the next block, only one will be selected to have his specific version of the block added to the block chain. Indeed, each miner is operating in his self-interest when he creates his own version of this next block and so personally collects the transaction fees associated with that block of transactions. Although the core parameters of Bitcoin transactions are unaltered (payer, payee, amount), most of them include transaction fees, disbursed by the payer and to be credited to the account of the miner whose block is selected for inclusion in the block chain. This miner will therefore update each of these transactions and will credit the fees associated with those transactions to his very own Bitcoin address. In addition to transaction fees, miners whose blocks are added to the block chain also earn additional credits with newly minted bitcoins. They create an extra transaction that adds these to their own bitcoin accounts. This is called a block reward.” Champagne, *The Book of Satoshi: The Collected Writings of Bitcoin Creator Satoshi Nakamoto*, 14.

<sup>228</sup> Meyers, “Chancellor on the Brink? It’s Not What You Think.”

<sup>229</sup> genjix, “Wikileaks Contact Info?”

<sup>230</sup> Huang, “How Bitcoin and WikiLeaks Saved Each Other.” The fact that classified information was posted on Wikileaks was not surprising. Wikileaks’s founder, Julian Assange, established the platform with the intention of it serving as a way to disclose secret documents anonymously. Wikileaks would serve as: “a cryptographic framework for anonymous leaking that discloses information to the public while making organization dysfunctional by turning every employee into a potential leaker.” But regulated payment platforms and banks are naturally not allowed to provide services to sustain criminalized activities (Brunton, *Digital Cash: The Unknown History of the Anarchists, Utopians, and Technologists Who Created Cryptocurrency*, 87).



bad side of history from the very beginning. But there was also no way to stop Wikileaks from implementing a payment structure via the bitcoin blockchain.

The implementation on Wikileaks on 14 June 2011 would mean a significant rise in the demand for bitcoin. By this time, bitcoin's community of miners and users was already growing. But now bitcoin was the only way Wikileaks could be sustained: "The bitcoin Wikileaks would receive after, would, in Julian's [Assange] words, '[see] us through the extralegal US banking blockade.'"<sup>231</sup> Next to this, Assange also claimed in 2017 that his company had made "a 50.000% return on bitcoin after investing in the cryptocurrency in 2010."<sup>232</sup> It was, first and foremost, the fact that all regulated financial service providers dropped Wikileaks that made Assange turn to bitcoin. Both sharing the fact that these initiatives stem from the cypherpunk community, their roads also continued to be intertwined after 2011. The profitable donations in bitcoin to Wikileaks enabled them to keep leaking information. But Wikileaks also helped bitcoin by strengthening their case about displacing the financial-political banking institutions, something many of Wikileaks' following were also furious about.<sup>233</sup> In the end, Nakamoto's fears did not become reality, and Wikileaks did not destroy bitcoin, but gave it an application on a platform, which made appreciation for bitcoin rise.

The other event that spiked the interest in bitcoin was through the rise in its popularity to buy illegal goods and services on Silk Road. Silk Road was a peer-to-peer ecommerce website on the dark web. It brought together providers and customers, and which financed itself through a commission on sales.<sup>234</sup> The online marketplace ran from 2011 to 2013, and was mostly known for facilitating the sale of drugs (which amounted to 70% of the products on sale),<sup>235</sup> although all kinds of goods and services were offered there.<sup>236</sup> bitcoin played a significant role in Silk Road Transactions, since it served exclusively as the primary currency for buying and selling on the marketplace. The pseudonymous and decentralized nature of the asset provided a level of anonymity for all users. But in 2013, the U.S. Federal Bureau of Investigation (FBI) shut down Silk Road and arrested its founder, Ross Ulbricht. Ulbricht (whose pseudonym was 'Dread Pirate Roberts') was convicted on multiple charges, including money laundering, computer hacking, and conspiracy to commit drug trafficking.<sup>237</sup> As part of the legal actions against Silk Road, law enforcement authorities seized a significant amount of

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<sup>231</sup> Huang, "How Bitcoin and WikiLeaks Saved Each Other."

<sup>232</sup> Kharpal, "WikiLeaks Founder Assange Claims He Made 50,000% Return on Bitcoin Thanks to the US Government."

<sup>233</sup> Huang, "How Bitcoin and WikiLeaks Saved Each Other."

<sup>234</sup> Campbell-Verduyn, *Bitcoin and Beyond (Open Access): Cryptocurrencies, Blockchains, and Global Governance*

<sup>235</sup> Ghimiray, "Dark Web: A Guide to the Silk Road Dark Web."

<sup>236</sup> Goods and services one can think of are: drugs (heroin, cocaine, amphetamines, ecstasy, cannabis), hacking tools, stolen data, counterfeit money, weapons, child pornography, assassinations, etc.

<sup>237</sup> Kadam, "Beyond the Shadows: Unraveling the Real-World Consequences of Dark Web Criminal Operations on Society."

bitcoin from the platform, which included 144,336 coins that belonged to Ulbricht.<sup>238</sup> The seized bitcoin was later auctioned by the U.S. government.<sup>239</sup>

There are two important and related consequences from the association of bitcoin with Silk Road: 1) it led to concerns about the use of cryptocurrencies in illegal activities, and 2) its value rose significantly (and then dropped after Silk Road was shut down), making it interesting as a high-risk-high-reward investment object. From that perspective, many saw the shutting down of Silk Road (and the illegal activities it facilitated) as a good thing for bitcoin.<sup>240</sup> It would get the opportunity to move past the association, and for bitcoin to be put to better uses. But despite the fact that transactions on Silk Road were only a fragment (an estimated 5%)<sup>241</sup> of all the bitcoin transactions that were happening around that time, the Silk Road community was important for early bitcoin.

### The rise of crypto-exchange-platforms

From the beginning there was one element of bitcoin that hindered large scale adoption of the coin: for most people, it was difficult to get and trade. The technology and the logic behind it were difficult to comprehend and actually buying some bitcoin was not just a few mouse-clicks away. Even though transactions on the bitcoin blockchain were meant to be conducted directly between two agents, several reasons arose to create platforms to facilitate the exchange of cryptocurrencies: 1) there was a growing interest in bitcoin (and other cryptocurrencies) by people that were looking for an secure, efficient and user-friendly way to acquire them; 2) exchanges enable the process of price discovery for digital assets (they help determining a fair market price); 3) the increasing number of different crypto-assets meant that agents were interested in holding diverging portfolio's (preferably in one place); 4) crypto-exchanges promise better security for agents' assets and safe transacting; and 5), crypto-exchanges (because of their centralizing aspect) form an entity that can be regulated and contacted, thereby enhancing the legitimacy and acceptance of the crypto-asset market.

As the bitcoin network was growing, it raised interest amongst a broad public and offered new opportunities for entrepreneurs to profit from. The source code for the blockchain was out there, and everyone was theoretically able to use it to create something new. Considering bitcoin's short history with Wikileaks and Silk Road, "the issue of trust came into full colour, raising questions related to the global redistribution of authority and power - and governance."<sup>242</sup> Crypto-asset exchange-platforms are a big topic where many of these questions come together.

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<sup>238</sup> Lopatto, "How Bitcoin Grew up and Became Big Money."

<sup>239</sup> Schroeder, "U.S. Seizes Over \$1 Billion in Bitcoin Tied to 'Silk Road.'"

<sup>240</sup> Lopatto, "How Bitcoin Grew up and Became Big Money."

<sup>241</sup> Hern, "Bitcoin Price Plummets After Silk Road Closure."

<sup>242</sup> Campbell-Verduyn, *Bitcoin and Beyond (Open Access): Cryptocurrencies, Blockchains, and Global Governance*, chap. 7.

The first big bitcoin platform was Mt.Gox ('Magic: The Gathering Online eXchange'). It was not originally founded for bitcoin, but it launched a bitcoin exchange early in 2010.<sup>243</sup> From the beginning, the platform was under constant attacks of hackers and proved to be a risky business to run. In 2014, Mt.Gox's balance sheet was untenable, and the platform filed for bankruptcy. It turned out that "an attacker had slowly been draining all of Mt. Gox's bitcoins without being noticed. The company filed for bankruptcy in February 2014, citing \$64 million in liabilities."<sup>244</sup> Mt.Gox was the first platform to embody the problem with crypto-asset trading platforms; "the promise of bitcoin was that your money wouldn't be held hostage by a failing bank, but that's exactly what had happened."<sup>245</sup> And it would not be the last time this happened to a centralizing crypto-asset platform. Other big platforms would eventually fall as well; Quadriga fell in 2019, and in 2022 crypto exchange FTX filed for bankruptcy, dragging with it parties such as Gemini Trust, Voyager Digital (Three Arrows Capital), Celsius Network, BlockFi and Genesis.<sup>246</sup>

### Ethereum and more altcoins

An important stimulant for the appeal of crypto-asset platforms is the wide variety and constant increase of new (types of) crypto-assets. Informally, all other types of 'coins' that are not bitcoin are called 'altcoins,' namely because they are an alternative digital currency to bitcoin. Ethereum is therefore also technically an altcoin, but it is a particularly successful one. This is mainly because Ethereum was the first to use blockchain technology to not only be applied as a digital currency, but to digitize all kinds of secured contracts (without the need for a trusted third party of course). There were other altcoins before Ethereum, such as Litecoin (2011, which aimed to improve upon bitcoin's transaction speed and efficiency), Ripple (2012, which was designed to serve as both a digital payment protocol and a currency (XRP)), Peercoin (2012, which introduced a proof-of-stake system to reduce energy consumption),<sup>247</sup> Monero (2014, focused on increased privacy and enhanced fungibility), and more. The revolutionary concept that the Ethereum-blockchain brought to the table was its ability to create 'smart contracts' as well as 'decentralized applications' (DApps),<sup>248</sup> thereby opening up new possibilities beyond simple peer-to-peer transactions. Most of the popular decentralized

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<sup>243</sup> Lopatto, "How Bitcoin Grew up and Became Big Money."

<sup>244</sup> Ibid.

<sup>245</sup> Ibid.

<sup>246</sup> Llamas, "Crypto Bankruptcies: Companies That Filed & Tips for Investors."; B2BinPay, "Top 5 Crypto Bankruptcies: A Historical Look at Failed Companies."

<sup>247</sup> Proof of Stake (PoS) is a consensus algorithm in blockchain networks where participants, or "validators," are chosen to create new blocks and validate transactions based on the amount of cryptocurrency they hold and are willing to "stake" as collateral. It aims to enhance network security and efficiency while reducing energy consumption.

<sup>248</sup> Most 'centralized' apps (or simply: apps) have a central server where every call is made. Decentralized Applications (DApps) on Ethereum are blockchain-based applications that operate without central control. Built on smart contracts, DApps enable transparent, trustless interactions. They span various domains, from finance to gaming, leveraging Ethereum's decentralized platform to provide users with secure, censorship-resistant experiences.

exchanges (DEX) now run on the Ethereum blockchain.<sup>249</sup> DEXs differ from centralized exchanges (like Coinbase) because they only trade cryptocurrency tokens for other cryptocurrency tokens, meaning that an agent can only trade on these exchanges when already in possession of a crypto wallet. On centralized exchanges crypto can also be traded for fiat currencies, and the other way around. DEXs use the Ethereum blockchain because they consist completely of sets of smart contracts: “While transactions on a centralized exchange are recorded on that exchange’s internal database, DEX transactions are settled directly on the blockchain.”<sup>250</sup> This is just one example of innovations with blockchain technology: ways in which people look to diversify the crypto-space and experiment with what works best for certain purposes.

In other words, it is the further developing, advancing, and branching out of blockchain uses that has significantly shaped the diverse crypto-space as we now know it. Altcoins have introduced various features and functionalities beyond the peer-to-peer transactions that Nakamoto introduced. Altcoins address limitations of the bitcoin-blockchain in areas such as scalability, privacy, and the way the consensus mechanism functions. The transparency on the functioning of the different blockchains also means that there is a functional competition among projects; programmers are challenged to offer better solutions and develop novel technologies. Examples of these solutions are the ‘proof-of-stake’ mechanism, privacy-focused protocols, and the decentralized finance platforms that were mentioned before. Altcoins can be seen as a way of experimenting with and implementing new ideas, and pushing boundaries of what is possible with blockchain technology.

The constant flow of new altcoins and blockchain projects also brings risks with it. New altcoins, or the ICOs (Initial Coins Offerings) that lead up to new altcoins, regularly turn out to be scams. ICOs are a type of (previously unregulated) crowdfunding by which investors finance a blockchain project by buying ‘coins’ or assets before the launch of the coin. So-called ‘malicious issuers’ commit fraud in ICOs. This can be done in several ways: the ‘exit fraud,’<sup>251</sup> ‘securities fraud,’ by ‘Ponzi scheme,’ ‘pump and dump’ (artificially inflating the price through false information), phishing,’ ‘hacking,’ or otherwise.<sup>252</sup> In 2017, there was what has been called an ‘ICO boom,’ in which the hype surrounding blockchain, in combination with a lack of regulatory oversight, caused an influx of ICOs, both legitimate and fraudulent. Generally, malicious issuers take advantage of the enthusiasm and lack of knowledge of less sophisticated investors, who do not notice certain irregularities in the available information and/or whitepaper.

### An ‘asset class’ full of opportunities and risks

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<sup>249</sup> “DEXs are booming — in the first quarter of 2021, \$217 billion in transactions flowed through decentralized exchanges. As of April 2021, there were more than two million DeFi traders, a ten-fold increase from May 2020.” coinbase, “What Is a DEX?”

<sup>250</sup> Ibid.

<sup>251</sup> An exit fraud in crypto means to disappear with the collected money without listing an actual coin

<sup>252</sup> Hornuf, Kück, and Schwienbacher, “Initial Coin Offerings, Information Disclosure, and Fraud.”

The years between 2017 and 2023 (roughly) have meant remarkable growth and remarkable losses. The risk of fraud through ICOs was mentioned briefly above, but there are other ways in which people or organizations have suffered from significant losses. Whether or not they completely understood the risks involved when they made the investment differs from case to case. Arguably, the amount of people that lost on their investment is significant, simply because the crypto-space grew incredibly, both value- and popularity-wise. Especially in the couple of years before, but certainly during, the worldwide Covid-19 pandemic.<sup>253</sup> According to a Statista survey, the amount of ‘crypto users’ snowballed from [roughly] less than 5 million to over 420 million between 2016 and October 2023.<sup>254</sup> Figure 2 shows how the distribution of when ‘current’ crypto users first invested in a cryptocurrency. It shows, for example, that of all the crypto user in Q2 of 2022, 69,2% made their first investment between 2017 and 2022.

Despite an ongoing growth in crypto users, the value of crypto certainly has not been rising steadily. For instance, the price of bitcoin has known drastic fluctuations over the last decade, as is shown in figure 3. Note that in this figure, significant changes in value in shorter time spans is not detectable. What is clearly visible here, however, is the big spike in value that happened around the same time at which the lock-downs happened globally as a preventive measure during the COVID19 pandemic. The wider popularity also meant that responses were more extreme: the several spikes up and down are more extreme than the fluctuations in value before. Showing these developments are not meant to reduce to simplicity the opportunities and risks of the crypto-space, but in their extremity, they show why policy makers both aim to harbour the potential as well as to defend citizens to the risks.

For EU politicians, there are several perceived opportunities (or a certain potential) connected to crypto-assets and the underlying blockchain technology. For example, a more efficient and globalized way of banking, next to the general hopes and promises that come from (financial) innovation, as current systems also have their imperfections. Plus, investing in the promises of this technology creates European jobs and can grant the EU some sort of forerunner role in developing (or in regulating) the crypto-space. Logically but notably, these benefits have in common that they all contribute to economic growth.

The EU acknowledged the transformative potential of blockchain and distributed ledger technologies (DLTs) for banking practices. But implementing this technology for banking also comes with risks and challenges. Certainly, before MiCA, there was no clarity and united understanding within EU jurisdiction (from the EU or within/between the Member States) whether the different types of crypto-assets qualified as financial instruments or not. In the absence of a real and clear understanding, regulation and oversight could easily be avoided, causing crypto-assets to become a tool for tax evasion, money laundering,<sup>255</sup> and terrorist

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<sup>253</sup> Volosovych, Sholoiko, and Shevchenko, “Cryptocurrency Market Transformation During Pandemic Covid-19.”

<sup>254</sup> “Crypto Users Worldwide 2016-2025 | Statista.”

<sup>255</sup> (In 2016) financial services in crypto-assets fell outside the scope of the Anti-Money Laundering Directive (AMLD), so a fifth revision was proposed (AMLD5), in which the definition of ‘obliged entities’ is

financing.<sup>256</sup> More generally, blockchain-based banking practices go against the principles of the General Data Protection Regulation (GDPR). And also the legal status of ‘smart contracts’ is unclear and complex.<sup>257</sup> However, there seems to be a shared belief amongst the majority of policy-advisors and -makers that the fraudulent activities facilitated by the technology are not due to fundamental aspects of that technology, but the result of the unregulated and unclear applications of it. To harness the benefits of the innovation in (financial) instruments, regulators aimed to create a framework that fosters ‘responsible development.’ Such a new framework connected to a new digital finance strategy would “help relaunch and modernize the European economy.”<sup>258</sup>

Blockchain technology (and decentralized ‘networked’ computing in general) hold the promise of more speedy, efficient, and secure transacting of value and ‘trust’ (smart contracts). The technology means something significant for the globalization of the (financial) market as well, as the crypto-asset is not confined to sovereign borders. Without European regulatory oversight, players in the crypto-assets-markets can pick between regulations from all 27 Member states. Most problematic about this is the unclarity and difficulties, for both companies and consumers, to understand and operate within this diversity of frameworks.

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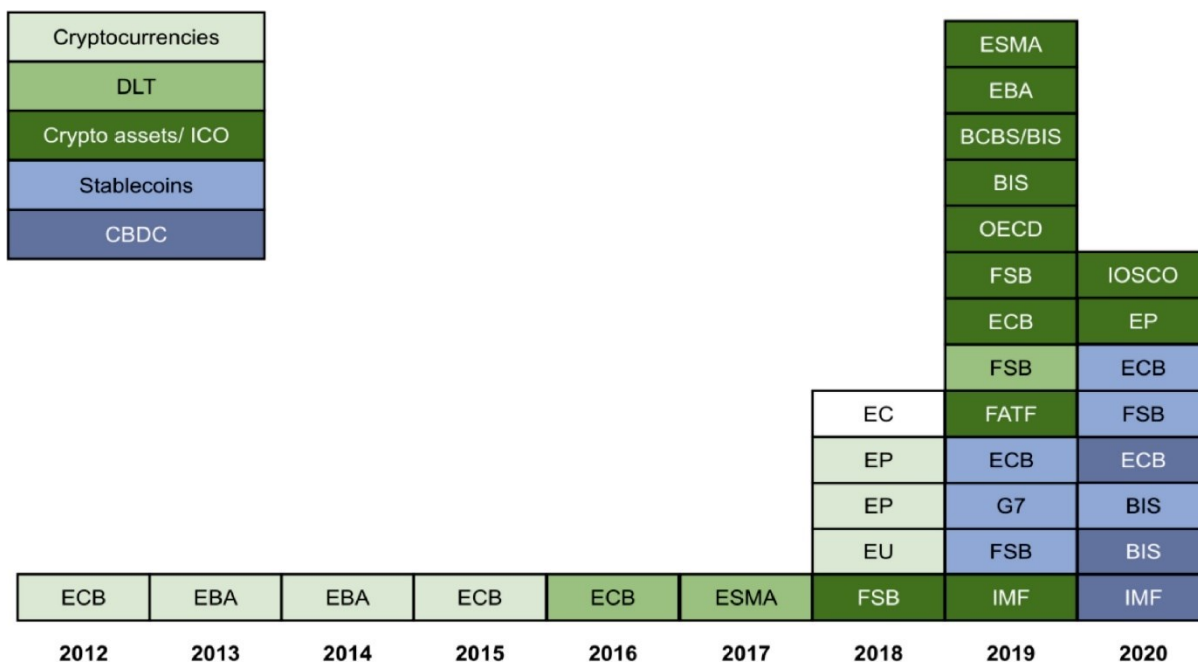
extended “to include virtual currency exchanges, defined as ‘providers engaged in exchange services between virtual currencies and fiat currencies’, and custodian wallet providers, defined as ‘an entity that provides services to safeguard private cryptographic keys on behalf of its customers, to hold, store and transfer virtual currencies’. Accordingly, virtual currency exchanges and custodian wallet providers have to comply with the same AML/CFT requirements as banks and other financial institutions: they must register with the national AML authorities, implement customer due diligence controls, monitor virtual currency transactions and report suspicious activity to government entities.” Martino, *Blockchain and Banking: How Technological Innovations Are Shaping the Banking Industry*, 77.

<sup>256</sup> “Owing to its anonymity, cross-border nature and quick transferability, the use of blockchain in cryptocurrencies is well suited to illicit activities such as fraud and manipulation, tax evasion, hacking, money laundering, and funding for terrorist activities.” Ibid., 72.

<sup>257</sup> Ibid., 84.

<sup>258</sup> Pavlidis, “Europe in the Digital Age: Regulating Digital Finance Without Suffocating Innovation,” 8.

## Appendix C: Official reports, Documents, and Statements on Digital Asset-Related Topics



Oversight of official reports, documents and statements on digital asset-related topics.<sup>259</sup>

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<sup>259</sup> Ferreira and Sandner, “Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets,” I.

## Appendix D: The Developments and Challenges that MiCA Tackles

There are several perceived opportunities, challenges, and events that would together shape the MiCA proposal and final regulation. Some of these risks and opportunities are closely related to the way in which cryptocurrencies, and crypto-assets more generally, developed, and the actors who have been involved in these technological and ideological developments (See appendix 2). But different authorities in the EU also perceive these risks and opportunities slightly differently. In the following paragraphs, the perceived risks and opportunities are presented, as well as some of the trends and events that have given regulators direct causes to intervene. After this, the MiCA regulation will be presented. At the end of this chapter, we will look at some of the paradigmatic elements that we can retrace in the regulation, and to what extent they are characteristic of the post-financial-crisis paradigm.

Crypto-assets challenged the existing financial and legal system, and the regulatory framework, in two important ways: 1) by the general unpredictable and erratic growth in value and popularity of all kinds of (new) crypto-assets, which influences the behaviour and trends on traditional financial markets and the effectiveness of policy, and 2) with the invention and popularity of 'stablecoins,' that created a direct connection to traditional currency markets, which influences the effectiveness of policies. A third important aspect of (unregulated) markets in crypto-assets is its role in subsisting criminal activities.<sup>260</sup>

Whereas the crypto space was, for a while, an undetermined and marginalized movement, the rapid growth of the complete crypto-industry raised concerns among regulators. The rapid growth consisted of significant investment and user participation, which increased risks for financial stability, even though regulators still claim that the crypto space (and DeFi) could not yet create enough momentum to destabilize the traditional financial system. Next to this, the crypto space has, since the beginning, been a gateway for money laundering, fraud, scams, and hacking. This point led also to an “increasing perception of fundamental issues concerning corporate governance, conduct, market abuse and business models.”<sup>261</sup> Especially since crypto-assets have become a more mainstream term and investment-object, roughly since 2017, there have been increasingly remarkable rises and drops in value of crypto-assets. Whether or not people had a good understanding of the risks involved investing in crypto-assets differs. But the great promises did encourage many people to invest money, especially during the Covid-19 pandemic.<sup>262</sup> According to a Statista survey, the amount of 'crypto-users' worldwide snowballed from (roughly) a little under 5 million to over 420 million between 2016

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<sup>260</sup> Through some types of crypto-assets criminals can transact relatively anonymous. Marketplaces such as SilkRoad therefore exclusively used Bitcoin for transactions (Appendix 2). Criminals can also use the crypto-assets markets to whitewash funds.

<sup>261</sup> ESRB Task Force on Crypto-Assets and Decentralised Finance, “Crypto-Assets and Decentralised Finance,” 2.

<sup>262</sup> Volosovych, Sholoiko, and Shevchenko, “Cryptocurrency Market Transformation During Pandemic Covid-19.”



and October 2023.<sup>263</sup> Despite an ongoing growth in crypto-users, the value of crypto-assets has not been rising steadily. For instance, the price of the big cryptocurrency Bitcoin has known drastic fluctuations over the last decade.<sup>264</sup> For smaller crypto-assets, the risks of scams and frauds have made investing in these tokens very risky. But also the trading-platforms for crypto-assets are prone to either do their bookkeeping imprudently or become the target of hackers from outside the business, meaning that users who let these platforms hold their wallets and private keys can also just as easily lose their investments<sup>265</sup>

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<sup>263</sup> “Crypto Users Worldwide 2016-2025 | Statista.”

<sup>264</sup> Statista, “Bitcoin BTC/USD Price History up Until Feb 2, 2025.”

<sup>265</sup> Agents’ only access to their credit is with their private key (a long series of digits) and they can store and manage their bitcoin in their ‘wallets.’ The wallet is password protected software on the computer (or on a server and accessed through a web application). Appendix 2.

## **Appendix E: Compatibility and Tensions Among Philosophical Frameworks of Technology**

In considering the perspectives of Martin Heidegger, Arnold Gehlen, and Jacques Ellul on technology's role in society, it becomes clear that their frameworks provide complementary yet distinct insights. While each philosopher contributes to a deterministic understanding of technology as a force that shapes individuals, institutions, and societal values, they also differ in how they view the implications of this force and humanity's capacity to respond.

### Areas of Compatibility

Heidegger, Gehlen, and Ellul all portray technology as a powerful structuring force that influences human life more significantly than humans influence it. This shared deterministic stance suggests that technology deeply conditions our worldview, social norms, and institutions in ways that limit individual autonomy and societal agency.

Heidegger's Enframing and Ellul's Technique both describe technology as a force that structures our understanding and interaction with the world. Heidegger's concept of enframing (*Gestell*) depicts technology as revealing the world to us as a "standing reserve," a resource to be managed and optimized, reducing everything, including human beings, to utilitarian ends (Heidegger, 1977). This closely aligns with Ellul's theory of technique, which he describes as an autonomous, self-augmenting force that emphasizes efficiency, predictability, and control, often overriding ethical considerations (Ellul, 1964). For both philosophers, technology, or technique, is not merely a set of tools but a worldview that transforms human experience into calculable functions.

Gehlen's Institutionalization also contributes to this view but from an anthropological perspective, seeing technology as both essential and stabilizing. For Gehlen, human beings are inherently incomplete or "Mängelwesen"—creatures lacking natural specialization—and thus rely on technology and institutions to adapt to and manage the complexities of life (Gehlen, 1980). Institutions, for Gehlen, help stabilize society by providing frameworks for behavior, which is crucial in an increasingly technological world. This aligns with Heidegger and Ellul's portrayals of technology as an overarching influence but places more emphasis on the role of institutions in managing technology's impact.

### Key Tensions and Areas of Incompatibility

While these frameworks share a foundational view of technology as a shaping force, they differ in their interpretations of technology's effects on human agency and the societal responses to it.

#### *Divergent Views on Human Autonomy and Agency*

Heidegger warns that enframing restricts human freedom, structuring our perceptions and experiences in ways that risk reducing humans to "resources" themselves. However, Heidegger

does not see this as an entirely inevitable fate; he suggests that alternative modes of understanding, such as art, could help individuals break free from technology's totalizing influence and reconnect with a more authentic way of being (Heidegger, 1977).

Ellul, conversely, is more fatalistic, describing technique as an autonomous force that operates independently of human control. Ellul argues that technique overrides human agency, leading to a society where individual and collective choices are constrained by efficiency and functional demands. Unlike Heidegger, Ellul sees little room for humanity to resist or reshape technique, viewing the progression of technological control as nearly inevitable (Ellul, 1964).

Gehlen acknowledges technology's deterministic influence but sees institutions as a potential counterbalance to this force. By creating stable frameworks, institutions can mitigate the overwhelming effects of technological change and preserve some degree of human autonomy. Gehlen thus diverges from Ellul's fatalism, suggesting that while technology is powerful, institutions still hold the potential to structure human action and decision-making (Gehlen, 1980).

#### *Institutional Perspectives on Technology:*

Gehlen's Institutionalization framework emphasizes the importance of institutions in providing stability and predictability amid technological advancement. For Gehlen, institutions are essential for human beings to find orientation and relief from constant choices, effectively managing the societal impacts of technology. In his view, institutions serve as a cultural stabilizer, compensating for human inadequacies and allowing individuals to flourish within a structured society (Gehlen, 1980).

Ellul offers a more critical view of institutions, suggesting that as technique becomes increasingly dominant, institutions themselves become subsumed within it. Ellul argues that institutions lose their traditional roles and values, becoming extensions of the technological drive for efficiency and control. This shift causes institutions to prioritize functionality over ethical or human-centered considerations, aligning themselves with the autonomous logic of technique (Ellul, 1964). In this respect, Ellul's view is largely incompatible with Gehlen's, as he sees institutions as losing their potential to provide stability or resist technological dominance.

Heidegger does not focus explicitly on institutions in his discussion of technology but implies that enframing reshapes all aspects of society, including institutions, into resources or means for achieving technical efficiency. For Heidegger, this reveals a risk of institutions losing their autonomy, transforming instead into mechanized extensions of technology's underlying logic (Heidegger, 1977). Thus, Heidegger's view offers a middle ground: while he does not discount the role of institutions, he implies that technology's enframing nature may ultimately redefine them.

#### Compatible yet Distinct Frameworks

In summary, the frameworks of Heidegger, Gehlen, and Ellul are broadly compatible in their shared recognition of technology's powerful role in shaping society. Each philosopher portrays technology as a deterministic force that influences human perception, behaviour, and social structures. However, they diverge in their views on the nature and implications of this influence, particularly concerning human agency and the role of institutions.

Heidegger's enframing and Ellul's technique both emphasize technology's role as a structuring force that limits human freedom, with Ellul adopting a more fatalistic stance on humanity's ability to counter this influence. Gehlen's institutionalization framework, by contrast, offers a more constructive view of institutions, seeing them as a means to mediate technology's impact and maintain human agency amid technological advancement. In this sense, the frameworks can be seen as more complementary than competitive, each providing a unique perspective on the relationship between technology and society. While Heidegger, Gehlen, and Ellul agree on the foundational influence of technology, they offer distinct views on whether and how society can push back against or work within this influence. These perspectives collectively contribute to a deeper understanding of technology's role in shaping modern governance and regulatory approaches, as seen in the European Union's approach to digital finance and crypto-assets regulation.