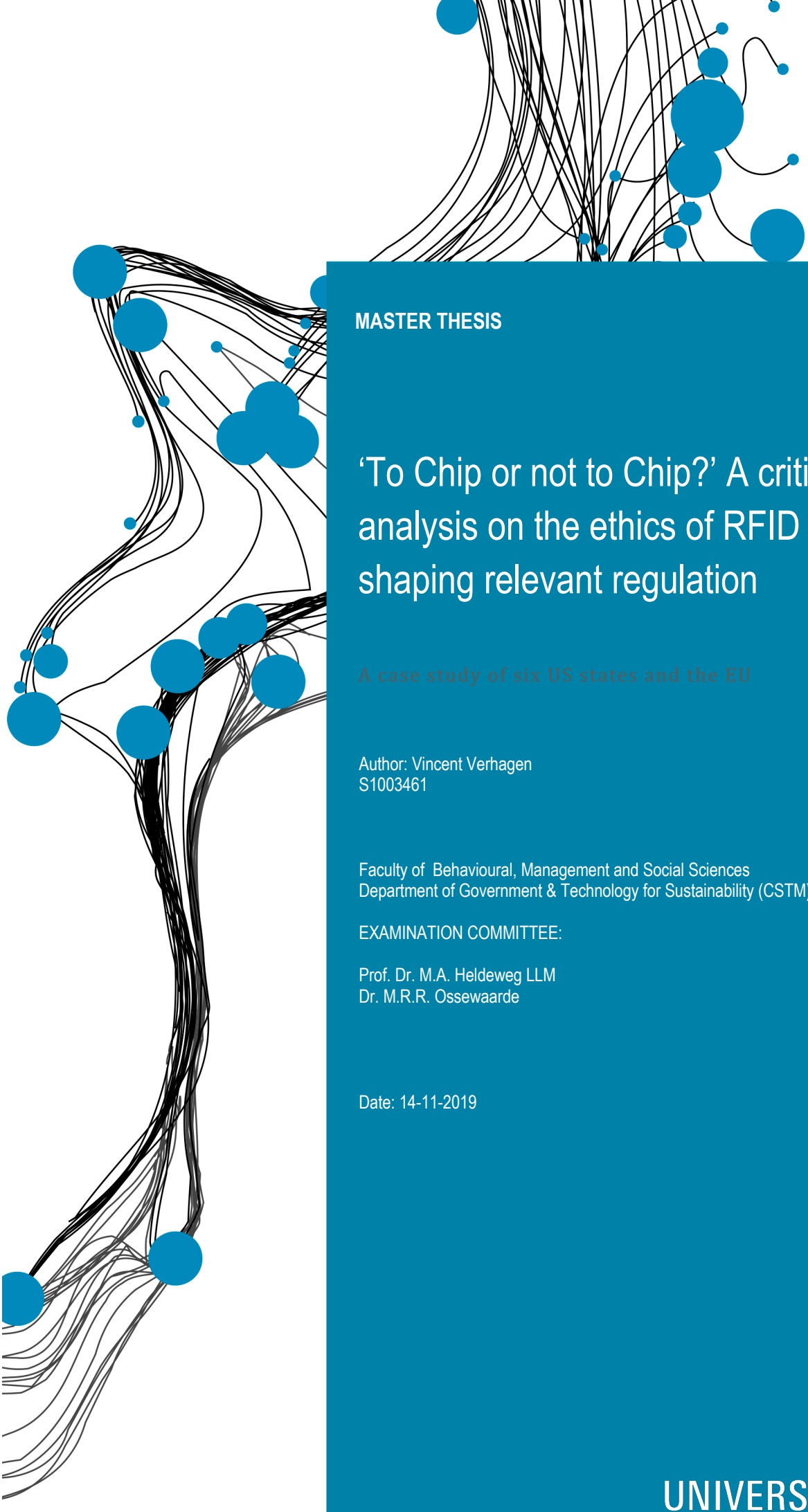

MASTER THESIS

‘To Chip or not to Chip?’ A critical discourse analysis on the ethics of RFID implants shaping relevant regulation

A case study of six US states and the EU

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Abstract

Disruptive technologies have the potential to increase the quality of life but also bring risks in society which governments need to deal with. These technologies go hand in hand with ethical concerns from a large spectrum of actors which might coerce the regulator to prohibit, prohibit with permission, permit or permit with dispensation the disruptive technology in the regulation that is created. This thesis aims to shed light on such a technology by questioning how the bioethical discourse on RFID implants for non-medical purposes shapes relevant regulation. By selecting six different states in the US and comparing them to the EU the bioethical discourse on this new technology can be deduced to unravel how regulation for RFID implants is shaped by bioethics.

Keywords: Bioethics, RFID implants, Smart Regulation, Critical Discourse Analysis

Preamble

In 2015 I started my master courses at the University of Twente in European and Global Studies. One of the final courses during my masters was the course Smart Design and Regulation, a course taught by professor Heldeweg, a professor I had met in my first year during the bachelor European Studies in the course Introduction to Law. In Smart Design and Regulation my fellow students and I got the assignment to research a disruptive technology and how regulation has developed in this field of technology. My choice was the case of RFID implants for non-medical purposes, little did I know that this would end up being the case of my master thesis.

Little did professor Heldeweg know that mid 2017 I would knock on his door and would tell him that I wanted to write my thesis on this topic and graduate two and a half years later. Maybe if he would have known this before he would not accepted me as a graduation student. However, he accepted me, and we started with the first ideas how to shape and form this idea into a proper master thesis. Almost a year later we found something that could work and asked one of my other professors from my first year of my bachelors to join, professor Ossewaarde became my second supervisor and gave a very precise framework how the thesis should be shaped and what he expected in every chapter.

Now almost a year later the end of this process is near. Without the support of these fantastic professors from the University of Twente I would have never made it. There were some bumps on the road in personal and professional areas which delayed the development of this thesis significantly. Nevertheless, Professor Heldeweg and Ossewaarde kept pushing me forward to finish chapters, critically look at the thought process I was going through and adjusting plus commenting on the texts that I've written. Working together with these gentlemen has been a real delight, with strong support, no negative judgement of the process and armed with dry intelligent humor I never felt encumbered to meet them even if I did not meet the progression that we had discussed. In this preamble I want to thank them and give them a written applause for all the time that they have invested in me and the process of my thesis plus the fantastic counseling in personal and professional areas.

Next to my supervisors I would like to thank some other people who have pushed me through the process and provided me with counseling on the content and structure of the thesis. First off, I want to start with my family who have always supported me throughout the years and have provided me with sound advice on the choices that I have made. Second, I want to thank my girlfriend, family in law and my puquizteam who questioned me every Monday evening and other days of the week on the progress on my thesis and when I fought a writer's block, they puzzled with me how to solve it. Third, I want to thank my long-time friends Leon, Rosan, Thomas, Timon, Nikki and Floris who always found room in their busy agendas to have extensive conversations and discussions on the topic but always knew how to make me laugh whenever I struggled. Finally, I want to thank my colleagues from Concordia, in special Lia, Anja, Emma, Willem Jaap and Carla, who have always supported me and provided room to write this thesis.

This thesis has been a long process and knew its ups and downs, the final product might not have the quality that I was aiming for but it is a symbol of persistence and a literal completion of my academic career at the University of Twente of which I am proud to call my alma mater.

Enjoy reading this thesis.

Kind regards,

Vincent Verhagen

List of relevant abbreviations

32M	Three Market Square
AFSJ	Area of Freedom, Security and Justice
AI	Artificial Intelligence
CDA	Critical Discourse Analysis
DG	Directorate General
ECHR	European Convention of Human Rights
EGE	European Group on Ethics in Science and New Technologies
GDPR	General Data Protection Regulation
GNR	Genetics, Nanotechnology and Robotics
MS	Member States
RFID	Radio Frequency Identification
TEU	Treaty on the European Union
TFEU	Treaty on the Function of the European Union
UDBHR	Universal Declaration on Bioethics and Human Rights
UDHR	Universal Declaration of Human Rights

Table of content

1.0. Introduction

Technological prosperity and innovation are creating new pathways for citizens, companies and institutions to interact, connect and disconnect with each other. These emerging technologies, such as the development of Artificial Intelligence (AI), altering the human genome, the interconnectedness created by the Internet of Things, and deep learning, establish a new balance between humans and technology (Katz, 2017). There is, however, another side to these emerging technologies. Next to the fact that they are pushing forward they may also disrupt markets, societies and our capabilities as human beings to an extent that could lead to dangerous situations[1]. To protect and create accountability for citizens and markets from emerging technologies which are disrupting their relative fields of interest, regulators need to keep up with the pace of innovation by providing adequate regulation. Weimer & Marin (2016) state that law and new regulation on technology can be quite complex since non-legal and non-state actors affect the nature of law-making and enforcement. Next to the complexity, law and regulation both increasingly are assigned the role of managing tensions between risk and innovation, anxiety and promise instead of acting as a barrier for innovation (Weimer & Marin, 2016, p. 470). Because non-legal and non-state actors are having a direct and/or indirect position in the creation of regulation there is a variety of opinions and interpretations which frames the discourse on disruptive technology. This discourse on regulation of disruptive technologies has, in most cases, a strong ethical component when it comes to what human shall not do, may (not) do and shall do.

Disruptive technologies should not be approached as a positive or negative concept. Disruption and disruptive technologies merely refer to a deviation from the status quo. Du & Heldeweg (2017) describe 'disruptive innovations', as being inconsistent with existing regulatory systems and thus require amendments in regulation or, when not regulated, no or completely new regulation. A disruptive technology which has gathered increasing attention in the last twenty years are Radio Frequency Identification (RFID) implants for non-medical purposes[2]. This so-called do-it-yourself citizen-science of biohackers is reaching more serious forms such as commercialization via companies like 32M and VeriChip and the attention of governments how to cope with this disruptive technology through regulation (Yetisen, 2018). In short, RFID implants are small chips which are placed under the skin to serve different purposes. A variety of functions can be appointed to this technology for example controlling human-electronic device communication, self-quantification, cosmetic enhancement and, most important, contribute to the scientific and social discourse of this technology (Yetisen, 2018, p.1). Additionally, there is a scientific debate how ethics influence the acceptance of such disruptive technologies from different perspectives (Brownsword, 2008; Fukuyama, 2002; Kass, 2003; Zafirovsky, 1999). The ethical discourse on RFID chipping leaves regulators in a difficult position where they need to decide if they should regulate this bodily invasive technology and, if they regulate, what type of regulation will adhere to security and safety of citizens on one hand, and on the other hand manage this new innovation so it will not result in underground or criminal practices. This thesis will approach regulation of RFID implants through an ethical lens will explain the process of regulatory design in different states in the US and why the EU is lacking any kind of direct regulation up to this day.

With ethics as a lens to study the creation of relevant regulation, this thesis will shed a light on regulatory design and the stance of the regulator. Brownsword (2008) speaks in his theory of three key regulatory stances which can be seen as a traffic light. When the light is green it refers to a positive stance of the regulator towards the technology and the regulatory could *command* regulatees to accept

[1] See for example the collapse of the financial market in 2008 which was influenced by a complex technological system which could not be overseen by regulators, businessmen and academics.

[2] The term RFID implants for non-medical purposes will in this thesis also be referred to as RFID implants. Note that RFID implants for medical purposes is not included in this thesis unless explicitly stated.

and implement the technology or innovation, such as with novel vaccinations. When the light is red the regulator has a negative stance towards the technology and the regulator can *prohibit* the technology, such as with human cloning. When the light is amber the regulator has a neutral stance towards the technology and can provide *permission* or *dispensation*, such as the use of drones which are permitted in certain areas but prohibited in other areas. An important note is that these stances are not as rigid as described, there is often an intermediary stance which combines different stances. This intermediary stance of the regulator is influenced amongst others by actors in the field such as companies, non-governmental organizations, and action groups.

The influence of those other actors can occur via different perspectives such as economic, political or historical. This thesis, however, focuses on the ethical discourse that takes place when a governmental organization is acting on the discussion regarding RFID implants and is trying to manage this technology via regulation, note that 'no regulation' can also be regulation. Different ethical stances from different actors via different types of media shapes the ethical discourse and, in turn, has its influence on the regulation that will be implemented. For this thesis six US states who have created regulation on RFID implants have been selected to reveal how the ethical discourse has evolved through time and whether or not in has influenced the regulation that has been created. The EU of course finds itself also in an ethical discourse regarding RFID implants but does not have this direct system of regulation for a particular technology. They primarily operate in a more conceptual fashion when it comes to regulation of disruptive technologies.

1.1. Approach and Aim

This thesis aims to unfold the ethical discourse on RFID implants between regulators and actors and to unravel how this discourse is contributing to the shaping of regulation. In more detail the thesis aims to shed a light on the different ethical stances that regulators and actors take via a critical discourse analysis which looks at a variety of primary and secondary sources. These sources enlighten the process of regulatory design which has a multitude of steps in which decisions are made that can depend on the ethical stance of the government but also on the position of important actors in the field of RFID implants. Furthermore, the ethical stance of a regulator can also depend on the identity of the governmental institution that the regulator is representing. To be more clear, governmental institutions have a, potentially latent, ethical position such as more conservative stance in religious areas or more progressive in liberal areas. The melting pot of the ethical stance of the actors and regulator shapes the ethical discourse and, eventually, regulation.

Research on RFID implants remains primarily in the domain of secondary sources, such as newspapers, blogs, vlogs and other types of media coverage. When looking for scientific articles which cover the regulatory and bioethical aspects of RFID implants one is left with a handful of articles which mostly cover the judicial and bioethical type in a non-structured way or as a sidestep in the article itself. Entangling bioethics stronger to regulatory design processes and shedding a light on the regulation of RFID implants is still a rough and untreated terrain in the academic world. Therefore, this thesis aims to contribute to this academic discussion by combining the bioethical discourse and regulatory design into one theory and linking it to an emergent upcoming technology, RFID implants.

Before the thesis dives into topic it is important to get some concepts and definitions clear. This thesis follows Brownsword (2008) in the definition of the regulator as *"[…] an agent or agency of government authorized to control and channel conduct in specific field."* (Brownsword, 2008, p.7) which makes the actors, the regulatees *"[…] local, regional, and international, the channelling strategies of non-governmental organizations, corporations, trade associations, consumer groups, the professions, netizens and the (non-governmental) rest."* (Brownsword, 2008, p.7). The regulatory process and the concept of regulation also follows the concept of Brownsword (2008) which states that

"*[…] the stipulated concept of regulation is relatively broad. […] by limiting regulators to agents or agencies of government, the controlling and channelling strategies of non-governmental agents or agencies are not to be treated (for present purposes) as the actions of regulators.* (Brownsword, p.7). So, regulation is seen as a broad concept, including legislation, of governmental agents or agencies such as public servants, local governments and federal or intergovernmental institutions. The regulatory design process is split in two different types of regulation, stupid and smart regulation. Leaving stupid regulation aside, smart regulation exists of a logical and comprehensive approach how regulation is created and implemented in our society. This is done via different positions of the regulator which might be prohibitive, permissive or something in between of nature. Furthermore, the regulator can choose what consequences are linked to disobeying the regulation, when the regulation is implemented and how the regulation is presented to the ones being regulated. This will be discussed in more detail in the theoretical framework.

The disrupting technology of RFID implants also triggers an ethical discourse in which the actors try to demarcate the regulation to be created. Brownsword (2008) distinguishes three ethical positions derived from the Universal Declaration on Bioethics and Human Rights (UDBHR) which are ambiguous and not mutually exclusive. First there is the **utilitarian perspective** which mainly concerns the pros and cons of RFID implants and is often identified with financial, economic and market-driven arguments for new technologies. Linking this perspective to the regulatory design process this is called the *green light,* in utilitarianism the regulator is most likely to have a default permissive position and a positive stance towards the disruptive technology

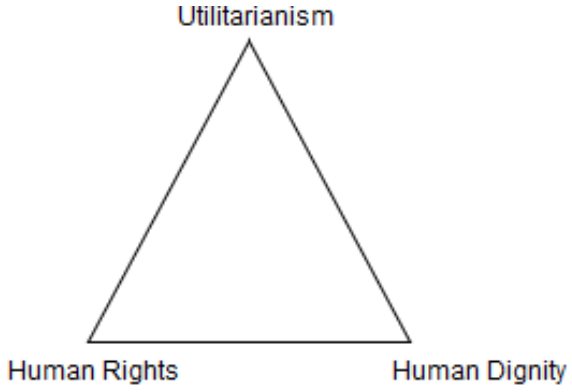


Figure 1: The Bioethical Triangle
Source: Brownsword, 2008

Second, there is the **human rights perspective** which is often connected to liberal political perspectives and protection of the oppressed or weak in the global society regarding autonomy of the human body and freedom. Linking this perspective to the regulatory design process it is often perceived as the *amber light*. The regulatory has a prohibitive or permissive stance with dispensation.

Third there is the **human dignity perspective**, which is primarily linked to the religious, conservative perspective and to morality (Brownsword, 2008; Fukuyama, 2002). This final perspective in perceived as the *red light* which means that the regulator will most probably have a prohibitive stance towards the disruptive technology (Heldeweg, 2018). These ethical concepts are placed in a triangle which points out the relation between the three ethical concepts.

This all results in the following reasoning. Considering the aim of the research to unravel how the ethical discourse shapes the regulation for RFID implants, considering the academic aim of trying to bring stronger ties to the theory of the bioethical triangle and the regulatory design process in the unknown terrain of RFID implants and to research how the actors and regulators together contribute to this ethical discourse the main research question will be:

Research Question: How does the ethical discourse on RFID implants between regulators and actors shape relevant regulation?

To answer to the main research question, it is helpful to look at two research sub questions (Q1 and Q2).

Q1: How do actors and governments contribute to the ethical discourse on RFID implants?

In the triangle the actors are in a power-play defending their own interests and pushing their agenda upon the regulator. This may require of the regulator to act on the tensions that develop themselves between the actors and take into account or reject the tensions in the debate (Stenka & Taylor, 2010). The tensions that occur when discussing RFID implants for non-medical purposes depend on the ethical stance of the actors but can also move in different ways between actors of the same denomination; e.g. multiple actors in the human dignity spectrum can take different positions towards their utilitarian and human rights counterparts and can even be entangled in each other's views. Because the influence of the tensions may affect the regulatory process it is interesting to question which tensions reach the surface and influence this process.

Q2: How do tensions between actors and the regulator influence the regulatory process?

In an attempt to grasp the position of the regulator in the RFID implants debate the comparison between the position of US state governments and the EU will shed a light on the different methods of creating regulation. The development of RFID implants in the EU is not as directly addressed as in the United States. The EU primarily turns to larger concepts such as privacy and data processing instead of the technology itself. The focus on larger concept is not very surprising because the EU is bound to its competences in which areas to create regulation which restricts the EU to regulate a particular technology. Contrariwise, the US state governments did create regulation which is partially influenced through the political and social-cultural character of the different states. On one hand, some states permit microchipping persons when it is not forced upon them and it does no harm to the individual's health. This quite unrestrictive regulation leaves very much space for experimentation on how chips can be used for different non-medical purposes. Other states prohibit microchipping persons primarily because of ethical reasons (Friggieri et al., 2009). Comparing the development of existing regulation in the US and the process of regulation in the EU will provide a better insight in the position of the regulator.

Dividing the research question in two parts, concerning Q1 and Q2, will simplify the complex position of the regulator in the bioethical debate on RFID implants. This research will theoretically address the addition of ethics in regulatory design when discussing biohacking and will take a closer look at the case of RFID implants to clarify the theoretical concept.

1.3. Outline

To structure this thesis it is divided into chapters which address the case of RFID implants in regulatory design and the ethical discourse that shapes the regulation. The first chapter consists of the theoretical framework which discusses the theory of Brownsword (2008) as described in his book *Rights, Regulation and the Technological Revolution.* The first part of the theory discusses the bioethical triangle as introduced by Brownsword (2008) and is held against the light of other ethical scholars who have framed the academic discussion. A particular thought to keep in the back of one's mind is that the bioethical triangle is not a rigid model which consists of three ethical stances; utilitarianism, human rights and human dignity. On the contrary, the model is a nuanced debate between three ethical stances which overlap, entangle and empower each other for structuring ethical arguments in the discussion on RFID implants. There is no single stance or single truth that one can rely on, the chapter merely discusses the content of the ethical stances and tries to show to the reader that the ethical debate in academic literature moves along the legs of the triangle and will lead to the consideration that an ethical discourse is created from these stances. Second the theory describes the process of smart regulation. Smart regulation includes four parameters that are used to analyze regulatory processes. These parameters include the regulatory modes, regulatory pitch, regulatory phasing and regulatory range. Each of these parameters contribute to the process of regulatory design and creating regulation that is considered 'smart' i.e. regulation that is not made out of haste, crisis or political or public pressure but is made via a logical and well though-out process.

After the theory the methods of this research are discussed. The chapter starts with the case selection which is done via a critical case selection. Using the database of Gallup and the article of Friggieri, et al. (2009) a comparison is made how six US states fit into the picture of the bioethical triangle and which states have created regulation on RFID implants. This selection results in using the states of California, Maryland, Georgia, Missouri, Ohio and Wisconsin as being the most suitable cases for this research. Next to the US states this research includes the European Union as regulator to compare the regulatory processes and ethical discourse between the two continents. The chapter continues with the data collection which is done via selective search criteria and lead to a selection of 49 documents with a total of 153 pages and 33 minutes of video material. Finally, the data analysis in this chapter is described which is done via a critical discourse analysis using a coding scheme leading to an interpretation of the ethical discourse and the regulatory position in the US states and the EU.

The analysis exists of a structural approach for each state and the European Union. The analysis of every state exists of four different parts. First there is an introduction in the demographics and history of the state, second the legal ramifications in the state are addressed, third the ethical discourse in the state is analyzed and finally a summary will include the most important findings. For the EU the same approach is used, however because the EU does not have direct regulation on RFID implants the legal ramifications are more extensive including amongst others the Treaty of Lisbon, the GDPR and the European Convention on Human Rights.

The thesis ends with a conclusion and a discussion in which the most important findings are pointed out and linking it to the theory. Furthermore, the conclusion exists of an umbrella conclusion how regulatory design and the ethical discourse contribute to the shaping of relevant regulation in the case of RFID implants. The discussion includes a critique on the theory, methods and analysis and recommendations for further research.

On a final note, to keep the thesis readable synonyms are used for the person who is implanting the chip in another person and the one receiving the chip. The person implanting the chip will sometimes be referred to as the 'controller' and the one receiving the chip as the 'subject'.

2.0. Theoretical Framework

2.1. Introduction

Most writings in the academic debate which cover the regulatory and bioethical aspects of biohacking include primarily the judicial and bioethical discipline in a non-structured way or as a sidestep in the publication itself. There are, however, several academic pioneers who cover this topic such as Gasson, Kosta & Bowman (2012) in their book *Human ICT implants: technical, legal and ethical considerations*, Brownsword (2008) in *Rights, Regulation and the Technological Revolution* or Fukuyama (2002) in *Our Posthuman Society: consequences of the biotechnology revolution.* Still, these writers either focus on the debate of GNR technology by taking into account the medical appliances of the technology. The position of the regulator in specific disruptive technologies, such as RFID implants, is not or sparsely covered. In order to contribute to the academic discussion with a specific case this theoretical framework finds its foundation in the theory of Brownsword (2008) which addresses an approach to the regulatory design of disruptive technology and includes the ethical perspective in his writing. The framework in this thesis aims to add a more coherent approach to the theory of Brownsword (2008) by adding matrixes and models placing the ethical stance of the regulator as part of the regulatory design instead of a legitimization of the regulator as Brownsword (2008) does. The chapter first starts with the concept of the bioethical triangle and adds the concept of bioethical mix to the model. Next this chapter addresses the concept of smart regulation and the four principles that is based upon. Finally, the chapter will include the bioethical triangle in the regulatory design process. This whole theory will be used as a searchlight to approach the six US states and the EU to unravel the relation between the ethical discourse and the shaping of relevant regulation.

When discussing regulation of disruptive technology Brownsword (2008) and also Fukuyama (2002) both address the relevance of bioethics in their theories. The discussion between Brownsword (2008) and Fukuyama (2002) is an recurring topic in the theory on regulation because they both link bioethics to regulation. However, they do not explicitly include bioethics in the regulatory process. Brownsword (2008), uses the bioethics for the legitimacy of the regulator and scrutinizes in his book the position of the regulator not as a subject of tensions in the debate but he seeks the legitimization of the regulator as creator of regulation. Fukuyama (2002), on the other hand praises the position of the regulator and does not seek its legitimization. Instead he believes that ‘red lines’ should be drawn and approaches it as a duty of regulators to draw lines for bioethics based on the knowledge of the right institutions on ethics. Researching disruptive technologies such as RFID implants should address bioethics, in the authors view, as a parameter of the regulatory process because it is just as much part of the regulatory process as the other parameters. The ethical stance of the regulator and the influence of actors actively contributes to the development of regulation. Therefore, the next section will discuss the model of Brownsword (2008) bioethical triangle and how ethics positions itself in the regulatory process.

2.2. Bioethics in Regulation

Before entering the different bioethical perspectives, it is necessary to provide a small introduction in bioethics and how regulators find themselves in this discussion. Bioethics has many sides and can be approached from a wide range of perspectives. Among these perspectives are the medical, philosophical, religious, political scientific and sociological ethicist. Every perspective focuses on different aspects of the bioethical debate. For example, religious thinkers tend to focus more on the playing-for-god argument whilst medical ethicist tend to focus on patient autonomy and the importance of information transparency (Hoberman, 2016). Furthermore, some critics of bioethics claim that this debate has a race problem (Hoberman, 2016) or tend to focus on Western developed countries and not on the Third World or poor countries (Cunha & Garrafa, 2016). This thesis focuses on the ethical discourse in Western countries and follows the theory of Brownsword (2008) called the Bioethical Triangle. As with any model in theories, it is important to stress that this model is a simplification of reality. One cannot state that this is an all-including ethical model, but it offers a framework to address the ethical discourse on RFID implants. Furthermore, the three ethical stances that are discussed in the triangle are not mutually exclusive and can be mixed. So, although the figure of the triangle might seem quite rigid the model should be approached with nuance.

The triangle is based on three ethical stances which Brownsword (2008) deducts from the UDBHR (2005). Brownsword (2008), distinguishes three competing ethics in the UDBHR: utilitarianism, human rights and, as he claims, the dignitarian alliance, henceforth referred to as human dignity[3]. The bioethical triangle is built as a spectrum in which the articulations of these three ethics are not exhaustive of all other possibilities.

There are overlaps between the three different ethical stances. A person can have a preference for the human rights perspective but can also include utilitarian and human dignity driven arguments, bioethical mix. There can also be a default stance, but under pressure the default stance can change. Ethics is not an exact study of numbers but a debate in which the debater must always contemplate about and substantiate its perspective with respect to other perspectives.

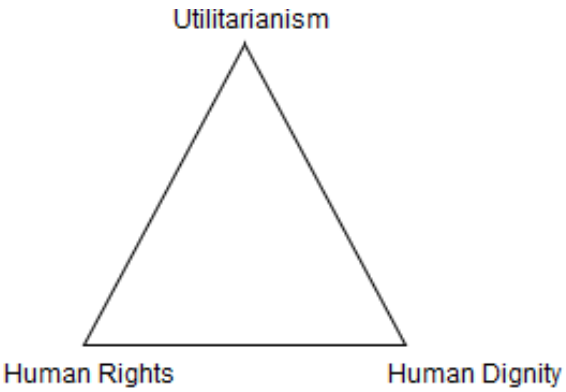


Figure 2: The Bioethical Triangle
Source: Brownsword, 2008

Regulating disruptive technologies is a product of actors and governmental institutions interacting with each other steering and shaping the permission and prohibition for the benefit of society or other economic, social, political or ethical agendas also known as governance (Hofmann, Katzenbach & Gollatz, 2017). The type of governance that this thesis applies derives from internet governance being: *"patchworks of partly complementary, partly competing regulatory elements in the form of legal rules and ordinances, mandatory and voluntary technical standards and protocols, international and national contracts and agreements and informal codes of conduct and 'netiquette'* (Feick & Werle, 2010, p.525). Actors are external forces that try to influence the regulator in adopting their stance to benefit their economic, social or political agenda. In doing so the stance of the regulator can be swung around in the triangle before the regulator chooses a

[3] Because the theory of Fukuyama (2002) forms a big part of the theoretical framework there is a need to use similar terms. Brownsword (2008) also uses *human dignity* further on in his book which leads me to call this ethical principal human dignity.

position or when the regulator decides to adopt eloquent silence (figure 3). Another possibility can be that the regulator has a default position and will be persuaded by actors to change its default position. The position of the regulator can derive from its own personal perspective on disrupting technologies but can also be hierarchical i.e. put upon the regulator by its superior or higher order. For example, the ethical stance of a regulator who has its personal moral code from neoliberal religious perspective will most likely be dignitarian with a hint of utilitarianism. When this regulator is given the task to create regulation in a leftist liberal society the actors will influence him to move to the more human rights/utilitarian position (figure 4)

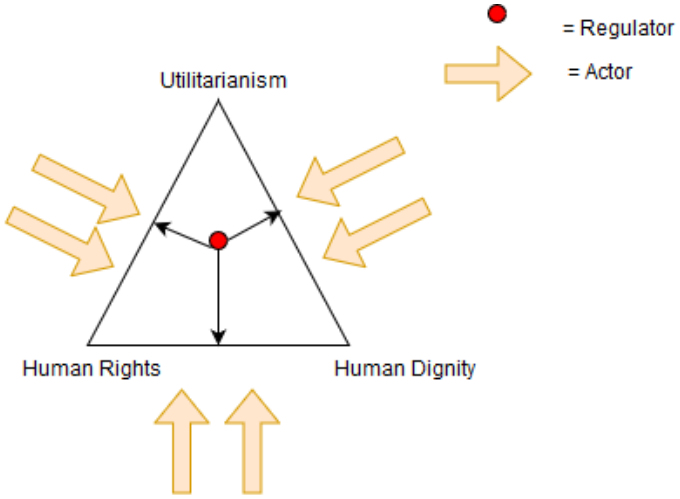


Figure 3: Regulator Bouncing Around

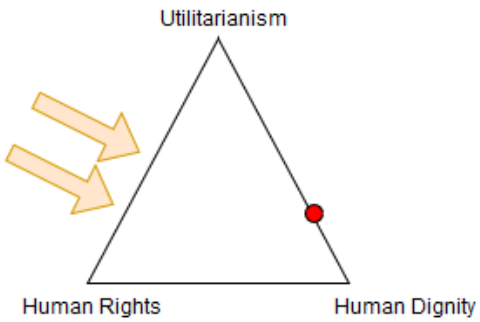


Figure 4: Regulator Default Position

In short, bioethics and the bioethical triangle can be seen as a framework in which regulators and actors alike operate by creating an ethical discourse. This ethical discussion can be grasped and understood through this model.
To increase the understanding of the different ethical positions discussed by Brownsword (2008) the next part will discuss the three different ethical stances; utilitarianism, human rights and human dignity.

2.2.1. Utilitarianism

Utilitarianism might seem as the most straightforward ethical stance included in the bioethical triangle; however, this stance is more complex than what meets the eye at first sight. This paragraph explains the perspective of utilitarianism and its complexity. The principle of Utilitarianism is founded, amongst others, by John Stuart Milll in his book *Utilitarianism* written in 1863. Utilitarianism is according to Mill:

"The creed which accepts as the foundation of moral, Utility, or the Greatest Happiness Principle, holds that actions are right in proportion as the tend to promote happiness, wrong as they tend to produce the reverse of happiness. By happiness is intended pleasure and the absence of pain; by unhappiness, pain, and the privation of pleasure." (Mill, 2016, p.9).

Deriving from this statement utilitarianism positions itself as a rational theory in which the pleasure and benefits for an the greater good are weighed against discomfort and pain. Utilitarianism seeks to optimize utility and diminish disutility. An approach that is quickly linked to economics and risk-analysis as the theory implies to calculate the risk of benefits versus the losses (Brownsword, 2008; Fukuyama, 2002).

However, utilitarianism is more than an economic perspective on ethics as Zafirovski (1999) states in his article on rational choice. This side-step into the sociological concept of rational-choice theory shows that although utilitarian rational choice implies that it works with a single class of variables (economic) there are also moral, cultural and social structural variables (Zafirovski, 1999).

As an example to clarify this position is the transhuman movement, with authors such as Nick Bostrom and Max More, who emphasize their perspective on a future in which science and technology will contribute to a state of unleashing humanity's full potential, advocate the well-being of all sentience whatever kind of species, and promote individual choices enabling their lives. In their discussion they do not focus solely on economic benefits but include the potential of technology to increase the quality of life via health care, an enlightened understanding of complex structures via brain-stimulation and creating new insights in the possibilities of culture and so on. These utilitarianist also underline the possible threats and risks that co-occur with this development and state that policymakers should "[…] be guided by responsible and inclusive moral vision […] and showing solidarity with and concern for the interests and dignity of all people around the globe." (Humanity+, 2009). So, the utilitarian approach from the transhumanist also takes into account a human dignity perspective, showing that a utilitarian discussion is not merely focused on pros and cons but also on 'being human'. The transhumanist movement is not by definition to be regarded as a progressionist approach to humanity as Verdoux (2009) describes in his heuristic article. Promoting the engineered human with technologies in GNR has severe implications to humanity and will lead to existential risks such as second- and first rank citizens or the question when someone is human and when someone is cyborg. (Bostrom & Cirkovic, 2008).

Unlike the advocates of transhumanism such as Bostrom and More, or authors from the AI-minded singularity movement, such as Kurzweil, there is a large group of ethical critique on the utilitarian approach towards biohacking from authors such as Leon Kass, Francis Fukuyama and George Annas (Bostrom, 2005). The critique primarily finds its roots in the veins of human rights or human dignity approaches. Other criticists can be found in religious corners. This discussion focuses on the earlier mentioned potential existential crises but also on the question whether humans can use technology to alter themselves or other humans. Are we playing for God when we resort to altering human genomes, the functioning of the brain or other bodily 'improvements'? The advocates and critics of transhumanism refrain from religion in their argumentation because transhumanism is positioned as a secular philosophy and therefore abstain from reacting on the "playing for God"-argument (Campbell & Walker, 2005). Some scholars also emphasize the risks of society, such as Francis Fukuyama (2002) who states that humans are moral beings and deserve equal rights, and thus bio-engineering should not be focused on the individual but we as humanity should always pursue world-engineering technology i.e. create technology that benefits the global society instead of several individuals. This shows that although transhumanism is regarded as utilitarian philosophical movement it does not single out moral and human rights arguments.

Utilitarianism is thus an ethical perspective that brings more than only an economic discussion, a deeply rooted debate in bioethical utilitarianism is the impact of technology on mankind, society and the individual. The debate stretches from human dignity to human rights and how to interpret these ethical perspectives from a utilitarian background. As stated before, utilitarianism is more complex than what meets the eye, it is an inclusive ethical perspective that moves along all the lines of the bioethical triangle.

2.2.2. Human Rights

Most people are familiar with human rights in the basics that they have the right to live in freedom, the right not to be discriminated against and the right to live in equality. However, where these human rights stem from and why we are entitled to these rights is necessary to understand this perspective in a broader light. Human rights also show that the bioethical triangle is not a rigid model, it shows strong ties with human dignity but is also often used utilitarian debate. This paragraph explains how this has come to pass and how to perceive human rights in the bioethical debate.

"Human rights are rights inherent to all human beings regardless of race, sex, nationality, ethnicity, language, religion or any other status. […] International human rights law lays down the obligations of Governments to act in certain ways or to refrain from certain acts, in order to promote and protect human rights and fundamental freedoms of individuals or groups" (UN, n.d.)

Human rights are unequivocally bound in UN Resolution 217 which became better known as the Universal Declaration of Human Rights and was signed in 1948 and institutionalized within the declaration by noting that human rights are: "[…] a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms […]"(UN General Assembly, 1948, Preamble). The UDHR is perhaps one of the most influential pieces of international law that has no legal binding status. Although the declaration is not legally binding, many lawyers treat the UDHR as so-called customary international law, pairing up with the principle of *jus cogens* one could argue that, although the UDHR is a *declaration* it is perceived and interpreted as a *treaty* (Bianchi, 2008). The legal status of the UDHR has not retained it from being recognized as the international standard for human rights all over the globe. Almost every international convention regarding human rights refers to this vital document in international law (Hannum, 1995).

Looking at the judicial approach on bioethics, the human rights movement is deeply rooted in a global movement which can be found in, the earlier mentioned, Universal Declaration on Bioethics and Human Rights. A promotor of this declaration is professor Roberto Adorno, who is very specific in his claims that the UDBHR, although it is soft law, in time is meant to be a fundamental piece of work underlying every regulatory document that is created regarding bioethics. He compares this with the UDHR since this declaration also started as soft law but eventually entered the status of customary international law (Adorno, 2009). Soft law, through the passing of time, may possibly gradually conjugate with hard law, thus laying the foundation of important regulatory binding documents. The 'soft' declarations of the UN may persuade countries to bind themselves to a political and moral commitment and acknowledge these documents as the international standard to develop new hard law.

Moving away from the legal ramifications the human rights and moving towards the position of human rights in our global society, human rights has a strong globalized position for several reasons. First, the role of the United Nations spreading human rights as a global movement has been enormous. Starting with the Universal Declaration of Human Rights, a product of the second world war, the human rights movement was given a platform in a global institution. A brief sidestep into history learns that during the war Franklin D. Roosevelt articulated his historically renowned 'Four Freedoms' in which he set the course for a world after the war with free speech, freedom of religion, freedom of 'want'[4] and freedom of fear. These four freedoms were adopted by the allies as their war goals but were not always honored during and shortly after the war (Hannum, 1995). A new committee was born to, draw the UN Resolution 217 under the supervision of Eleanor Roosevelt. Because the US and the European continent were dominating the UN and the world on a political level plus the terrible actions of the second world

[4] FDR meant with freedom of 'want' that societies live in a healthy and peaceful environment in every country.

war fresh in mind, they had the power to issue or provoke other countries to sign the declaration. Spreading the western view of democracy around the world an increasing amount of countries got to sign the UDHR and other declarations making human rights the global movement that we know now.

In addition to Hannum (1995), Adorno (2007) adds in his article other reasons why there is such a strong reliance on human rights when discussing global bioethics. First, because biomedical activities are dealing with foundations of human rights law, like to right to life and physical integrity. Protecting these rights under the framework of international human rights law is perfectly legitimate to abstain any biomedical or biohacking activity from doing harm to its patients or targets. Because of the extensive body of rules and regulation that international human rights have produced Adorno (2007) argues that it protects us from harm, danger and breaking international human rights law. Second, he argues a very practical reason, that the international human rights system is the 'best' system to assess ethics when it comes to biomedical application and also biohacking. There is no other ethical system that knows bureaucratic, legitimized and accepted agreements than the human rights system.

Adorno (2007; 2009) also places human rights in the light of human dignity, which are closely related. As with utilitarianism nuances should be made and with regard to earlier remarks on the bioethical triangle one ethical perspective should always respect the other perspectives. Human dignity is seen as the rationale of the normative concept that we call human rights. Following McCrudden (2008) human dignity has been incorporated in constitutions, the UN Charter, international humanitarian law, human rights text and regional texts. Human rights are almost impossible to approach without having human dignity in the back of mind because the moral view on the world and humanity is protected by human rights. Not only in the UN Charter but also in other documents relating to economic, social and cultural declarations. Human rights can be seen as the protection and legalization of human dignity (McCrudden, 2008). Or as Adorno (2007) states human dignity has a background role in international human rights law and a foreground role when it comes to bioethics. It gets its foreground role in bioethics because humans should not become instruments of science, but science merely is a means to the service of the human person.

Human rights thus have a quite short history of existence based on how, primarily Western countries, want people to behave to one another. Human rights are also closely related in the utilitarian debate. For example, in the privacy debate, the fact that it is someone's right not to be interfered in their personal life (art. 12, UDHR) is often used when the debate comes up to data collection and data processing, a quite technological debate. This shows that human rights are entangled throughout the triangle and thus throughout the ethical debate.

2.2.3. Human Dignity

Human dignity is the most abstract perspective in the bioethical discussion because it cannot be expressed in pros and cons or in laws. To clarify how human dignity is approached in this thesis this paragraph will discuss how Fukuyama (2002) and Brownsword (2008) perceive human dignity and how it finds its place in the bioethical triangle.

A propagator of human dignity is Fukuyama (2002) in his book *Our Posthuman Future: consequences of the biotechnology revolution.* In contrast with his colleague Brownsword (2008) who is a strong defender of the human rights movement, Fukuyama (2002) states in his book that human dignity is something that is hard to describe (p. 149). Therefore, Fukuyama (2002) does not provide a clear definition of human dignity but reasons as follows:

"The demand for an equality of recognition or respect is the dominant passion of modernity […] What the demand for equality of recognition implies is that when we strip all of a person's contingent and accidental characteristics away, there remains some essential human quality underneath that is worth of a certain minimal level of respect- call it factor X […]Factor X is the human essence, the most basic meaning of what it is to be human. If all human beings are in fact equal in dignity, then X must be some characteristic universally possessed by them." (Fukuyama, 2002, p.149-150).

Human dignity is thus a moral status that humanity has over the rest of the natural world according to Fukuyama (2002). Brownsword (2008), however sees human dignity in quite a different way. He states that human dignity opposes any process or product that compromises human dignity, disagreeing as much with the utilitarianist as with the human rights movement. Dignitarians condemn the consequentialist and economic position of the utilitarian perspective and do not believe in that the individual can make right decisions based on informed consent and the rule of law depicted in the human rights view (Brownword, 2008, p. 39). The religious or deontological view of duties towards humanity places the human dignity perspective into a cosmopolitan state in which human life should be protected and respected, have no price and should not be instrumentalized, so the duty of the individual is to uphold these statements for all human life around the planet (Brownsword, 2008, p. 40).

The statement of Brownsword (2008) further continues towards a positive and a negative approach. The positive approach, also being emphasized by Habermas (2010), is that human dignity can be seen as empowerment for the human race and thus backs up the human rights movement. Human dignity as empowerment is returning in the human rights movement, the first article of the UDHR reads *'All human beings are born free and equal in dignity and rights'* (UN General Assembly, 1948, art. 1). This means that human dignity provides a human being with human rights and because of human dignity all humans have equal rights. The reasoning behind this statement is that the human species holds Factor X which means that humans have value (Fukuyama, 2002). Humans have value as rocks and plants do not have value, if one would strip all contingent and accidental characteristics away of a rock one would remain with nothing. However, when all this is stripped from humans what would remain is a soul or moral conscience i.e. Factor X. Therefore, humans have value and other species don't. This value should be respected, a duty of being human, which is backed up by a legal instrument. In other words, human dignity is the foundation for the human rights movement (Habermas, 2010). On the other hand, human dignity can be seen as constraint which leads to a more Christian and Kantian approach. Kantian morality almost instantly rejects biohacking and the progressive stance towards bioethics claiming: *'Humanity itself is a dignity; for a human being cannot be used merely as a means by any human being […] but must always be used at the same time as an end"* (Brownsword, 2008, p.44). This means that humanity or humans have an intrinsic motivation to respect the duties and the human as it is. Therefore, the human dignity perspective rejects commercialization or commodification of the human body because *a human being cannot be used merely as a means by any human.*

Human dignity can thus be conceptualized as the view that people have an intrinsic duty to 'serve' humanity from a moral perspective. This perspective includes most religions in the human dignity perspective, because they often state how to live, according to which values and how one should treat one another; see for example the ten commandments. The intrinsic duty to respect humanity also provides a primarily negative stance towards biohacking because of the playing-for-god argument. Furthermore, because humans can be altered through biohacking it does not respect humanity as it is and rejects morality as morality is factor X in humans thus contradicting with the human dignity perspective.

2.2.4. Concluding the bioethical triangle

The model of Brownsword (2008) covers the ethical perspectives in the bioethical debate. The three different perspectives provide a foundation for a nuanced debate how to approach the bioethical discourse. In the case of RFID implants, the model provides in the need of offering a framework which covers the most heard ethical contemplations of this technology. RFID implants primarily raises economic, privacy and religious related questions which all can be placed in the triangle. Nevertheless, as stated before, the triangle does not aim to present an absolute truth like in math, rather the triangle acts like a spectrum in which ethical positions are able to shift and change over the legs. Furthermore, the bioethical triangle is a model to approach bioethics this does not mean that other models or other ideas of ethics are wrong or not relevant they are merely a different approach.

To conclude this section with a model or matrix would sell the model short, however it is necessary to construct some kind of matrix, so it fits in the principles of regulatory design. To emphasize the nuances in the model it is possible to cross the different perspectives which constructs a matrix that shows the bioethical mix. Bioethical mix should also be approached with caution since this also does not cover the entire spectrum of positions that a regulator can take. However, it already provides a nuance in the debate and is less rigidly modeled than the original bioethical triangle. It is important to note that in the matrix the values of the **columns** are dominant over the **rows** in table 5. The perspectives in the matrix are numbered which corresponds with the numbers in figure 5.

For example, when the human rights perspective is leading (column 2) in the ethical discourse but there is a tendency towards human dignity (row 3) in the bioethical mix triangle number 6 is the most representative place for this position. As to be expected can this position move along the bottom leg from almost the corner where number five is up to 50% of the leg. The same goes for number 8 but represents the exact opposite i.e. leading human dignity but a tendency towards human rights. Via the bioethical mix it is possible to model the nuances in the bioethical triangle and adds to the theory not only via text but also via a visual presentation.

Ethical Perspective	Utilitarianism	Human Rights	Human Dignity

Utilitarianism	Utilitarian perspective[1]	Human Rights based – Utilitarian perspective[4]	Human Dignity based – Utilitarian perspective[7]
Human Rights	Utilitarian based – Human Rights perspective[2]	Human Rights perspective[5]	Human Dignity based – Human rights perspective[8]
Human Dignity	Utilitarian based- Human Dignity perspective[3]	Human Rights based – Human Dignity perspective[6]	Human Dignity perspective[9]

Table 1: Bioethical Mix

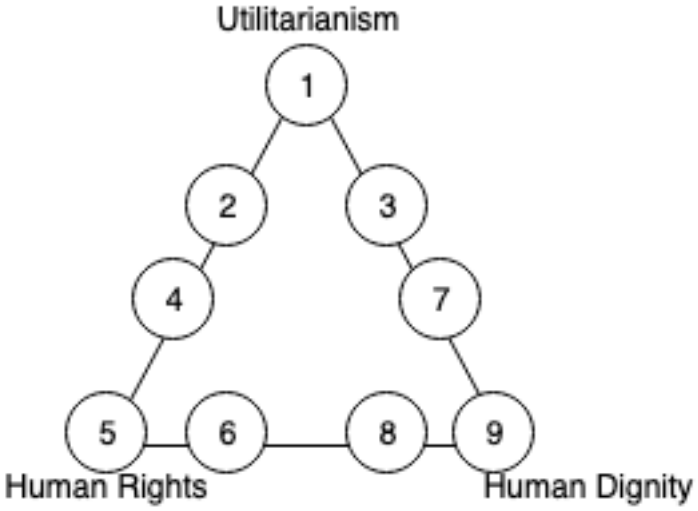


Figure 5: Bioethical Mix

2.3. Smart Regulation

Regulation is a multi-interpretable concept within the academic landscape. There is a continuous discussion between academics whether regulation is part of legislation or legislation is part of regulation. Some academics are charmed by the broader concept of regulation which includes the legislative process or law making. Fukuyama (2002) describes regulation as: *"[…] the act of drawing a series of red lines that separate legal from proscribed activities, based on a statute that defines the area in which regulators can exercise some degree of judgement."* (p. 207). Also, Du & Heldeweg (2017) apply a broad interpretation of regulation, specifically, experimental regulation in which regulatory strategies, regulatory relationships and legal norms are adopted in their concept of regulation. Their approach positions the legislative process in the regulatory process placing law-making and the execution of these laws under regulatory design. Others like Sato (1997) describe legislation as means to an end, so when legislation is made the government can start the implementation of the legislation which he calls regulation. This approach sees legislation and regulation as two different processes which are related and logically follow up one another. This thesis adopts the broad perspective of regulation which includes legislation as part of the regulatory process.

The thesis follows the regulatory style that Brownsword (2008) created which is called smart regulation. The founding fathers of Smart Regulation are Gunningham, Grabosky & Sinclair (1998) who describe smart regulation as a form of regulatory pluralism, instead of a bipartite process involving the regulator and the regulated, in which flexible, imaginative and innovative forms of social control are used. Through this approach the regulatory process is not only shaped by governmental actors but also by industry, third parties and NGO's (Gunningham, et al., 1998, p.133). Smart regulation exists of four parameters that regulators need to take into account before creating regulation. The model of smart regulation also provides responsiveness for regulators, that is, via smart regulation regulators are able to revise the decisions made in the past and break the deadlock between actors advocating more or less regulation. The model sees to the need of regulators to create the optimal form of regulation for the topic at hand. Brownsword (2008) distinguishes four different parameters in his framework which should be taken into account whenever a regulator creates smart regulation. The parameters are complementary to each other and strengthen the position of the regulator whenever the regulator need to substantiate its decisions.

2.3.1. Regulatory Modes

Regulatory modes describe the strategies that regulators can adopt to find the optimal ration of regulatory input versus regulatory output. In other words, regulatory modes are the systems of control how regulation is implemented in society. It is not a legitimization of the regulation but rather an instrument of control to make the regulation consequential. This paragraph will explain the four forms of regulatory modes and will finally explain in less abstract terms how regulatory modes should be perceived.

Brownsword (2008) describes this principle in East Coast model and a West Coast ideal types. However, because not everyone in familiar with the differences between the two coasts of the US this thesis adopts the model of Murray & Scott (2002). They have redesigned the model of Lawrence Lessig (1999) and describe four different modes of regulation labeled: hierarchy, community, competition and design which are placed in the concept of constraints on action and control. The four modes of regulation explain how control on disruptive technologies can be created by a regulator.

To illustrate these concepts, we will take the example of RFID implants. **Hierarchy** addresses control via laws, there is a governmental power which uses punishment to prevent people from performing particular actions. This direct form could take the form of a law that states that people are prohibited from planting RFID implants in people and if it is executed it is seen as a crime with comes

with its necessary consequences judged by a court. Hierarchy also includes, federal law, European law, international law, local law and other types of power which have the authority to create legislation judged by the judicial system.

Community addresses control via the people, by educating and promoting regulation the behavior of people will change and avert or accept disrupting technologies. This type of control addresses the social behavioral form of control of which can lead to a stigma or approval of technology. When chipping is seen as socially accepted and has a positive effect on people's live, they will most likely approve of RFID implants and accept it in their daily life. On the contrary, a stigma can also be created when regulators use campaigns or education to create animosity towards RFID chipping. Next to social norms, community can also be approached as a self-regulatory mode catalyzed by hierarchical elements such as governmental campaigns and education.

The regulatory mode of **competition** adheres to the control of the market and aims at competition which is induced by governments. By, for example, subsidizing RFID implants governments can stimulate the creation of disruptive technologies via the market. Market actors will increasingly use these subsidies to develop and innovate RFID implants according to the regulation set out in the subsidy. Between governmental institutions there is also a strong form of competition. The EU and US, for example, often compete with disruptive technologies by creating attractive situations for companies to place their HQ in the respective continent. This is done so one can control the economic power linked to disruptive technologies and claim innovative products as being developed on their continent.

Finally, the mode of **design** describes a way of control via inbuild design systems and additional administrative systems. Control in the architectural mode can be that an RFID implant starts making noises or shuts down when you do something that is not legal with it. Furthermore, the regulation can prescribe that an enormous amount of administration needs to be done before someone in eligible to place an RFID implant in one's body.

Element of a control system	**Hierarchical Control**	**Community Based Control**	**Competition-Based Control**	**Design-Based Control**
Standard Setting	Law or Other Formalised Rules	Social Norms	Price/Quality Ratio	Inbuild design features and social and administrative systems
Information Gathering	Monitoring	Social Interaction	Monitoring by dispersed buyers, clients, etc.	Interaction of design features with environment
Behaviour modification	Enforcement	Social Sanctions (e.g. ostracism, disapproval)	Aggregate of decisions by buyers, clients etc. on purchase, take-up, location etc.	As for information gathering (self-executing)

Table 2: Elements of Control Systems
Source: Murray & Scott (2002, p. 504)

The regulatory modes are not mutually exclusive and do overlap sometimes when creating law. Murray & Scott (2002) state very clearly that regulatory modes have three components: some goal, standard, rule or norm; some form of monitoring and finally some mechanism for realigning the system when it deviates from its goal. Especially the last component provides room for a regulator to mix these modes. A regulator can make a law and enforce it but leave it to social norms to regulate itself. A good example from the Netherlands is the use of mobile devices while driving. It is illegal to do it and one will be fined if a law-enforcer catches you, however it is also socially not accepted anymore to do it and people will call others to account when they do it. Design-based control can, for example be seen in waste management, it is a municipal task in the Netherlands to provide citizens with a possibility to dump their waste in containers. By placing and designing these waste-stations as effective and easy as possible people can use it in the correct way. Using information from the bins and waste-systems will provide a regulator with the information whether the regulation on waste is effective or the design and placement of bins should be altered.

2.3.2. Regulatory Pitch

This parameter in the model is related to the legitimacy of the regulation, so do the regulated accept the regulation based on the arguments that the regulator uses to create the regulation. This paragraph will show three types of regulatory pitch and explain them to better understand why regulation is created.

Brownsword (2008) describes regulatory pitch as *"[...] the way regulators seek to engage with their targets."* (Brownsword, 2008, p.16). He distinguishes three kinds of regulatory pitch: moral, practical and behavioural.

Moral pitch seeks to engage with the targets on basis of morality via authority, substance or procedures. Authoritative pitch claims that the regulatory position has a certain moral insight or that that it is the regulators responsibility to create regulation. Substantial pitch has the paradigmatic claim that the regulatory position is legitimate because of a particular moral principle or belongs to a certain regulatory body based on moral principles. Procedural pitch claims that the regulatory position needs to be respected because it is the outcome of a fair process. All in all, the moral pitch legitimizes the regulatory position on a moral principle, respect or compliance is morally obligatory (Brownsword, 2008, p.17).

Practical pitch engages with the target by providing a feeling of practicality. The regulatory position relies on a claim that there is good reason for compliance. Practical pitch primarily shows itself when economic interests of targets are at stake.

Behavioral pitch does not engage with targets from a moral or practical perspective but steers on the desired behavior. There is no reason for the regulator to address morality or practicality, but the task is merely to let the targets behave as they should behave according to the regulation. So, when X needs to be achieved everything will be done to make sure that X is the outcome of the regulation which is no different from robots following commands.

Pitch	Moral	Practical	Behavioral
Engagement	Based on morality via authority, substance or procedures. Legitimizes the regulatory position based on moral principles and respect.	Based on practicalities via good reason for compliance. Legitimizes the regulatory position via reasoning and argumentation.	Based on outcome via no justification but merely on the purpose of the regulation. Legitimizes the regulatory position via outcome necessity.
Example	Constitutions	Economic purposes	Providing road safety via driver's licenses

Table 3: Engagement in regulatory pitch

In short regulatory pitch legitimizes the creation of regulation. Sometimes the legitimacy can be found in authority e.g. the government has a moral obligation to provide good health care for everyone therefore the government can regulate health care. Other tasks can be found in practicality for example a free market for supermarkets will most likely drop prices and provide more choice when others are able to enter the market when they fulfil the health standards in the country. Therefore, the government can regulate the health standards but should not interfere in the selection of products in the supermarket. Finally, the outcome necessity is used whenever a certain goal must be reached. For example, to make sure that everyone knows the rules on the road and can drive a car you need a driver's license. There is no moral or practical concern but just a logical conclusion why one should do that. In the bioethical debate it is definitely not the case that all is based on morality

because regulatory pitch is merely a legitimization of potential regulation which can also be practical. For example, it is prohibited to place RFID implants in other people because the consequences for national health cannot be overseen is quite a practical position.

2.3.3. Regulatory Phasing

Regulatory phasing is the organizational flow which regulation needs to pass and amended to reach the desired behavior. Regulatory phasing can be seen as the internal flow of regulatory design to achieve the desired behavior intended by regulators.

Regulatory phasing refers to the moment that regulation is created, this can be *ex ante* and *ex post* which Browsword (2008) describes as, respectively, first and second phase regulation. For example, when regulators are concerned about RFID implants, they are able to control, confine or channel the use of RFID implants via regulation before social implications take place, so *ex ante* regulation. Second phase regulation, on the contrary, refers to the choice of the regulator to create *ex post* regulation. Whenever regulators see that RFID implants have negative or disrupting societal consequences, they are able to create legislation which is aimed at the decrease of the negative or disruptive impact. If the behaviour of the targets is not achieved in a phase a regulator can still act *ex post*, so a first phase regulation might have a second phase or even third phase.

Brownsword (2008) is very concise in his description of regulatory phasing, therefore it needs a necessary addition of approaching this principal as the feedback-loop in the regulatory process. In testing for medication or medical devices the feedback loop is a common part of the process (Bowsher, et al., 2016). In the regulatory process for biohacking this should be no other and fits perfectly in the principal of regulatory phasing. This thesis adopts regulatory phasing as the feedback loop in the regulatory process for biohacking. It is important to make a distinction between *ex ante* and *ex post* regulation, both are, however, not excluded of revision or adaptation whenever the desired behavior is not achieved. Furthermore, phasing has the potential to influence the other principles because they can be revised too in the phases that follow. Regulatory phasing, thus, takes up an important position in the regulatory process. It is important to note that the principle of regulatory phasing only occurs when regulation takes place, which means that the feedback-loop does not allow for regulation *not* to be created. Following this logic, the model for regulatory phasing look like this:

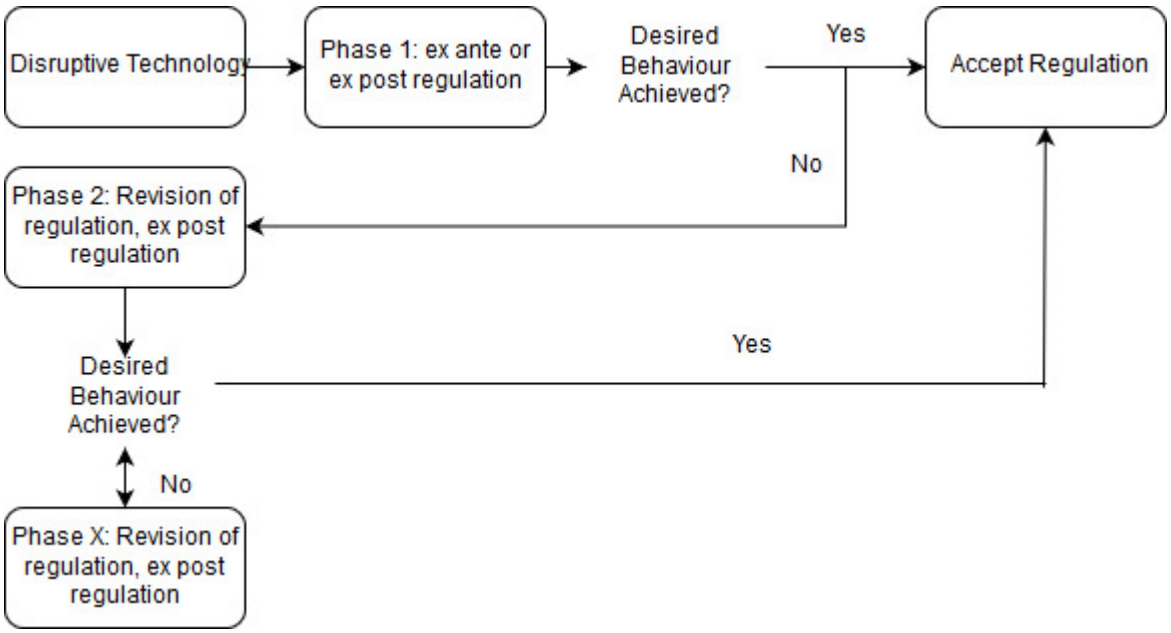


Figure 6: Regulatory Phasing including feedback-loop

2.3.4. Regulatory range

Regulatory range can roughly be seen as the body of the regulation. Regulatory range states whether an action is prohibited or permitted including whenever it is permitted or prohibited to deviate from the initial prohibition or permission. This paragraph includes an explanation on this parameter and will continuously return in the analysis since this parameter is of great interest in the shaping of regulation.

Brownsword (2008) describes regulatory range as the channeling parameter which knows three different types: negative channelling (prohibition), positive channelling (requirement) and neutral channelling (permission). To grasp this principal, we use the example of RFID implants. For example, a government can prohibit RFID implants for non-medical purposes, require people who have a disease which can be monitored via RFID implants to get implanted and permit testing with RFID implants for new medical purposes. Brownsword (2008) distinguishes four variables within the regulatory range.

First, prohibition means that a regulator might develop legislative tools to prevent or forbid implanting people with RFID chips by making it a criminal offence, statutory prohibition or severe penalties. Brownsword (2008) also points out that sometimes prohibition can take place as a statutory tort. This means that legislation is created by the legislator, not by the courts, and imposes prohibition relying on the duties of private and public parties. RFID implants designed by VeriChip (a company in the US) are FDA approved. This means that a private actor, VeriChip, has a legislator, the FDA, approve its technology. Whenever this technology occurs to have physical negative impact on individuals the FDA will redirect or penalize the private actor (Weiss, 2018).

Second, permission can take two different forms: *permission with negative reservations* and *permission plus facilitation*. The first permitting the actor to use the disruptive technology when the actor fulfils certain requirements or qualifications. The latter being the government acting as a catalyst for the implementation of the technology for example by subsidizing it. In RFID implants permission with negative reservations can take place whenever an actor wants to test the technology on individuals who consent to be chipped. The individual must, of course, not be harmed and risks for the future should be decreased to a minimum. Permitting plus facilitation in RFID implants can be seen in the UK where a senior Ministry of Justice official proposed a plan to place RFID implants on sex-offenders to follow them when they are released. Because prisons in the UK are primarily state-controlled the government would facilitate the implantation of RFID chips in prisoners and give a pass for private actors to extend their market (Brady, 2008).

Third, when there is no clear prohibition or permission the variable of *regulatory mix* is at hand which is liable to mix private and public law. This means that RFID implants for non-medical purposes can be permitted with negative reservations, the products of these tests are prohibited from patenting, there are rules happens when the consent, harm and precautionary principle are not upheld and it is clear whether the data derived from these tests can be used for further private research and so on. The mix of public and private law is often occurring in experimental legislation which deepens the theory on regulatory mix and, finally regulatory tilt (Heldeweg, 2015).

Regulatory tilt addresses the default position of the regulator. Regulatory tilt states that if the default position of the regulator is set for prohibition the tilt will be against permission and if the default position of the regulator is set for permission the tilt will be against prohibition. When regulatory tilt is against prohibition ambiguities will most likely be in favour to be settled for permission and vice versa (Brownsword, 2008). Heldeweg (2015) also addresses the case of eloquent silence which consists of the lack for a default position which means that sometimes permission is accepted, or prohibition is accepted. In the UK when there is no prohibition, it means that it is permitted, whereas in Germany when there is no explicit permission it means that certain activities are prohibited (Brownsword, 2008).

Variables of Regulatory Range	Prohibition	Permission	Regulatory Mix	Regulatory Tilt
Description	Prevent or forbid via penalties with judicial force	Permission with negative reservations. Permissions when requirements or qualifications are being met.	Mix of private and public law. Includes both prohibition and permission.	Default position of the regulator which is either prohibition or permission with exceptions.
	Prevent or forbid via statutory tort in which governmental organizations control private organizations	Permission plus facilitation. Permission with facilitation of the government.		Will solve ambiguity of non-compliance by relying on their default position.

Table 4: Variables of regulatory range

Regulatory range is the most concrete form in the regulatory design process. It consists of prohibition and permission with deviations where necessary. These different regulatory stances, as they are also named, are closely related to the ethical discourse as will be pointed out in the upcoming paragraphs. Because regulatory range shapes the content of regulation it is quite uncomplicated for actors and regulators alike to form their ethical opinion on regulatory stances. Although, it might seem a bit black and white regulatory range provides a framework in which all exceptions and deviations from the initial stance can be taken into account. For example, it might be prohibited to chip people but if a pacemaker is regarded as a chip then the pacemaker is an exception on the regulation. These refinements in regulatory range can be seen in figure 7. This makes regulatory range often the core of the regulatory process regarding disruptive technologies.

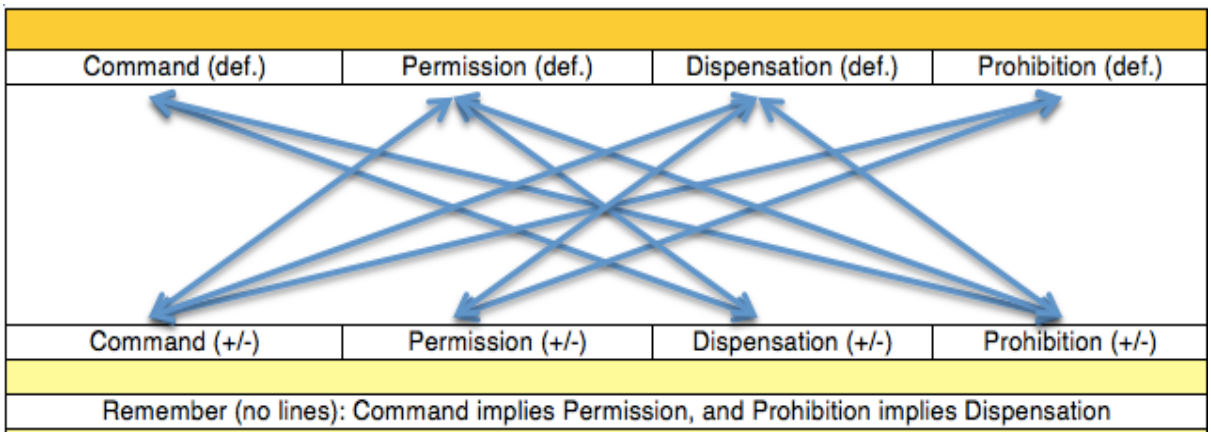


Figure 7: Refinements in regulatory range
Source: Heldeweg (2018)

2.3.5. Concluding Smart Regulation

Smart regulation as described by Brownsword (2008) is a relatively short and concise theory but offers an ideal framework for analyzing disruptive technologies. Because the theory is not quite specific it provides scholars with a flexible framework for disruptive technology that has not been regulated or finds itself in the embryonic state of regulation. All the parameters are needed to create regulation. Whilst some of the parameters might not be as obvious in regulation as others, all of them are bound to be subject of smart regulation.

To summarize the theory of Brownsword (2008) the principals and characteristics can be found in Table 4.

Principals of Smart Regulation and their characteristics				
Regulatory Modes	Hierarchical	Community	Competition	Design
Regulatory Pitch	Moral	Practical	Behavioral	
Regulatory Phase	First Phase	Second Phase	Feedback-loop	
Regulatory Range	Prohibition	Permission	Regulatory Mix	Regulatory tilt

Table 5: Parameters of smart regulation and their characteristics

2.4. Conclusion

The book of Brownsword (2008) has an extensive section on ethics and the legitimization of the regulator in the perspective of biohacking. It lacks a bit in an extensive explanation of his concept of smart regulation and through the book tips on the relation between smart regulation and bioethics. To sharpen his theory this theoretical framework aims to model the two sections of Brownsword's theory. It is unclear whether the process of the regulator finding its ethical stance precedes the process of smart regulation or finding the ethical stance is part of the regulatory process. Taking into account that regulatory phasing provides the possibility of feedback also in the ethical stance of the regulator. Regulatory modes, pitch and range are likely to be influenced by the ethical stance of the regulator, but modes, pitch and range can also subtly change the ethical stance of the regulator. It is plausible to state that bioethics is part of the regulatory process and does not precede the regulatory process. Following this reasoning the matrix of the regulatory process for RFID implants in a matrix looks like table 6.

Principals of Smart Regulation and their characteristics				
Regulatory Modes	Hierarchical	Community	Competition	Design
Regulatory Pitch	Moral	Practical	Behavioral	
Regulatory Phase	First Phase	Second Phase	Feedback-loop	
Regulatory Range	Prohibition	Permission	Regulatory Mix	Regulatory tilt
Bioethical Stance	Utilitarian	Human Rights	Human Dignity	

Table 6: Parameters of Smart regulation including bioethics

Reading through the lines of bioethical triangle and smart regulation a certain pattern reveals the ethical stances to be linked and cross-linked to each other. Heldeweg (2018) states in his lecture that the theory of Brownsword (2008) relates the different ethical stances to the position of the regulator how to efficiently, effectively and legitimately create the desired impact of the regulation. The ethical stance is a point of departure which is subjected to exceptions for prohibition, dispensation, permission and command. Heldeweg's (2018) model is a summary of the theoretical framework and provides a searchlight in which the case of RFID implants will be approached. The ethical discourse and smart regulation as described above. The notion of the three ethical stances

moving along the legs of the triangle contributes as a model to approach the ethical discourse. Seeing the ethical positions not as a given but as a variable which can adopt arguments and ideas from other ethical positions maintains the ethical discourse to be a debate instead of a determined point of view.

The concept of smart regulation caters to the need of a lense through which regulation in a governance packed society can be approached. The clear and concise framework that smart regulation grants to the theoretical framework allows the theory to link the ethical discourse to the regulatory process. This can be seen in table 7. In this table on top we see the position of the regulation being negative, neutral or positive. As described in the introduction the red, amber and green light which respectively links whether something shall not be done, may be done or shall be done. In other words, whether something is prohibited, permitted or prohibited with dispensation or permitted i.e. the regulatory stances. From an ethical point of view with regard to disruptive technology and thus RFID implants one can say that human dignity will most likely state that it is prohibited, human rights will permit or prohibit is with exemptions so human rights will not be in danger and the utilitarian perspective will most likely allow it, because new technology offers new chances.

negative	neutral	positive
shall not do X	may (not) do X	shall do X
Prohibition	Permission/dispensation	Command
Dignitarian	Human Rights	Utilitarian

Table 7: Summary of bioethical triangle and smart regulation
Source: Heldeweg (2018)

However, throughout the chapter it is emphasized that the ethical positions and regulatory design choices cannot be seen as autonomous entities so cross-links must be made. Whenever regulatory range includes deviations from the default position the ethical discourses changes along with it and vice-versa which can be seen in figure 7. The regulatory range can deviate from the default position and thus all other parameters change with them. Table 7 and figure 7 complement each other in summarizing this chapter and show the searchlight or lense that this thesis will adhere to when analyzing the different states and the EU. It is a multilateral process in which nuances and positions are not set in stone but can change in shaping regulation.

3.0. Methods

3.1. Introduction

To research the ethical discourse between actors and regulators shapes relevant regulation this thesis will use several methodological instruments deducing the information from legal and secondary sources. Doing so will shed a light on the perception of the actors and the governmental institutions facing regulation on RFID implants. Furthermore, it will give an insight in the ethical discourse by using demographics from different states, looking at the framing and wording of the news items and governmental papers plus taking into account the background of the media releases. Via critical discourse analysis (CDA) the data is structured and put into a coding scheme to get a clear overview how the ethical discourse is shaped. For the EU it is chosen not to focus on Member States (MS) but on the EU as a whole because Member States and the EU share a responsibility in securing and safeguarding their population in different competences as is set out in TFEU article 4 and 6. On the contrary the US states have their own laws and regulations on RFID implants because the federal government has not created legislation on this topic.

3.2. Case selection

Selecting the right case to represent the problem stated must fulfill two objectives: first, it must be a representative sample and last it must have a useful variation on the dimensions of theoretical interest (Seawright & Gerring, 2008, p. 296). Next to that case studies know a certain methodological ambiguity, referring to a heterogeneous set of research design. To tackle this problem this thesis follows Seawright & Gerring (2008) in their definition of case studies: "the intensive (qualitative or quantitative) analysis of a single unit or a small number of units (the cases), where the researcher's goal is to understand a larger class of similar units (a population of cases)."(Seawright & Gerring, 2008, p. 296).

Addressing how regulation for RFID implants is created and which ethical discourse is part of the creation of the regulation demands a precise and demarcated selection of cases. Existing regulation in the US has been analyzed by Friggieri, et al. (2009), they analyzed regulation in nine different US state government legislation. Furthermore, the company Gallup executes opinion polls every year around the world with a variety of topics. These surveys also provide an insight in religious, political and economic topics on different states. The ethical discourse in certain states can be estimated on their demographic data. As seen in the theory, people who find themselves in the human dignity perspective will most likely be religious people since they reject invasive technologies in the body deriving from the 'playing-for-God' argument. Religious people also tend to be more conservative, clinging to traditional values from a moral code. On the other hand, liberals tend to be more progressive and see themselves stronger in the human rights perspective instead of the moral and more traditional human dignity perspective (Talaifar & Swann, 2019). From this research we deduce that people who live in a high innovative and industrialized states will most likely be more utilitarian, because it will be good for their state and local economy and society. Cross-referencing the results from the research of Friggieri, et al (2009) and the results from the surveys from Gallup leads us to select the following state governments as cases where existing regulation on RFID implants and a certain ethical stance, based on the theoretical framework, match each other. For every ethical stance a selection of two state governments has been made, unfortunately the selection of Friggieri, et al. (2009) cross-referenced with Gallup did not provide a right selection for the human rights perspective which is linked to liberal and progressive state governments. Therefore, Maryland was selected because of its progressive and liberal position throughout elections and because they recently passed a bill allowing RFID implants. Furthermore, the state of Wisconsin was selected for the utilitarian perspective, because the

controversial company Three Market Square (32M) has its headquarters and was one of the first companies to chip its employees on a big scale (Gillies, 2017).

State	Selection Criteria Gallup	Ethical Stance	Regulatory Stance
California	Liberal political position	Human Rights	Neutral
Maryland	-	Human Rights	Neutral
Georgia	Conservative political position/high religious community	Human Dignity	Negative
Missouri	Conservative political position/high religious community	Human Dignity	Negative
Ohio	High level of start-ups	Utilitarian	Positive
Wisconsin	HQ of 32M	Utilitarian	Positive

Table 8: Case-selection of US states

The other case will be the EU which currently has no regulation on RFID implants at all. Instead it has a number of advisory reports from different organization which promote or disapprove the use of RFID implants. Although the EU does not have concrete regulation on RFID chipping, the General Data Protection Regulation (GDPR) which aims to protect data from EU citizens and institutions, will be taken into account because it contains relevant information related to the topic of RFID implants regarding security and data-collection methods.

The selection of cases is made to compare US regulation to EU regulation and which lessons can be learned. Most important is role of the ethical discourse on RFID implants. This is a debate that occurs between actors and regulators which can be seen by the Gallup criteria and the relative ethical and regulatory stance. The ethical discourse will provide an insight in how regulation is shaped and has come to pass, or in other words, why some states permit, and other states prohibit RFID implants.

Next to the selection of the cases the availability of the data is also taken into account. The states that are selected have active regulation in their state laws which is necessary for the discourse analysis plus there are secondary sources which address the regulation. Primarily online articles from newspapers, blogs, tech-savvy articles, religious statements, documentaries and publications of companies provide an insights why certain states choose for this particular regulation. Furthermore, it is no secret that US politics are highly influenced by lobbyists which are often described by research-journalist. All this together forms enough material to recreate the ethical discourse on RFID implants in all these states.

Finally, to legitimize the choice of the cases, the cases are selected via critical case sampling (Patton, 1990). Critical case sampling is most important when resources are limited and the cases that are selected contribute most to the development of knowledge on a particular topic. Regarding RFID implants the cases are quite limited and do not always provide enough information to get a transparent insight in the debate that has been or is being constructed. The selection of the six states is validated because they have active regulation on RFID implants, a vital debate in secondary sources and represent the ethical and regulatory stances. Therefore, this is a valid selection that can be made in light of a critical case selection.

3.3. Data Collection

The data collection in this thesis in based on qualitative research of legal documents and secondary sources. Secondary sources can and may include, government reports, statistical records, advisory documents on policy, cabinet records, documentaries, videos from internet, newspapers, online articles and other various sources. Although this type of data collection might fall to the limitations of practicality, regarding time and accessibility, and bias of the researcher, Finnegan (1996) emphasizes that data collection from documents is often leading in academic research even if the research is posed as being quantitative research. Therefore, he also points out that just reading an article or other kind of source is not validating the data. When collecting this data, it is important to take a closer look at the source (politically biased, written in a particular context or even history of the author) how the data has come to existence and in which context. Taking multiple sources relating to one topic can thus lead to a deeper understanding how the regulatory process has taken place. Or as Finnegan (1996) states: "Sources have to be *interpreted* not just consulted" (Finnegan, 1996, p. 145).

The sample of documents in this research exists of 49 documents and videos consisting of 153 pages and 33 minutes and 44 seconds of video material. The sample includes legal documents, news items and YouTube videos. Appendix 1 includes a detailed overview of all the documents used for the data collection.

3.3.1. Data Collection of the US States

Collecting data for the six different states will be done via criteria which will be explained in this paragraph. First, the legal ramifications of RFID implants will be addressed with each state. Each state has a database with regulation which includes the history, amendments and voting behavior. These databases are the official databases for state legislation, these documents are relevant because they are the final product of the regulatory design process on the topic of RFID implants. In the future amendments because different stances of the state government may change the legislation via regulatory phasing. The documents are published between 2005 and 2018. This provides a timespan for each state to continue the search in secondary sources like the media and online sources which will reach from all documentation from 2005 and after. Because the legislation on RFID implants is primarily an amendment of existing labor laws the documents are relatively short existing of one or two pages. For the six states the current legislation can be found on these pages.

State	**Database**	**Legislation**	**Year**
California	https://leginfo.legislature.ca.gov	Senate Bill 362 CHAPTER 538	2007
Maryland	https://legis.wisconsin.gov/	Senate Bill 944	2018
Georgia	http://www.legis.ga.gov/en-US/default.aspx	Senate Bill 235	2010
Missouri	http://www.moga.mo.gov/	2011 Missouri Revised Statutes TITLE XVIII LABOR AND INDUSTRIAL RELATIONS Chapter 285	2018
Ohio	https://www.legislature.ohio.gov/	Senate Bill 349	2006
Wisconsin	https://legis.wisconsin.gov/	Assembly Bill 290	2005

Table 9: Overview of legislative databases of selected US states

The next step is the data collection for each state from other sources than the governmental actors. This is done via online searches in Google for news items and YouTube for videos with different search queries. In the light of consistency and relating to the timespan of the research, 2005-2019, the Google and YouTube searches are all the same with two variables; the state and the search terms. The search query would look like this in abstract ["STATE"] [SEARCH TERMS] (-ANIMALS) (RANGE: 2005-2019). The terms in brackets are the variables, meaning that the state, also between quotation marks to fix the term in the search, and the search terms would change with every search. The terms in parenthesis are fixed, which excluded all the articles about animals being chipped and the timespan ranging from 2005-2019. For each state we are looking for a minimum of three and a maximum of ten relevant news articles, YouTube videos, news items or other documentaries. This decision is made so the research remains feasible but most importantly to exclude articles that are copies of other articles, are non- or semi-professional articles from activist groups which only find a podium online and conspiracy articles. Because the search query is accurate and Google and YouTube search terms are selected on relevance with SafeSearch off, relevant articles are on the first pages of Google or YouTube. To see if articles are relevant articles are selected that show up multiple times using different queries. Furthermore, since the research is trying to shed a light on the ethical discourse in the regulatory process of RFID implants the articles or news items are preferably from sources within the state such as the Columbia Missourian in Missouri. However, because the sources are scarce it is also possible to turn towards national or international news agencies who cover local stories such as CBS Local, or the Californian branch of the catholic church. Appendix 1 includes a detailed description of the articles found.

Search queries used:

- ["STATE"] RFID implants humans -animals after:2005
- ["STATE"] microchip implants humans -animals after:2005
- ["STATE"] chipping humans -animals after:2005
- ["STATE"] RFID implants humans newspaper -animals after:2005
- ["STATE"] microchip implants humans newspaper -animals after:2005
- ["STATE"] chipping humans newspaper -animals after:2005
- ["STATE"] RFID implants humans video -animals after:2005
- ["STATE"] microchip implants humans video -animals after:2005
- ["STATE"] chipping humans video -animals after:2005

Relevant articles found:

State	**Amount of articles**
California	8
Maryland	3
Georgia	6
Missouri	3
Ohio	4
Wisconsin	7

Table 10: Amount of articles found for US States

Although the number of articles for some states might be on the low side, the search criteria did not end up with more relevant articles. Searching for other articles would with other search criteria did not give more relevant articles. Since that is the case, it can be said that the search criteria used were exhaustive for the relevant secondary sources.

Using CDA this research will see if the regulation is shaped by the discussion which is held in the different articles and interpretations of the articles will reflect how the ethical discourse has formed itself. Other search criteria in other databases came up with the same information which has led to the conclusion that RFID implants have been much more related to underground experimental groups who do not publish their work publicly. Nevertheless, the news articles and YouTube videos found come from reliable news sources. All the articles on conspiracy theories, New World Order theories and occult theories have been left out of the selection, reducing it to a small selection.

3.3.2. Data Collection of the European Union

Gathering the data relating to RFID implants in the EU follows an equal pattern as gathering the data for the six selected states. This information will most likely be richer in data because we are not comparing countries, but we are looking at the EU as a whole. This might seem like an unbalanced case selection but there is a difference: the US states they have autonomy over their labour and security laws, on the contrary the EU and its member states share their responsibility over this topic in article 4 and 6 TFEU. These articles describe the area of shared competence and the area where the EU can take action to support, coordinate and supplement the actions of the Member States. In addition, the EU rules via the principle of subsidiarity, which means that the EU might not directly create regulation for RFID implants but creates regulation that has implications for direct regulation on this technology. This will be addressed extensively in the analysis. Next to the judicial arguments, one of the aims of this research is whether the EU can learn from the already created legislation in the United States. Taking all these points together the focus on the EU is valid and will be backed up with examples from member states because of the shared responsibility.

First, it is necessary to select the relevant legal documents that exist in EU regulation to start of the legal ramifications within the EU. Considering that the ethical discourse on the relevant shaping of regulation for RFID implants contains several issues that can be raised the first type of legal documents are selected whenever they state something on the ethical discourse that is researched that includes ‘utilitarianism’, ‘human rights’, ‘human dignity. This results in the selection of the Treaty of Lisbon, containing the TEU and TFEU, the European Convention of Human Rights and the European Charter of Fundamental Rights. Second the selection of legal documents is made by using the terms ‘privacy’, ‘data collection’ and ‘data processing’ because they are the key words that could be found when scanning the articles that were already gathered from the US. For this selection the most relevant legal document was selected which was the GDPR, a contraction and improvement of other legal documents. These documents will be used to analyse the legal ramifications in the EU.

Next to the legal documents it is necessary to, just as with the US states, find data that is addressing the ethics and regulatory process of RFID implants in the EU. To consistently assess this search the search query used for the US states have been used, but instead of the US states variable, the variable is fixed now for the EU which looks like this:

Search queries used:

- "EU" RFID implants humans -animals after:2005
- "EU" microchip implants humans -animals after:2005
- "EU" chipping humans -animals after:2005
- "EU" RFID implants humans newspaper -animals after:2005
- "EU" microchip implants humans newspaper -animals after:2005
- "EU" chipping humans newspaper -animals after:2005
- "EU" RFID implants humans video -animals after:2005
- "EU" microchip implants humans video -animals after:2005
- "EU" chipping humans video -animals after:2005

For this research the search engines of Google and YouTube are used to come to the most relevant data, as earlier explained. For the European Union we have found thirteen relevant articles, documents and YouTube publications excluding the former mentioned legal documents. These news items are substantially more extensive than the US articles providing a good insight in the position of the Europeans regarding RFID implants. Furthermore, the articles are from different sources which all have a particular political preference. For example, The Independent is known for its leftist media-coverage whereas The Sun is more right-wing. The difference between the sources also shed an interesting light on the framing of RFID implants in Europe and will be taken into account in the analysis.

3.3.3. Concluding remarks on data collection

As mentioned before the sample of data for the six different states is per state quite small, however because the topic is quite new the relevant data selected for the states is coming from reliable news sources. There is an enormous amount of conspiracy, occult and far right and left documentation which is not relevant for this research because the sources and statements are not clear or interpreted to serve a thought process which is unbalanced and unreasonable. To ensure the data to be reliable, the data from these action groups, who serve mainly an underground internet niche, are not taken into account. The data collection for the EU was easier because there was less clutter in the articles which needed to be filtered from action groups. The selection of the data is legitimized through the clear search criteria in the most reliable search engine in the world up to now. Other search engines like Bing, DuckDuckGo, Yahoo and MSN search prove to be less reliable because of the amount of sponsored content. The systematic search queries provide other researcher to reproduce this research and makes the research falsifiable. Most probably in the future this data searching will come up with more relevant documents so the ethical discourse and the implications for the regulatory process will be better covered in press releases.

3.4. Data Analysis

The collected data is analyzed via critical discourse analysis (CDA). CDA is developed by academics like Fairclough Wodak and van Dijk in the 80's and has become a popular form of discourse analysis (Blommaert & Bulcaen, 2000). The goal of CDA is to analyze "opaque as well as transparent structural relationships of dominance, discrimination, power and control as manifested in language." (Wodak, as cited in Blommaert & Bulcaen, 2000). Van Dijk (1993) distinguishes himself from Fairclough and Wodak by not emphasizing the semiosis as element of the social process (Fairclough, 2013) but focusing on the discourse dimensions of power abuse and the injustice and inequality that results of it (Van Dijk, 1993). This form of CDA is more applicable to this study than the semiosis approach of Fairclough (2013) because this study aims to look at relationships between actors and regulators and the tensions that link, unlink and shape the different actors in the process of creating regulation.

CDA consists of the understanding of social power and dominance, the actors and regulators in the ethical discourse on RFID implants hold social power on different levels. Social power manifests itself in access to certain knowledge, wealth, income position, status, force and education. Social power also a tool for control, especially modern power is used as a cognitive, persuasive and manipulative control to change the minds of others in one's own interest (Van Dijk, 1993). Next to power there is the concept of social dominance which translates to *power abuse* "[…] that is, in breaches of laws, rules and principles of democracy, equality and justice by those who wield power." (Van Dijk, 1993, p. 255). The concepts of power and dominance are often organized and institutionalized which means that these forms of power are accepted by groups of people instead of merely one individual. This organization naturally forms the hierarchy of power.

Next to an analysis of power and dominance, CDA also allows us to look at a detailed description, explanation and critique of the ways dominant discourses indirectly influence socially shared knowledge, attitudes and ideologies (Van Dijk, 1993, p.258-259). The dominant discourse is this study focuses on the ethical stance of the 'power-holders' or dominant actors and how this discourse determines specific mental processes or facilitate the formation of specific social representation (Van Dijk, 1993, p.259). This includes semantic moves in, amongst others, media, vlogs, blogs and political speeches. CDA exists of a discourse structure and a social cognition structure which must be placed in a broader social, political and cultural situation, contexts, groups and overall power relations to shed a light on the result of the ethical discourse in RFID implants.

The CDA in this thesis addresses the role of text and talk in specific contexts and through the influence on the discourse on the minds of others with regard to ethics and regulation. The discourse in the different US states and in the European Union will be highlighted via various quotes and interpretations from the legal and media documents. This will shed a light on the influence of the ethical positions of the actors vis-à-vis the position of the regulator and how RFID implants are framed throughout the process of regulatory design.

To properly answer the research questions in this thesis the data analysis will logically follow the research questions to conduct a CDA. The research questions are a follow-up to answer the main research question and will be treated in this order. The model in figure 8 shows how the research questions follow each other to answer the main research question

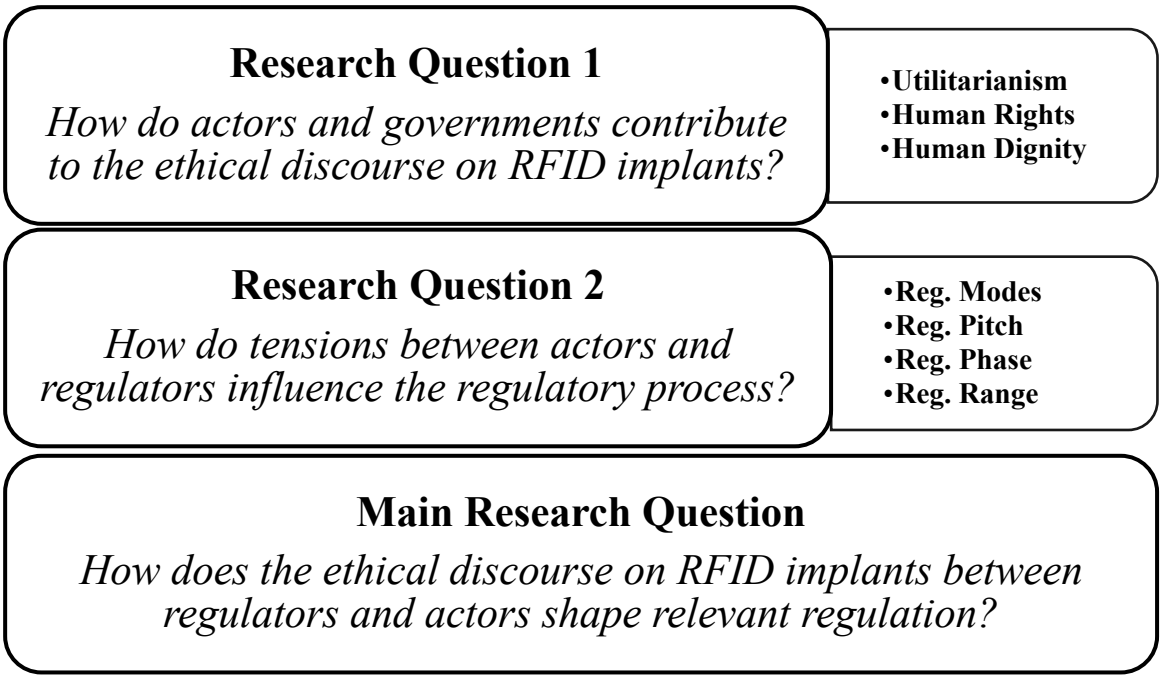


Figure 8: Schematic overview of sub questions and main research question

The first sub question: "*How do actors and governments contribute to the ethical discourse on RFID implants?"* takes a closer look on the ethical discourse that this study is trying to unravel. In these documents first the position of the regulator, the (non)-existing regulation and advisory reports are analyzed via the three different ethical stances derived from the theory of Brownsword (2008). As explained the regulator has a default stance towards the new regulation and can be influenced by the actors. Second the position of the actors will be taken into account to describe what the ethical position of the actor is. In this case study the background of the actor will be taken into account which will also be revealed from the CDA. In this study we are looking at wording, framing, phrasing, paradoxes and the message that an actor is trying to bring across. This might seem subjective but conducting the CDA in a proper way it is an objective analysis on how the actor phrases their sentences via the use of certain words.

For example, introducing RFID implants can be done in several ways such as: "RFID implants might be dangerous to our technological society." This sentence shows by the choice of the word 'dangerous' that the actor will most likely oppose the idea of RFID implants. On the other hand, the introduction could also start with this: "RFID implants might be the next technological revolution after the smart-phone." This sentence shows a form of progressiveness and tech-savviness via the wording of 'technological revolution' and the fact that they compare it with the smartphone which is accepted throughout the world.

The second sub question "How do tensions between actors and regulators influence the regulatory process" takes a closer look at the demographics of the state and the influence of certain actors in that state via their framing in the news. The demographics of a state, like voting behavior and the composition of the population regarding age, religion and financial status, can be of importance in the states when regulatory decisions. In the EU this relation and tension between actors and the regulator will primarily focus, not on the demographics, but how member states and European institutions advice and influence the regulators in the EU. For this research question also wording, phrasing, framing, paradoxes and the context of the actor will be taken into account.

Analysing the data from the data collection will be done via a coding scheme which will follow the structure of Table 6 in theoretical section. All documents will be coded twice, one time for the ethical position and one time for the position towards the regulatory process. Most probably these quotes will overlap, as mentioned in the theory a human dignity position will most likely prohibit RFID implants. However, as also mentioned in the theory, the positions are not as rigid as described. The default position has nuances and might have prohibition with permission or permission with dispensation. The coding scheme must be seen as a part of the interpretation of the documents, it is a guide to structure the documents and use the language as part of the unravelling of the ethical discourse. This form of deductive coding means that the words in the coding scheme are only part of the analysis. It is up to the researcher to take into account the context, the source and how the quotes and words are positioned in the text. The coding scheme is thus a tool as a first glance which might reveal paradoxes, ambiguities or oddities in the texts.

The coding scheme will be used as follows and can be found with all relevant data in Appendix II for the US states and in Appendix III for the EU

	Ethical Position			
Document	Utilitarian	Human Rights	Human Dignity	
#				
	Regulatory Modes			
Document	Hierarchical	Community	Competition	Design
#				
	Regulatory Pitch			
Document	Moral	Practical	Behavioral	
#				
	Regulatory Phase			
Document	First Phase	Second Phase	Feedback-loop	
#				
	Regulatory Range			
Document	Prohibition	Permission	Regulatory Mix	Regulatory tilt
#				

Table 11: Coding scheme abstract

The document numbers will follow the numbering and abbreviations used in Appendix I and will be referred to in text as such. Legal document will be followed by the abbreviation OLR. So, California's regulation will become CA-OLR and the first news item of California will be CA1 to clarify underneath a list with abbreviations:

- OLR: Official Legislation and Regulation
- CA: State of California
- MD: State of Maryland
- GA: State of Georgia
- MO: State of Missouri
- OH: State of Ohio
- WI: State of Wisconsin
- EU: EU press coverage and advisory reports

Finally, it is important to make a note, the positions and opinions from the secondary sources can be placed in the regulatory design categories but must be seen as a critique or futuristic look in the parameters described earlier. For example, the regulatory pitch, connecting with the regulatees, can be critiqued in a behavioural sense that people want the regulators to test RFID implants before they are widely available on the market. Whenever a statement from an article is thus placed in the regulatory design category it does not always relate to the regulation that has already been made but can also include a critique or addition for new regulation.

3.5. Conclusion

The methodology for this research consists of several methodological applications. First the critical case selection is made. With regard to this selection there are several adjustments made because the cross-reference between Frigierri, et al. (2009) and the Gallup database were not leading to the right case selection. As a result, the state of Maryland and the state of Wisconsin were added. Although, this might imply that the case selection was not properly executed the selection has been altered because of reasons considering time, applicability and practical execution. The selection made is valid because of the recent developments in Maryland and the position of 32M in Wisconsin describing them as industrial and innovative states adhering to the utilitarian argument.

Data collection in this research is done via Google, Youtube and the legislative databases of the different institutions. For the ethical discourse it is important to take into account the secondary sources to examine how this discourse is shaped through time. The different articles in various media outlets provide information how RFID implants are perceived and how actors frame their position in the media. In relation with the regulatory design it is important that next to the secondary sources also the legal en regulatory sources are included in the research. Using the regulatory databases of the different states and the EU and linking them to the ethical discourse the data collected will eventually show how the ethical discourse shapes relevant regulation in the field of RFID implants.

The data analysis method of critical discourse analysis contributes to the debate that this thesis aims to take a closer look at. By using critical discourse analysis via coding and interpretation of the background of the sources the ‘power-play’ in which actors and governments might find themselves can be revealed. Using CDA will unfold the relationship between government and actors and show how the ethical discourse relates to the regulation made or to be made.

4.0. Analysis of the US States and the EU

4.1. Introduction

This thesis aims to unfold the ethical discourse between regulators and actors and how this discourse is contributing to the shaping of regulation for RFID implants. The ethical discourse is analysed in six different US states and in the EU. This chapter consists of an approach in which the critical discourse analysis will show how the ethical position of actors reflects on the regulatory process. The chapter has a fixed structure: first the demographic data from the Gallup database and the Census database will be presented, second the legal ramifications of the created regulation will be addressed, third the ethical discourse and reflection on the regulation will be described and finally every state gets a summary of the most important findings. The analysis will refer to the coding scheme using the codes in Annex II and III and will link to the theoretical framework.

4.2. The State of California

California is known for its progressive and liberal stance toward innovation and new tech-savvy developments. Not surprisingly California is also home to the innovative region of Silicon Valley. An area where big technology companies such as Google, Adobe, Apple, EA, Facebook and Twitter have their roots or HQ. Looking at the demographics from Census.gov (2019) and Gallup (2019) it can be concluded that California has a high number of Democrats and small number of Republicans. Furthermore, the median household income is approximately $10.000 higher than the median household income in the US (being $57.652). The religious population is quite evenly distributed with a total of 59% of the population describing themselves as very religious or moderately religious and 41% as non-religious.

Demographic details

Population (2018)	39.557.045
Median Household Income	$67.169
Democrats	51% of the population
Republicans	30% of the population
Liberal	30% of the population
Conservative	27% of the population
Very Religious	29% of the population
Moderately Religious	30% of the population
Nonreligious	41% of the population

Source: Census.gov, 2019; Gallup, 2019

4.2.1. Legal Ramifications on RFID implants

California finds itself regulatory in a position that the government has prohibited RFID implants with permission whenever there is informed consent. This paragraph will discuss the senate bill in more detail.

The Government of California was the third to implement regulation on RFID implants (Shtutl, 2007) and despite the progressive agenda that they are known for, the regulation in Senate Bill No. 362 (2007) has prohibited " a person from requiring, coercing, or compelling any other individual to undergo the subcutaneous implanting of an identification devices" (S.B. 362, 2007, p.1). There is a permissiveness to this regulation because the bill states that "'Require, coerce, or compel', includes physical violence, threat, intimidation, retaliation, the conditioning of any private or public benefit or care on consent to implantation…" (S.B. 362, 2007, p.3, art. 52.7-C1H4) which means that if someone consents to be implanted with a microchip without force or other kinds of intimidation the action is legal. A person according to the bill is: "Person" means an individual, business association, partnership, limited partnership, corporation, limited liability company, trust, estate, cooperative association, or other entity.(S.B. 362, 2007, p.2, art. C1H2) Therefore, we can state that regulation in California knows a structure of prohibition with permission and thus finds itself in the regulatory mix category. There are

no known court cases in California that have acted upon this bill. The Bill was voted 28-9 votes in favour.

4.2.2. Ethical Discourse shaping Californian regulation

The ethical discourse in California is dispersed over a human rights and utilitarian view. The actors and the government consider RFID implants as a convenience to life but also have their doubts with regard to privacy and data protection. However, the Californian ethical discourse tends to reduce human dignity statements as religious and conservative ideas which do not find a place in Californian society.

The Senate Bill of California starts with addressing the human rights perspective by using the phrase 'right of protection from bodily restraint or harm' and uses the terms 'liberally construed' 'protect privacy' and 'bodily integrity' these terms all refer to rights in the Universal Declaration of Human Rights (UN General Assembly, 1948). Although the intentions of the bill relate to human rights, the media covering these topics do not completely agree with the intentions of the government. Concerning Human Rights, the media often has its question with "[…] privacy and hacking concerns" (Watts, 2016), "[…] privacy breaches" (Shtuhl, 2007) and a "[…] loss of privacy" (Trager, 2019). Furthermore, the documents from the actors point out that there is a 'fear' that in the future RFID implants will be so ubiquitous that "The social stigma of being chipped will have faded to the point that people are routinely chipped." (Johnson, 2017) and that 'government surveillance' for health risks or societal risks will increase because of this new technology. This would 'deprive' California citizens of their rights to privacy and freedom because governments and companies could track all of your movements like an 'Orwellian dystopia'. Opponents of RFID implants therefore state that "There's no lying, cheating, hiding or ducking […] It's Big Brother in a tiny chip." (Trager, 2019).

However, the human rights argument is not playing the first fiddle, most of the arguments come from the utilitarian perspective which is dominated by stating that RFID implants are approached as a 'convenience in life' or 'improvements in life' in this 'technological society'. The utilitarian argument is linking the convenience in life to the fact that we should "[…] view implants as a way to interact seamlessly with a technological world […]" (Johnson, 2017). Utilitarianism does not only link to pro's and con's in life when it comes to RFID implants. They also agree that there are downsides to the new technology regarding privacy and government surveillance, Tim Cannnon, cofounder of Grindhouse Wetware, an experimental chipping company, underlines that "We need to stop pretending that we are perfect and the pinnacle of evolution." (Johnson, 2017). Using this phrasing Cannon makes a statement how evolution and time has evolved us as mankind up to the point that we are now in technological prosperity. There has always been fear of new technology and privacy issues, for example the rise of the internet or the rapid increasing use of smart-phones, tablets and the wireless network. With these technologies people also fear for their privacy and rights but eventually government has coped with these concerns. On top of that, multiple times it is stressed that RFID implants "[…] are scanned at close-range from a few feet to a few inches." (Shtuhl, 2007) which nullifies the argument of GPS tracking by companies or governments, also one of the big concerns. Finally, the utilitarian view addresses the benefits of practicalities, such as using it for a VIP entrance for a night club, finding people with Alzheimer's disease who have left the safe environment and even using it for tracking people who are being kidnapped.

The human dignity perspective is more or less absent in the actor's view. The article from Catholic.org mentions extensively how RFID implants is related to "[…] Mark of the Beast as foretold in the book of Revelation, and the trend towards microchipping is a sign of the last days." (Connolly, 2017). A more subtle reference is provided from the utilitarianist approach which takes account of how RFID implants might seem like 'hubris', the vanity and overestimation of mankind's capabilities. Other arguments from a human dignity perspective refer to Orwellian societies again. This is closely linked

to the human rights view that governments and companies, the powerholders, will be able to follow, track and punish citizens when they are not behaving like they should do. However, even the Christian newspaper underlines that this is a dystopian futuristic idea which might not even come true (Connolly, 2017).

The ethical discourse in California leans strongly towards a combination of utilitarianism and human rights. The wording and phrasing in the articles tend to have a positive stance towards RFID implants using words as 'convenience', 'improvement' 'help' and 'interesting'. Furthermore, they are addressing the benefits of RFID implants like medical, safety and security. The arguments against RFID implants in the articles link to 'privacy' 'rights' and 'security' these perceived rational arguments are quickly followed by arguments why this might be wrong or show that the technology has not been developed up to that level that the problems of 'hacking' or 'breaching' a chip will be possible. The actors in the articles also tend to show that they have an ethical compass when it comes to this 'intrusive' technology and state that regulation protecting citizens is used as 'scare-tactics'. The ethical discourse is California tends to point out the positive effects of RFID implants and tends to shove the implications and concerns a bit aside because of the infantility of the technology.

Concerning legislation, the ethical discourse the topic of RFID chipping has some improvements for the government to make. Overall, the regulation is perceived by actors as 'pre-emptive' and 'fear-mongering, even regulators themselves have called it 'pre-emptive' (Shtutl, 2007). However, in California it can be seen that the regulation did provide in a debate about this new technology in which human rights proponents are stating that government should provide in safety guarantees which addresses the regulatory pitch in which, because of practical reasons the government is able to legitimize itself to create this regulation (Johnson, 2017; Shtuhl, 2007; Watts, 2016). The different points of view, especially between the utilitarianist actors and government officials cannot explicitly be derived from the data. Every actor and government official acknowledges that this new technology is implemented on a very small scale and has not reached any cause of trouble or reason for the actors and the State of California to extend or develop further regulation on this topic. The government has protected their citizens in the first phase of regulatory phasing and will act as the technology develops further stimulating the development of the utilitarian and human rights perspective which is to be expected taking into account the demographics of the State of California.

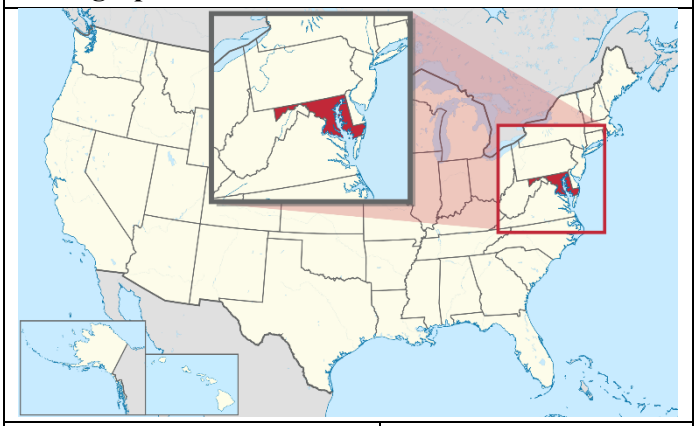
4.2.3. Summary

- The Senate Bill 362 prohibits forcing RFID implants from one person on another. However, it is possible to have an RFID implant if there is consent between the one chipping and the one being chipped. This reasoning places the regulation in the Regulatory Mix category with the construct of prohibition with permission.
- The ethical discourse is primarily shaped by utilitarianist views with critique from the human rights and human dignity perspective in which the human rights perspective is dominating.
- The utilitarian proponents frame their ethics in the form of convenience of life, improvements in life and connecting with the technological society.
- The critique on this view is concerned with privacy, security and government surveillance.
- Actors do not actively influence the shaping of regulation but do warn for fear-mongering tactics and address the state government to provide safety standards regarding RFID implants addressing the regulatory modes and regulatory pitch.

4.3. The State of Maryland

The State of Maryland is one of the smallest states in the United States. It is known for its variety in topography varying from dunes in the east to grassy lands in the west. The biggest city in Maryland is Baltimore and is known for its role in the civil war of the United States where it had a key role as a seaport at the famous Chesapeake Bay. The painting of the bombardment of Fort McHenry inspired the national anthem of the United States 'The Star-Spangled Banner'. Maryland is further known as a state where a big amount of its residents works in Washington D.C. which is bordering Maryland. This also explains the high Median Household Income which is roughly $20.000 higher that the US Median Household Income because of people having high functions in the political arena. Looking at the demographics Maryland has a high number of Democrats and a small number of Republicans which is most likely due to the influence of Washington D.C. Maryland has a one-third division when it comes to religion making it one of the more average religious states in the US.

Demographic details



Population (2018)	6.042.718
Median Household Income	$78.916
Democrats	56% of the population
Republicans	28% of the population
Liberal	29% of the population
Conservative	28% of the population
Very Religious	36% of the population
Moderately Religious	32% of the population
Nonreligious	33% of the population

Source: Census.gov, 2019; Gallup, 2019

4.3.1. Legal Ramifications on RFID implants

Maryland finds itself considering regulation in the same position as the Californian government. They have prohibited RFID implants whenever this takes place without informed consent. They lack, however, the ethical notes in the beginning of their regulation, this paragraph will include a more detailed description of their bill.

The Government of Maryland has been the last government up to now to create regulation on the topic of RFID implants. Senate Bill 944 (2018) reads that: "A person or an agent, a representative, or a designee of the State or a local government may not require, coerce or compel an individual to undergo the subcutaneous implanting of an identification device." (S.B. 944, 2018, p.3, art. 20-1902A) placing themselves in the regulatory mix category. Identical to the State of California there is a permissiveness in this bill because it also states that "'Require, coerce, or compel' includes the use of physical violence, threat, intimidation, retaliation, the conditioning of any private or public benefit, including employment, promotion, or other employment benefit, and any other means to cause a reasonable individual of ordinary susceptibilities to acquiesce when the individual otherwise would not." (S.B. 944, 2018, p.2, art. 20-1901D). This means that there is an option, whenever there is consent to be implanted with an RFID implant. They also state in their bill that: "'Identification device', does not include an item, an application, or a product that is used in the diagnosis, monitoring, treatment, or prevention of a health condition" (S.B 944, 2018, p.1, art 20-1901B1). Excluding the medical discussion from this bill. The bill of Maryland thus knows a structure of prohibition with permission. There are no known court cases addressing this regulation. The bill was voted 45-0 in favour.

4.3.2. Ethical discourse shaping Maryland regulation

Maryland provides an inclusive ethical discourse in which the actors are divided along the bioethical stances. To state that the ethical discourse is leaning towards a particular stance is hard, in this case it is important to note that the actors are criticizing each other instead of the government. This results not in the actors contributing to the regulatory process but to an active debate in the ethical discourse.

Standard Maryland regulation has no notion of any particular ethical stance in their introduction of bills like California has. Therefore, the position of the regulator, in this case, is unknown. We can only speculate what ethical background moved the members of the Senate to pass this bill unanimously. Taking a closer look at the amendments and the analysis there is a House Bill (H.B. 1401, 2008) which has received an unfavorable support. This bill almost stated the exact same text but was rejected in the House because of 'Unfavourable Report by Economic Matters' (H.B. 1401, 2008). To clarify this bill was brought to the House in March 2008 at the point that the Economic Crisis of the '00s was already going on. Most probably the bill was voted away and not pushed through to the Senate because other topics were at that point more urgent that the case of RFID implants. Eventually the bill again was proposed to the House and the Senate and was accepted in 2018.

The media coverage in Maryland was not as extensive as it was in California but tried to provide an objective view on RFID implants as Carter (2017) states "Count me among those who aren't readying for the Apocalypse just yet, but who is also a little freaked out by the concept of being embedded with a microchip." In this sentence he is referring the religious take on the Mark of the Beast on one hand and to the Wisconsin 32M who chipped their employees. Professor DesJardins of the University of Maryland says that chips are only for convenience and nothing else, they are badly secured and personal data can be hacked quickly. Furthermore, she makes a point about the voluntary agreement, whenever you go to a company for a job interview and they ask you whether you are willing to be chipped, the question is whether the chipping process is voluntarily or not. (Giusti, 2017) The professor in this article is asking the human rights question relating to, for example, your right to govern your own body and right of not being discriminated against. Second the 'privacy' issue is also mentioned by professor DesJardins. She describes that people who do not understand technology will be more likely to be chipped than people who do understand technology and thus infringes on the right to be informed what is done with your data. (Giusti, 2017).

Still, the actors in Maryland also see benefits from the fact of being chipped, Carter (2017) selects three people who might not be able to decide whether or not they need to be chipped: children, the elderly and prisoners. He sees 'practical merit' and 'benefits' in these forms of chipping to monitor with children who disappear, people with Alzheimer's disease and child molesters.

Although Carter (2017) tries to frame his article as objective as possible, through the lines one can read that there is some resistance as he states that microchipping baby's will come and is already happening but not without a political fight. This turns him more to a human dignity approach because it is a somewhat conservative statement to make something a 'political fight' instead of, for example, a 'constructive debate'.

Regarding the ethical discourse it is hard to pinpoint the actors and government towards a certain view. The government has a more human rights standard protecting workers from being chipped linking them to a moral position in regulatory pitch, they admit to have created proactive regulation which places them in the first phase of regulatory phasing (Loos, 2018) but it is not clear why they think this is so important. The actors in Maryland are also dispersed over the bioethical triangle, professor DesJardins is questioning the human rights and human dignity of RFID implants whereas journalists like Carter (2017) phrase it as 'practical merit' but also 'political fight' which places him in the utilitarian and human dignity side.

As to be expected, because the law is new and the Maryland State senators are stating that it is pro-active law, there is no influence of the ethical debate between actors and government in the regulatory design. Most of the critique from actors is not aimed at the government but more at the individuals who are having an RFID implant or companies who are doing this to their employees. This quite remarkable, in a State that is known for a progressive stance and highly educated people that the ethical discourse fails to see a bigger picture when it comes to government regulation. Noticeable is the question why the government should make regulation on this topic because there are no direct known threats in Maryland. However, the actors only criticize each other and leaving this question out of the picture. The reasons for this decisions are unknown and reasons that can be thought of would be too implicit for this research.

4.3.3. Summary

- The Senate Bill 944 prohibits forcing RFID implants from one person on another. However, it is possible to have an RFID implant if there is consent between the one chipping and the one being chipped. Furthermore, the bill explicitly states that medical devices are excluded from this regulation. The regulation in the Regulatory Mix category with the construct of prohibition with dispensation.
- The ethical discourse in Maryland is dispersed. The government of the State of Maryland tends to lean towards the human rights perspective. Whereas the actors are divided over the spectrum.
- Actors do not actively shape regulation and do not warn or recommend the government. They merely criticize each other but not on a harsh note.

4.4. The State of Georgia

Georgia is a highly religious state and famous for the civil rights movement which was led under Martin Luther King Jr. Georgia has a controversial past regarding slavery and civil rights for black people. Today Georgia is known for its important infrastructural position in the economy of the US. Furthermore, Georgia is known for its high number of religious inhabitants, 77% of the Georgians are religious of which the majority is protestant. The Median Household Income lies somewhat beneath the US Median Household Income which might be explained because of its infrastructural position. Dockworkers and truckers are most of time not the highest paid people in the workforce. Georgia knows an almost even distribution of democrats and republicans and is often known as swing-state during the presidential elections.

Demographic details

Population (2018)	10.519.475
Median Household Income	$52.977
Democrats	42% of the population
Republicans	40% of the population
Liberal	21% of the population
Conservative	36% of the population
Very Religious	44% of the population
Moderately Religious	33% of the population
Nonreligious	23% of the population

Source: Census.gov, 2019; Gallup, 2019

4.4.1. Legal Ramifications on RFID implants

The government of the state of Georgia has implemented regulation which prohibits RFID implants when there is no informed consent, so a structure of prohibition with permission. It is noticeable that a person in Georgia is always held accountable for the actions instead of a company or organization. This is not the case in other states.

The Government of the State of Georgia implemented regulation on RFID chipping in 2010 via Senate Bill 235 (2010) which states that: "No person shall be required to be implanted with a microchip." (S.B. 235, 2010, p.1, art. 16-5-23.2b) placing them in the Regulatory Mix category. As with the other states there are exemptions on this regulation which lies in the word 'require' which means that: "Require includes physical violence; threat; intimidation; retaliation; the conditioning of any private or public benefit or care on consent to implantation, including employment, promotion, or other benefit; or any means that causes a person to acquiesce to implantation when he or she otherwise would not." (S.B. 235, 2010, p. 1, art. 16-5-23.2a4). Like the government of Maryland, also Georgia, includes a medical exception but is not as extensive as the Maryland bill. The Georgia bill excludes only 'pacemakers' from the definition of 'microchip' and other actions will be regulated under the authority of the Georgia Composite Medical Boards. Furthermore, Georgia also provides an interesting definition of the term 'Person' the bill states: "'Person' means any individual, irrespective of age, legal status, or legal capacity" (S.B. 235, 2010, p. 1, art 16-5-23.2a3). Which means that contrary to other bills the individual is always held responsible instead of a company or governmental institution. The bill of Georgia thus knows a structure of prohibition with permission. There are no known court cases addressing this bill. The bill was voted 47-2 in favor.

4.4.2. Ethical discourse shaping Georgia regulation

Georgia finds itself in the position in where a subtle debate between human rights and human dignity takes place. Because this debate is also part of the regulatory process the actors and government find themselves on the same page. The actors tend to criticize each other instead of the regulation.

Against the expectations of the demography the actors in the state of Georgia has slight hints towards the human dignity position but find themselves strongly in the human rights spectrum with a hint towards human dignity. The news item on YouTube from the Chattanooga Times Free Press (2014) describe the chip implant in their school card, so not subcutaneous, is making notions of 'tracking', other articles use the phrasing 'violation of someone's privacy' 'rights to privacy' 'rights to bodily integrity' 'right to say no to foreign objects in our body'. (Cattanooga times free press, 2014; Underhill, 2010). Especially the last choice of words is interesting because there is no international, national, state or local law that has this right. Continuing with human rights also governmental actors are stating their support from a human rights view. Senator Chip Pearson stated that "By passing this bill, we are sending the message that Georgia is committed to upholding its citizens' constitutional rights and protection of their person" (Tagami, 2010). This phrase actually exists of mix of human rights and human dignity. First the senator is referring to constitutional rights which lies in the human rights discussion and follows his statement with the protection of the person. Protection of their person is a strong moral statement, especially because of the word 'their', which implies that the person has a moral value and hints towards the importance of the statement of Fukuyama (2002) that human life has value and should be protected and respected. Overall the actors in the interviews are quite positive about the developments of the regulation and do not necessarily oppose the technology of RFID implants.

The nuanced debate in the human rights perspective fades when looking at proponents and critics. Pam Dixon from the World Privacy Forum states 'It's an illogical use of the technology. It just doesn't make any sense." (Zaleski, 2016). In the same article Michelle De Mooy, deputy director of the Privacy and Data Project at the Center for Democracy and Technology states "If RFID is combined with location, you'll have a good idea of what somebody is doing at any given time. We become the beacon." (Zaleski, 2016). Between the lines it is possible to read that Dixon is more concerned with the utilitarianist perspective because she sees no practical implication for the RFID implant and De Mooy is referring to the threats that might happen when tracking and GPS location becomes available hinting to the human rights debate as a critic in which the government or companies might be able to track you.

Moving further to the human dignity debate there are religious groups who frame RFID implants as, in many other cases, 'the mark of the beast' and refer to the scripture in the book of Revelations in the Bible. Mark L. Cole, a senator in Virginia, did his research in the state of Georgia and states that 'privacy' is his main concern but that the technology can be perceived as the mark of the beast (Edwards, 2010). With this statement the senator shows that he is divided between the human rights and human dignity debate in which he makes the human rights argument dominant. Other religious sources like the Christian Broadcasting Network also mention the mark of the beast and the book of Revelations but choose to emphasize the amount of people who are chipped: "Right now, thousands of people in countries like Germany and Sweden have already opted to get chipped for easier financial transactions." (Hurd, 2018). Although the number is around 3500 in Germany and 4000 in Sweden it is a small blip compared to the total population. This exaggeration of numbers typifies the debate on the utilitarian and human dignity perspective, contrary to the subtle debate on human rights and human dignity.

From a utilitarian perspective Amal Graafstra CEO of Dangerous Things, a Georgia based chip implant company, uses words as 'helping people' 'upgrading your life' and 'install chips' instead of 'implanting' or 'injecting'. In the article of Zaleski (2016) Graafstra is framed as a person who wants to help the world by making life more 'convenient' and 'accessible'. Graafstra also rejects the privacy

concerns by stating that: “It’s like a chalkboard: You can write whatever you want on it, but if nobody can read the language it’s useless” (Zaleski, 2016).

The ethical discourse in Georgia has a tendency towards a balance between human rights and human dignity in which the human rights approach takes the upper hand. The actors in the articles show a high relation towards the human rights approach using terms as ‘privacy rights’, ‘right to bodily integrity’ and ‘uphold constitutional rights’ but on the other hand they are also referring to some Christian literature and the importance of ‘their person’. Through the lines of the articles and the statements of the interviewees it can be deduced that there is no negative stance towards RFID implants, but some questions remain that most of the time are answered via the realm of technicalities. On the other sides of the ethical discourse there are the utilitarianist who are framed as ‘helping the people’ and ‘making life more convenient’ which are criticized by experts from a utilitarian and human dignity perspective in which the statements are framed as ‘making no sense’ and ‘becoming the beacon’. These arguments are disproved by the utilitarian and human dignity proponents and do not have much implications in the ethical debate. It is notable that the discourse between Georgia actors is quite subtle and finds common ground between the human rights and human dignity perspective.

The influence of the ethical discourse on RFID implant regulation in Georgia from 2010 is also identified by the subtle inclinations that are made. In regulatory pitch, the moral pitch is underlined by the reaction of Senator Pearson stating that the government is protecting the people and ‘their person’ as a hint to morality and the Christian values. The actors in Georgia do not seem to criticize the government but tend to criticize each other. Therefore, it can be stated that in Georgia there are tensions between the actors disagreeing with each other but do not show warnings, incentives or other interference from the government. The state government also states that the current regulation is pro-active regulation and thus presents itself in the first phase of regulatory phasing which leaves the debate open for discussion when the technology develops.

4.4.3. Summary

- The Senate Bill 235 prohibits forcing RFID implants from one person on another. However, it is possible to have an RFID implant if there is consent between the one chipping and the one being chipped. The bill explicitly states that pacemakers are not part of this bill and other medical action will be regulated under the authority of the Georgia Composite Medical Boards.
- The ethical discourse in Georgia is a subtle debate between human rights and human dignity which might be addressed to the demographics of Georgia. A high religious community with a swinging basis of Democrats and Republicans.
- Critique on this discourse comes from strong opponents of the technology regarding privacy and pragmatic perspectives. These views are kept in balance by proponents in the utilitarian perspective who debate the statements of the opposers.
- The ethical discourse does not directly shape the regulatory process, the actors and government in Georgia find each other at the same base of human rights, human dignity and the regulatory mix between the two.

4.5. The State of Missouri

Missouri is famous for multiple reasons. First it was the state which was key in westward expansion of the USA being part of the Oregon Trail, Santa Fe Trail and California Trail. Second it is the state which has brought forth some famous Americans like Harry Truman, Mark Twain, Walt Disney and Chuck Berry. The largest city in Missouri is Kansas, which is known for the Wizard of Oz, when Dorothy leaves Kansas and for the quote in the Matrix: "Buckle your seatbelts Dorothy. Because Kansas is going bye bye." Looking at the demographics Missouri is an average state with a slightly higher number of Republicans than Democrats and logically a higher number of conservatives than liberal inhabitants. The religious distribution is quite even with one third of the population representing each of the religious variables. The Median Household Income lies somewhat beneath the US Median Household Income which can be explained because of the agricultural and mining activities in Missouri. It is important to note that there was just a small number of sources for Missouri which might lead to omitting this state from the analysis. However, with regard to the research it is meaningful to show that, although regulation is made the topic might just not find its focus in local or state media and thus the ethical discourse is lacking in some states where regulation is created.

Demographic details	
	
Population (2018)	6.126.452
Median Household Income	$51.542
Democrats	38% of the population
Republicans	45% of the population
Liberal	21% of the population
Conservative	38% of the population
Very Religious	39% of the population
Moderately Religious	30% of the population
Nonreligious	32% of the population
Source: Census.gov, 2019; Gallup, 2019	

4.5.1. Legal Ramifications on RFID implants

The government of Missouri has prohibited RFID implants with permission it remains unclear how this regulation has come to pass.

The government of the State of Missouri implemented state regulation in 2011 and decided to include it in the Labour and Industrial Relations chapter of state law. Therefore, the Senate Bill that needed to be passed was shorter than the other bills because it became part of existing law. In Chapter 285 Employers and Employees General, Section 285.035 the Senate agreed to implement the following statement: "No employer shall require an employee to have personal identification microchip technology implanted into an employee for any reason." (Missouri Revised Statutes, 2011, §285.035-1). The bill also defines what 'personal identification microchip technology means' "[…] a subcutaneous or surgically implanted microchip technology device or product that contains or is designed to contain a unique identification number and personal information that can be noninvasively retrieved or transmitted with an external scanning device (Missouri Revised Statutes, 2011, §285.035-2). It is unknown what Missouri regulation means with 'require' but deducing from other states it addresses that a RFID implant may not be inserted into someone without consent or under force. The addition to the Labour and Industrial Relations chapter of state law is an assembly of House Bill 1883 and House Bill 2041 from 2008. However, further analysis of these House Bills could not be made because the website of Missouri legislation does not allow IP-addresses from the EU to enter the archives.

4.5.2. Ethical discourse shaping Missouri Regulation

The sample of sources for Missouri was too small to make a proper analysis of the ethical discourse and possible implications it can have on the regulatory design.

The data for the ethical discourse for Missouri is quite marginal as not much attention has been given to the issue in the state and local media in Missouri. Before the analysis is written it must be noted that no ethical discourse, neither a proper analysis of the influence of the discourse on RFID implants can be made. The gathered data does not provide enough material to address any academic insights.

The actors in Missouri have a slight tendency towards the human dignity approach in ethics. For example Katherine Albrecht, an expert in privacy and RFID states that: "The people who oppose it [RFID implants] don't understand how real the threat is, and the people who are gung-ho don't understand it's power."(Blank, 2008). Another journalist from the Kansas City Star analyzed tweets in Missouri concerning the RFID implants which refers to the Belko Experiment, a horror movie from 2016 and ideas of Orwellian practices referring to the novel '1984' (Londberg, 2017). The journalist also underlines the benefits of RFID implants referring to easy access to pay in vending machines and other applications in which you do not need a wallet (Londberg, 2017).

The ethical discourse in Missouri cannot be described because of the lack of data from the actors and from the government. From a practical point of view this state is taken into account because of its median demographics and because of having law implemented that prohibits RFID implants. From a research point of view this state raises questions to the debate. For example, why is media coverage that low while in other states media coverage is substantially higher. Missouri is a thought-provoking case because that what not has been said and written down might have a reason behind it. This is not hinting towards any conspiracy of some kind but makes it compelling to perform further research in the state itself why the media coverage is this low. Although this might be compelling there is always just the option that the topic is not covered because it does not speak to the minds of Missouri citizens.

4.5.3. Summary

- The state of Missouri has a bill passed in the senate which became part of the Employer´s and Employees law. In this bill it is stated that people are prohibited from chipping an individual without consent.
- The sample of sources for Missouri was too small to make a proper analysis of the ethical discourse and possible implications it can have on the regulatory design.

4.6. The State of Ohio

Ohio is a midwestern state famous for its long history with the native Americans in the US. The biggest city of Ohio is Columbus followed by Cleveland and Cincinnati. The state is known for its manufacturing and financial activities with Procter & Gamble as one of the biggest companies in the state. Looking at the demographics Ohio has a lot of resemblance with Missouri. Ohio has an almost equal distribution of Democrats and Republicans in its population. During presidential elections Ohio is often one of the Swing States. The number of voters that identify themselves as Conservatives is higher than the Liberal voters which can be explained because of the high number of inhabitants that identify themselves as religious. Two-third of the inhabitants identify themselves as religious while only one-third identifies as nonreligious. The Median Household Income in Ohio is somewhat lower than the average household income in the US which can be explained due to the big manufacturing branch in Ohio. Ohio is selected in this research not to compensate for Missouri but because of the high level of industry in this state. For the research this state is selected because it most likely would have a utilitarian perspective on RFID implants since it high in industry

Demographic details

Population (2018)	11.689.442
Median Household Income	$52.407
Democrats	41% of the population
Republicans	42% of the population
Liberal	21% of the population
Conservative	35% of the population
Very Religious	37% of the population
Moderately Religious	30% of the population
Nonreligious	33% of the population

Source: Census.gov, 2019; Gallup, 2019

4.6.1 Legal Ramifications on RFID implants

The government of Ohio has a regulation which prohibits RFID implants with permission when there is informed consent. The bill only addresses the employer-employee relationship and does not include medical practices.

The Government of the State of Ohio implemented regulation on RFID chipping in 2006 via Senate Bill 349 (2006) and is quite concise in its phrasing of the regulation which states: “No employer shall require an employee of the employer to have inserted into the employee's body a radio frequency identification tag. Any employer who violates this section shall be subject to a fine of not more than one hundred fifty dollars per violation.” (S.B. 349, 2006, p.1, sec. 4113.81). The bill further does not make any exceptions but only clarifies what a RFID implant is and what an employer is. Via the phrasing of the regulator in this sense it is not necessary to make exceptions because the word ‘require’, as can be seen in other regulation, provides room for implanting a RFID implant whenever this is done under informed consent. Furthermore, keeping it entirely restricted to the employer-employee relationship the medical practices of subcutaneous implants do not apply to this bill. We can place the bill of Ohio in the regulatory mix category and knows a structure of prohibition with permission. There are no known court cases addressing this bill.

4.6.2. Ethical discourse shaping Ohio Regulation

The ethical discourse in Ohio is shaped by a small number of actors who are willing to voice their ethical concerns. This leads to a position in the human dignity approach which can be explained from the demographic data.

The government of Ohio does not have a clear ethical opinion on the matter of RFID implants. The analysis of the documents for voting and the process were unfortunately not available, however the documents found online in the media do shed a light on the stance of Ohio towards RFID implants. Ohio has a strong human dignity stance towards RFID implants using terms for the technology as 'nonsense' 'remote control' and morality being compared to companies with a bad reputation. Katherine Albrecht is the founder and director of Consumers Against Supermarket Privacy Invasion and Numbering (CASPIAN) and co-writer of the book 'Spychips: How Major Corporations and Government Plan to Track Your Every Purchase and Watch Your Every Move' she has formed a strong opinion on the 'dystopian' future of RFID implants in baby's to prevent Baby snatching which she describes as a 'diaper full of nonsense' (Corsi, 2008). She has been given a full front-page article on WorldNetDaily where she can talk about her opinion on RFID implants. WorldNetDaily is described as far right and politically conservative which explains the negative stance and one-viewed vision on this topic. She closes her rant with "People in the United States don't want the human implantable RFID chips VeriChip thought was going to be the core of their business." (Corsie, 2008). Verichip is a corporation specialized in RFID implants and one of the first companies who got their chip FDA approved for medical purposes.

RFID implants are also said to be 'forced' upon the people by the government and might be unconstitutional. (Kleine, 2017). The columnist from the Cincinatti Enquirer writes in his column that: "Government can force a citizen to do anything. Only governments can deny liberty." (Kleine, 2017) which hints strongly at a libertarian argument. The libertarians are known for their ideas of a small of even no government and believe that the market and common sense of people, some sort of survival of the fittest, will lead to the optimal society. These are strong words coming from a newspaper that has won the Pulitzer Price the year after this column was placed. Ohio also knows a utilitarianist approach to the RFID implants, Sean Darks the CEO of Citywatcher.com, a video surveillance company, states that the use of RFID implants in employees is not something one should worry about. They merely function as 'identity cards' there is no signal being send or GPS installed in these chips. Mr. Darks cannot track his employees or follow their eating habits. (Waters, 2006).

The ethical discourse in Ohio is leaning towards a human dignity perspective in which a conservative ethical position takes a dominant place. However, it must also be mentioned that the sample size and the amount of opinions is marginalized to a select few who tend to seek the media and attention because of their strong opinions on this topic.

There is no form or trace of the ethical discourse influencing the regulatory process. The actors in the media primarily 'attack' each other on their statements or rather ventilate their own voice against the other. Taking into account that there are no occurrences of RFID implants in Ohio except for the two employees of Citywatch.com, a company that is bankrupt, there is no reason for actors in Ohio to interfere in the regulatory process.

4.6.3. Summary

- The Senate Bill 349 prohibits forcing RFID implants from an employer into an employee. However, it is possible to have an RFID implant if there is consent between the one chipping and the one being chipped.
- The ethical discourse in Ohio is primarily shaped by human dignity proponents who hold a strong conservative agenda. However, the topic of RFID implants does not seem to address that many people because of the marginal size of individuals willing to express their opinion about it.

- The ethical discourse does not shape the regulatory process in any way. The actors have no eye for the regulation made by the government but only for their own opinion or the opinion of other actors.

4.7. The State of Wisconsin

Wisconsin is a north-central state and part of the Great Lakes region. The biggest city in Wisconsin is Milwaukee followed by the capital Madison. The state is called the 'Dairy State' because of its large cheese production. Next to cheese Wisconsin's' economy thrives because of manufacturing paper products, IT and cranberries. Finally, Wisconsin has an incredible tourism industry because of its position on Lake Michigan and Lake Superior plus the influence of German and Scandinavian traditions, brought there by the settlers, which can be found in their festivities and architecture. The population of Wisconsin is quite average with almost the same number of registered Democrats and Republicans. The number of inhabitants that identify themselves as Liberal and Conservative is quite far apart from each other which can be explained because of the high amount of inhabitants that identify as religious in Wisconsin. Finally, the Median Household Income is almost equal to the average household income in the US which can be explained from the different industries that Wisconsin has attracted in the past few decades.

Demographic details

Population (2018)	5.813.568
Median Household Income	$56.759
Democrats	43% of the population
Republicans	41% of the population
Liberal	23% of the population
Conservative	35% of the population
Very Religious	35% of the population
Moderately Religious	30% of the population
Nonreligious	35% of the population

Source: Census.gov, 2019; Gallup, 2019

4.7.1. Legal Ramifications on RFID implants

The government of Wisconsin has prohibited RFID implants with permission when there is informed consent. There are no special remarks for this bill.

The Government of the State of Wisconsin enacted regulation on RFID chipping in 2005 via Assembly Bill 290 which was named Act 482 (2005). This bill states that: "No person may require an individual to undergo the implanting of a microchip." (A.B. 290, 2005, p.1, sec.1-146.25). The bill is very short in its phrasing and does leave room for interpretation because of the word 'require'. As can be seen in other bills the usage of the word 'require' means that a chip can only be implanted when there is informed consent between the one chipping the other and the one being chipped. This freedom in the bill provides room for permission of chipping someone. This logic makes that the bill in Wisconsin falls into the regulatory mix category of prohibition with permission. There are no known court cases addressing this bill. The bill was voted 5-0 in favour of the bill in the Senate and 11-0 in favour of the bill in the Assembly.

4.7.2. Ethical discourse shaping Wisconsin Regulation

Because Wisconsin is home to the company 32M the ethical discourse is primarily shaped by this company and finds itself in the utilitarian perspective. Arguments on human dignity and human rights are primarily countered through rational and technological arguments.

The regulation imposed by the Government of the State of Wisconsin has no hints towards any of the ethical stances from the bioethical triangle. The discourse in Wisconsin is shaped via the media

coverage regarding the company Three Market Square (32M) which held a 'chip party' or 'microchipping party' for its employees so they can voluntarily receive a chip in their hand to swipe doors, open offices and use vending machines (Lorenszsonn, 2018; Schossow, 2017). There are just small hints towards privacy concerns which receive a quick counterargument of the technology not being able to track you as in the feared Orwellian dystopia (CBS Evening News, 2017). Most articles prove to be very positive towards RFID implants and emphasize the benefits it can bring to our society like 'convenience in life' (Wainscott, 2017), eventually might 'save lives' (CBS Evening News, 2017) and can be used for other purposes like 'chips in immigrant guest workers for identification' (Songini, 2006). The Wisconsin media coverage chooses to underline the utilitarian approach and tends to comfort the reader by disregarding the arguments of the human rights perspective as technologically not possible with regard to tracking or emphasizing that it is all 'voluntarily' and 'with consent' (Fast Company, 2018; Schossow, 2017). The human dignity perspective does not receive a stage in the articles because of the emphasis on the convenience that the technology brings and because the human dignity perspective is seen as an idea of scaring people for consequences that do not exist (CBS Evening News, 2017).

The utilitarian approach has a rich representation because the interviewees in the articles are employers of the company 32M. Tony Danna, the vice-president of international development of 32m, states that the reason for the company to provide RFID implants to their employees is because: "[…] we are a very innovative tech company, […] it was coming within the tech industry." (Schossow, 2017). As does the Chief Operational Officer (COO) from the company, Patrick McMullen, who states that: "Ultimately, when I talked about why did your employees do it, it's because they're innovators." (Lorenszsonn, 2018) In the same interview McMullen referred to the stunt as not being a PR stunt but he sees it as a technology that could 'change the world' and the spread of RFID implants is a technology that can be seen as the 'internet of the people' (Lorenszsonn, 2018). Furthermore, he provides examples how he can change world by providing the technology for hospitals to 'monitor patients', schools by having children 'check-in' and even in prisons for checking inmates. Although, this might seem a strong human dignity perspective, i.e. changing the world for the benefit of mankind and serving the human race, in an earlier interview McMullen's reason behind the ideology becomes clear. In December 2017 McMullen stated, in an interview for a local newspaper: "We need to master this ourselves if we're going to take it to market." (River Falls Journal, 2017). It is to be questioned what the motives are behind the company to invest in this technology. However, deducing from the facts that the COO stated that the company needs to master the technology before going to the market and for the simple reason that it is a company with a for-profit driven strategy, the underlying idea behind the bold emphasized human dignity approach is eventually be utilitarian.

The ethical discourse in Wisconsin thus strongly hinges towards a utilitarian perspective, a perspective that can only be seen in California. Where other states underline the importance of privacy rights, autonomous rights and the dignity of humanity, referring to the argument of 'playing for God', Wisconsin distinguishes itself from a positive stance towards RFID implants without strong human rights critique. Of course, the discourse is drastically shaped by 32M because bad media coverage would have a negative result on the image of the company. It is, however, noteworthy that the company tries to frame itself with an ideology of making the world a better place so a framing towards the human dignity perspective. Taking a closer look in the motivation behind the development of this technology it becomes clear that the importance of business and releasing a safe and proper product on the market supersedes the ideological view of making the world safer and more manageable via RFID implants. The ethical discourse in Wisconsin is thus positioned in the utilitarian perspective with hints towards human rights and human dignity.

One article that addresses the regulatory process is found in NetworkWorld, a tech-savvy blog website which took note of the regulation via ComputerWorld. Both these media outlets are part of the

International Data Group which have their HQ in Boston, Massachusetts. In their article Marlin Schneider, the Democrat who sponsored the bill, stated the legislation is proactive because the technology is rapidly evolving (Songini, 2006). Others from the business field agree with the legislation and state that: "It is understandable for the states to begin this type of legislation where technology has the potential for abuse." All in all the actors and regulators find themselves on the same page with regard to regulation and as Scott Silverman, from Appdlied Digital Solutions, states that the regulation on RFID implants "Will shake itself of." (Songini, 2006). From this position it can be concluded that the ethical discourse from actors and the government are in sync with each other which strengthens the legitimacy of the regulation created and to be created in the future.

4.7.3 Summary

- Assembly Bill 290 prohibits forcing RFID implants from an individual upon another individual. However, it is possible to have an RFID implant if there is consent between the one chipping and the one being chipped.
- The ethical discourse in Wisconsin is primarily shaped by the company 32M which claims to hold and ideology of a better world for humans but has a strong utilitarian approach of RFID implants. The utilitarian perspective is also underlined by regulators and individuals who are not employed at 32M. They briefly shed a light on potential dangers in human rights and human dignity but are quickly jumping towards the utilitarian perspective. Therefore, the ethical discourse in Wisconsin is dominated by the utilitarianist perspective with some notes towards the human rights and human dignity perspective.
- The ethical discourse does not directly shape the regulatory process but since the actors and government find themselves on the same page the regulatory design is strengthened. Although the remark is made that regulation in the future will 'shake itself of', implying that the ethical discourse may change, for the time being the regulatory process is seen as proactive and thus not per definition necessary for the future of RFID implants in Wisconsin as it is being used right now.

4.8 Conclusion on the US states

The analysis of the US states has led to several insights in the relation of the ethical discourse and the shaping of relevant regulation. The conclusion on this sub part of the analysis will answer the two sub questions from the main research question for the US states. In the first question the legal ramifications and the ethical positions in the states will be addressed discussing utilitarianism, human rights and human dignity. In the second section the tensions between the actors and the government will be addressed to give an insight how the tensions shape ethics and the regulation. This is done via the four different parameters from the theory i.e. regulatory modes, regulatory pitch, regulatory phasing and regulatory range.

4.8.1. How do actors and governments contribute to the ethical discourse on RFID implants?

To answer this first question an umbrella perspective over the US states is needed to see where actors and governments place themselves in the bioethical triangle. We see that governments find themselves strongly in a human rights and human dignity perspective, shifting along the legs of the bioethical triangle whereas actors primarily find themselves in the area of utilitarianism and human rights. Human dignity might be too abstract or too vague for most people to directly address this in an interview so they refrain from addressing human dignity directly. Governments on the other hand find themselves more strongly related to this topic because of an understanding of this topic and regulators find the right words to express themselves in regulation. This paragraph will enter in a more detailed discussion of the US state analysis and will already hint towards the link between the ethical discourse and smart regulation.

To start with the governments' contribution to the ethical discourse on RFID implants in the US states the regulation made is quite clear in all the states. In every state there is prohibition with permission, which means that placing a RFID implant in people is not allowed except in some cases. These cases are explicitly mentioned such as in Georgia with regarding pacemakers or implicitly mentioned via the word 'require'. In all states the meaning of 'require' contains 'being forced', 'compelled', 'obligated' or 'threatened', and so forth, to be implanted with an RFID implant. The exemption thus means that whenever it is not the case that a person or individual is required to be implanted by a RFID implant it is legally allowed to have an RFID implant. Or in other words, whenever there is consent between the controller and the subject, who is not pressured to take an implant or will in the future will be discriminated against if he/she does not take the implant, it is legally allowed to have an implant.

All of the states have a system of regulatory mix in the regulatory stance parameter because they all prohibit the RFID implants with permission. Because of unanimous position of the governments it would be logical to state that all states fall in the human rights perspective when only taking into account the theory and the outcome of the analysis. However, this is not the case in all states. Linking the ethical stance of the governments into the regulatory process there are some differences between them. The government of California for example has a sort of 'preamble' in which the regulation finds its ethical basis referring to rights directly derived from the Universal Declaration of Human Rights. In the state of Georgia, a senator referred to the rights of citizens but also to the 'protection of the person' which is more in line with human dignity. Other states also mentioned the preemptive acting on this regulation because they want to 'cover' themselves when this technology might evolve as in Maryland and Wisconsin which shows that there is no actual ethical stance on the technology but they do not feel completely safe to let the market experiment with RFID implants. Although the governments vary in their motivations from an ethical perspective it is possible to deduce that all governments find themselves between the perspective of human rights and human dignity because of the active regulation

that they have, which can be seen as protection for their citizens, and their expressed motivations behind the regulation.

Contrary to the government the private actors have a clear statement on their ethical perspective on RFID implants. Before starting with the conclusion of the actors it is interesting to see that overall the actors behave in a responsive way. That is, the actors and media coverage only start meddling in the discussion when the government agrees and ratifies new regulation on this topic. It is possible to say that the government is an initiator or catalyst in the ethical discourse by making regulation.

The contribution of actors in the ethical discourse is primarily via media coverage as can be seen in the sources. The contribution has a strong link with the theory regarding the bioethical triangle and most actors therefore act and behave as expected. Companies such as 32M and Citywatcher.com are highly utilitarian, with the notion of 32M ideology in the human dignity perspective. Religious groups like Catholic.org or Christian Broadcasting Network (CBN) find themselves in the human dignity corner and law firms and professors on universities are strong advocates of the human rights perspective. Although, the actors behave as expected the media coverage tries to include all different stances which leads to a debate benefitting the ethical discourse. This also leads to the variety of sources in which media try to cover and frame RFID implants from their preferred stance by interviewing the people which will adhere to their readers. Nevertheless, the arbitrary selection of the interviewees by the media provide a useful insight in the ethical discourse in the states. By taking into account multiple sources it becomes apparent which ethical stance is dominating the ethical discourse in the different states.

Because actors are in the media in most states it is important for them to make a statement how they perceive the future of RFID implants and the regulation of the government. However, they hardly react to each other or try to debate with each other. It is mostly the opinion of one individual who holds a, according to the media, legitimate position to ventilate their opinion on this topic. Between the lines of the media coverage and the statements of the actors is becomes quite clear how they perceive the ethics behind this technology, but the actors refrain from criticizing each other or the government. This might be addressed to the irrelevance of the topic, for now, in society or because an idea of caution since the actors do not know how this technology is going to develop in the nearby future.

In short, governments and actors contribute to the ethical discourse by stating their own opinions and showing their own agenda. However, the media is trying to get an exciting story because of the ‘impressiveness’ of the topic in which they interview people who have a strong opinion. The ethical discourse is therefore shaped by strong opinions which not necessarily respond to each other and by the interest of the media to adhere to their readers.

4.8.2. How do tensions between actors and regulators influence the regulatory process?

To answer the second question the parameters of smart regulation are used to see how the actors might influence the regulatory design process. This includes influencing regulatory modes, regulatory pitch, regulatory phasing and regulatory range. In all states the regulatory modes are based on hierarchical control, the state prohibits RFID implants under certain circumstances but if you break the law you will get fined. No actors have discussed this position because apparently, they are fine with the exemptions that are made in the regulation, that is the permissive deviation from the prohibition. Regulatory pitch is dispersed over morality by the government and actors being more concerned with practical and behavioral questions such as health related issues and privacy issues. This development can lead to a difficult position for the government. If actors do not accept that the government is the legitimate institution to create regulation, then who is and what will actors do to find legitimacy in the one regulating. Regulatory phasing can all be found in the first phase of regulation, as the government officials stated themselves most regulation is pre-emptive or pro-active. Finally, regulatory range in all

states can be found in the regulatory mix of prohibition with permission. This paragraph will provide a more detailed discussion on the parameters of smart regulation.

The tensions between actors and regulators is hard to find in the analyzed documents. As discussed before there are some tensions between the proponents of RFID implants, mostly companies, and actors who see severe privacy problems in the future. Taking into account that all governments of the states have prohibited the implants unless there is consent it is logically to conclude that the government of the different states also see the privacy problem but more important they are more inclined to avoid 'forced' implementation of RFID chips into people. Not only for privacy concerns but also to protect their citizens from being 'enslaved' to an organization via RFID implants. This strongly steers towards a human rights and human dignity point of view.

Creating regulation for disrupting technologies often confronts the regulator with the Collingridge Dilemma. The Collingridge Dilemma invokes the 'dilemma of control' which states: 'attempting to control a technology is difficult…because during its early stages, when it can be controlled, not enough can be known about its harmful social consequences to warrant controlling its development; but by the time these consequences are apparent, control has become costly and slow' (Genus & Stirling, 2018, p.63). This dilemma also forces a regulator to eventually reconsider and re-shape the legislation that was intended to control the disruptive technology as can be seen in regulatory range. This dilemma is returning in the regulation of which most regulators state that it is pre-emptive or proactive inclining that this regulation can and/or will be revised in the future whenever the technology develops itself towards the public and not indoors of certain companies. The precautionary nature of pro-active regulation includes that if precautionary measures are taken several developments occur. By creating precautionary measures, the behavior of stakeholders is channeled towards the regulation i.e. prohibition leads to people prohibiting themselves of performing a certain action although there is a choice to use the permissive exception in the regulation. This seems to be the case in most US states. Because RFID implants are prohibited there is a certain hindering of getting chipped, although it is perfectly legal under informed consent people become hesitant to take one. Another development is that precautionary measures will have an effect not only on a specific disruptive technology but will face more broadly discussed topics such as privacy and data processing (Vogel, 2012). This is not the case is the US for now. However, the tension is felt here with some actors, for example in California, there is a tension between some actors and the government that the government is spreading fear when making regulation on technology that has not been developed in such a way that regulation is necessary. Furthermore, in Ohio, there are people who claim that the government can eventually use it for its own purposes in the future to identify people or check the population for insurances and health problems. However, the government must, of course, always abide by the laws that they have created and cannot use the technology for their own purposes without complying with their own law.

Looking at tensions between the actors and regulators for shaping regulation it can be concluded that in the United States the tensions do not influence the regulatory process. Most of the actors are quite satisfied with the regulation and do not see the need to interfere with or speak up to regulators to prevent or intensify the regulation. Still, it remains important for regulators and actors to have an active debate on the topic so regulators can act upon new developments and actors can shape regulation to safely and ethically develop RFID implants. By keeping an active debate, the regulatory design will stay in motion and can be used as a catalyst in the development of the technology instead of hampering the evolution of RFID implants.

4.9. The European Union

The European Union has no concrete and dedicated regulation on RFID implants; however, the European Union has provided effective regulation on privacy, data protection and human rights. This regulation is a blurry landscape of national and European regulation. The landscape becomes blurry because of the competences of the EU regarding privacy regulation and labor law under Treaty on the Functioning of the European Union (TFEU) article 4 and 6. Although, the European Union might see its hands bound on competences and contemplation on the subsidiarity principle the development of RFID implants in the European Union has continued but in a different fashion than its Northern American counterpart. As Petersén (2018) points out the US development of RFID implants is concerned with the health care aspects of this new technology whereas Europeans are more interested in its helpful applications in third world countries or more artistic expressions because in most European states national health care is regulated in contrast to the free market approach in the US.

The next section will first discuss the legal ramifications in the EU focusing on the TFEU, the General Data Protection Regulation and the European Convention on Human Rights (ECHR). Second the shaping of the ethical discourse from external actors and their role in the shaping of relevant regulation is discussed. It is noticeable that most articles cover Sweden which is a front-runner in the experimentation with RFID implants, this might provide a distorted view on the ethical discourse. However, the ethical discourse from Member States who are already experimenting with this technology in combination with the legal ramifications in the EU will provide an insight in the current discourse in the EU.

4.9.1. Legal ramifications in the European Union

The EU has no direct regulation with regard to RFID implants as the US states have. The EU has a system which covers no direct topics since this primarily falls under the competence of the MS. Instead the European Union has regulation concerning more umbrella topics such as privacy and data collection because in these areas they can regulate. The EU is primarily acting in a precautionary trend, which means that they regulate privacy issues in such a way that whenever these rules are applicable, they already have some kind of regulation on this topic and can expand this more easily. Because of the precautionary nature the regulation for privacy spills-over when new disruptive technologies enter the market such as RFID implants. This paragraph will focus on four different regulations of the EU in which disruptive technologies and their consequences are regulated.

To kick off the legal analysis it is important to make clear in which areas the European Union has competences to create regulation and which competences remain with the governments of the Member States. Article 3, 4 and 6 of the TFEU describe the competences of the EU. Regarding RFID implants article 3 TFEU, areas in which the EU has exclusive competence, does not provide any linkable competence for this technology yet. ‘Yet’ refers to the competence described in article 3.1b which states that the Union will have exclusive competence in the area of “The establishing of the competition rules necessary for the functioning of the internal market.” (TFEU, art. 3.1b). In a nearby or far distant future whenever RFID implants will become part of a competitive market it means that the EU can create regulation for this market but only to stimulate competition, however, this does not concern privacy, data protection or human rights. Looking further in the TFEU article 4 provides more perspective in competences that RFID implants can be ranked among. The EU shares competence with member states in ‘consumer protection’ (art. 4.2f) and ‘area of freedom, security and justice’ (art. 4.2j). The consumer protection argument was used to justify the GDPR under article 16 TFEU which is created together with the MS. Since we see that in the US and in the EU RFID, implants are, among others, used for payment purposes it can very well fall under this competence. Especially, when it comes to data protection and privacy i.e. preventing others to use the data from the RFID implant to see what you

have bought in the past. The area of freedom, security and justice (AFSJ) is quite a stretch, this competence in only relevant when criminal activities with chips occur. This can reach from illegal shipping of chips between MS, kidnapping someone because of the chip and moving the kidnapped to another MS, and other inter-state related criminal activities. Finally, the TFEU includes article 6 in which the areas of the EU are described where the EU has no competence but only "[…] carry out actions to support, coordinate or supplement the action of Member States." (art. 6). The most relevant areas in this article are the protection and improvement of human health (art. 6a) and civil protection (art. 6f).

There are always some articles that provide the European Union with more power to regulate in a particular area. The competences only apply whenever new regulation is made which is not referred to in the TEU and TFEU. One of these competences, as mentioned before, is stated in article 16 TFEU "Everyone has the right to the protection of data concerning them." (art 16.1) and also claims the EU competence of creating legislation under the rules relating to the free movement of data (art. 16.2). Another article taken into account is article 19 TFEU which describes "[…] The European Parliament, may take appropriate action to combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation." (art. 19.1) which means that if someone is discriminated against the EU can create regulation to combat this discrimination. On the other hand, Article 5 TEU refers to the principle of conferral which means that the EU can only act in the competences which are prescribed to the EU, if a competence is not laid down in EU law than the competence remains with the member states.

Gravlin, Winksi & Dixon (2018) speak in their report of six different legal areas in which the European Union shares a competence or can act with regard to labor law and human rights. Existing European regulation binds the EU to act primarily in these two categories. The human rights debate leaves enough interpretation to act within the two areas of article 4 TFEU and labor law can act within the areas of article 6 TFEU. The six areas are:

"

- Data protection regulation
- The human rights of workers under Article 8 of the European Convention on Human Rights ("ECHR"), which safeguards a worker's right to respect for his private and family life.
- The legal obligations of the worker to follow reasonable instructions and orders of the employer, i.e. to accede to requests to microchipping
- The law of constructive dismissal
- Religious discrimination law
- Laws governing the ownership and continued use of the microchip and the data stored on the chip when the employment relationship is terminated

"

(Gravlin, Winski & Dixon, 2018, p.22).

However, we are not solely looking at labor law so the area of 'the law constructive dismissal' will be left out of the discussion because this only applies in some member states and is also an area in which the EU has no competence. In the list the 'Religious discrimination law' will be renamed to 'Discrimination Laws' referring to article 19 TFEU. In the list the 'laws governing the ownership and continued use of the microchip…' will be added to the Data Protection Regulation and renamed to Data Protection Regulation and Ownership of Data since they both discuss the GDPR

Following Gravlin, Winkse & Dixon (2018) the remaining four areas will be briefly discussed.

Data protection regulation & ownership of data

Article 16 of the TFEU gives the EU the sole power to regulate in the area of data protection. Data protection law in the EU has been given form by the recently introduced GDPR. The most important part regarding to RFID implants is the processing of data and the notion of informed consent. According to article 4.11 in the GDPR "'consent' of the data subject means any freely given, specific, informed and unambiguous indication of the data subject's wishes by which he or she, by a statement or by a clear affirmative action, signifies agreement to the processing of personal data relating to him or her" (art. 4.11). These are quite strict rules for organizations or individuals whenever they want to use data from RFID implants. In the ethical discourse from the US states it is seen that consent and the processing of data is often perceived as a breach of human rights. The EU has very strict rules on consent which will prevent this from happening. Whenever someone has consented to be chipped and their data to be processed, the processing is a very restricted area confined in EU law article 6 of the GDPR. Multiple parts of this article prohibit processing if it is not deemed necessary to do so, for example article 6d states that processing is legal whenever this is done to protect the vital interests of the subject, referring again to the consent principle. Furthermore, article 6f states that processing necessary for legitimate interests pursued by the controller or by a third party is only allowed whenever the fundamental rights and freedoms of the subject are not overridden. In other words, fundamental rights and freedom supersede data processing.

Finally, the EU has created with the GDPR a strong case in the discussion on ownership of data. The GDPR gives the chipped and ex-chipped subject several rights. Article 13 of the GDPR provides a list, when data is gathered, which information should be given to the person who has the RFID implant this includes among others the identity of the controller, the purpose of processing data, how long data is stored, if it used for third parties and so on and so forth. All this information should be given by the controller to the subject, which means that the subject should not have to ask for this information.

Article 15 of the GDPR gives the subject the right to access its data from the controller which also includes a long list of data that can be asked for by the subject. This includes among others, the purpose of data processing, the categories of data concerned, where the data will be stored and for what period, right to lodge a complaint with supervisory authority, the existence of rectification or erasure of the data and so forth. This is information that the subject can ask for at the controller and the controller is obliged to disclose this information in the most optimal way possible.

Finally, article 17 of the GDPR is the right to erasure, better known as the right to be forgotten, which provides the subject with the right to ask for data and oblige the controller to erase this data whenever a list of conditions is met, such as unnecessary storing of data, no legal ground for processing data, unlawful processing of data and so forth. However, article 17.3 includes a list when these rights do not apply, which also can be found in article 6 GPDR and article 8.2 ECHR including, compliance with legal obligation, public interests, research purposes or for the establishment, exercise or defense of legal claims.

In short, the GDPR wipes arguments of the table in which people are scared that RFID implants can be used for government or third party-controlled data processing if they did not give their consent or have been notified on the changes in their agreement with a third party. The GDPR is an extensive legal instrument that covers all kinds of consent and data processing to protect their citizens. A small list besides the articles mentioned are articles 7, 13.3, 49 and recitals 32, 33 and 50 (Gravlin et al., 2018). The GDPR provides subjects with a range of opportunities to control and own their data based on these three articles. Concerning RFID implants the data stored on these devices might be erased completely based on all the legal and human rights restrictions on data in the aforementioned

paragraphs. The right to be forgotten is a strong tool for subjects to secure and protect their personal data.

The human rights of workers

In most of the cases that have been described in this thesis the placing of RFID implants has been done in an employer – employee relationship. Article 8 of the ECHR, the right to respect for private and family life, restricts any third party to engage in activities that disregard this right. This clearly means that data gathered on an RFID implant in private and family life may not be processed unless the subject has consented to do so. The article entails two important details. Paragraph 8.1 protects private and family life, his home and his correspondence. Especially the word 'correspondence' is subjected to interpretation. If one uses his or her RFID chip for opening the door of its house it corresponds with a receiver and thus makes it illegal for third parties to process this data. This means that, although the chip might be owned by an organization it is a breach of human rights to process this data of the chip if it has corresponded with or within the house and thus the private life of the subject. The other important part in this article is that a public authority may not interfere with this right only if it is used for state interests, such as national security, public safety or crime. This point is further justified in article 6f of the GDPR and the footnote that follows which states: "Point (f) of the first subparagraph shall not apply to processing carried out by public authorities in the performance of their tasks." (art. 6f) referring to the right of the state to protect the national interest whenever this is deemed necessary.

The legal obligations of the worker to follow reasonable instructions

The EU has no competence in the MS labor laws. Nevertheless, it is worth mentioning that a worker has a legal obligation in most member states to follow the instructions of the employer. However, there are exceptions. Implanting an RFID chip in a worker, coercing or forcing it might lead to health, privacy and human rights issues some covered by national labor laws others covered by EU law. Respectively breaking this down in these three areas, the health hazards of RFID implants need more research to see whether or not an employee can have health problems when implanting a chip. Therefore, an employee may refuse to agree on an implant, thus not fulfilling the legal obligations of the worker. In most labor laws employers are always held responsible for the health of the employee and should do everything in their power to prevent their employees from physical or mental harm. Making an RFID implant disputable whenever an employee does not have the choice to consent. Second the topic of privacy is covered in the aforementioned two areas, an employee is protected by the GDPR and by the ECHR from refusing a chip whenever the employer is using it for data processing which might disregard the employers' privacy rights. Finally, the legal obligations of the worker to follow reasonable instructions of the employer may never interfere with its human rights. Not only the European human rights but also international human rights. Whenever an employer is obliging its employees to be chipped the employer can invoke several articles of the Universal Declaration of Human Rights for example article 4 which states that no one shall be held in slavery or servitude. Obliging employees to have a chip in their body for the purpose of monitoring might be seen as slavery. Another article, which can also be found in the ECHR, is article 12 of the UDHR which states that no one shall be subjected to arbitrary interference with his privacy, family home, or correspondence. Human rights protect citizens from refraining their legal obligations as a worker.

Discrimination laws

The EU has covered discrimination against sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation in article 19 TFEU. This means that if someone wants to chip someone but that person refuses based on one of these topics there may not be any consequences for this person to discriminate against him or her. For example, if you need to be chipped to have access to a certain building but this person refuses because of religious arguments it still must be possible to enter the building or else he/she is discriminated against for his/her religion.

To conclude this paragraph on European regulation and European law it can be stated that although the European Union does not have the competence to create regulation directly for RFID implants it has the potential consequences of this disruptive technology regulated via multiple documents which enforce each other. As mentioned earlier, the EU tries to create regulation in areas where she has the (shared) competence to influence and pressure regulation in areas where it has no competence. From this analysis of the legal framework we see that the EU has no control, for example, over national health issues but can regulate in the area of privacy and data protection which also applies in the area of health thus restricting RFID implants. National governments may not experience directly that the EU is regulating their system but indirectly the EU is prohibiting and permitting certain actions by regulating consequences of disruptive technologies.

4.9.2. The ethical discourse in the European Union

This paragraph will more extensively the ethical discourse in the European Union. The EU knows a pragmatic and rational approach from the actors who are well informed on the risks that RFID implants might bring and can thus weigh their pros and cons. This means that the actors find themselves strongly in the utilitarian perspective, with a hint to human rights which is used to counter arguments of privacy and data protection. On the other hand, the government finds itself in a human rights and human dignity approach, not surprisingly because of the texts in the treaties and other regulation as discussed in the former paragraph. The EU has a balanced ethical discourse in which all opinions are respected and understood but also countered and critiqued with rational arguments. The following text will expand on these findings.

The European Union has next to its extensive privacy and data protection law a strong human rights and dignity perspective embedded in its treaties. Article 2 of the Treaty on European Union states:

"The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail."

At the same time the EU also includes a strong utilitarian perspective which can be found in article 3.3 of the TEU, the establishment of an internal market plus the promotion of competition and article 3.4 the establishment of the economic and monetary union. Furthermore the principle of subsidiarity and proportionality respectively in article 5.3 and 5.4 are quite pragmatic articles stating that the EU will only act in areas that do not fall in its competence whenever problems cannot be resolved on a local, regional or national level and that the EU will only create regulation which will not exceed what is necessary to achieve its goals. Although there is a multitude of pragmatic articles in the TEU and TFEU the EU always has the goal to promote its values and human rights base among the world as is stated in article 3.5 TEU. All these articles make the EU a wholesome institution with regard to the bioethical

triangle and so it is hard to pinpoint the EU in a particular area. With regard to RFID implants taking into account the legal analysis in paragraph 4.9.1 there is a strong tendency towards human rights and human dignity that the EU tries to pursue. The treaties both mention the importance of human rights and human dignity which shall be promoted and held high in the actions that the EU performs. In the GDPR article 1 and 2 both state the importance that the protection of personal data is a fundamental right referring to article 8 in the European Charter of Fundamental Rights, the protection of personal data. Article 1 of this charter is named 'Human Dignity' which states "Human dignity is inviolable. It must be respected and protected." So, it is reasonable to say that the governmental institution which we call the EU is focusing on human rights and human dignity.

The ethical discourse in the EU regarding RFID implants is not only shaped by the regulations of the EU, it is also subject to the position of the actors within the EU how RFID implants from an ethical perspective are perceived. The most interesting findings from the actors in the MS of the EU is that they are less worried about their privacy compared to their US counterparts and perceive RFID implants more strongly as a 'convenience of life' (Billing, 2019, Larsson Rosvall, 2018) or ´making life easier´ (Al Jazeera English, 2019). and argue that it makes it safer because you cannot lose your cards anymore or have to be afraid that you lock yourself out of your house (Fortune Magazine, 2019). Next to their personal gain the actors in Europe also see other potential gain such as the Swedish students and organizations who can provide people in remote places with a chip for monitoring and medical care (Al Jazeera English, 2019). Other gains are seen in 'monitoring your own health' (Deutsche Welle News, 2018), solve other problems like VR and Blockchain technology does plus provide economic growth and chances for new startups (Billing, 2019). Finally, the actors in Europe see the potential that chips can enhance physical and mental capabilities (EGE, 2005) but strongly emphasize that "Implants aren't just about giving yourself superhuman senses, they are designed to make your life easier" (Murphy, 2017, p.2). The last sentence comes from an article published by the British tabloid The Sun which is infamous for spreading controversial news most of the time with a negative and conservative connotation. It is interesting to note that the tone of the article in even 'right-wing' and conservative paper on RFID implants is quite positive.

Taking a closer look at the human rights movement in Europe it is noticeable that the issue of ´privacy rights´, ´intrusive technology´ and scepticism around RFID implants is less emphasized than in the USA. Of course, the privacy discussion and the influence of the state is approached by some countries, such as the Netherlands and Germany, with scepticism (Billing, 2019) but the most active state, Sweden, is approaching the privacy and human rights discussion from a strong rational point of view. The opinion of specialists in the field of technology weighs more severe than the privacy watchdogs because Sweden is a very tech-savvy country and have a deep believe in the positive potential of technology (Bright Side, 2019; Fitzgerald, 2018). Arguments on privacy issues are explained by emphasizing the current state of the technology. That is, the software for RFID implants has improved but the hardware did not develop as fast as the software (Billing, 2019) therefore the scepticism of the Dutch and Germans is misplaced according to Hannes Sjöblad a biohacking entrepreneur. Furthermore, the issue of your data being stolen is practically impossible because people have to know that there is a chip in your hand and have to swipe it from approximately five centimetres from the place of the chip to get access to your data. Include encryption and password protection to the security features and the effort of stealing someone's data will never pay of the gains that someone would get from it according to Jowan Österlund founder and CEO of Biohax International and a reporter from the tech-savvy platform Bright Side (Bright Side, 2019; Fortune Magazine, 2019). The privacy discussion in Sweden has never been an enormous issue because of several reasons, first of the Swedes have put their trust in their government and the organizations protecting them, second the sparsely populated Scandinavian country embraced the internet and other communication technologies to keep in touch over big distances and finally it comes more to a tradition that Swedes are early adopters of

new technology (Billing, 2019). Other countries might be sceptic but also in the Netherlands and in Germany the technology is upcoming, and the scepticism is starting to be overruled by the same rational arguments that the Swedes have embraced (Leistner, 2018).

Finally, human dignity, in the European Union human dignity and human rights are strongly tied together as mentioned in the beginning of this paragraph. The actors in the media hardly mention religious or Orwellian arguments in their discussion, sometimes it occurs as a small phrase in the outlets but more as a lure for the reader than a serious consideration. In the selected sources only the advisory report from the DG for internal politics and the European Group on Ethics in Science and New Technologies (EGE) expand on the ethical position of human dignity. The advisory report claims that it might contradict fundamental ethic principles such as non-instrumentalism i.e. humans will not be used as an instrument for technology, equity and conflict with European values. The EGE even takes it a step further by claiming that the relation between bodily and physic function is basic to our personal identity, placing themselves in the same corner as Fukuyama (2002). Furthermore, they state that "[…] the EGE makes the general point that non-medical applications of ICT implants are a potential threat to human dignity and democratic society." (EGE, 2005, p.2). This essentially means that RFID implants for non-medical purposes have the potential to create first and second rank citizens between the ones being chipped and the ones not being chipped[5]. Human dignity is not taken into serious consideration in the European ethical discourse for the actors it is merely a side note in a utilitarian and human rights discourse.

Because there is no direct regulation in the EU on RFID implants it is hard to say whether the ethical discourse on RFID implants is influencing the position of the regulator and the regulation that sprouts from this ethical discussion. It is, however, noticeable to see that the actors which are directly reporting to the European Union are more concerned about European values and the essence of the EU as found in the TEU than the actors who are operating in commercial or non-EU related institutions. The question arises from the ethical discourse and from the principle of subsidiarity whether the EU will ever create regulation on RFID implants. Considering the ethical discourse, the actors in the EU have a strong tendency towards the utilitarian perspective and provide reasonable arguments for any objections in the human rights perspective. The utilitarian approach from the actors might come forward from the national governments who also regulated other new technologies such as drones and self-driving cars. This also might lead to a sense of comfort with the actors that the considerations from the human rights and human dignity perspective will eventually be tackled by their national government. All in all, the dominating utilitarian perspective from the position of the actors has a positive spill over effect in media outlets. However, maybe the Europeans are not critical enough towards RFID implants and the 'fear' of the Americans might seem right in the future.

[5] It is up to the reader of this thesis who will become the first and second rank citizen.

4.10. Conclusion on the European Union

The European Union provides an extensive case regarding RFID implants and the ethical discourse influencing creating relevant regulation. Although, the EU does not have clear and concise regulation on RFID implants the regulation that does exist within the EU does protect its citizens from most of the consequences that the direct regulation in the US protects its citizens from. The regulation in the EU supersedes specific regulation necessary to regulate RFID implants. In this conclusion the ethical discourse in terms of utilitarianism, human rights and human dignity will be combined to further explain this statement. Furthermore, the second paragraph will address smart regulation but less strict in terms of regulatory pitch, mode, range and phasing since there is no direct regulation for RFID implants.

4.10.1. How do actors and governments contribute to the ethical discourse on RFID implants.

In this section a summary of the findings regarding the ethical discourse is presented. The primary results are that the EU has a wholesome ethical discourse covering all aspects within in the bioethical triangle. However, the position of the actors and the government differ from each other. Where the government tends to mingle more in the human rights and human dignity discussion, the actors find themselves more in the utilitarian perspective. This might be related to the high trust in the government, so Europeans have a more comfortable position because the government acts in a precautionary fashion. Although this might be true, Europeans are often too positive towards new technology and start to be more critical when they experience the negative consequences.

The ethical discourse in the EU is a wholesome contribution to the bioethical triangle, meaning that all the perspectives and nuances in the bioethical triangle are touched upon creating a rich ethical discourse in which the positions of the actors and the government are supplementary to each other. Looking at the ethical position of the European Union it is predominantly in the field of human dignity and human rights, the basic values of the EU are stated very clear in the TEU which is to uphold human dignity and human rights. These values find their practical implementation in the TFEU, GDPR, ECHR and the European Charter of Fundamental Rights. These four documents encompass clear regulation that supersedes the topic of RFID implants. They are based on the protection from harm of their citizens by any means necessary. From these regulatory documents the protection and ownership of data, human rights of workers, labor laws and protection from any kind of discrimination are covered and protects European citizens from all the possible negative consequences that might occur when providing people with RFID implants. Europeans are quite aware of these rules and regulations and therefore enjoy a certain comfort and freedom in their actions. There is no European institution that tells European which technology can do what and what not, it is regulated on a higher level which touches upon the moral and ethical compass of European citizens to act in ways that fall in the believes and values of the European Union.

Emphasizing the values and rights within the European Union leaves the actors to refrain from discussing ‘obvious’ prohibitions and permissions but focusing on a rational discussion on the pros and cons of the technology where, from a utilitarian perspective, the human rights discussion is taken into account but counterargument with specifics regarding the possibilities of this technology. From a utilitarian perspective the actors are more concerned whether or not it brings ‘convenience’ in their lives with a clear consideration of the risks and consequences that RFID implants might bring with them. However, most actors feel perfectly fine with RFID implants and only point out the joy and convenience that it brings in their lives. On the contrary, this positive stance towards RFID implants also raises the question whether the Europeans are not too easily persuaded to believe that governments and the EU will protect them from any harm that might be done considering their human rights and if the technology further develops that their human dignity might be infringed. It must be noted that the interviewees

were primarily from Sweden and Germany where there is a high level of trust in the government. These findings thus cover broad strokes of the utilitarian sentiment in the EU but can differ per Member State where trust in the government is significantly lower.

The ethical discourse in the EU is presented as almost too good to be true, the government protects its actors from a violation of their human rights and human dignity while the actors can experiment and develop RFID implants as long as the experimentation abides the laws of the governmental institutions. Although, the 'too good to be true' vision is described in the legal ramifications and the ethical discourse it can be deduced that the technology now finds itself in a 'hosanna' status which will be reduced when the technology spreads in society. The exact same was seen with the increasing popularity of other technologies such as Facebook or 3D printing. At first it was an ideological perception in Europe that allowed experimentation within the legal framework. However, when technology evolved the negative consequences of these technologies were revealed such as privacy infringement, referring to Facebook and the Cambridge Analytica scandal, and the potential danger of the technology such as the creation of homemade weapons, referring to 3D printing. The ethical discourse in Europe has a tendency to be favorable towards new technology up to the point that problems occur. As with the conclusion in the US we also must here address the precautionary nature of the regulations mentioned. In an attempt of risk control the European Union uses precautionary measures to cover a broad spectrum of topics so the risk of health issues, harm to citizens and technologies disrupting the market is reduced to a minimum as far as the Member States agree (Vogel, 2001). For now, the ethical discourse in the EU is quite balanced between the position of the government and the actors. The question remains when the imbalance will occur.

4.10.3. How do tensions between actors and regulators influence the regulatory process?

Actors and the European government do not show tensions at first glance; the European government has set the regulation on privacy, data protection and human rights plus has stimulated and empowered labor laws in the member states. The regulation demarcates the framework in which the actors can experiment and operate to develop RFID implants. There is some critique from actors towards other actors holding different opinions on primarily the privacy matters. The proponents of RFID implants share the opinion that the privacy-watchdogs are spreading false information on the possibility of stealing data or the processing of data by the controller which might lead to a disadvantage of the subject. The proponents emphasize that it is technically impossible for these actions to occur because of the young state that the technology finds itself in. The European government, therefore, seems to have no reason to create specific regulation for RFID implants.

In this reasoning there is some ambiguity to be found. Although, privacy regulations and human rights protects citizens from criminal activities and an infringement of their personal data, lessons from the past learn that the European government and the proponents of the technology might be too comfortable with the current regulation. An invasive and intrusive technology such as RFID implants has a high potential to invoke activities that relate to privacy, data and human rights infringement, especially when the technology becomes increasingly popular. It is therefore clear to state that, although there are no tensions in the current debate, they will arise when the technology becomes more mature.

The ambiguity is to be found in the advisory report from the DG of internal policies which warns for the potential threads of this technology, relating to health, safety, security and the democratic values that the EU holds. However, the advisory report also states that with the current regulation most of these problems are tackled because the development of the technology is unknown, placing the EU regulators in the same Collingridge Dilemma as their US colleagues but with a more favorable stance towards precautionary measures to protect their citizens from potential harm that can occur.

The regulation which applies to RFID implants might seem pre-emptive reducing tensions to a minimum. The actors are most of time not concerned with European regulation but more how to develop and stimulate this new technology. However, when the technology evolves governmental interference will most likely take place and tensions will rise when actors and the European government will be pulled out of their comfort zone where they find themselves now.

5.0. Conclusion and Discussion

This chapter will give an overview of the key insights of the research and will give an answer to the main research question. After this section the chapter will address the discussion, limitations and further research and finally the implications for policy makers.

5.1. Conclusion

This thesis aims to shed a light on the relationship between the ethical discourse and the creation of relevant regulation for RFID implants. More detailed, the thesis aimed to take into account the ethical position of the regulator and the position of the actors and unravel via legal documents, regulations and media outlets how RFID implants were received by both parties and how this might cause a debate what would lead to relevant regulation. It aimed to do so via the research question: *'How does the ethical discourse on RFID implants between regulators and actors shape relevant regulation?'* and this has led to some interesting key findings.

The thesis has tried to incorporate the bioethical triangle and the regulatory process into the development of RFID implants. Both parts of the theory were visible and represented in all the case selections made. However, it became very clear in the analysis that regulators and actors are quite distant from one another. The ethical debates which were found in the analysis primarily focused on the actors who held different opinions on privacy matters to react to each other. It seemed that governmental interference did not seem to bother actors in any way. Actors stayed safe on their turf and governmental institutions remained on theirs, this might be explained by relating this to the theory. All of the regulatory processes take place in the first stage of regulatory phasing which also became apparent in the analysis in which the words 'pre-emptive regulation', 'regulation for the future' or 'regulatory anticipation' often were mentioned. Because all regulation finds itself in this stage most of the arguments to implement this regulation from the actors and the government were based on moral grounds in the regulatory pitch, which means that actors as the government find themselves in the understanding that the government is morally 'obliged' to 'protect' its citizens via prohibitive regulation with permission. The protection of the government is already regulated in human rights for example the right to bodily integrity or to reject bodily infringement. However, regulators and actors want more specific regulation to have some kind of certainty. If both actors and the government find themselves on the same page there is not much ethical fireworks, so to say, in the ethical discourse. However, there is something luring underneath this friendly and acceptable approach towards each other.

Zooming out on the details of the text but approaching it from a bigger picture it becomes quite clear that the terminology used like 'privacy', 'data processing' and 'data protection' are perfect concepts in which regulators and actors alike will frame their arguments. Especially, in the US states these concepts are highly regarded but the tone of voice of actors towards the government is almost as they are being threatened by the government and they give a sign that this small prohibition with permission is accepted but the government should not interfere anymore. The government and the so called 'land of the free' have always had a difficult relationship concerning government interference with the 'freedom' of the people and that is something that is felt along all the media outlets of the US states.

The complete opposite is found in the EU, where the actors have good faith in the government that the government will protect them from everything that tries to infringe their human rights, privacy or personal data. The Europeans faith in their government is almost turning into naivety while they can only emphasize the convenience of life that RFID implants has brought and even not considering the privacy or criminal problem that may become apparent in the foreseeable future. The rise of populism in the EU and the US does criticize the government including their precautionary measures that they are taking. Because populism is quite a rigid and extreme form of politics the people propagating the 'control' of the national government and EU are quickly positioned on extreme websites and news

outlets, such as Breitbart, Infowars and Another Angry Voice which are notorious for the spreading of so-called 'alternative facts' which is better known as fake news these days. However, the uprising of populism might create an interesting development in the ethical discourse for RFID implants in which people are not as accepting towards precautionary regulation as they are now.

With regard to the regulatory design it is also interesting to see that all of the US states and the European Union find themselves in a regulatory mix. They are all concerned about the same concepts and prohibit RFID implants but with the exemption that if there is informed consent it is accepted, so people *may* place RFID implants under certain circumstances. By prohibiting with permission in this pre-emptive state, the government finds itself grasping to precautionary regulation anticipating upon the Collingridge dilemma. Would RFID implants ever take flight and become part as disruptive technology of our daily lives, such as the internet, social media, or aviation they can expand the already existing regulation instead of being a reactionary to unforeseen developments in RFID implants.

Finally, when comparing the US states with the EU it is striking to discover how the US states are micromanaging new technologies whereas the EU evokes to the principle of subsidiarity. As mentioned in the thesis the comparison between US states governments and the EU is not completely valid because US states governments can be better compared to the government of the Member States, and the EU has more resemblance with the Federal Government of the US. On the other hand, the US does not have the multilateral governmental structure between the federal government and US states governments as the EU has with its Member States. Considering the strong ties that the EU has with its member states as found in article 4, 6 and 7 of the TFEU it would legitimize this comparison. Returning to the topic of micromanagement, the EU chooses to cling onto its values of human rights and human dignity and creates legislation within these ethical perspectives. The governments of the US states sometimes also state that human rights should protect their citizens but do not address overarching topics, it very specifically turns towards RFID implants which seems to have them not tackling the Collingridge Dillemma but only making it more difficult whenever other technologies appear which share the same characteristics as RFID implants.

To answer the main research, question the ethical discourse on RFID implants has not developed itself as far to make a difference or influence regulators to create relevant regulation. The regulation is pre-emptive which means that the regulators foresee the ethical discourse to evolve in the future and giving them a head start whenever this might occur. This precautionary approach positions the regulator in a powerful position because they can develop the regulation as the technology develops. This leaves the actor not in a passive state but in terms of the critical discourse analysis in an unfavorable position because they can only haggle with the regulator instead of directly influencing them. The actors can be held responsible for this position because considering the discourse analysis the actors do not seem to be quite critical towards the government to make the power shift towards their side or split the power. The other part to answer this question is to question the question itself. As this thesis has shown the ethical discourse was starting to take shape and being ventilated after the regulation was created. So, one might say that regulation is a catalyst for the shaping of the ethical discourse with regard to RFID implants instead of the other way around.

In short, we can conclude that the technology of RFID implants is too emergent to create a ruse in the bioethical debate to the extent that a government will act upon it via regulation. Nevertheless, this thesis might be the first step to keep track of this debate.

5.2. Discussion, Limitations and Further research

To structure this part of the conclusion every chapter will be reflected upon via three parameters, first a constructive critique on the chosen sources, second the limitations of the chapter and third an advice for further research. The paragraph will conclude with an overarching paragraph on the research covering these three parameters.

Proper academic research starts with the notion of a problem, an issue and/or an undiscovered field of research the so-called scientific gap. This is followed by the aim of the research and related research questions. This thesis found a scientific gap in the lack of information available from an ethical and regulatory point of view in the case of RFID implants. The desert of academic papers combining ethics with regulation on this new technology triggered the author to jump into it. However, was it the combination of ethics and regulation that lacked or the lack on the topic of RFID implants? The scientific gap was found in an absence of literature stronger entangling bioethics and regulatory design in disruptive technologies, which lead to the selection of RFID implants. Multiple sources address the influence of ethics on the regulatory process or vice-versa but in these sources one of the two topics dominates the other. By conjoining the two theories into one and tying them more strongly together the thesis has tried to shed a light on this discussion and used both theories as a searchlight to answer the question of the upcoming technology of RFID implants. In hindsight this was an ambitious attempt, not because the combination of ethical discourse with regulatory design but because RFID implants finds itself in a sort of embryonic state resulting in a data collection with a disputable amount of data. For further research other attempts to close the gap between bioethics and regulatory design should be made but a more mature disruptive technology would be advisable. A very good example is the Cambridge Analytica scandal in which privacy and data processing laws were violated but also came with a strong ethical debate in the US Senate as in the European Union.

This thesis has chosen the theory of Roger Brownsword (2008) as its guiding theory to answer the research question. The theory was chosen because in his book Brownsword (2008) addresses the bioethical as well as the regulatory design discussion in disruptive technologies. His theory is however quite concise when it comes to the regulatory process. Most probably this has to do with the idea that half of his theory is based on the theory of Lawrence Lessig (1999), Murray & Scott (2002) and Gunningham, et al. (1998) which are known theories for experts in the field of regulatory design. These theories are quite familiar with experts in the regulatory design areas, which might explain Brownsword (2008) to refrain from an extensive explanation for the regulatory phasing and the regulatory range plus referring to writers who inspired him to create these two parameters. Furthermore, Brownsword (2008) divides his book into two sections, one section to describe the bioethical triangle which can be used as an instrument to legitimize certain choices made in regulatory design and in the other half describing different disruptive technologies and how regulatory design can anticipate on these issues with the bioethical triangle in mind. However, the perspective which he uses to integrate the two models at first hand were perceived by the author of this thesis as a bit chaotic. Reading the book, a second and third time revealed the common thread. He approaches the model of the bioethical triangle and smart regulation as two different models, two different theories that supplement each other but are not per definition united. A final critique on the theory is the limited ethical points of view that are described. Deduced from the UDBHR, Brownword (2008) comes up with three ethical perspectives which are related to each other. By using only these three ethical perspectives other perspectives are ruled out, such as the feminist perspective, nihilist perspectives or political ethics. Most of these are partially covered by bioethics but it might be interesting for example to look at abortion law from a feminist perspective. Brownword's (2008) theory, concise as it is, does touch the necessary principles and explanations to get a grasp on the relation between ethical discourses and smart regulation. His theory is very well applicable in the field

of RFID implants, but other theories or intensification of his theory is always interesting for the academic debate. Further research might be interested in using a broader spectrum of ethical perspectives or more specific types of ethics to shed a different light on the debate and might use a more extensive theory on regulatory design.

The case selection in this thesis is a bit shaky, by using sources which were not familiar with the author the validity of these sources could not be addressed. Furthermore, the selection of cases via critical case selection did not end up with having cases that would be, in the eyes of the author, suitable for the research so there was a bit of a selection bias of the cases to fit the US states into the research. Selection bias is an academic flaw that one must always try to avoid, however because of the infantility of the topic it can be legitimized that some cases were more favorable than others because it would contribute to the quality of the data collection. Using critical discourse analysis to analyze the media outlets and linking them to the ethical discourse of the actors might not be the most valid way to address an ethical debate but it is the most feasible. In an optimal situation focus groups of experts or interviews with actors might have been the most transparent, valid and legitimate way of addressing a nuanced debate. However, CDA does provide the necessary tools to analyze the ethical discourse whenever there is enough data which proved to fail in the state of Missouri. For further research the critical case selection should improve with a more valid method of selection. Using CDA as tool for analysis is very well possible but might seem a bit arbitrary especially because of the coding scheme, which was not checked for this research, that is highly exposed to the interpretation of the researcher.

The analysis in this thesis is quite extensive and has a clear structure. The number of articles was a bit limited which resulted in Missouri and Ohio to have troubles for analyzation. This is not a flaw in the analytic model but more in the data collection method. By digging maybe, a bit deeper and increasing the scope of the research the analysis could be revealing some more interesting conflicts or problems in the regulatory design process than it did now.

All in all, the research conducted is an extensive research regarding the influence of bioethics on the shaping of relevant regulation in the field of RFID implants. The main discussion and limitation of this research is that the technology might not interest governments and actors alike to start a serious debate about it. As long as it remains with just a handful of people who are chipping themselves out of curiosity, innovation or artistic reasons there is no reason for the government to take serious measures and thus there is no reason for actors to stand up for other regulation. A different technology in this research would be more appropriate to provide a good answer at the research question. Therefore, I see this thesis as a start-up for further research but also as a discussion whether or not the right questions, theories and methods were used to address RFID implants.

5.3. Implications for policy makers

Deriving from this thesis there are several lessons to be learned for policymakers and additionally some fields of interest to keep track of.

In the case of RFID implants policymakers actually have did quite a good job in terms of tackling the Collingridge Dilemma. The new technology is noticed on time, policymakers created regulation that approached the new technology as manageable and did so based on their best intentions. Of course, this is possible to do because the technology did not really take flight. Still, there is a task for policymakers how to approach these disruptive technologies which is more or less an overarching lesson to be learned. New technologies might seem hard to grasp but as the case of the European Union showed it depends how strongly you want to narrow it down, what can be predicted and whether or not a policymaker includes the actors in the regulatory process.

First, the European Union showed that if regulation is made not for specific cases but for overarching problems that are included in disruptive technologies the majority of potential problems is tackled by diving into the consequences of disruptive technology instead of the technology itself. In the current timeframe it is safe to say that all new technologies will use the internet, although these applications use different specifications from the internet such as GPS tracking, storing data, data processing, connecting with private or public servers, security and encryption applications and so forth. It is not impossible to regulate these types of activities. As can be seen in the GDPR, no specific technology is mentioned but the core problems that might occur with data and security are regulated. This has two plus sides. First there is no need to have a full understanding of disruptive technology, but new technology can be managed by creating frameworks in which actors can operate (Weimer & Marin, 2016). Second, regulation does not form a barrier for the development of new technology but rather facilitates the development of new technologies. Innovators and inventors do not have to look endlessly whether their technology is approved by a governmental institution they can work in the framework set out by the government. Although, reality might be sometimes different than the ideological idea that if rules are made everyone abides by them, it is a step in the right direction.

Second, what can a policymaker predict and what not? Predicting the development of new technology is hard, even for the most sophisticated trendwatchers it remains a struggle to predict whether a technology will make it to the public or not. Once policymakers have researched a disruptive technology there is no time to sit back and wait till something happens in society that might need the policymaker to take action. It would be advised to policymakers when they have researched a new technology to keep track of the development. Like a reoccurring meeting in their agenda. If policymakers would treat new technologies like a repetitive pattern, they can more easily grasp the development because they have researched this before.

Third, include the actors in the regulatory process. Often the actors are questioned when the regulatory process has already started. A policymaker should regularly meet-up with actors to see how new technologies are developing and using the actors as his/her advisor when it comes to potential regulation. In RFID implants this could be done by meeting with actors every two months just to ask about new developments and which dangers they see. In that way the policymaker and the actors are contributing to the regulation that is created and they both know why this regulation is necessary.

In short, what we need in every governmental organization is a department of technological policy makers. People who are strong in creating regulation, connecting actors to their cause and have affection with new technologies which might turn out to be the next big thing.

6.0. References

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Appendix I Selection of articles

Official Legislation and Regulation (OLR)				
	Documents and Reports	*Author(s)*	*Date*	*Pages*
1	Senate Bill No. 362 CHAPTER 538 An act to add Section 52.7 to the Civil Code, relating to identification devices	Senate of California	2007	3
2	Senate Bill 944 AN ACT concerning Public Health – Subcutaneous Implanting of Identification Device – Prohibition	Senate of Maryland	2018	4
3	Senate Bill 235 Microchip Consent Act of 2009; prohibit requiring a person to be implanted with a microchip	Senate of Georgia	2010	2
4	Title XVIII LABOR AND INDUSTRIAL RELATIONS Microchip technology, employer not to require employees to be implanted — violation, penalty	Senate of Missouri	2018	1
5	Senate Bill 349 A BILL To enact section 4113.81 of the Revised Code to prohibit an employer from requiring an employee of the employer to insert into the employee's body a radio frequency identification tag.	Senate of Ohio	2006	1
6	Assembly Bill 209 AN ACT to create 146.25 of the statutes; relating to: prohibiting the required implanting of a microchip in an individual and providing a penalty	Senate of Wisconsin	2005	2

	News and Newsitems per state				
	California (CA)				
	Name Media Release	*Source*	*Author*	*Date*	*Pages/time*
1	People Are Implanting Microchips Under Their Skin To Improve Their Lives	San Francisco CBS Local	Watts, J.	June 22nd, 2016	2
2	Experts: Everyone will be microchipped by 2067	Catholic.org	Connoly, M.	August 10th, 2017	2
3	Dawn of the bionic age: Body hackers let chips get under their skin	Sacramento Bee	Johnson, T.	August 3rd , 2017	5
4	California Could Be 3rd State to Ban Forced RFID Implants	Pew Charitable Trust	Shtuhl, O.	September 18th, 2007	4
5	A U.S. company offers to implant chips in its employees	My San Antonio	Byers, D.	July 24th, 2017	2
6	Are you ready for a chip implant?	Fox News	Brandon, J.	November 3rd	3
7	California makes it a crime to 'skim' RFID tags	Networkworld	Gohring, N.	October 2nd, 2008	3
8	Microchip Implants: Big Brother in a Chip Coming Our Way?	Symantec	Trager, C.	February 13th, 2019	3
	Maryland (MD)				
1	Carter: Microchipping humans? It's already happening	Baltimore Sun	Wayne Carter, S.	August 5th , 2017	3
2	Maryland Lawmaker Takes Aim at Mandatory Microchipping	The Fredrick News Post	Loos, K.	March 15th , 2018	2
3	The Practice of Microchipping Employees Raises Ethical, Privacy Concerns	Chief Executive	Cafiero Giusti, A.	August 11th, 2017	2
	Georgia (GA)				
1	Microchips used to track students at school system in Georgia - RFID	YouTube	Cattanooga times free press	July 14th , 2014	0:40

2	Georgia Senate opposes forcing microchips into people	Atlanta Journal Constitution	Tagami, T.	February 4th, 2010	1
3	This body hacker is turning people into cyborgs	CNBC	Zaleski, A.	May 28th, 2016	3
4	State Legislatures Working on Anti-Microchip-Implant Legislation	Lowering The Bar	Underhill, K.	April 21st, 2010	2
5	Microchip Implants Spur "Mark of the Beast" Bans in 2 States	CBS News	Edwards, J.	November 9th, 2010	2

	Name Media Release	*Source*	*Author*	*Date*	*Pages/time*
6	Why Implanted Microchips in Humans Could Go Mainstream Sooner than Later	CBN	Hurd, D.	October 23rd, 2018	1
	News and Newsitems per state				
	Missouri (MO)				
1	Missouri law would fine employers for requiring microchip implants	Missourian	Blank, C.	July 22nd , 2008	2
2	'1984' worries: Company offering workers microchip implants	The Kansas City Star	Londberg, M.	July 25th , 2017	2
3	Missouri Becomes Fourth State to Ban Forced RFID Implantation	Privacy Lives		June 2nd, 2008	1
	Ohio (OH)				
1	Hospitals tagging babies with electronic chips	WorldNetDaily (WND)	Corsi, J.	January 15th , 2008	2
2	Column: 2017 The year of the under-skin microchip?	Cincinnati Enquirer	Kleine, R.	January 11th, 2017	2
3	US group implants electronic tags in workers	Financial Times	Waters, R.	February 12th, 2006	1
	Wisconsin (WI)				
1	Convenience Is Benefit Of Microchip Implants At Wisconsin-Based Company	Wisconsin Public Radio	Schossow, B.	July 27th, 2017	3
2	Wisconsin firm set to become first in US to microchip employees	WISN ABC	Wainscott, K.	July 24th, 2017	1

3	Wisconsin company that microchipped its workers envisions an 'internet of people'	The CAP Times	Lorenszsonn, E.	January 24th, 2018	3
4	Wisconsin company offers to implant microchips in employees	YouTube	CBS Evening News	July 25th, 2017	02:20
5	Top 10: Wisconsin company gets worldwide coverage of chip party	River Falls Journal		December 28th, 2017	2
	Name Media Release	*Source*	*Author*	*Date*	*Pages/time*
6	Wisconsin law bars forced RFID implants	NetworkWorld	Songini, M.	June 12th, 2006	3
7	The Day I Got Microchipped	YouTube	Fast Company	January 23rd, 2018	9:04

EU Press coverage and advisory reports (EU)					
	Name Media Release	*Source*	*Author*	*Date*	*Pages/time*
1	The use of chip implants for workers	DG for internal politics – employment and social affairs	Graveling, R., Winski, T., Dixon, K.	January, 2018	48
2	Ethical aspects of ICT implants in the human body: opinion presented to the Commission by the European Group of Ethics	European Group on Ethics in Science and New Technologies	EGE	March 17th, 2005	2
3	Microchip implants are threatening workers' rights	The Conversation	Larsson Rossvall, B.	November 22nd, 2018	4
4	Human Chipping: Will it ever go mainstream	Sifted	Billing, M.	March 21st , 2019	8
5	Germans are taking to microchips — one has his last testament implanted under his skin	Euronews	Leistner, A.	June 7th , 2018	2
6	Thousands of Swedes embedding microchips under their skin	Garda Post	Fitzgerald, N.	May 16th , 2018	4
7	How I was turned into a 'human cyborg' by having a microchip implanted under my SKIN	The Sun	Murphy, M.	September 20th, 2017	5
8	Sweden sees microchip implant revolution	YouTube	Al Jazeera English	February 21st, 2019	2:32

9	Biochipping: Beyond Human | Fortune	Youtube	Fortune Magazine	January 11th, 2019	5:57
10	Sweden: Chip under our skin | DW English	Youtube	Deutsche Welle News	October 28th, 2018	4:32
11	People in Sweden get a chip in their hands, here's why	Youtube	Bright Side	February 23rd, 2019	8:39
12	Thousands of Swedes are inserting microchips into themselves – is it because of their welfare state?	The Independent	Petersén, M.	June 21st, 2018	2
13	Mandatory implantation of Microchips in Employees? UK Gov't says it would likely be illegal	CNS News	McCandless, K.	December 6th, 2018	2

Appendix II US States Coding Scheme

ETHICAL POSITION

	Ethical Position		
Document	Utilitarian	Human Rights	Human Dignity
CA-OLR		Existing law accords every person the right of protection from bodily restraint or harm, from personal insult, from defamation, and from injury to his or her personal relations, subject to the qualifications and restrictions provided by/ The provisions of this section shall be liberally construed so as to protect privacy and bodily integrity	
CA1	Hopes of improving their lives/ "we don't want to carry devices, we want the devices built into us"	In addition to infection, implantable tech raises some privacy and hacking concerns.	
CA2	"the person can enjoy a more convenient life"		Mark of the Beast/ Public distrust on RFID implants
CA3	Improving life/live in a technological world	They (the people) would raise ethical questions about fairness and unequal access to devices that could give some people a competitive advantage over others.	"some critics believe tinkering with the body's capabilities is improper, even unethical."/ "It tends to be viewed as something like hubris"/ seven in 10 Americans were "somewhat" or "very" worried about implanting a computer chip in the brain to improve concentration and the processing of information. The more religious the respondent, the less likely they were to favor such/

CA4	Cure for Alzheimer's/ VIPs for night club/ safeguard kidnappings	Privacy complaints/lack of security	Prohibition because of Orwellian ideas
CA5	Standardization for everyday life activities	"Sounds invasive and intrusive"/ "And don't worry-there's no GPS tracking capability. . .yet"	
CA6	Standardization for everyday life activities/Medical rescue is easier.	Identity and privacy benefits/ Complaints about privacy of prisoners and politicians.	Cyborg dystopia
CA8	Standardization for everyday life activities.	Loss of privacy rights.	"There's no lying, cheating, hiding or ducking," said Caplan. "It's Big Brother in a tiny chip."
MD1	Alzheimer's/kidnapping/prisoner escapee/	Voluntary chipping will be mandatory eventually	Mark of the Beast/Apocalypse related/Microchipping at birth "without a political fight"/
MD2	Alzheimer's		Orwellian references
MD3		Privacy issues	
GA1	Safety for children/convenient for parents		
GA3	Upgrade your life.	Privacy concerns in combining data from RFID implant and cellphone data	
GA4		Violation of privacy/ "Microchips, the woman began, 'infringe on issues that are fundamental to our very existence. Our rights to privacy, our rights to bodily integrity, the right to say no to foreign objects being put in our body.'"	
GA5		"privacy issues are the chief concern"	Mark of the Beast references
GA6		Privacy Issues	Mark of the Beast references/ "But more people than just Christians oppose the biohacking trend. The

			website Futurism calls it a 'digital security nightmare.'"
MO1	Benefits of RFID implants are pale in comparison with identity theft		Mark of the beast references.
MO2	Convenient in life		Orwellian references
OH1	Children tagged prevent being kidnapped/ Alzheimer's		Intrusive technology for a rare problem / "Baby snatching from hospital facilities is a diaper full of nonsense,"/ "People in the United States don't want the human implantable RFID chips VeriChip thought was going to be the core of their business."
OH2		RFID "microchip" technology might be used to track and identify people	
OH3	No danger just beneficial for employees	Not a GPS	
WI1	Forgetting your wallet is not a problem/innovation is key/convenience/ RFID implant is linked to an app	The program is optional/ signing consent forms/ unintentional consequences/ integrity and privacy are key/ misconception that is a GPS tracker	
WI2	Convenience	Do not track workers	
WI3	Lead a better life by chipping/innovation/ / jail employees could be chipped for hygiene standards	Voluntarily signing forms/ No GPS tracking	
WI4	Can eventually save lives	Employers signed up to be bionic/ no tracking of workers/ privacy concerns	Reference to Orwellian dystopia

WI5		Concerned about tracking/Not GPS enabled	
WI6	Potential benefits by implanting immigrant guest workers	Concerns of data privacy and security	
WI7	Small group of people pushing the boundaries of technology/ Convenience in life/	Optionally microchipping employees/Security questions/Your information is everywhere.	

	Regulatory Modes			
Document	Hierarchical	Community	Competition	Design
CA-OLR	The bill would provide for the assessment of civil penalties for a violation thereof, as specified/ Any person who violates subdivision (a) may be assessed an initial civil penalty of no more than ten thousand dollars ($10,000), and no more than one thousand dollars ($1,000) for each day the violation continues until the deficiency is corrected			
MD-OLR	IF THE COURT FINDS THAT THE PERSON OR AGENT, REPRESENTATIVE, OR DESIGNEE OF THE STATE OR A LOCAL GOVERNMENT VIOLATED SUBSECTION (A) OF THIS SECTION, THE COURT MAY: (I) ASSESS AGAINST THE DEFENDANT: 1. A CIVIL PENALTY NOT EXCEEDING $10,000; AND 2. AN ADDITIONAL CIVIL PENALTY NOT EXCEEDING $1,000 FOR EACH DAY AFTER THE DAY OF IMPLANTATION THAT THE VIOLATION CONTINUES UNTIL CORRECTED;			

GA-OLR	Any person required to have a microchip implanted in violation of this Code section 28 may file a civil action for damages			
MO-OLR	Any employer who violates this section is guilty of a class A misdemeanour.			
OH-OLR	Any employer who violates this section shall be subject to a fine of not more than one hundred fifty dollars per violation.			
WI-OLR	Any person who violates sub. (1) may be required to forfeit not more than $10,000. Each day of continued violation constitutes a separate offense			
CA2	The social stigma of being chipped will have faded to the point that people are routinely chipped/ Medical benefits for government surveillance			
CA3	Fear of Government surveillance			
CA8	Fear of Government surveillance			
GA2	“The bill would make involuntary installations a misdemeanour, and it would establish penalties for unwanted insertions”			
GA4	Non-consensual microchipping makes it a misdemeanour			
MO1	Non-consensual microchipping would make it a misdemeanour with a fine of up to $1,000 for a boss who demands that a worker get an implant.			

MO3	misdemeanour for any employer to "require an employee to have personal identification microchip technology implanted into the employee for any reason.			
WI6	"Violators face fines of $10,000 each day until the chip is removed"	"makers of RFID technology should educate the public on its capabilities and use"		
	Regulatory Pitch			
Document	Moral	Practical	Behavioral	
CA1		Safety issues government should test		
CA2			Common as vaccinations	
CA3		Safety issues government should test		
CA4		Industry says its "fear-mongering" to have legislation/ Health hazard		
CA5				
MD1	Might be unconstitutional		Government already chipping people	
GA2	Prohibiting is a message that GA is upholding constitutional rights and protection of citizens.			
OH2	Badly-worded and unconstitutional/government can force a citizen to do something/government can deny liberty			
WI4	FDA approved			
WI5			Health issues	
WI7			Health issues	
	Regulatory Phase			

Document	First Phase	Second Phase	Feedback-loop	
CA4	Lawmakers are calling the legislation pre-emptive /Legislators admit that the few laws being enacted are pre-emptive			
MD2	It's pro-active legislation			
GA4	Pro-active legislation			
MO1	Get in front of the issue of RFID Implants			
WI6	Proactive legislation/ "RFID-related legislation "will shake itself out."			
	Regulatory Range			
Document	Prohibition	Permission	Regulatory Mix	Regulatory tilt
CA-OLR			This bill would prohibit a person from requiring, coercing, or compelling any other individual to undergo the subcutaneous implanting of an identification device, as defined/ a person shall not require, coerce, or compel any other individual to undergo the subcutaneous implanting of an identification device	
MD-OLR			For the purpose of prohibiting a person or an agent, a representative, or a designee of the State or a local government from requiring, coercing, or compelling an individual to undergo a certain implanting of a certain identification device;	
GA-OLR		The voluntary implantation of any microchip may only be performed by a physician	No person shall be required to be implanted with a microchip	

		and shall be regulated under the authority of the Georgia Composite Medical Board."		
MO-OLR			No employer shall require an employee to have personal identification microchip technology implanted into an employee for any reason.	
OH-OLR			No employer shall require an employee of the employer to have inserted into the employee's body a radio frequency identification tag.	
WI-OLR			No person may require an individual to undergo the implanting of a microchip	
CA4			A handful of states are making sure their citizens will never be forced to have a microchip implanted under their skin./ banning human implanting of these tags without consent.	
CA6			However, a number of states, including California and Missouri, have already implemented regulations on chip implants. The technology has come under serious scrutiny, and they are illegal if an employer or medical professional mandates their use.	
GA2		“It also would create guidelines for voluntary implantation and require that only physicians put microchips into people.”	Prohibit involuntary implantation of microchips/ “If Senate Bill 235 becomes law, it would ban microchip implantation against a person's will regardless of that person's age.”	
GA4		Pacemakers are allowed		

MO1			Missouri lawmakers have made it a crime when your boss orders you that a microchip should be planted in your arm.	
OH2		Chipping and tracking people with Alzheimer's disease and autism/ climate-deniers and religious politically incorrect should be chipped due to mental instability		
WI6			"Wisconsin this week will become one of the first states to ban the forcible implantation of radio frequency identification (RFID) tags into humans."/ "no person may force another to have a microchip implanted in his body."	

Appendix III EU Coding Scheme

ETHICAL POSITION

	Ethical Position		
Document	Utilitarian	Human Rights	Human Dignity
EU1	Fundamental ethical principles: precautionary principle	Fundamental ethical principles: privacy, value conflicts, informed consent / invasion of privacy / it is essential that the worker is fully informed of any changes and given the opportunity to raise concerns / inequality between employer and employee may lead to coercion and control	Fundamental ethical principles: human dignity, non-instrumentalisation, equity, value conflict / questioning a society in which moral considerations are given a lower priority than business or security / religious views may preclude the insertion of an implant
EU2	ICT implants can enhance physical and mental capabilities.	Implants clearly require informed consent / data protection	The relation between bodily and psychic function is basic to our personal identity / the respect for human dignity has been the fundamental basis of EGE discussions / The inviolability of the human body is not a barrier for scientific advancements but a barrier against its misuse / "[…] the EGE makes the general point that non-medical applications of ICT implants are a potential threat to human dignity and democratic society." / no creation of first and second rank citizens /
EU3	RFID implants make life more convenient	"But in recent years we've seen some more extreme monitoring methods that push at the boundaries of personal	Serious concerns over issues related to human dignity

		privacy." / employees might feel pressured to have a chip because of negative consequences		
EU4	It is convenient / Biohacking is in the same line as VR and blockchain and it has the potential to solve problems / open source software allows new start-ups to use new innovative ways of the hardware	In Amsterdam and Germany people are sceptic because of privacy reasons / the software of chips has evolved for more services but the hardware did not develop in the same way	Dystopian future	
EU5		Customers do not store information on their chips and the risk of data being stolen is very small		
EU6	Swedish people have a deep believe in the positive potential of technology		Carrying a microchip is more dystopian than practical	
EU7	Describes the benefits of having a RFID implant / "Implants aren't just about giving yourself superhuman senses, they are designed to make your life easier			
EU8	Swedes use the implants to make their life easier / provide medical care in remote communities	Safety concerns about privacy		
EU9	Making your life easier / convenience to use your cards	RFID implants are the opposite of tracking and control devices because it is passive, it is the best way to maintain your personal data / the discussion that the employer chips you is not true, it is you that has the right to tell your employer to get up to speed with new technology		
EU10	Not only for convenience of life but also for monitoring your health yourself.	EU advisory commission already rings the bell on privacy concerns.		

EU11	It makes life far more convenient / health hazards are non-existence	The invasion of privacy is per definition not true because of the near field communications technology.		
EU12	Make life easier	Privacy in Sweden has been state controlled like the sharing of personal details. RFID implants can only be used whenever it is used on a short distance with a different device making it perfectly safe.	Orwellian Nightmare	
EU13	Convenience of life	"TUC (Trades Union Congress) secretary-general Francis O'Grady said in a statement this week new technologies should not be allowed to compromise a worker's right to privacy. Employers should negotiate with their workforce about monitoring policies, he said."		

SMART REGULATION

	Regulatory Modes			
Document	Hierarchical	Community	Competition	Design
EU2	This field needs regulation			
EU9		There is no regulation now so we need to create a robust product now that does not need regulation		
EU13	"the law needs to be strengthened too, so that workers are better protected against excessive and intrusive surveillance."			
	Regulatory Pitch			
Document	Moral	Practical	Behavioral	
EU1	Unauthorised tag cloning / Man-in-the-middle attack / unauthorised tag disabling / unauthorised tag manipulation / Spoofing / denial of service attack	Ensuring health and safety is a responsibility for all employees / carcinogenic effects / dermal effects / effects on MRI use / effect on pharmaceuticals	Eavesdropping / traffic analysis	
EU2	Surveillance is only permitted when the legislators deems it necessary which is justifiable in a democracy			
EU3	Employers get bigger control over their workers	There is limited information of health risks	The fear around chips arises from misplaced suspicious	

EU4			"[…] the trust that Swedes have in the system – both the state and companies."	
EU6			"[…] Swedes are more prone to sharing their personal details because of the way the Swedish social security system is structured."	
EU7		Health risks		
EU9			In 20 years the question is not whether you are being chipped but which chip you are going to get.	
EU12		Chips can cause infections of reactions in the immune system		
	Regulatory Phase			
Document	First Phase	Second Phase	Feedback-loop	
	Regulatory Range			
Document	Prohibition	Permission	Regulatory Mix	Regulatory tilt
EU3			The GDPR states that employers are expected to conduct privacy impact assessments when they engage in processes that represent a high risk to the rights of data subjects	
EU13	The government says it doubts RFID implants will be legal.			