Blockchain-Based Governance:

Reflecting on the Moral and Practical Scope of Digital Heterotopia and Legitimating its Virtual States

Bachelor’s Thesis

By Frank Boon

**Abstract:**

This paper hopes to start building a framework for thinking about digital heterotopia – a newly designed system of governance that attempts to provide a non-coercive global market of opt-in virtual states as an alternative to the current form of governance which is geographically contingent and monopolized, and founded in their exclusive use of coercion. It is only assessed based on those characteristics that are attributable to each entity within their respective governance paradigm. Digital heterotopia is argued to have a smaller practical scope than traditional governance, and its moral foundation to be superior.



1. **Introduction**

A new technology with the capacity to reconfigure ‘’nearly all areas of human endeavour’’ (Swan 2015, p27) has emerged recently – it’s called blockchain. This statement echoes the near-daily news about new applications of blockchain technology in a host of different settings, as well as the strong belief expressed by the community in its disruptive potential. Blockchain emerged in 2008 with the launch of Bitcoin, the first ever cryptocurrency, as the underlying system for registering and verifying transactions. Blockchain is often described as a distributed ledger technology which, briefly put, utilizes mathematical and cryptographic tools to create an immutable and nearly incorruptible administration in a distributed, peer-to-peer fashion. It has rapidly proven itself to have applications reaching far beyond cryptocurrencies, and is now showing potential for allowing society to rethink how people interact with each other in such a wide variety of fields that it has inspired the strong confidence expressed in Swan’s statement. Swan’s (2015) book, an overview of many of the current applications of blockchain technology, shows not only that blockchain might provide the basis for new cryptocurrencies that improve on some of Bitcoin’s flaws; it also has applications in many other aspects of finance beyond currency, and is currently being applied to other forms of social organization such as governance. This paper will focus on a specific kind of governance application of blockchain technology, more precisely the currently developing projects that utilize blockchain to create platforms for the creation of peer-to-peer governance alternatives.

The people attempting to make decentralized, blockchain-based governance possible have a variety of motivations; some simply aim to promote good governance through decentralisation, some see it as a tool to circumvent state authority, and others see it as a tool to move towards a new (nation-)stateless society based on voluntary peer-to-peer interactions (Atzori, 2015). They have been described as anarcho-capitalists, crypto-anarchists, techno-libertarians, among other names, but this paper will refrain from using terms like these for the decentralization attempts using blockchain. Referring to them in ideological terms might give the impression that the community is homogenous in their motivations, which we have seen is not the case. The ideological underpinnings of this movement will become apparent throughout the paper, but will not be given a name in order to prevent undue generalization.

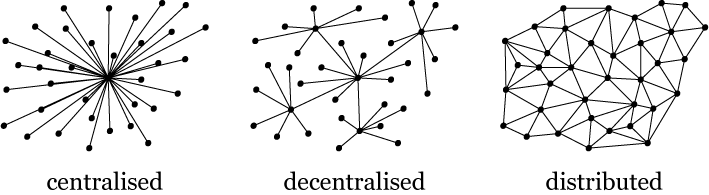
Rather, this paper will refer to the digital space for peer-to-peer governance that this ideologically diverse group of people is creating. It will use the term *digital heterotopia*, coined by Kavanagh & Miscione (2015), who adapted the term from Foucault & Miscowiec’s (1986) *heterotopia*, which describes spaces that function in non-hegemonic conditions (self-governance over heteronomy) and are characterized by a multiplicity of meanings and pervasive juxtaposition. This more closely describes what is being created; not an ideology but a space; an infinite space of which everyone can claim a piece to found their own nations. Although the nature of this space could be said to be ideological in that it facilitates self-organisation and free interaction and transaction, values which have implicit libertarian connotations, digital heterotopia does not explicitly favour one ideology over another. It allows people to create their own networks of values and rules, which may be drawn from any ideology or philosophy. Digital heterotopia will be used throughout this paper to refer to the entire digital space facilitating peer-to-peer networks of any kind.

So how is digital heterotopia manifesting itself in practice? Current developments in digital heterotopia, which will be discussed in more detail in the following section, mostly include the building platforms for the creation and execution of opt-in governance service providers. These providers, which we shall call *virtual states*, may adopt any form of governance or code of law, and can be joined by anyone regardless of their geographical location. These platforms can surely be classified as a heterotopia, as they are platforms for self-governance which are likely to host a plethora of organisations with a wide array of functionalities, organisational models, and ideological backgrounds, effectively creating a space of self-governance with a multiplicity of meanings and pervasive juxtaposition.

Many advocates for digital heterotopia have some deep moral concerns about the currently dominant form of governance, which amounts to the greatest ideological distinction between forms of governance in nation-states and digital heterotopia. More specifically, these concerns have to do with the fundamental role of coercion in nation-state governance, the fact that most governments today are essentially geographical monopolies on governance, and the resulting lack of choice people have when it comes to governance. The question of coercion is about such a fundamental principle of governance that choosing not to use this tool results in a drastically different foundation for governance. The different foundations for governance in digital heterotopia and nation-states and their respective moral and practical implications will be discussed in section 3.1, which sees digital heterotopia’s foundation to hold greater moral merit than traditional forms of governance, but recognizing the obstacles it faces to provide a feasible alternative in certain areas. But the different foundational characteristics of the two systems only tell us about their scope, quality of governance can vary greatly depending on the structures that were built on the foundation. Section 3.2 will review how digital heterotopia, given its moral and practical implications of its foundations, could yield sufficiently formalized and legitimate virtual states, and which obstacles might obstruct this goal.

In analysing these issues, this paper hopes to provide a framework for thinking about the implementation of digital heterotopia. First I will give a conceptual overview of the important – with respect to governance – blockchain-based technologies, and discuss recent developments in digital heterotopia and the surrounding community (Section 2). This will be followed by a comparison of the moral and practical implications of the primary characteristics – those characteristics that are shared by all institutions within each paradigm – of nation-states and digital heterotopia (Section 3.1). And finally, it will discuss the secondary characteristics of a government that determine to a large extent the quality, formality, and legitimacy of governments, both virtual and physical, with emphasis on how these could be implemented in digital heterotopia’s virtual states to overcome several problems (Section 3.2).

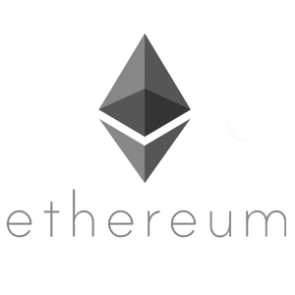
1. **Key Concepts and Current Trends: From Blockchain to Digital Heterotopia**



In order to give more clarity to the assessments that will follow, it is crucial to understand – at least on a conceptual level – more fully what constitutes digital heterotopia and how it is currently being developed. This section will attempt to give an overview of the current trends in digital heterotopia, reviewing the blockchain applications that are currently (being) developed and are most important to understanding how digital heterotopia might function. It starts with blockchain itself and its most basic applications, followed by more complex and in-development applications using blockchain and other decentralized technologies to make the first steps towards creating digital heterotopia.

**2.1 Blockchain, Cryptocurrencies, and Smart Contracts**

Blockchain is a digital administration technology often described as a *distributed ledger technology*. As the name suggests, it is a ledger that is distributed among its users, meaning that each user has a copy of the same ledger, all of whom may, in a process called ‘mining’ register and verify new transactions. The main innovation of this technology is that it is designed in such a way that the network of users always agree on the state of the ledger, including the time each entry to the ledger was made. It allows individuals to securely interact with others who they might not even know or trust, as they both only need to trust the integrity of the record in the blockhain. This is done through a mathematical process called *proof of work*, the specifics of which are beyond the scope of this paper, but it ensures that it is virtually impossible to manipulate the ledger as it would require control of immense amounts of computing power[[1]](#footnote-1). For the purposes of this paper, discussing its applications in governance, it is most useful to think about blockchain as a means to disintermediate the supply and registration of information needed for the many forms of social organisation that require a secure and irrefutable information base. Many such forms of social organisation have been intermediated by trusted third parties that provide this secure basis of information; think of banking, property registration, identity registration, marriage, birth/death registration, voting, contract enforcement, etcetera. These are only a few of the wide array of undertakings that are currently organized in a centralized manner, but are now starting to be developed in a decentralized and peer-to-peer fashion using blockchain technology.

Given that the monetary system is an integral part of the governance of society, the first ever application of blockchain in *decentralized cryptocurrencies* with Bitcoin was already the first blockchain-based alternative to centralized forms of governance – in this case the centralized monetary systems that currently dominate the global economy. Cryptocurrencies can vary in the way they have defined the procedures used to maintain the blockchain, the procedures for generating new currency, and can have many other built-in properties such as wealth redistribution, (voluntary) taxation schemes, improved privacy, or anything else that can be written in code. For the purposes of this paper, it is mostly sufficient to know that decentralized cryptocurrencies allow users to digitally transact with each other directly, without having their transactions go through a trusted third party – instead the transactions are registered in a decentralized way using blockchain. A useful way to think about cryptocurrencies in this way is as a kind of digital cash: transactions happen directly between individuals just like they do with paper money, only digitally.

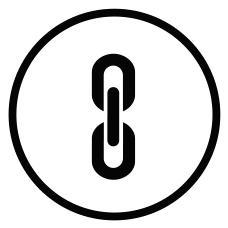
Logo of Ethereum; the first blockchain-based platform for creating smart contracts

Another important innovation in blockchain technology was the creation of so called *‘smart contracts’*. Smart contracts are contracts which are stored on a blockchain and defined and executed by computer code, and allow for the performance of more complicated types of transactions, for example transactions that require the consent of multiple people on either side of the transaction to be performed (multisignature contracts). When people enter into a smart contract, they agree on the exact terms of their transaction, specified in code, and transfer the necessary funds to the contract where they are locked until the predetermined conditions have been met, at which point the funds are automatically transferred to the recipient. The invention of smart contracts is especially important because it is an important step towards implementing the idea that *code is law*. ‘Code is law’ refers to the idea that laws are increasingly specified in computer code – not only how a government can enforce its laws through computer code, but also how code can precisely define the types of actions a person can perform in a digital environment and thus effectively enforce laws by simply not giving people the option to break them (De Filippi & Hassan, 2016).

**2.2 Digital Heterotopia: Virtual States and Digital Jurisdictions**

The first serious step towards thinking about global peer-to-peer governance was taken with the development of Bitnation, the first decentralized, borderless, voluntary nation (DBVN). A DBVN is essentially a different name for a virtual state, but in the coming paragraphs DBVN will be used to be consistent with the referenced documents. Before discussing what exactly a DBVN is, it will first be discussed why the concept was developed, and which problems with the current governance paradigm it hopes to overcome with their alternative.

The Bitnation whitepaper mainly voices two related concerns; (1) the fact that the use of (in theory justified) coercion is central to the functioning of nearly all nation-states today and (2) that all nation-states essentially are geographical monopolies on governance; where you are born determines which government you will live under (Tempelhof & Farrel, 2016). The two are in fact related because, as Van Parijs (2007) noted, the totality of borders and the rules about crossing them form a coercively enforced ‘’ global basic structure’’ (Van Parijs 2007, pp. 650) that determines to a large extent the life prospects people have from the moment they are born. On a deeper level rooted in Rawls’ (2005/1971) view that any society which incorporates into its basic structure the arbitrary facts of nature (of which birthplace is surely one) is inherently unjust, Tempelhof & Farrel (2016) follow this line of thinking to see injustice on a global scale. Rawls himself does not do this, however, but this will be discussed later. To provide a just (on this view) alternative, they propose a parallel system of governance that people can opt into regardless of their geographical location, which is designed to be able to grow organically as more people participate, and is assumed to outcompete and make obsolete existing governments.

DBVNs will be the main functioning entities in digital heterotopia, which could be said to be the totality of all DBVNs. As described in the Bitnation whitepaper (Tempelhof & Farrel, 2016), a DBVN is a peculiar mix of a government and a company, a government because its aim is to provide governance services, a company because it competes for customers, or ‘member-citizens’, on a market. Anyone anywhere in the world can freely opt-in or opt-out – the success or failure of a DVBN therefore completely depends on how many citizens they can attract. The platforms that are currently being developed for the creation of DBVNs are likely to create a truly heterotopic digital space for virtual states that is characterized by both self-governance, a multiplicity of meanings, and pervasive juxtaposition. They will enable anyone to create their own DBVN, and allow for a variety of organisations to emerge, each based on their own ideology, adopting the organisational and decision-making models of their choice, choosing or creating their own codes of law, and freely selecting the package of governance services they will provide.

To my knowledge, there is currently only one platform being developed for the creation of DBVNs, called Pangea. Although there are a few similar platforms facilitating the creation of other types of decentralised organisations, Pangea is most relevant to this paper as it relates most directly to governance in the broadest sense. Some of these platforms, including Pangea, have built-in arbitration systems to ensure that the ecosystem of organisations that will be created on their platforms do not operate in lawlessness. If the development of Bitnation was the first step towards thinking about global peer-to-peer governance, Pangea is the first step towards actually making it possible, creating a digital heterotopian platform on which many virtual states could emerge. This is not to say that digital heterotopia will exist solely on Pangea as similar platforms are already emerging, as well as other decentralized organizations on platforms like Ethereum. So the earlier characterization of digital heterotopia as the totality of DBVNs might rather be amended to say that digital heterotopia is the totality of all blockchain-based, decentralized organisations offering *governance as a service*. This reflects the fact that not all entities in digital heterotopia are likely to refer to themselves as DBVNs, or even virtual states, but do share the characteristic of providing governance services in a decentralized fashion.

Bitnation/Pangea Logo

Pangea, as described in the public draft of their whitepaper is a ‘’decentralized opt-in jurisdiction where citizens can conduct peer-to-peer arbitration and create their own sovereign nations’’ (Tempelhof et. al. 2017, pp. 1). It uses a variety of decentralized technologies, including blockchain to maintain information security, which together are claimed to be ‘quantum proof’, in response to the growing concern that quantum computers might undermine the security of the cryptography used in blockchains. Pangea facilitates the creation of virtual states and provides an arbitration system to resolve conflicts between (groups of) users, allowing not only for interaction between members of the same virtual state but also between members of different virtual states which might operate using different codes of law. Ideally ‘code is law’ will be the mantra; the codes of law that are used are envisioned to be translated to the largest extent possible into languages understandable to a computer. In this way, when two or more people want to interact, the compatibility of their respective codes of law for their specific type of interaction is easily assessed by a computer. Users can therefore quickly see who they can and cannot interact with for the interaction they would like to perform. Pangea does, however, acknowledge that some laws have, often for good reasons, certain ambiguities in them which are nearly impossible to be implemented in computer code, and are therefore interpreted by humans on a case-by-case basis. Interesting to note is that Pangea will allow users to use the blockchain of their choice for the administration of all important documents, contracts, transactions, and other types of information, meaning that it will not have its own blockchain and allows great flexibility on the type of blockchain used, each with their own technical advantages and disadvantages. The blockchain-agnostic nature of Pangea allows for the use of the optimal type of blockchain for each organisation.

**2.3 Blockchain: A catalyst for global anarchic governance**

A common view among digital heterotopians seems to be that the tool of coercion is too prone to misuse, evidenced by the many historical and current examples of government-backed genocides, human rights violations, and corruption. Therefore, coercion will play no role in digital heterotopia, neither for the enforcement of rules nor the subjection to state authority, and people will – out of their own free will – choose to participate in a system and accept its rules as well as the consequences for breaking them. Weber’s (1919) definition of the state in terms of its exclusive use of coercion, implies that any system that does not rely on this tool is technically a system of anarchy. The anarchic roots of digital heterotopia are not only implicit in its rejection of coercion, but are also explicitly articulated by many of its proponents, some of whom ultimately aim to make existing states obsolete by providing voluntary alternatives (Atzori, 2015; Tempelhof & Farrell, 2016).

It is important to note that anarchy does not necessarily mean chaos and absence of law and order, as is the popular conception of it. Rather, it is the view, as described by Wolff (1970), that sees no moral legitimacy in authority, especially the coercive kind that manifests itself in most nation states. An anarchist social contract would, besides the rejection of coercion, be based on principles of personal autonomy, voluntary association, cooperation, and mutual aid (Bakunin, 1873; Kropotkin, 1910). Many historical and some current examples of functional anarchic communities exist, but they all share the characteristics of being rather small and homogenous (i.e. Pitt-Rivers, 1954; Mueller, 1988; Benson, 1994; Powell & Stringham, 2009). So it appears that a monopoly on violence wasn’t even needed for maintaining an orderly society, at least on small scales where it is feasible to have a shared conception of the good.

The state’s exclusive use of violence and digital heterotopia’s use of blockchain both rests on different views on how some aspects of the state of nature are avoided. It must be noted that a blockchain stands in a vastly different relation to the physical world as violent power, and thus has a different scope for application, and might thus not be able to prevent some of the most haunting aspects of the state of nature, but this will be addressed shortly. For now their similarities are most important, as they might have a serious effect on the scalability of anarchic systems. The view of the state that is most dominant currently is perhaps best explained by Hobbes (1651), who argued that the emergence of the leviathan, an institution with the exclusive right to use violence, was necessary to leave the state of nature. He argued that its coercion is necessary to give people enough confidence in others laying down their natural right to all things to do the same themselves. Kavanagh & Miscione (2015) were the first to claim that both blockchain and the leviathan are different solutions to essentially the same problem; the trustlessness and potential for conflict that is so apparent in the state of nature. The blockchain creates the conditions for trust and consensus by assuming that we start with the opposite, and provides a secure and immutable ledger of which every user agrees on its state. Both blockchain and leviathan can be seen as a secure common reference point that allows individuals who previously did not trust each other to interact securely; the leviathan does this by threatening to physically or sanction transgressions, where the technical nature of blockchain simply makes it impossible for people to misbehave.

So blockchain and the leviathan are radically different solutions to quite similar problems, but the latter is by definition no option for anarchists. Blockchain is thus a very good alternative for anarchists, as it is owned and maintained by peers instead of an authority and holds no coercive power. If we look at some of the historical limitations of anarchism and statism, we might find that blockchain-based applications might solve some important scalability problems for anarchism, and perhaps even to a greater extent than the scaling that was enabled by the state’s use of coercion.

Traditional states have generally defined their borders using great armies, subjecting every person living within those borders to the authority of the person or group that commanded the army. Due to the technological reality of the time this paradigm came into existence, having an unobstructed territory was essential for exercising and maintaining power, as communications at the time went by human messengers. Anarchist communities, in order to be functional, have to establish some kind of social structure or system of governance, but they cannot, by definition, coerce people into joining them. This leaves anarchists to depend on a rough consensus on the organisational practices of the community they want to found. This restriction combined with the fact that many of the smallest local communities do not even have a uniform socio-political conscience, make it even more difficult to get people to agree to a certain social order. It is therefore already quite remarkable that, against all odds, functional anarchic communities have occasionally emerged in reality. Given their rejection of coercion, need for consensus, and the physical nature of all interactions in that age of technological development, it was much more difficult for anarchic communities to emerge, as they needed to find like-minded people willing to join voluntarily and coordinate action in a time where communication relied on physical means – nation states only faced the latter of these restrictions.

These inherent factors have likely been largely responsible for keeping down the size of the few functional anarchic communities that have emerged throughout history. But today the internet has enabled instant global communication and outreach, and blockchain serves as a common reference point for the information needed for the coordination of interaction in a globally dispersed network of people. This lifts some of the major obstacles to the growth of anarchic communities, as the internet makes it easier to find people who share the same values, and distributed ledger technology reduces the need for a self-organizing community to live close together. So one of the practical implications of digital heterotopia’s primary characteristics seems to be that it would allow for much larger and globally dispersed anarchic communities. We have already seen the rise of a global anarchic monetary systems with Bitcoin and other cryptocurrencies, and can expect the rise of global anarchic governance communities to start as soon as their enabling platforms are operating.

1. **Digital Heterotopia and The State: What would a global market for governance look like?**

In the near future the digital heterotopia that is currently being developed on a variety of blockchain-based platforms will become operative. And if they gain popularity it will inevitably create a global governance market in which all governments compete – virtual and geographical. In this case many governments will likely have citizens opting into virtual states who might then pressure their national governments, especially democratic ones, to stop taxing for services if they can get them better or cheaper from virtual states. As we have seen, some developers hope and claim that virtual states will eventually fully outcompete existing governments, making them completely obsolete. This claim assumes that a free market of governance will inevitably yield better governance on every aspect of a government’s dealings than governance monopolies can provide. Kavanagh & Miscione (2015) have already shown that this is likely to happen in several areas; they claimed that digital heterotopia is likely to ‘deflate’ the state on a number of aspects. But, as Atzori (2015) argued in her assessment of digital heterotopia, decentralization should not be done just for the sake of decentralization, it should be applied wherever it is most useful, and this does not count for all aspects of governance. In some areas centralized control might be more effective, which makes virtual states in digital heterotopia unlikely to outcompete governments here.

All states the globe express significant heterogeneity; every jurisdiction has their own rules and organisational practices, resulting in great variability in the quality of governance. This tells us that operating under the same broad governance paradigm does not guarantee the performance of governments. Therefore, in order to have a meaningful discussion about the two systems, which both have a different set of defining characteristics but also allow for high internal flexibility, it is first necessary to identify for each system those characteristics that are shared by all entities that operate in it. These primary- or foundational characteristics allow us to gain a better idea of what is possible given the constraints that we know will always be present, and guide the discussion about the global market of both virtual and physical governments that might emerge. Furthermore, they will allow us to get a better picture of which parts of governance can in theory be provided by digital heterotopia, and thus on which aspects virtual states might or might not deflate existing governments. The most fundamental differences that have hopefully become apparent in the previous section are all interrelated, and eventually boil down to the question of whether or not coercion should play a role in governance, but can be divided and contrasted as in the following table:

|  |  |  |
| --- | --- | --- |
| Table 1: Foundational Characteristics of the Two Systems | | |
| System: | **Nation-States** | **Digital Heterotopia** |
| Reliant on: | Monopoly on violence and coercion | Blockchain and voluntary association |
| Borders: | Physically contingent (Local) | Digitally contingent (Global) |
| Players: | Geographical monopolies on governance | Competing in global market of virtual states |

These characteristics are but the foundation of each entity in either system; we have seen in both history and present that traditional states do not provide good governance by virtue of having the above characteristics, and neither can we expect virtual states to perform well by virtue of their respective foundational characteristics. In order to do this we will need to look at secondary characteristics – what is built on top of the foundation – such as constitutions, checks and balances, and procedures for decision making and generating accountability to get a better idea the quality level of the provided governance, which we will get to in section 3.2. But this is not to say that primary characteristics do not matter. In fact, primary characteristics may play a significant role in determining the scope of states in either system, both with respect to the moral foundation of a government and in delineating the practical limits to what a government is capable of given the paradigm they operate in. Therefore, we will first consider the moral and practical implications of the primary characteristics of these two systems.

**3.1 Primary Characteristics**

*Practical Implications*

In order to give a realistic account of digital heterotopia and how it might change the way global society is governed, it is important to know what exactly it is that virtual states could have power over, and thus how digital heterotopia relates to the current reality of governance. Harvey (2000) stated that heterotopias are spaces where alternatives and critiques to the current social order are cultivated and formulated in an effective way. This is done for governance in digital heterotopia, where these alternatives can also immediately be executed. But while digital heterotopia itself created an infinitely large digital power vacuum where governments compete for citizens, in the physical world this is far from true, and this might affect what virtual states are capable of. Furthermore, the decentralized nature of digital heterotopia might also hamper their efforts in certain areas of governance.

As Kavanach & Miscione (2015) already noted, Foucault already knew about this peculiar relationship between heterotopias and the existing social order, holding the view that power is omnipresent, and thus able to shape heterotopias to a certain extent. We have already seen that some governments are starting to pass regulations on cryptocurrencies, and they are likely to continue to do so. Digital heterotopia, however, could be said to have successfully created a digital space outside of government control by completely relying on decentralized technologies that create networks which are nearly impossible to censor or shut down (Government Office for Science, 2016), allowing virtual states to have full jurisdiction over what happens in their digital environments. This makes digital heterotopia a relatively pure version of the heterotopia described by Harvey (2000). This means that existing governments do not have much power over what happens in virtual states, and that virtual states will be fertile breeding grounds for critiques of- and practical alternatives to the existing social order. However, whenever virtual states coordinate behaviour that requires action in the physical world, they are going to have to take into account the rules and regulations of the ruling authority in whichever place they might be.

As noted before, blockchains and monopolies on violence are two responses to essentially the same problem, but because blockchains exist digitally, and the digital world is inherently non-violent it will provide a vastly different scope for law enforcement. The main point here is that a blockchain is inherently digital, and a monopoly on violence is inherently physical, so the two have to be applied in different ways. In order to know whether these blockchain-based systems can effectively provide the same security that monopolies on violence do, and thus theoretically outcompete traditional governments, we need to look in more detail at the law enforcement mechanisms that each system has at hand. How the primary characteristics of digital heterotopia and traditional governance limit their law enforcement capabilities will yield the first boundary digital heterotopia is likely to encounter.

A state’s monopoly on violence could be said to have the main function of being the mechanism for the *ex ante* prevention and *ex post* repression/persecution of rule-breaking. For all the situations where the concept of code is law applies, there should be no problem with an absence of the leverage of a monopoly on violence, as laws in these situations are enforced *ex ante* – if the code is secure enough, the digital environment will simply not give anyone the possibility to break the laws embedded in it (De Filippi & Hassan, 2016). In contrast, a state’s monopoly on violence might prevent people from breaking laws by instilling the fear of being persecuted, and even though it is nearly impossible to measure the scope of this preventive effect, states are still mostly using their monopolies on violence to persecute rule-breakers *ex post*.

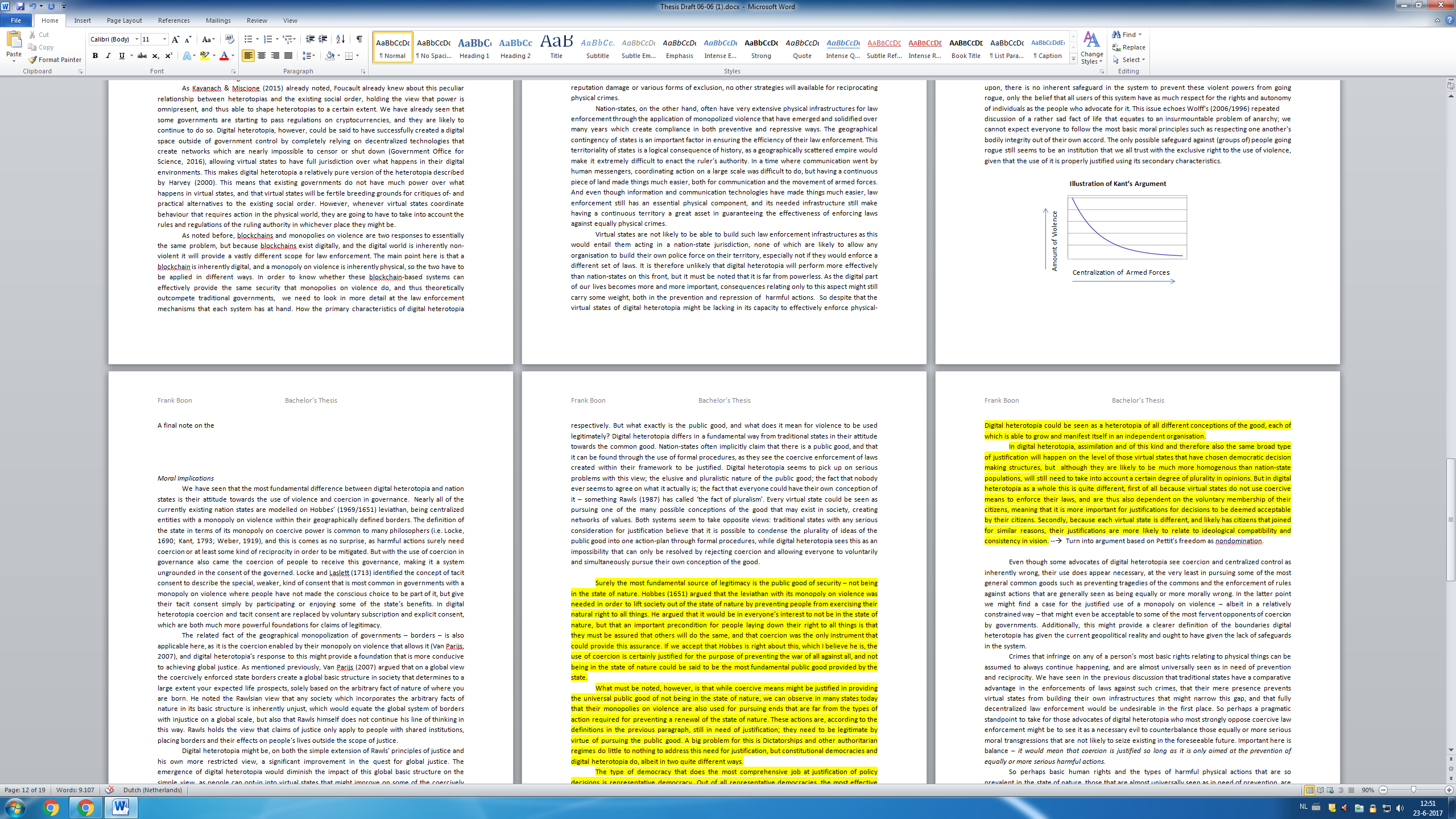
But code is law has its limitations, partially related to the ambiguity of certain laws that make them unsuitable for computer interpretation, but to a much larger extent to the fact that code can only regulate behaviour in the digital sphere. Although much of human endeavour, and thus the enactment and breaking of rules, has moved to the digital space, there are still many rules and crimes that relate only to the physical world, and need equally physical institutions and infrastructures for their enforcement and prevention. While codified law might prove effective in regulating digital behaviour (with the addition of the human element where necessary), the prevention and prosecution of physical world crimes such as bodily infringement, breaking and entering, theft, and rape might prove to be troublesome. Even if human arbitration is implemented in cases where the law is ambiguous, without enforcement mechanisms outside the digital world, it will be difficult to create enforcement strategies that near the effectiveness of ones based on (inherently physical) monopolies on violence. Other than digital *ex post* consequences such as reputation damage or various forms of exclusion, no other strategies will available for reciprocating physical crimes.

Nation-states, on the other hand, often have very extensive physical infrastructures for law enforcement through the application of monopolized violence that have emerged and solidified over many years which create compliance in both preventive and repressive ways. The geographical contingency of states is an important factor in ensuring the efficiency of their law enforcement. This territoriality of states is a logical consequence of history, as a geographically scattered empire would make it extremely difficult to enact the ruler’s authority. In a time where communication went by human messengers, coordinating action on a large scale was difficult to do, but having a continuous piece of land made things much easier, both for communication and the movement of armed forces. And even though information and communication technologies have made things much easier, law enforcement still has an essential physical component, and its needed infrastructure still make having a continuous territory a great asset in guaranteeing the effectiveness of enforcing laws against equally physical crimes.

Virtual states are not likely to be able to build such law enforcement infrastructures as this would entail them acting in a nation-state jurisdiction, none of which are likely to allow any organisation to build their own police force on their territory, especially not if they would enforce a different set of laws. It is therefore unlikely that digital heterotopia will perform more effectively than nation-states on this front, but it must be noted that it is far from powerless. As the digital part of our lives becomes more and more important, consequences relating only to this aspect might still carry some weight, both in the prevention and repression of harmful actions. So despite that the virtual states of digital heterotopia might be lacking in its capacity to effectively enforce physical-world transgressions, their reciprocity might still have some mitigating effect on physical crimes, but their real strength lies in their preventive digital law enforcement. Given virtual states’ relative disadvantage to mitigate physical crimes and their practical incapability to make up for this disadvantage due to the global presence of states with a monopoly on violence, they are not likely to be able to outcompete nation-states on this front.

Furthermore, if we imagine a world where this physical type of law enforcement is handled by virtual states, we can also see that this situation would be quite undesirable. Kant’s (1917/1795) view on the achievement of perpetual peace requires the creation of a ‘league of peace’ that ensures the freedom and protection of its member states without the need for imposing on them a common law. Although Kant noted more requirements that digital heterotopia might do well on, moving towards this perpetual peace would require an increasing centralization of armed forces that could not be provided in a world fully governed by virtual states. And even though the contemporary geopolitical situation is far from Kant’s ideal, and thus not optimal either, the centralized nature of violent power in the current state of affairs makes it more easily imagined to reach Kant’s requirements.

Digital heterotopia envisions private, opt-in alternatives to coercive law where you may only be prosecuted by the law enforcement authorities of the relevant law-makers if you voluntarily chose to accept a set of rules and the consequences of breaking them (i.e. Murphy, 2002). Although this could in theory work well in digital heterotopia’s digital jurisdictions, it might not when this system is imagined to enforce rules for which physical infrastructures and armed forces are needed. This would require an extreme decentralization of violent powers for law enforcement, which, on the Kantian view would be a large step in the wrong direction if we wish to move towards a more peaceful society. Even though this law enforcement may in theory only be used if voluntarily agreed upon, there is no inherent safeguard in the system to prevent these violent powers from going rogue, only the belief that all users of this system have as much respect for the rights and autonomy of individuals as the people who advocate for it. This issue echoes Wolff’s (2006/1996) repeated discussion of a rather sad fact of life that equates to an insurmountable problem of anarchy; we cannot expect everyone to follow the most basic moral principles such as respecting one another’s bodily integrity out of their own accord. The only possible safeguard against (groups of) people going rogue still seems to be an institution that we all trust with the exclusive right to the use of violence, given that the use of it is properly justified using its secondary characteristics.



*Moral Implications*

We have seen that the most fundamental difference between digital heterotopia and nation states is their attitude towards the use of violence and coercion in governance. Nearly all of the currently existing nation states are modelled on Hobbes’ (1969/1651) leviathan, being centralized entities with a monopoly on violence within their geographically defined borders. The definition of the state in terms of its monopoly on coercive power is common to many philosophers (i.e. Locke, 1836/1690; Kant, 1793; Weber, 1919), and this is comes as no surprise, as harmful actions surely need coercion or at least some kind of reciprocity in order to be mitigated. But with the use of coercion in governance also came the coercion of people to receive this governance, making it a system ungrounded in the consent of the governed. Locke and Laslett (1713) identified the concept of tacit consent to describe the special, weaker, kind of consent that is most common in governments with a monopoly on violence where people have not made the conscious choice to be part of it, but give their tacit consent simply by participating or enjoying some of the state’s benefits. In digital heterotopia coercion and tacit consent are replaced by voluntary subscription and explicit consent, which are both much more powerful foundations for claims of legitimacy.

The related fact of the geographical monopolization of governments – borders – is also applicable here, as it is the coercion enabled by their monopoly on violence that allows it (Van Parijs, 2007), and digital heterotopia’s response to this might provide a foundation that is more conducive to achieving global justice. As mentioned previously, Van Parijs (2007) argued that on a global view the coercively enforced state borders create a global basic structure in society that determines to a large extent your expected life prospects, solely based on the arbitrary fact of nature of where you are born. He noted the Rawlsian view that any society which incorporates the arbitrary facts of nature in its basic structure is inherently unjust, which would equate the global system of borders with injustice on a global scale, but also that Rawls himself does not continue his line of thinking in this way. Rawls holds the view that claims of justice only apply to people with shared institutions, placing borders and their effects on people’s lives outside the scope of justice.

Digital heterotopia might be, on both the simple extension of Rawls’ principles of justice and his own more restricted view, a significant improvement in the quest for global justice. The emergence of digital heterotopia would diminish the impact of this global basic structure on the simple view, as people can opt-in into virtual states that might improve on some of the coercively imposed services (or lack thereof) that they currently enjoy. Even on Rawls’ own view digital heterotopia could create a more extensive claim for global justice, as it would allow shared institutions to extend across borders and create a much more institutionally connected global society. However, this only applies to digital heterotopia’s primary characteristics, making virtual states more valid recipients of claims for global justice, but this does not yet mean that all virtual states will respond to those claims. The primary characteristics of a political system only determine what is possible, the highly variable secondary characteristics and the laws they yield will determine whether these possibilities become reality.

Weber’s (1919) and Locke and Laslett’s (1713) definitions of the state both invoke its exclusive use of violence and include that it needs to be used ‘legitimately’ or ‘for the public good’, respectively. But what exactly is the public good, and what does it mean for violence to be used legitimately? Digital heterotopia differs in a fundamental way from traditional states in their attitude towards the common good. Nation-states often implicitly claim that there is a public good, and that it can be found through the use of formal procedures, as they see the coercive enforcement of laws created within their framework to be justified. Digital heterotopia seems to pick up on serious problems with this view; the elusive and pluralistic nature of the public good; the fact that nobody ever seems to agree on what it actually is; the fact that everyone could have their own conception of it – something Rawls (1987) has called ‘the fact of pluralism’. Every virtual state could be seen as pursuing one of the many possible conceptions of the good that may exist in society, creating networks of values. Both systems seem to take opposite views: traditional states with any serious consideration for justification believe that it is possible to condense the plurality of ideas of the public good into one action-plan through formal procedures, while digital heterotopia sees this as an impossibility that can only be resolved by rejecting coercion and allowing everyone to voluntarily and simultaneously pursue their own conception of the good.

What must be noted, however, is that while coercive means might be justified in providing the universal public good of not being in the state of nature, we can observe in many states today that their monopolies on violence are also used for pursuing ends that cannot pass the claim of being in the best interest for all. We can think of some government functions that are genuinely in the best interest of all, such as security – not being in the state of nature – and things like the tragedy of the commons – where centralized control is needed in order to sustainably use common resources, most notably to prevent air pollution or overfishing/deforestation. But all government actions that cannot be easily claimed to be in everyone’s best interest are, according to the definitions in the previous paragraph, still in need of justification.

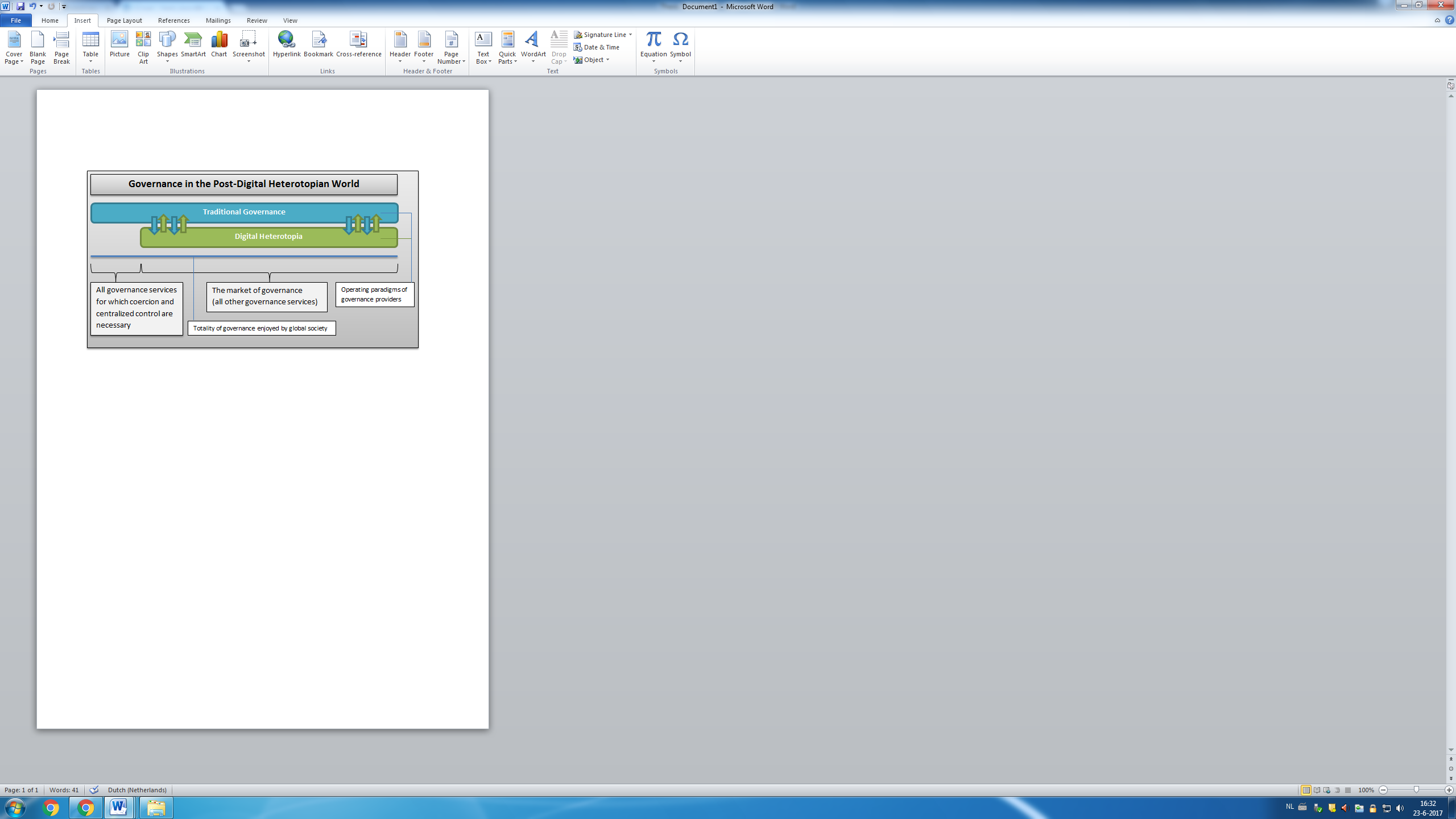
The degree to which a government is justified in these terms – by virtue of pursuing the public good – roughly corresponds to the degree of freedom as nondomination as discussed by Pettit (2006). Pettit distinguishes between freedom as non-interference, or freedom as the absence of interference by any intentional agent, and freedom as nondomination, or freedom as the absence of the capacity of anyone to arbitrarily interfere in another’s affairs. The concept of nonarbitrary interference that is allowed in the latter conception of freedom is characterized as interference ‘’that is forced to track the interests and ideas of the person suffering the interference’’ (Pettit 2006, pp.225). Because any measure of the extent to which some action can be considered to be for the public good, and thus justified, must include the extent to which the interests and ideas of the people suffering the effects of that action are considered. The legitimacy of a government can thus be seen to correspond to the extent to which it promotes freedom as nondomination. In other words, the legitimacy of a government action is promoted by considering the interests and ideas of those affected by it.

Based on the principles of the previous paragraph we can start assessing and comparing the legitimacy of governments in both the digital heterotopian and traditional paradigms. Starting with the former, the promotion of freedom as nondomination is already found in the foundational characteristics of digital heterotopia. Although it might seem that digital heterotopia could be based on the idea of freedom as non-interference, this is not the case. Governance necessarily implies interference in one form or another, so anyone adopting this view would always feel like his freedom is taken away regardless of what the interference is trying to accomplish. The subtleties in Pettit’s (2006) concept on freedom as nondomination gives us a better framework to assess interferences based on their background, motivations, and content. So any rational person not wishing to readily dismiss all interference just because it is interference ought to prefer conceptualizing freedom as nondomination rather than non-interference. In digital heterotopia, the idea is to have people choose their governments (and thus interferences) voluntarily, being able to freely opt-in and -out of any virtual state. Any person may subject themselves to the interference of their choice, and will consider their own interests and ideas when doing so, making it so that this voluntarily chosen interference is always nonarbitrary. This is because in digital heterotopia, the pluralism present in society as a whole is divided into networks of people sharing a conception of the good, making it so that virtual states themselves are relatively homogenous, and can thus efficiently cater to their customer-citizens’ interests. The capacity to arbitrarily interfere is also diminished greatly, as it is extremely difficult to change the rules and protocols of a blockchain ecosystem that is already up and running without the explicit consent of its users, as they are the ones maintaining the system. Even if a developer would find a way around this, and introduces changes to the program without considering the users’ interests, users may still tacitly consent to the change or decide to opt-out.

In the traditional governance paradigm freedom as nondomination is not inherent in its foundational characteristics, but can be pursued and attained to a certain extent by a country’s secondary characteristics, by the institutions that are built on its foundation. This is evidenced by the amount of domination and arbitrary interference present in countries whose secondary characteristics were not determined with justification or nonarbitrary interference in mind, such as dictatorships. Democratic institutions, however, are designed to promote freedom as nondomination by allowing citizens to express their interests and ideas, which are subsequently incorporated in the decision making process. Even within democracies there is great variability in the extent to which their institutions promote nonarbitrary interference. Democracies that are more participatory in their decision making or have a more proportional election system for example, perform much better on this measure than their two-party counterparts. Where these democracies differ is in the extent to which they condense the plurality of conceptions of the good in order to obtain a workable set of views for policy making, but some condensation is always present. This inevitably results in some arbitrary interference with people whose interests were ‘pruned’ away by the limitations of democratic institutions, which often fail to accurately capture and consider the interests and ideals of their polity in their full complexity and plurality. Arbitrary interference can and is being actively mitigated by democratic institutions, but it has proven to be extremely difficult due to the fact of pluralism, and while arbitrary interference itself may be reduced, the capacity to do so is an inherent feature of the foundational characteristics of nation-states and is likely to never be fully eradicated.

So with regards to justification, in terms of freedom as nondomination as promoted in each paradigm’s foundational characteristics, those of digital heterotopia seem to provide a better ground for justified governments than the traditional governance paradigm. In digital heterotopia, arbitrary interference is virtually eliminated by allowing everyone to pursue their own conception of the good, while the capacity thereto is severely limited by the technology they use. In traditional governance arbitrary interference may be mitigated by states’ secondary characteristics, but this effort is hampered by the pluralism present in their constituencies, and the capacity to arbitrarily interfere will always remain inherent in their organisational paradigm.

1. **Conclusions**



The paper has argued that digital heterotopia will emerge in the near-future, and that it is likely to change our governments and our understanding of governance. Virtual states will exist soon, and this paper has started to think about what space they might occupy in the governance of global society. It has taken into account the current political reality, as well as the foundational characteristics of each governance paradigm to compare the practical possibilities and moral foundations of digital heterotopia with traditional governance.

The above figure summarizes the findings relating to the practical side. It shows that digital heterotopia is not likely to replace, or even provide a more efficient alternative to those areas of governance where centrally controlled coercion is most beneficial. The paper has identified security, or absence of violence/prevention of physical crimes, as one of those endeavours, but there are probably more that can be identified; such as the protection- and management of the commons. But this still leaves open a vast plane of governance services that I dare say comprise the majority of governance services that exist. As the above picture shows, the two systems will first exist in parallel (at least in the foreseeable future), but will also influence each other significantly (blue and green arrows). From digital heterotopia, for example, critiques to the current social order might be formulated and pressure might be put on traditional governments to lower taxes if some services can be gotten cheaper from virtual states. Traditional governments, on the other hand, might also try to regulate and control, and with their mere presence, limit the capabilities of virtual states. So both parallel systems will influence each other, but figuring out this interaction in its full complexity will take much more research and time, and require a careful observation of events as they continue to unfold in the future.

On the moral side of each system’s foundational characteristics, the paper has argued that digital heterotopia has a clear advantage. Digital heterotopia as a whole promotes a better reflection of society’s plurality of conceptions of the good, each of which can be embodied in a virtual state, while traditional governments need to condense them all somehow into a workable form. Furthermore, traditional governments rely on a fundamental level on coercion while digital heterotopia relies on the same level on voluntary association, making the latter support stronger forms of consent and prevent domination.

This paper has looked at the digital heterotopian and traditional governance paradigms as different foundations on which governments can be built. It is important to remember that this does not tell us much about the actual quality of governance that is provided within each paradigm – they are both very broad, and will inevitably also yield some bad apples. The quality of entities within each paradigm depends on the institutional constructions that they have built on the foundation – their secondary characteristics. The various applications building the digital heterotopia are really only the foundations, and actual virtual states are still far away (except from a couple of proof-of-concepts like Bitnation). But this foundation can provide a basis for building more morally sound institutions that can provide a large share of governance services, so it is definitely worth looking into further. Future research could therefore focus on what the secondary characteristics are that make the best use of this foundation, and how we can build formal and accountable virtual states.

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1. For a more technical discussion of blockchain technology, see the Bitcoin whitepaper (Nakamoto, 2008). [↑](#footnote-ref-1)