Ethical Design of Digital Identity

Environmental Implications from the Self-Sovereign Identity Movement

Master Thesis

Date: 22-06-21

Master: Organisational Design and Development

Personal information

Name: Sanne Glastra

Student number: S1006880

Supervisors

Name of assigned 1st examiner: Claudia Groß

Name of assigned 2nd examiner: Michel van Berkel

1

Summary

In a world that is becoming more digital, it is relevant to find some guidelines for organizations to design digital identity more ethically. A universal identity system on the internet is still missing and there are no clear standards for organizations to design digital identity. With this research, knowledge and insights have been obtained to advance organizations to design digital identity more ethically. A contribution has been made by proposing the conditions to enable improvements for a more ethical design.

To gain insights, the environment surrounding digital identity has been researched. This environment contains the following five concepts: industry norms, political and legal, professional codes of ethics, societal norms, economic and competitive (McDevitt et al. 2007). The research is practice-oriented, explorative, and approached from an abductive perspective. Qualitative research based on ten semi-structured interviews with respondents from the Self-Sovereign Identity (SSI) market has been used to collect data.

To design digital identity more ethically, organizations should pursue autonomy, transparency, equal power relations, privacy, and inclusivity. In society we should become aware of the problem of digital identity, and we should change the monetization of data. A governance framework can advance organizations to design digital identity more ethically.

Table of contents

Chapter 1: Introduction

1.1 Cause and context

The world is becoming more digital, and we are becoming more dependent on technology (Satybaldy, Nowostawski, & Ellingsen, 2020). We do more and more actions digitally, from banking, to buying and selling, even our social interactions are increasingly digital. Because we do more and more online, we leave a lot of data and personal information behind on the internet without being aware of it. All this left-behind data and information by someone on the internet can be seen as the digital identity of that person. The digital identity of people is in the hands of companies, centralized institutions, and governments that store and manage this data. This makes privacy, security of personal information, and digital identity difficult nowadays (Satybaldy et al., 2020).

In the real world, identity interactions are different. People collect and store their own data and present it to prove things about themselves. For example, an ID card, a driver's license, or a health insurance card. This data is stored and owned by the person and the information is only released when the person wants to. This is not what happens on the internet, resulting in situations where people have no control over their personal information, have less privacy, and security and credibility of personal information is an issue (Sovrin Foundation, 2018).

Organizations play a major role in managing and designing digital identity, and there are differences in how the organizations design digital identity and store the data of their customers. Some of the companies use the data for marketing purposes, to gain power, or to obtain financial value. This leads to a problem where companies gain power and make money by collecting data while customers are not in control of their own digital identity on the internet (Satybaldy et al., 2020). Other companies would prefer that customers manage their own data, but the companies currently see no other option for storing data and managing digital identity on the internet. A universal identity system for the internet is still missing and there are no clear standards, guidelines, or laws for organizations to manage or design digital identity (Sovrin Foundation, 2018).

The consequences of sharing so much personal information with other parties and institutions are becoming visible. For example, in 2018 a scandal surrounding Facebook and Cambridge Analytica was revealed that showed the social impact of companies gathering large amounts of user data for organizational purposes. Cambridge Analytica is suspected to

5

have been able to influence the 2016 United States presidential election and the Brexit vote using data from Facebook users for political advertising. This shows that the consequences of people not being in control of their data are becoming more visible and the problem of how digital identity is designed and managed by organizations is becoming more relevant (Satybaldy et al., 2020). This is one aspect of the problem of the current digital identity design. Since the problem is very complex, it is further explained in paragraph 2.1

1.2 Research Design

Many moral considerations lie beneath the problem of digital identity. According to Ishamaev (2020), any system that manages human identity is problematic from an ethical perspective. In his article about the moral issue regarding digital identity, he stated the following: ''Any such identity management (IM) system—no matter how narrow and technically focused the ambitions of its creators are— inevitably cuts into a gordian knot of ethical concerns regarding autonomy, self-determination, and self-identification of its users'' (p. 1). The currently implemented identity systems have difficulty taking these moral considerations into account (Ishamaev, 2020). Therefore, it is relevant to conduct research about the digital identity from an ethical perspective to advance organizations to design digital identity more ethically.

To advance organizations to design digital identity more ethically, it is relevant to further examine the ethical concerns of digital identity. McDevitt, Giapponi and Tromley (2007) have conducted research about ethical decision-making when facing an ethical challenge. They defined variables that influence and shape ethical decision-making in different industries. These variables will be further explained paragraph 2.2. By gaining insight into the variables of the model, the ethical concerns of digital identity can be better understood, and improvements can be suggested to advance organizations to design digital identity more ethically (McDevitt et al., 2007).

The design of digital identity by organizations is a relatively new problem. The model of McDevitt et al. (2007) has never been applied to this context. This research starts with examining the outermost layer of the model, the external environment. In this way, knowledge about digital identity can be obtained at the macro level. By starting broadly with the outermost layer of the model, most insight can be gained about the new context of digital identity. To gain insight the following research question is formulated:

How can the external environment advance organizations to design digital identity more ethically?

By answering this research question, the following research objective can be realized:

By gaining insight and developing knowledge about the external environment of organizations using digital identity, this research can contribute to advance organizations to design digital identity more ethically.

In this research, knowledge is obtained by interviewing respondents from the Self-Sovereign Identity (SSI) market. SSI is both a technology and a digital movement that emerged as a response to the problem of digital identity and its ethical considerations. SSI argues that organizations' current design of digital identity should change, and they try to realize a more ethical design of digital identity. Since the SSI technology and movement is still very new and unknown, it will be further explained in chapter 3.

As a starting point for the empirical source of this research the company Animo (Animo Solutions, 2021) was used. Animo is a company in the SSI market (Animo Solutions, 2021). Animo works on the SSI technology and implements solutions for digital identity by developing software. They try to give the user as much control as possible by building secure and decentralized identity solutions. Animo was founded in April 2020 by three recently graduated ICT students. Animo is the empirical source for this research and allowed to obtain knowledge from the SSI market about digital identity. More information about Animo is given in paragraph 4.3.

This research has social, practical, and academic relevance. First, the social relevance will be discussed. A universal identity system for the internet is currently missing and there are no clear standards, guidelines, or laws for organizations to design digital identity (Sovrin Foundation, 2018). The lack of guidelines and understanding about the design of digital identity allows companies to do what they want. As a result, society experiences negative consequences regarding privacy and data security risks. By developing knowledge about the environment of organizations using digital identity there will be a better understanding of the current way in which digital identity is designed. A better understanding can make people, society, and organizations aware of the potential dangers of sharing so much personal information on the internet (Satybaldy et al., 2020). This contributes to addressing and tackling the ethical and societal problem of digital identity to prevent more scandals surrounding privacy, data security and limit the influence and power of companies such as

Facebook. Based on the knowledge and insights obtained through this research, improvements can be suggested to create conditions that allow organizations to design digital identity more ethically.

This research has also practical relevance. This research gives Animo and other SSI organizations more insight into what is needed in the environment so that organizations can design digital identity more ethically. With this research, conditions in the external environment can be pursued and created by organizations to design digital identity more ethically. Not only for organizations in the SSI market, but for any other organization that has to deal with the storage of data and wants to gain insight into designing digital identity more securely and ethically. Since the research approaches the problem from an ethical perspective, it also helps to ensure the likelihood of ethical behaviour of organizations. When the ethical concerns are better understood, individuals and organizations can design and implement programs that foster ethical decision making (McDevitt et al., 2007).

Finally, while this thesis is practical and socially oriented, this thesis also allows to reflect on existing theory and to contribute to academic literature. The model of McDevitt et al. (2007) can be applied to a new context, the context of digital identity. In this case, new insights can be obtained and possible improvements for the model can be suggested. Because of the developments and growth in the field of digitalization and emerging technologies, is it relevant to expand our academic knowledge in this context from an ethical perspective (Moor, 2005).

1.3 Outline of thesis

The research is practice-oriented and exploratory. Qualitative research based on ten semi-structured interviews with respondent from the SSI market is used to research the design of digital identity. Existing academic literature is used as a starting point in this research. In the next chapter, the problem of digital identity and the ethical decision-making model of McDevitt et al. (2007) will be further explained. To better understand the role of the SSI market, existing academic literature about SSI will be discussed in chapter three. The research method will be discussed in chapter four, which contains the research design, the data collection method, sample, data analysis strategy, and research ethics. In chapter five, the results will be analysed regarding the theoretical assumptions in chapter two and three. In the final chapter, the conclusion and discussion of this research will be presented. This includes the answer to the research question, the practical and theoretical implications, limitations, suggestions for future research and a personal reflection on the research.

8

Chapter 2: Theoretical background

This chapter looks at existing academic literature to obtain a more complete picture of the problem of the current digital identity design and the ethical decision-making model of McDevitt et al. (2007). Subsequently, the conceptual model of this research is presented and the underlying relationship between the concepts is explained.

2.1 The problem of the current digital identity design

The current design of digital identity is complex and causes multiple problems. In chapter 1 the problem is shortly introduced. In this paragraph three other aspects of the problem of the current digital identity design will be explained.

First, one of the problems is that there are currently no other options for society to avoid the negative consequences of the current design of digital identity. It could be said that sharing so much personal information is a choice, but at the same time, we are expected to have an online presence and identity on the internet. We need a Google or Apple account to use our phone and an email address to register for online services. We need a digital identity to access our bank account or purchase airline tickets. It is almost impossible to live without a digital identity (Satybaldy et al., 2020)

The second aspect of the problem is that an individual has no control over their data or identity. This is explained by giving an example of a person with a Google or Apple account. Usually, a person uses their Google or Apple identity to access other online services. Google, or Apple, is in control of the digital identity of the individual and are in fact the owners of the identity information. Because of this, several problems can arise. If Google or Apple stops doing business with the online service, the individual loses access to the online services. If Google, Apple, or the online service is hacked, the individual's digital identity is compromised. If one of the organizations changes their goals or terms, the individual will be pressured to conform to keep their access. This leads to a situation where organizations have a lot of power and users have no control over their data and digital identity (Animo Solutions, 2021).

Third, the fact that companies such as Facebook, Google, and Apple have a lot of power because of the amount of data they have, they can have a huge influence in society. Organizations can manipulate and manage their customers' data, sell the data to interested parties or influence their customers purchases. This makes data of internet users and

customers increasingly valuable to governments and companies and it can use this data in many exploitative ways (Ishamaev, 2020).

Thus, the problem of the current design of digital identity is that people in society have no possibility to avoid the negative consequences of the current design of digital identity. Secondly, people have no control over their digital identity and thirdly companies gain power by collecting data and can use this power in exploitative ways. To solve the problem of the current digital identity design by organizations, this research aims to advance organizations to design digital identity more ethically.

To realize a more ethical design of digital identity by organizations, researchers in academic literature argue that gaining insight into ethical concerns of digital identity is needed (Ishamaev, 2020; Lim, 2020; Satybaldy et al., 2020; Schäffner, 2019). Following Ishamaev (2020), any system responsible for managing human identity inevitably brings a set of moral concerns. The currently implemented identity systems have difficulty taking these moral considerations into account. This research provides insight into the moral considerations and issues when designing a digital identity. Based on this insight, it can be examined how organizations can design digital identity more ethically. To gain insight into the moral considerations and issues of designing digital identity, academic literature on ethical decision-making will be discussed in the next paragraph.

2.2 Ethical decision-making process

To understand the moral concerns of digital identity better, the ethical decision-making model of McDevitt et al. (2007) will be discussed in this paragraph.

The interest in ethical decision-making models to increase the likelihood of ethical behaviour in organizations has grown in recent years (McDevitt et al, 2007). Looking at these ethical models, Bartlett (2003) states that there is a dichotomy in academic literature where two schools of thought can be distinguished. One side of the dichotomy focuses on the individual aspects of ethical decision-making. This individual perspective assumes that ethics revolves around the personal value system of an individual, which is unique for everyone. On the other side of the dichotomy, models focus on the contextual or situational aspects of ethical decision-making. With this perspective, ethics is a result of a socialization process where individuals are socialized in accepting certain values. The real focus of organizational ethics lies between these two schools of thought. Conrad (1993) states that a theoretical framework that integrates the situational, as well as the individual perspective, is necessary.

McDevitt et al. (2007) state that both variables are important in making ethical decisions and integrated both variables in a model. The model is shown in figure 1 on the next page. McDevitt et al. (2007) integrated the following individual variables based on existing academic literature: cognitive moral development (Trevino & Youngblood, 1990), age (Brady & Wheeler, 1996; Kohut & Corriher, 1994), gender (Brady & Wheeler, 1996; Whipple & Swords, 1992), locus of control (Singhapakdi & Vitell, 1990; Trevino & Youngblood, 1990), and level of education (Kohut & Corriher, 1994). In addition, the following situational variables are integrated into the model, such as job context variables (McDevitt & Van Hise 2002), organizational culture (Jones & Hiltebeitel, 1995), and environmental influences (McDevitt & Van Hise 2002).

Thus, based on academic literature, it can be stated that the situational variables and individual variables are decisive for the ethical challenges and the ethical decision-making process (McDevitt et al. 2007). First, the situational variables, which include the external environment, the organizational context and job context, are further explained and subsequently, the individual variables are explained. All variables are shown in the model below in figure 1.
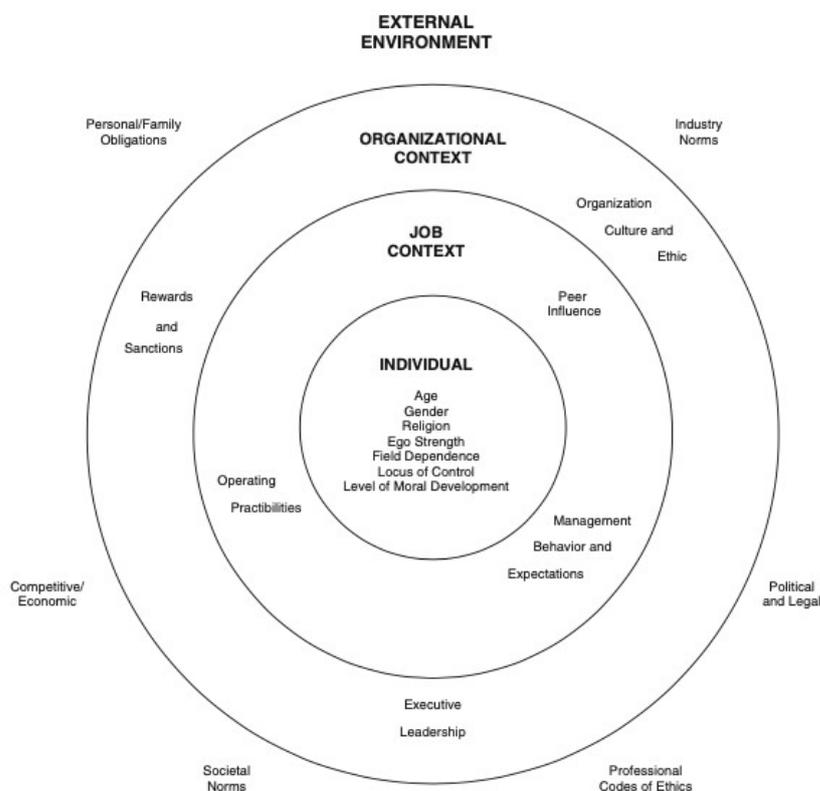

Figure 1: McDevitt et al. (2007, p. 221): ethical decision-making variables

2.2.1 Situational variables

To explain the model by McDevitt et al. (2007) from the outside in, the situational variables are explained first. From the outside in, the situational variables are divided into the external environment, organizational context, and job context. First, the external environment includes variables that lie outside the organization: competitive/economic, societal norms, professional codes of ethics, political and legal, industry norms, and personal/family obligations (McDevitt et al., 2007). Competitive economic factors can create economic challenges and uncertainty for an organization which can lead to more unethical decisions. Societal norms, legal and political systems limit the scope of decision-making. Professional codes of conduct have been formulated to provide guidance in making ethical decisions. Secondly, organizational context consists of several concepts: rewards and sanctions, organizational culture and ethics, and executive leadership (McDevitt et al., 2007). Organizational culture consists of both formal and informal coded expectations within the organization. Leadership determines the way of communicating and working. Executive leadership can affect the authority and responsibilities of employees. Also, the reward system is relevant since the reward system of an organization can sometimes lead to unethical decisions. Finally, job context determines the judgment of individuals. Job context consists of operating practibilities, management behaviour and expectations, and peer influence. Operating practibilities is, for example, competition for rare resources between employees. Peer influence, management behaviour and expectations affect employee behaviour and are used as a reference point for making decisions (McDevitt et al., 2007).

2.2.2 Individual variables

To explain the centre of the model, the individual variables are explained in this paragraph. Individual variables are variables that are unique for everyone. According to the model of McDevitt et al. (2007), the individual variables consist of age, gender, religion, ego strength, field dependence, locus of control, and level of moral development. Age, gender, and religion are simple to determine. Ego strength and field dependence are related to the confidence and personal beliefs of the individual decision-maker. Ego strength relates to the confidence of an individual to decide or do what he or she thinks is right. Field dependence is the independence of an individual to referent others. Someone who is field-dependent will also consider referent others and information provided by the outer world while making an ethical decision (McDevitt et al., 2007). Locus of control is the causes that individuals assign to their

successes and failures. The level of moral development is equivalent to the moral maturity of an individual (McDevitt et al., 2007). Moral maturity can be determined by six stages (Kohlberg & Hersch, 1977; Kohlberg 1969). Rest and Narváez (1994) translated for organizations, and in line with the six stages, people's understanding of how to organize cooperation ideally will increase over time.

The model of McDevitt et al. (2007) tries to embrace the complexity of the ethical decision-making process and proposes variables that could be field-tested. McDevitt et al. (2007) assume that two things are important by facing an ethical challenge. Firstly, what influences individuals in the ethical decision-making process. Secondly, how are individuals stimulated to come up with solutions while facing ethical challenges. Both aspects are relevant to understand how the ethical challenge of digital identity is influenced and how individuals come up with a solution to design digital identity more ethically. McDevitt et al. (2007) state that a better understanding of the ethical challenge and how this is affected by different kind of variables will help to enhance the likelihood of ethical behaviour. This can help to advance organizations to design digital identity more ethically.

Since digital identity is a relatively new concept and little research has been conducted about this concept, it is interesting to research the outer layer, the external environment, of the model of McDevitt et al. (2007). Since little is known in academic literature about the outer layer of the model, it is difficult to conduct research about the inner layers of the model. By exploring the outermost layer, knowledge can be obtained at the macro level.

According to McDevitt et al. (2007), the external environment consists of the following concepts: Personal and family obligations, industry norms, political and legal, professional codes of ethics, societal norms, competitive and economic. In this research, all the concepts are researched, except 'personal and family obligations'. This concept is omitted so that the personal information of the respondents does not have to be disclosed in this research. The rest of the concepts within the external environment can be explored to look at how these concepts influence the design of digital identity. In figure 2, the relationship between the external environment and the design of digital identity is presented in the conceptual model of this research.

13
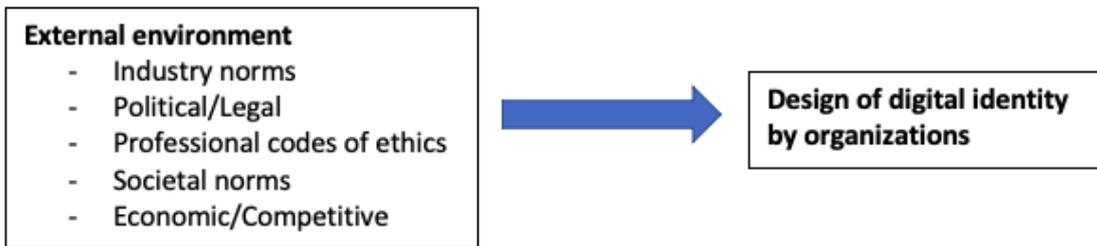
Figure 2: Conceptual model

This research examines the concepts within the external environment layer to better understand the design challenge of digital identity. With the obtained knowledge, it is possible to look at how the environment can advance organizations to design digital identity more ethically. Knowledge about the ethical challenge of digital identity is obtained by interviewing respondents from the SSI market. The SSI market and its characteristics is further explained in the next chapter.

Chapter 3: Self-sovereign Identity

Since SSI market is the empirical source of this research, it is relevant to further explain and understand the market. Almost every organization that store customer data must deal with design of digital identity. As a response to the problem of digital identity and its ethical considerations Self-Sovereign Identity (SSI) has emerged. SSI argues that the current way in which digital identity is designed is wrong from an ethical perspective and tries to change the way in which digital identity is designed. To better understand the role of the SSI market in discussion on digital identity, this paragraph will further elaborate on the characteristics of the SSI technology and movement, and will discusses existing academic literature about SSI.

3.1 SSI technology and movement

The goal of SSI is to bring the online identity process closer to the real-world identity process. SSI tries to digitalize the in how the characteristics of identity management while considering the moral considerations of privacy and data security (Lim, 2020). By minimization of personal information disclosure and decentralizing private data storage, SSI seeks to give people more control over their digital identity without being dependent on centralized institutions, governments, or companies (Ishamaev, 2020).

SSI represents both a technology and a digital movement. The SSI technology mainly focuses on the technical challenge of digital identity and tries to develop software that gives users more control over their digital identity. The digital movement of SSI aims to get the philosophy behind the technology accepted and adopted in the mainstream conscience. This movement continues to struggle with the ethical challenges of current implementations of digital identity. This movement takes into account the moral considerations of digital identity management, such as power, control, privacy, and autonomy (Satybaldy et al., 2020).

Organizations in the SSI market work on the SSI technology by developing software to implement this self-sovereign digital identity. They build solutions that allow the individual to control their data and digital identity by enabling users to become their own identity providers. This allows users to have access to their data whenever they want instead of their data being stored by an organisation, and all their data is stored on their own personal device, like a mobile phone. The SSI software is still very new and is currently still being developed. Both the technology and the digital movement in the SSI market are under development and seek to develop further to design digital identity more ethically (Satybaldy et al., 2020).

3.2 The ten principles of Allen (2016)

SSI is becoming increasingly well-known in academic literature. Most authors in academic literature (Satybaldy et al., 2020; Ferdous et al., 2019; Schäffner, 2019; Soltani & Nguyen, 2018; Mühle et al., 2018; Baars, 2016) define self-sovereign identity using the ten principles of Allen (2016). Allen's (2016) principles are used to define SSI, to develop the requirements for an SSI system, to make it understandable in academic literature and applicable for organizations. The principles of Allen (2016) are presented in table 1.

Table 1*: The ten principles of Allen (2016)*

The ten principles	Description
1. Existence	Users must have an independent existence.
2. Control	Users must control their identities.
3. Access	Users must have access to their own data.
4. Transparency	Systems and algorithms must be transparent.
5. Persistence	Identities must be long-lived.
6. Portability	Information and services about identity must be portable.
7. Interoperability	Identities should be as widely usable as possible.
8. Consent	Users must agree to the use of their identity.
9. Minimalization	Disclosure of claims must be minimized.
10. Protection	The rights of users must be protected.

Allen's ten principles are based on The Laws of Identity written by Cameron (2005), who introduced self-sovereign identity in literature. Cameron's Laws of Identity were written for the development of a Microsoft Passport. At that time, Cameron was not aware that self-sovereign identity was becoming increasingly important in the coming years. He wrote about privacy problems and the reliability of some organizations with regards to the identity management of internet users. Cameron (2005) emphasized the need for user control, minimal disclosure, and a portable and interoperable identity management system on the internet.

Allen (2016) elaborated on Cameron's (2005) laws of identity by explaining how identity should exist, why the identity system should be transparent, and how it should be portable and interoperable at the same time (Satybaldy et al., 2020). The paper of Allen

16

(2016) describes the evolution of online identities and presents the ten guiding principles for the SSI industry. Allen's (2016) paper is considered as the first paper that described the term self-sovereign identity clearly and explains it easily and understandably. From the moment that Allen developed the principles, in 2016, the SSI market was born, and the first SSI initiatives and organizations emerged.

Allen (2016) has created these principles to specify self-sovereign identity. He states that these principles are a departure point to provoke a discussion about what is truly important for SSI. The principles have not changed since the publication of Allen (2016). The principles try to comply with user control, which is the most important part of SSI. As described in the first chapter, identity and personal information can be used for both beneficial and maleficent purposes. The principles recognize that there are two sides to identity, and ethical challenges with digital identity management exist. Therefore, transparency, fairness, and support of the commons with protection for the individual must be ensured within an identity system (Allen, 2016).

3.3 Empirical source of this research

Since the SSI market is the empirical source of this research, a description of the organizations in the SSI market is given. Organizations within the SSI market distinguish themselves by wanting to act more ethically, in contrast to for example Google or Facebook. Since companies in the SSI market are still in the experimental initial phase of development, people in the SSI market are still trying to find out how you can design digital identity differently and more ethically. In addition, the SSI market is still searching for how they can make organizations, governments and society aware of the current problem and convince them to change the current design of digital identity. With this research, the design of digital identity is further researched and explored from an SSI perspective. In the next chapter, the methodology of this research will be discussed which includes the research strategy, data collection method and data analysis.

Chapter 4: Methodology

This chapter explains the methodology of the research. This concerns the chosen research method, the data sources, and the data analysis strategy. Finally, the limitations and ethics of this research are considered and discussed.

4.1 Research method

This research examined in a qualitative way how the environment can advance organizations to design digital identity more ethically by conducting interviews with respondents from the SSI market. The respondents from the SSI market were contacted with the help of Animo and based on the interviews the research question is answered.

For the following reasons qualitative research was chosen. Qualitative research can be used to explore a new phenomenon. Since little research has been done about designing digital identity, qualitative research is a suitable method to explore the SSI market. Existing academic literature is used as a starting point and has provided a theoretical foundation for the research. With qualitative research, there is room for changes and adjustments when new or unexpected information came up while analysing the collected data (Verschuren & Doorewaard, 2015).

In addition, with qualitative research, meanings and interpretations of respondents were discovered to describe the social phenomenon of digital identity (Bleijenbergh, 2013). SSI, ethics, and digital identity are difficult concepts that have multiple interpretations and definitions. Qualitative research allowed the respondents to describe and define these concepts from their perspective. This helped the researcher to better understand the concepts and to propose suggestions for designing digital identity more ethically.

The research question was approached from an abductive perspective since this approach integrates elements of the inductive and the deductive approach. The purpose of abductive research is to discover new variables or relations as a researcher (Dubois & Gadde, 2002). Since digital identity has hardly been researched from an SSI perspective in academic literature, abductive research was used to gain new insight into the ethical design of digital identity. The elements of the deductive approach emerged from the fact that existing literature and the model of McDevitt et al. (2007) were the starting point of this research. The elements of the inductive approach emerged because this research also introduced new variables and relations based on the knowledge obtained from the interviews.

4.2 Data collection

Data for this research was collected by conducting ten semi-structured interviews. Since there was little known about SSI and how to design digital identity more ethically, developing and listing all interview questions beforehand would have limited the potential of the research. With semi-structured interviews, this was not necessary and during the interview, there was room for personal input from the interviewee or interviewer. In this way, some questions or topics were discussed in more detail. This way of interviewing made it possible to obtain in-depth knowledge while at the same time a clear structure was maintained in the interview (Järvinen & Mik-Meyer, 2012).

Individual interviews were most appropriate for this research because in this way each respondent could suggest how digital identity should be designed more ethically. This differed for everyone, and it allowed the respondents to define and explain the topics by themselves. The interview lasted an hour so that there was enough time to define and discuss the concepts of this research.

All the interviews were recorded with the consent of the respondents. This allowed the interviewer to listen better to the information given during the interview. The researcher listened back to the recordings and made transcripts of the interviews. This has increased the reliability of the research (Bleijenbergh, 2013).

4.3 Sample

All the respondents are contacts of Animo. With the help of Animo, it was determined who was available and suitable for an interview and the respondents were approached. The respondents work full time in the SSI market and are all seen by Animo as experts in the field. Most of the respondents are software engineers. Multiple respondents have their own business, and several respondents work for an organization that works with SSI technology. In table 2 on the next page, an overview is given.

Table 2: *Overview of the respondents*

Respondent	Country	Interest
Respondent 1	Netherlands	Communication strategist and co-founder of Animo
Respondent 2	Netherlands	Software engineer and co-found of Animo
Respondent 3	Netherlands	Project manager and co-founder of vitality
Respondent 4	Netherlands	Software engineer and co-founder of Animo
Respondent 5	Netherlands	Compliance advisor at the Rabobank
Respondent 6	Canada	Software engineer and consultant for the government
Respondent 7	Switzerland	Software engineer at identification provider company
Respondent 8	Canada	Software engineer at identification provider company
Respondent 9	Czech Republic	Software engineer at a bank in South Africa.
Respondent 10	United States	Chief enterprise architect at a company that develops digital fraud mitigation technology

4.4 Sensitizing concepts

In this study, the concepts of the model of McDevitt et al. (2007) are used as sensitizing concepts. Sensitizing concepts provide direction and guidelines for the research (Bowen, 2006). It helped the researcher to discover, understand and interpret what is happening in the research context. By using sensitizing concepts, the ethical challenge of digital identity is discovered, understood, and interpreted.

In addition, sensitizing concepts ensure reference and guidance during the interview (Bowen, 2006). Based on the sensitizing concepts and the literature in chapter 2, an interview format has been developed and can be found in Appendix 1. The interview was divided into four parts. The first part is the introduction. In this section, questions were asked to get to know the respondent and to ask how the respondent defines ethics. Subsequently, part two of the interview is based on the literature discussed in paragraphs 2.1 and 2.3. This section contains questions about the SSI market, its moral considerations, and the problem of digital identity. Part three is based on the literature discussed in paragraph 2.2 and helped to obtain knowledge about what is needed to design digital identity more ethically. Each concept within the external environment layer of the model of McDevitt et al. (2007) was discussed in the interviews to get a complete picture of the environment surrounding the ethical challenge.

This part includes questions like, what is needed to design digital identity more ethically and can laws, the government or economic incentives help to design digital identity more ethically? The last part contains the closing questions. In this section, the respondents were allowed to add something that may be relevant but has not been discussed in the interview.

4.5 Data analysis

After the interviews were transcribed, the collected information was analysed. When analysing the collected data, the transcripts of the interviews were interpreted through codes. Coding is the assignment of keywords to the collected data (Vennix, 2016). The variables defined by McDevitt et al. (2007) were used as codes. The external environment served as the selective code in this research. The concepts within the external environment, industry norms, political and legal, professional codes of ethics, societal norms, economic and competition, are the axial codes of this research. Within the axial codes, new themes regarding SSI and digital identity are detected. These themes present the core findings within the axial codes and are called open codes (Thomas, 2006). Open codes are developed by becoming intimate with the data and making connections between the data. Open codes were for example 'give control to the user' or 'working open source'. These codes where then, in a second step, combined as axial codes, using the sensitizing concepts derived from McDevitt et al. (2007). For example, the axial code, industry norms, defined by McDevitt et al. (2007) was coded as follows. In the interviews, each respondent indicated that giving control to the user is important for SSI and to design digital identity more ethically, so 'give control to the user' is included in the result section as open code of industry norms. When the data no longer created new ideas and knowledge about the developed theory, the coding process were finished (Bowen, 2006). By comparing the theory and the empirical material, more insight is gained on how digital identity can be designed more ethically. With this insight, the research question is answered.

4.6 Research ethics

This research considered the ethics of research and was included in the research design (Symon & Cassel, 2012). Respondents should not be disadvantaged or inconvenienced and therefore the following aspects are important. First, the researcher was transparent about the intentions and the goal of the research. Respondents were informed before the interview and permission of the respondents was required to record the interview. The information collected through interviews is treated discreetly and confidentially. The transcripts were sent back to

21

the respondents for feedback. The respondent could withdraw from the study at any point in time and could remain anonymous whenever a respondent preferred anonymity. The SSI organizations see themselves as ethical and like to be seen as ethical. This may have resulted in the respondents of the SSI market guiding the researcher to their desired ethical position Therefore, the researcher has remained as objective as possible during the investigation.

Chapter 5: Analysis

In this chapter, the research question is answered based on the interviews with respondents from the SSI market. The research question is as follows: *How can the external environment advance organizations to design digital identity more ethically?* To answer the research question, we look at the outer layer, the external environment, of the model of McDevitt et al. (2007). This are the conditions in the external environment that allow organizations to design digital in ethical ways. According to McDevitt et al. (2007), the external environment consists of the following concepts: Industry norms, political and legal, professional codes of ethics, societal norms, competitive and economic. These concepts are used as axial codes of this research. Based on the answers given in the interviews, the open codes are determined. The various codes discussed in this chapter can be found in Appendix 2.

5.1 Industry norms

The first concept to be discussed is the industry norms in the external environment layer of the model of McDevitt et al. (2007). Industry norms are norms or standards for the SSI market. To define it as a norm, the norm should be important to everyone and therefore have been addressed by each respondent. In the previous chapter, the principles of Allen (2016) are explained. Because these principles could be seen as industry norms they are used as a starting point in the interview to ask about the industry norms of SSI. Based on the answers given in the interviews, the following industry norms are determined: give control to the user, working open-source and enabling decentralization. These norms are the open codes of this research.

5.1.1. Give control to the user

One of the principles of Allen (2016) is 'control' and is defined as follows: 'user must control their identities.' When asked about SSI, control was immediately mentioned by each respondent and everyone agrees that this is the most essential part of SSI. Respondent 1 explains: *''Wherever you look, SSI is always about people being in control of their own data, because it really is the premise of the technology''*. Respondent 4 describes it as follows: *''SSI states that people should have control over their own data''*. Respondent 10 said the following: *'Self-sovereign identity is essentially giving an individual control over any information or any data that essentially creates or defines who they are.'*

Respondent 2 explains what it means to have control over your own data and identity: *''You determine what happens, you determine what you share with whom, you have insight with whom you share your data, you always have the control to withdraw your data, and you don't have to share superfluous data.''*

The respondents explain why they think it is important that you have control over your own data and identity. Respondent 2 argues the following: *''It is important that you keep control over your digital self. Because if we become more digital, more and more of your identity is digital. And when you have no control over all that data then at some point you are not even in control, you could almost say, yourself.''* All the respondents believe that not being in control of your own data creates dangers and negative consequences for people: *''It seems so that you have no control over your data. But most of the time that data is used in exploitative ways; for financial gains or political gains, and that concerns me''* (Respondent 3).

All the respondents believe that by giving control to the user you ensure autonomy for the user. The respondents see this as an important ethical aspect of designing a digital identity. Respondent 1 describes it as follows: *''By giving control to the end-user, you really guarantee autonomy for the user. And I think that is necessary to design digital identity ethically.''* Respondent 5 agrees and said the following: *''The person has to be in control. The person must have autonomy over their own data. And autonomy, I think that is a very important principle within ethics that someone can decide for himself what he or she can or cannot do. So, I think SSI is very concerned with its ethical principles.''*

In sum, according to all the respondents, 'give control to the user' is seen as the most important industry norm of SSI. The respondents explain that it is important that people are in control over their own identity, and they feel that it ensures autonomy, an important ethical aspect that should be pursued by organizations to realize an ethical design of digital.

5.1.2 Working open source

Another principle of Allen (2016) is transparency and is defined as follows: 'Systems and algorithms must be transparent.' The respondents equate this principle with working open source and they feel that transparency can be guaranteed by working open source. Respondent 4 explains: *''We develop open-source software, so that is basically very transparent.''* Respondent 5 explains working open source as follows: *''The flow of data must be crystal clear for the user and for the organization and then you can really make SSI come true.''*

24

All the respondents state that working open source is crucial for SSI and to ensure transparency. Respondent 6 describes it as follows: *''We do see things like open-source software being absolutely crucial to properly implement SSI and ensure transparency.''* Respondent 2 explains why this is crucial for SSI: *''I mean, of course, there is a reason we only do open-source stuff, because we really feel that it contributes to the greater whole and it makes more possible. It is easier for other parties to adopt the SSI technology and philosophy.''*

Overall, all the respondents believe that working open source is crucial for SSI, to guarantee transparency and to advance the SSI technology and digital identity. Therefore, working open source can be seen as an industry norm of SSI and an importation condition in the environment to advance organizations to design digital identity more ethically.

5.1.3 Enabling decentralization

In addition to the principles of Allen (2016), the respondents indicated the term decentralization. When you asked them: *'What is SSI and what is important with SSI?'*, many respondents referred to the concept of decentralization: *''SSI is for me decentralization.''* (Respondent 4), and *''I have a short answer, SSI is actually the best way of digitalization with regard to decentralization.'' (*Respondent 9).

The respondents explain that SSI technology enables decentralization: *''With decentralization, you no longer need a dictator who decides everything, the SSI technology enables to decide things together.'' (*Respondent 3), and *''Self-sovereign identity to me is an incredibly powerful enabling technology because it really does solve the problems that have been associated with centralization, too much centralization.''* (Respondent 10).

According to the respondents, enabling decentralization is needed and has several advantages. Respondent 8 explains why decentralization is needed from an ethical perspective: *''So decentralization means that two parties that interact should be treated as peers. That means that if you interact with some other person, there's an equality of power. You should each have the same options and the same opportunity, and this is also really important for ethics.''* Respondent 8 believes it ensures equality and sees this as an important ethical aspect of designing digital identity ethically.

In sum, decentralization is an important part of SSI and can therefore be seen as an industry norm for the SSI market. Decentralization can ensure equality of power which can contribute to advance organizations to design digital identity more ethically.

To conclude, giving control to the user, working open source and enabling decentralization are inherently associated with SSI and can therefore be seen as the three most important industry norms of the SSI market. Giving control to the user helps to guarantee autonomy, working open source contributes to transparency and decentralization ensures an equal distribution of power between parties. According to the respondents, autonomy, transparency, and equal distribution of power are important elements that should be pursued by organizations. These three elements can be seen as conditions for organizations to deal with digital identity more ethically.

5.2 Political and Legal

Within the environment layer, McDevitt et al. (2007) have defined the variable political and legal. This variable includes the political and legal system that affect the ethical challenge of digital identity. In the interview, the question was asked: ''*What is needed to design digital identity more ethically?*'' Many respondents indicated that regulation, the government, and the European Union plays an important role in designing digital identity more ethically. Based on the interviews, the following open codes regarding political and legal are determined: the need for regulation, the role of the government, and the role of the European Union (EU).

5.2.1. The need for regulation

All respondents think regulation is needed to design digital identity more ethically. Subsequently, the following question was asked in the interview: ''*What kind of role does regulation play in designing digital identity more ethically?* The respondents differ in opinion on how the regulation should be created or designed.

Respondent 2 believes that strict laws should be introduced for the storage of data: ''*You just must regulate it, otherwise, nothing will change. You should really make it illegal to process data on such a large scale or to store personal data.*'' Respondent 2 explains later how he thinks this could be designed: ''*Why isn't there a ministry of digital affairs or something like that? I think that is ridiculous. Things have to be regulated.*''

Respondents 4, 5, 6 7, 8 and 9 think there needs to be a governance framework. Respondent 7 explains it as follows: ''*Well, I think you need a governance framework for that. We think that the governance framework will play an important role in seeing it from a valid point of view, how this data will be treated and the way how users are going to be protected.*'' Respondent 9 explains why this is necessary: ''*You still need a governance framework because a lot of regulations should be about how to connect the technology with*

26

the outside world.'' Respondent 8 believes that regulation in the form of a governance framework will have the greatest effects and describes this as follows: *''To solve the problem regarding digital identity … Yeah, I think the mechanism that I would use that could have the biggest and longest-lasting effect would be a governance framework.''*

Respondents 1 and 10 do not see regulations as the most important component to design digital identity more ethically. Respondent 10 states: *I think regulation is a component, but I think at the end of the day, individuals need to be shown how to take personal responsibility.* Respondent 1 said the following: *''I think regulation has to be a consequence of the technology and the movement.''*

In short, the respondents believe regulation is needed to design digital identity more ethically. Multiple respondents think that a governance framework is the best way to advance organizations to design digital identity more ethically. Other respondents see regulations not as the most important component to design digital identity more ethically.

5.2.2 The role of the government

Another important aspect indicated by the respondents was the government. Almost all the respondents state that the government plays a crucial role in designing digital identity more ethically because your identity is kind of created by the government. In addition, the government can serve as a role model to design (digital) identity more ethically.

Respondent 4 explains why the government plays such an important role in this: *''I think when we really talk about designing an identity, I think an important player is the government. Because my name is only *first name + last name*, because the government says so. And that is often kind of the start of further identity things, also on the internet.''*

Respondent 2 explains why the government could help: *''I think a government that accepts SSI technology, and actually starts using it, is of course super good. The government is well-positioned to do that because it is not necessarily about money, but they also care about their citizens.''* Respondent 4 explains that the government can help by creating public awareness, and describes it as follows: *''Well, I think what the government could do is create awareness among people. I think that's an important one. The government also has a teaching role to the people.''*

Almost all respondents see the developments of the government, but according to them, this is developing very slowly. Respondent 1 said the following: *''The government is working on it, but still very carefully and slowly, which I understand somehow, but it will take a while.''* Respondent 2 agrees and find that governments are often lagging: *''Governments,*

and especially the Dutch government, are not able to see the consequences of certain technical solutions. And that is, of course, the problem of governments, they will always lag, especially with technology.'' Respondent 4 indicates another problem of the government: *''I can imagine that there will be opposition from, for example, tax authorities, because now they can very easily request everything to report fraud, and with SSI this is not possible anymore.''*

In sum, all the respondents equate that the government should play an important role in designing a (digital) identity and therefore also in enabling organizations to design digital identity more ethically. The government can have a great influence on the design of identity, its citizens and they can serve as a role model. Therefore, all respondents state that the government has a crucial role in advancing organizations to design digital identity in ethical ways.

5.2.3 The role of the European Union

The respondents indicated in the interviews that the European Union also plays a major role in the design of digital identity. The respondents are positive about the developments of the EU. Respondent 2 said the following: *''The European Union is already very busy expanding this technology, providing funding so that basic blocks are created to design digital identity. That will provide a lot of possibilities and I think are few things have so much impact.''* Respondent 5 studied International and European Law and is specialized in Legal Technology. The respondent is also very positive about the developments of the EU and said the following: *''Even if you look at the European playing field of SSI, the European Commission is very much involved with SSI. SSI is one of the building blocks they focused on last year.''* Respondent 7 is also positive about the progress of the EU and said the following: *''It is not there yet. But I mean, for instance, European Fund for Strategic Investments (EFSI) is building and providing SSI solutions to their citizens, so we will get there.''* Respondent 10, who is based in the United States, agrees and said the following: *''Europe, for example, with the General Data Privacy Regulation (GDPR), Europe's got it right. They're figuring out that large industries are not going to adopt unless you make it painful enough to violate privacy.''*

Respondent 5 explains why the development is sometimes slow and it will take time to develop further: *''I think, one of the biggest challenges is that everyone in the EU recognizes the technology, that everyone must really agree to see this as a possible way of data exchange within the EU.''*

Overall, all respondents are very positive about the developments and the involvement of the European Union regarding SSI and the technology. They believe the EU is an important

28

stakeholder to advance organizations to design digital identity more ethically. The only comment is that the adoption of SSI by the EU will take some time.

In conclusion, the political and legal concept of McDevitt et al. (2007) is defined by the following open codes: the need for regulation, the role of the government, and the role of the European Union. The respondents believe that regulation is one of the most important elements in advancing organizations to design digital identity more ethically. Governments and the European Union are seen by the respondents as the most important stakeholders in designing an identity.

5.3 Professional codes of ethics

Professional codes of ethics is one of the concepts in the outer layer of the model of McDevitt et al. (2007). The concept is about what is seen as ethical by the respondents from the SSI market and what they think is needed to act ethically. Based on the interviews, the following open codes are determined: consider the consequences of your actions and decisions, inclusivity, and transparency.

5.3.1 Consider the consequences of your actions and decisions

To define the concept of ethics, the respondents were asked: ''*What is ethics about and what does it mean to you*?'' All the respondents answered that you should consider the consequences of your actions to create positive outcomes for everyone. Respondent 6 describes it as follows: ''*Ethics is for me … making sure that the outputs what I produce are applied in an ethical way across all of the societies that are affected by it. Doing the right thing by those that will be using and impacted by the technologies that we were using.*'' Respondent 7 defines ethics as follows: ''*But at the end of the day, it is about considering the moral consequences of your technical solution.*''

All the respondents equate that they focus on creating positive outcomes for everyone. Respondent 8 agrees and describes it as follows: ''*Well, ethics is, the question of whether we are treating one another in ways that lead to positive outcomes for everyone.*'' Respondent 1 focusses on the end-user and said the following: ''*So basically to act ethically, you have to be willing to make decisions for your user that is 'good' for your user, at least that's what you think.*'' Respondent 7 explains that considering the user and his or her experience will contribute to ethics: ''*And I think to improve the ethics of the technology, I think user experience should play an important role.*''

29

Thus, all the respondents agreed with each other that ethics is about considering the consequences of your actions and thereby creating positive outcomes for everyone and especially the user. To advance organizations to design digital identity more ethically, it is important that organizations consider the consequences of their actions and see this as an important aspect of behaving ethically.

5.3.2 Pursuing inclusivity

Many respondents indicated inclusivity as an important component for designing digital identity in a more ethical way. Respondent 10 explains the problem of exclusivity: ''*There are probably a billion people who are disenfranchised, who literally do not even have identities. Take a look at Third World countries. Take a look at the whole condition and situation surrounding refugees. And as a result of that, they're unable to realize their place in humanity. I think that is immoral. I think that is unethical.*'' Respondent 10 continues and explains from an ethical perspective that SSI strives for inclusivity and identity: ''*But at the end of the day, identity is a fundamental right as a human being. And it hits on all the issues involving morality and ethics. In my view, it's inextricably linked to the objectives and guiding principles of self-sovereign identity.*'' Respondent 8 agrees and equates that inclusivity of technology is needed: ''*Well, I think inclusivity is an important dimension so what you need to do is to make technology that is accessible to people from many different backgrounds. It needs to be useable by everyone.*'' Respondent 1 sees inclusivity as the vision of SSI: ''*We want SSI to be the vision of and for everyone and not just the rich or just the big companies or parties''.*

Most respondents state that pursuing inclusivity and SSI contributes to the ethical design of digital identity. Respondent 5 explains: ''*So I think, if you look at SSI with a kind of an inclusive look, then you have the right ethical aspects.*''

Thus, according to most respondents, SSI strives for inclusivity and they think organizations should pursue inclusivity to design digital identity more ethically.

5.3.3 Pursuing transparency

The concept of transparency has also been described in paragraph 4.1.2. and it is stated that working open source ensures transparency. This section provides further insight into the concept of transparency and why the respondents feel this is important for designing digital identity more ethically.

All the respondents see transparency as an important aspect of ethics. Respondent 1 explains it as follows: *''I think transparency is very important. If you are already working behind closed doors, I think it is also much easier to make non-ethical decisions. Transparency ensures that it is no longer possible to work behind closed doors.''* Respondent 4 agrees and said the following about ethics and transparency: *''And another is transparency. I think that is an ethical obligation to work towards a situation where everyone has clarity about what is happening.''* Respondent 8 gives a technological example of ensuring transparency from an ethical perspective: *''I think, you have to come up with a way to make the trade-offs transparent. What would be bad is to build a system that sounds really good on the outside. But inside it's really got a lot of problems that nobody knows about.''*

In sum, the respondents believe that transparency provides more openness, clarity and thereby contributes to behaving ethically and the ethical design of systems.

In conclusion, professional codes of ethics consist of three open codes: consider the consequences of your actions and decisions, inclusivity, and transparency. According to the respondents of the SSI market, all three aspects are needed to enhance ethical behaviour and to advance organizations to design digital identity more ethically. Organization can ensure to behave ethically by considering the consequences of your actions. Transparency can be realized by working open-source and inclusivity by making the digital identity or the SSI technology available for everyone.

5.4 Societal norms

The fourth concept from the model of McDevitt et al. (2007) is societal norms. Societal norms are agreements between members of a society about how people should treat each other (Cambridge Dictionary, n.d.). The respondents identified three aspects for treating another person well and that is privacy, freedom of choice, and awareness. These aspects can be seen as the open codes of societal norms. According to the respondents, these three norms are important for society and for designing digital identity more ethically.

5.4.1 Privacy

The first open code is privacy. Privacy was mentioned by all respondents in the interview. The respondents believe that everyone has the right to privacy. Respondent 1 explains as follows: *''Your digital identity is information that is about you, it is something that is really*

rightfully yours, and that is the reason that you can preserve your privacy if you wish.''
Respondent 10 explains the possibilities of privacy within SSI: ''*Privacy is the ability to prove something to someone without necessarily revealing the underlying information. Unless you intentionally agree to release that underlying information.''*

Nowadays it seems that people do not care about privacy. Respondent 10 describes this as follows: ''*A lot of people, especially a lot of the younger generation, who does not give a damn about privacy: why do I care if somebody is eavesdropping on my conversation? I have nothing to hide.''* Respondent 9 explains why he thinks this is: ''*Right now, is just about getting everything for free and giving away your privacy.''*

Most of the respondents think that the need for privacy will grow over time. Respondent 1 explains: ''*There is a need for more privacy from society, we are in a wave where privacy is becoming more and more important so I think it will come.''* Respondent 2 agrees and describes it as follow: ''*Or it just has to become increasingly trendy, green energy is becoming increasingly trendy, electric cars are becoming increasingly trendy, and also privacy is becoming increasingly trendy''*

All the respondents see the SSI as the solution for privacy. The respondents said the following: ''*SSI is a very good step towards privacy by design''* (Respondent 4*), I see SSI as a way in which you can share data in a privacy-friendly way* (Respondent 5), ''*So for me SSI means a better way of digitalization concerning privacy''* (Respondent 7), ''*It is sort of a combination of using technologies in ways that allow people to retain privacy''* (Respondent 6)*,* and ''*We think privacy should be something embedded in the future, and it should be something embedded in an SSI solution''* (Respondent 7).

Only respondent 8 is critical about implementing privacy: '*There is also a dark side to privacy. Privacy can be used to sell drugs and trafficked children and all these other things. Therefore, I think it's OK to build a system where privacy is not very strong as long as the people that used the system know that the privacy is not very strong and have deliberately chosen to use it.''*

Overall, all the respondents believe that privacy is an important norm for the society that people should care more about. Fortunately, more and more people in society consider privacy as important and SSI technology can contribute to preserving someone's privacy. Privacy should be pursued by organizations to design digital identity more ethically.

5.4.2 Freedom of choice

The respondents also indicate that people have no choice when it comes to privacy nowadays and they find this unreasonable and unethical. In paragraph 4.1.1 is stated that the respondents believe that a person should have the autonomy to design digital identity more ethically. The respondents state that by giving people freedom of choice you can pursue autonomy. Respondent 8 explains the following: *''I think anybody would like to have privacy, but people don't really get a choice. It's a Hobson's Choice. Like you say, look, you can have all this stuff, or you can not have any of it. And it's not reasonable to pick one of the two options. Because in order to have privacy, they'd have to give up their cell phone. They'd have to turn off all the GPS features on their phone. They'd have to stop using Gmail as a platform for email, so it becomes unreasonable and unethical.''* Respondent 2 agrees and gives the following example: *''People will give consent to a privacy statement because it's kind of pushing 'one' button or not using all the services. That is the choice. You can't say I want to use your services, but I don't agree with those 1000 things in your privacy statement anymore. That is radicicolous.''* Respondent 1 thinks you should give people an alternative: *''And I think as soon as alternatives are visible that people do want privacy. That feeling of I can't delete my Facebook account because everyone is on Facebook, I can't leave Google because they have all my photos. I think that feeling of being stuck, and not being able to go away completely.''* The respondent adds that giving people a choice can bring change: *''I think when people feel like they have a choice that eventually something will change the way we see and accept privacy nowadays as a society.''* (Respondent 1).

Thus, all respondents believe that one should be given freedom of choice so that a person can be autonomous. To realize a more ethical design digital identity by organizations, organizations should pursue autonomy by giving their customers freedom of choice.

5.4.3 Awareness

All the respondents state that awareness is needed because people are not aware of the problem and the potential dangers of the current design of digital identity nowadays. Respondent 6 explains that people are not aware of the potential dangers: *''Most of the time, personal data is used for financial gains, but other times for political gains and that particularly concerns me. And data is also used for impacts on groups in society, those who are not aware of the problem.''*

The respondents state that people are not aware because there is a lack of understanding. In that case, people prefer convenience and ignorance. Respondent 7 explains:

'It's up to everyone, the thought of people about convenience versus awareness. I don't understand what the implications for me are, so convenience is the way to go.'' Respondent 3 agrees: *''People are acting sometimes by convenience and ignorance.''* Respondent 10 describes it as follows: *''People who do not want privacy … I think that kind of thinking is driven from a lack of awareness, of a lack of understanding of how it impacts you, how it does exploit you in ways that you're not aware of. And of course, as the adage goes, ignorance is bliss.''* He continues and explains why people do not understand the problem: *''How do you know privacy is valuable to you unless that privacy boundary is violated, and you know how it affects you. Yeah, the way things are structured now today, you don't even know when your privacy is being violated.''*

Respondent 9 thinks the following is needed to make people more aware: *''I think it's hard to imagine the bad things for people. Maybe they need more data breaches, security issues and privacy problems.''* Most of the respondents do indeed see awareness gradually emerging because of the incidents: *''I think the awareness will gradually emerge. Incidents will ensure that more and more people will understand.''* (Respondent 3), and *''Perhaps more and more awareness will arise in people because privacy and the incidents are also more in the news nowadays.''* (Respondent 5).

In sum, the respondents feel that people are not aware of the potential dangers of the current way digital identity is designed. According to the respondents, people prefer convenience and ignorance. They think more incidents are needed to make people aware of the problem and the potential dangers. Awareness among people in society and in organizations is needed to advance organizations to design digital identity in ethical ways.

To conclude, based on the answers given in the interviews the following societal norms are determined: privacy, freedom of choice and awareness. According to the respondents, people and should care more about privacy, freedom of choice is needed to pursue autonomy and people should be aware of the potential dangers of digital identity. These three aspects contribute to the way digital identity is designed and maintained by organizations today and should be pursued by organizations.

5.5 Competitive and economic

The last concept in the external environment layer of the model of McDevitt et al (2007) is competitive and economic. According to McDevitt et al. (2007) and confirmed by the respondents, competitive and economic factors can lead to more unethical decisions by

34

organizations. Based on the interviews, the following open codes are determined for this concept: monetization, the role of the companies, and benefits for organizations.

5.5.1 Monetization of data

All the respondents state that the problem of digital identity exists because we live in a capitalist world where it is all about generating money. Respondent 10 explains it as follows: *''Accepting the fact that we live in a world where it's all about money, questions surrounding ethics and morality and how corporations are wired and how their business models are built. It's all about money.''* Respondent 2 agrees and states: *''Of course, you can earn a lot of money by not always doing the right thing, by using data from a lot of users and doing a lot of analysis so that you can influence them, show them ads, and make more money. It's really all about money.''*

Respondent 10 explains what the problem is with money-driven motive: *''Because everything is so profit motive driven, you now wind up with these kinds of business models that at the end of the day, have no regard for personal privacy, no regard for one's individual identity. We become the product, and we are basically bought and sold without our knowledge. And that, in and of itself raises, in my view, some serious ethical and moral questions.''* Respondent 8 explains that money sometimes leads to shortcuts: *''And sometimes those money incentives cause us to take shortcuts and see whether we can achieve our ideals. You know, being an idealist and being a capitalist does not always go along very well.''*

Respondent 2 acknowledges that money is crucial to change the way digital identity is designed today: *''It's all about money in the end. And the question is who is going to pay to change the current identification process?''*

Respondent 10 is hopeful that money can also help to solve the problem of digital identity from an ethical perspective: *''You know, if money is always going to be part of the discussion, there have to be ways where money can be made or justified while at the same time having appropriate social responsibility and ethical focus on how you do it.''*

Overall, all the respondents feel that the current problem regarding digital identity is caused and perpetuated by money. Therefore, several respondents believe that organizations should change their business model to change the current way in which digital identity is monetized. To advance organizations to design digital identity more ethically, organizations should not be able to make money by collecting data from people.

5.5.2 The role of organizations

Almost all respondents feel that organizations are an important part of the problem of digital identity today. Respondent 4 explains: ''*Well, companies that misbehave, aren't going to feel very responsible. Because that is the problem. Companies are crooks. Then we are talking about Facebook and Google, who are making money by collecting data*'' Respondent 6 gives the following reason: ''*We cannot assume that companies take their responsibility. We have seen this with recent years how big corporations have handled data storage and privacy, and this did not go well.*''

Respondent 10 finds it very unethical of the organizations: ''*The idea that companies and organizations can sell your information to the highest bidder. It's an ethical and a moral crisis that is not only growing more painful, but that, in my view, is unjust.*'' Respondent 2 wonders if organizations are capable of behaving ethically: ''*You want companies to take their responsibility. But then again you come up with ethics, which is very relevant here. Is a company able to make the right decision? I don't think so.*''

Respondent 9 does not agree and thinks that it is not the role of organizations to take responsibility: ''*I don't think it's so easy for the companies. I don't want to be on their side and protect them. But maybe it's not so easy and should the market and people decide.*''

Most of the respondents think that the organizations are part of the problem and are not capable of behaving ethically. Organizations should feel responsible for the current way digital identity is designed and they should and change the way they make money.

5.5.3 Benefits for organizations

The respondents state that there are multiple benefits to adopting SSI for organizations. If organizations see the benefits of SSI, more organizations will adopt SSI and digital identity can be designed more ethically. The respondents indicated the following benefits.

Respondent 1 describes the following advantage: ''*On the corporate and government side, a big advantage is fraud prevention. And, money-saving, because bureaucracy, collecting, sending, and verifying data takes a lot of time and effort. With SSI this becomes much easier because each person keeps their own data.*'' Respondent 4 gives another advantage: ''*The advantage is that SSI can also speed up many processes for companies and therefore also offers an economic advantage.*''

Respondent 10 has been researching the benefits for organizations to adopt SSI for three years and shares his findings: ''SSI *enables these organizations to reduce costs, reduce their liability, potentially even identify ways of being able to generate new monetization*

streams that are better consciously of the privacy of their customers' information. They actually have an economic incentive for adopting SSI because they realize that by failing to do so, they're essentially impacting their own bottom lines negatively.'' Thus, according to respondent 10, there are multiple benefits for organizations to adopt SSI.

Making organizations aware of the benefits of SSI can be seen as a solution for the problem of digital identity according to respondent 9: *''The only way to solve the problem of digital identity is that companies see the opportunity to do it differently so there must be a first wave of companies using SSI technology so they can show the benefits of using SSI.''*

Thus, there are multiple benefits for organizations to adopt SSI. The respondents believe that as an organization will see these benefits, SSI can be more widely adopted and through the adoption of SSI, digital identity can be designed more ethically.

In conclusion, the concept of competitive and economic consist of monetization, the role of the organizations and benefits for organizations. Organizations are a part of the problem and need to change their business models to realize a more ethical design of digital identity. As organizations recognize the benefits of SSI, the SSI technology can be adopted which enable organizations to design digital identity more ethically. To advance organizations to design digital more ethically, the SSI technology must be further developed and adopted.

In conclusion, the five concepts of McDevitt et al. (2007) influence the ethical challenge of digital identity. In table 3 on the next page, an overview of the core findings is given. First, the respondents indicated that there are three important industry norms, giving control to the user, working open source and enabling decentralization. These norms advance organizations to pursue autonomy, transparency, and equal distribution of power. The respondents believe that a governance framework is needed to advance organizations to design digital identity more ethically. Governments and the European Union contributed to the current design a digital identity. The respondents also stated to advance organizations, it is important that organizations consider the consequences of their actions, and strive for inclusivity and transparency. Furthermore, societal norms affect a person's autonomy and the way digital identity is designed today. According to the respondents, privacy and freedom of choice is needed to pursue autonomy and people should be more aware of the potential dangers of digital identity. Finally, economic and completive factors contribute to the current design of digital identity and these factors should change to advance organizations to design digital identity more ethically. The implications of this research are presented in the next chapter.

Table 3: *Overview of the core findings*

Concepts	Guidelines	Outcomes	Action
Industry norms	Give control to the user	Autonomy	Should be pursued by organizations
	Working open source	Transparency	Should be pursued by organizations
	Decentralization	Equal power relations	Should be pursued by organizations
Political/Legal	Regulation	Governance framework	Is needed to realize change
	Government	Current digital identity design	Should change in society
	European Union	Current digital identity design	Should change in society
Professional codes of ethics	Consider the consequences of your actions	Ethical behaviour	Should be pursued by organizations
	Transparency	Ethical behaviour	Should be pursued by organizations
	Inclusivity	Ethical behaviour	Should be pursued by organizations
Societal norms	Privacy	Autonomy	Should be pursued by organizations
	Freedom of choice	Autonomy	Should be pursued by organizations
	Awareness	Current digital identity design	Is needed to realize change
Competitive/ Economic	Monetization of data	Current digital identity design	Should change in society
	Organizations	Current digital identity design	Should change in society
	Benefits of SSI	Adoption of SSI	Is needed to realize change

6. Conclusion & Discussion

In this chapter, the answer to the research question is given and a model to design digital identity more ethically is introduced. Subsequently, the practical and theoretical implications, limitations and the recommendations for future research are discussed. Finally, my personal reflection on this research is given.

6.1 Conclusion

This study investigated the environment to advance organizations to design digital identity more ethically. The research question is as follows: *How can the external environment advance organizations to design digital identity more ethically*. The research question can be answered based on the interviews with respondents from the SSI market. The following insights have been obtained about the five concepts in the external environment of the model of McDevitt et al. (2007).

First the respondents indicated the industry norms of SSI, which includes giving control to the user, working open-source, and enabling decentralization. These norms help to pursue autonomy, transparency, and equal power relations. Relevant legal and political aspects for designing digital identity are the European Union, governments, and regulation. In addition, professional codes of ethics are determined. In order to behave ethically one should consider the consequence of his or her actions and strive for transparency and inclusivity. Also, societal norms are part or the environment. The respondents from the SSI market indicated that awareness, privacy, and freedom of choice are important norms for society. Furthermore, the current way of monetization and the money-driven motive of organizations can lead to shortcuts and unethical behaviour of organizations. Organizations are part of the problem and need to change their business models. As organizations recognize the benefits of SSI, SSI can be adopted, and digital identity can be designed more ethically.

Based on these insights, it can be concluded that the environment can advance organizations to design digital identity more ethically in three ways. Organizations should pursue autonomy, transparency, equal power relations, privacy, and inclusivity. Organizations, governments, and the European Union are needed to develop a governance framework. In this way we can make agreements between the entities to designing design digital identity more ethically. Also, awareness among people should grow and the way we monetize data and identity nowadays should change. All these three aspects are interrelated and influence each other. Therefore, it is important to consider all these three aspects in the

environment to advance organizations to design digital identity more ethically. Based on these insights, the model in figure 2 is developed.
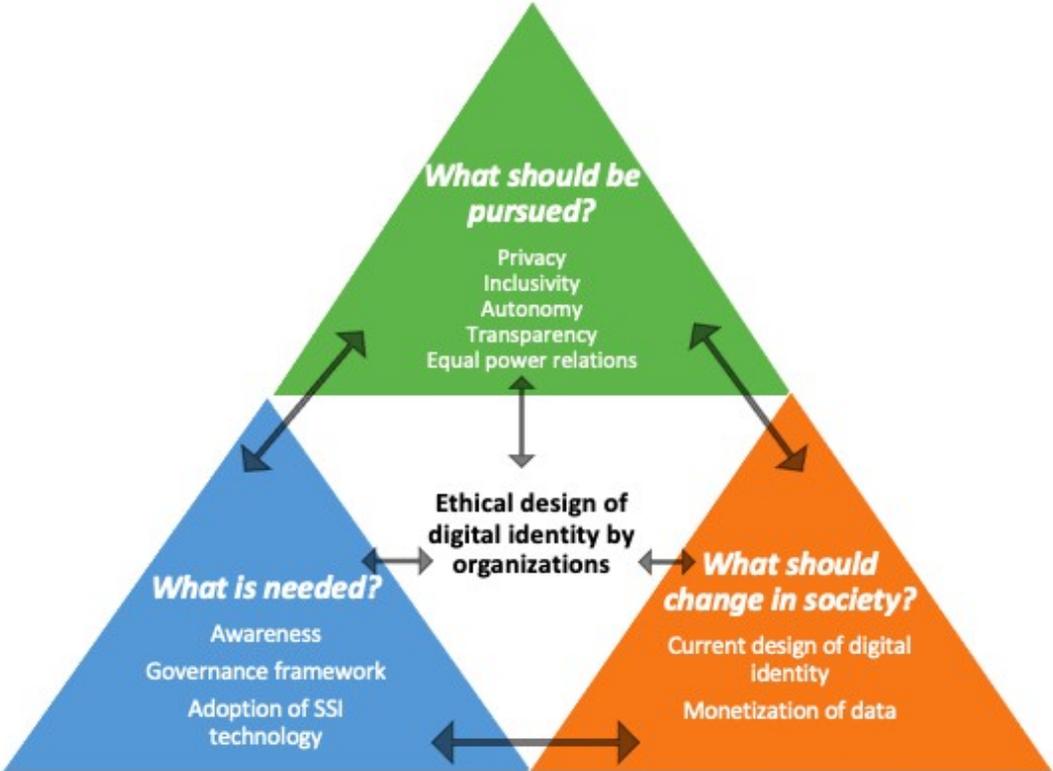

Figure 2: Model to design digital identity more ethically

The model consists of four triangles. In the centre the triangle of ethical design of digital identity by organizations and around this triangle there are three triangles that contribute to design digital identity more ethically. The first triangle is the value triangle, this are the values organizations should pursue to design digital identity more ethically. The second triangle is about what is needed to advance organizations to design digital identity more ethically, this is awareness, a governance framework, adoption of the SSI technology. The third triangle is about what should change to design digital identity more ethically, and this is the monetization of data and awareness among people. Between the triangles there is a two-way-arrow. This is because all triangles interact with each other, and each triangle needs the other triangles as well. For example, when developing a governance framework, the values, the current design, and monetization of data also play an important role. Another example, for pursuing privacy, adoption of SSI technology is needed, and the current design of digital identity should change according to the respondents. Based on these insights, practical and theoretical implications can be proposed.

6.2 Practical implications

The triangle in figure 2 suggests improvement for conditions in the environment to advance organizations to design digital identity more ethically. These conditions can be pursued and implemented by organizations that deal with designing digital identity and storage of data.

First, the software that is being developed must be open source and available to everyone. This ensures that work is done transparently. Also, the software can be used by everyone, and everyone can contribute to the development of the software. In this way, there is more collaboration, and value can be created together.

Also, laws and regulations are important to control and realize a more ethical design of digital identity. In line with Satybaldy (2020), governments and organizations should play an important role in this. Organizations and governments should come along with the digital developments of privacy, security, and digital identity. The respondents indicated that a global governance framework can help to design digital identity more ethically. Therefore, it is important to develop a governance framework with the most important rules around digital identity. These may be rules to prohibit the sale of data or rules that guide the storage and use of customers' data, working open source or to give more control to the user. The European Union has made a law for data protection, the GDPR. This is a good start and can perhaps be built on. Organizations and governments worldwide must adhere to the governance framework so that the design of digital identity becomes more secure and can be regulated. In this way, a more ethical design of digital identity can be created and guaranteed. The more countries that participate, the greater the impact of the governance framework will be.

Ethical rules of conduct can also be included to the governance framework to promote ethical behaviour of organizations. The values transparency, inclusivity, autonomy, privacy and equal power relations can be defined as ethical codes of conduct and should be pursued by organizations to realize a more ethical design of digital identity. This is in line with the literature in chapter 3 (Satybaldy et al., 2020; Ferdous et al., 2019; Schäffner, 2019; Soltani & Nguyen, 2018; Mühle et al., 2018; Allen, 2016; Baars, 2016), where the authors for example emphasized that autonomy and privacy is becoming increasingly important for designing digital identity.

In addition, people in society must be aware of their digital identity. In line with Satybaldy et al. (2020), this research indicates that people do not understand what happens to their data, who makes money from it, when their privacy is violated, or what the possible risks are. It is important that people are more aware of the problem of digital identity and can consciously choose to control their own identity.

Finally, to realize a more ethical design of digital identity, SSI technology should be adopted and implemented by companies and governments. Since they are the ones who create, manage, and maintain digital identities nowadays. The respondents state that organizations are not going to change unless there is an economic or monetary incentive for them to change the current design of digital identity. Fortunately, SSI has several benefits for organizations, such as safe data storage, privacy for their customers and efficiency. If these benefits become more visible, it is attractive for organizations to implement SSI. In line with the literature in chapter 3 (Satybaldy et al., 2020; Ferdous et al., 2019; Schäffner, 2019; Soltani & Nguyen, 2018; Mühle et al., 2018; Baars, 2016) this research argues that SSI makes it possible to change the way digital identity is currently designed.

6.3 Theoretical implications

Even though this research was particularly relevant from a social and practical point of view, the insights of this research also have some theoretical implications.

According to Satybaldy et al. (2020), it is relevant to find some guidelines for organizations to design digital identity more ethically since the world is becoming digital (Satybaldy et al., 2020). These guidelines are found by extending the model of McDevitt et al. (2007) with open codes. These codes can be seen as guidelines to design digital identity more ethically from an SSI perspective. The guidelines are, for example, working open-source, enabling decentralization, and pursuing inclusivity, and transparency. These insights contribute to the ethical decision-making model of McDevitt et al. (2007) by expanding the ethical decision-making model and provide guidelines for organizations to behave more ethically. This research also has gained insight into the ethical behaviour of organizations in a new context.

According to Ishamaev (2020), the ethical consideration of designing identity were relatively unknown and difficult to understand. By using the model of McDevitt et al. (2007) for the ethical challenge of digital identity, this research has obtained knowledge about the ethical considerations related to identity. For example, the ethical consideration of privacy discussed in paragraph 4.3.1. Do you build a system that is privacy-preserving for users since there is also a dark side to privacy? The opinions of the respondents were divided on this question and according to them, you should make these moral considerations as transparent as possible. In this way, the moral considerations become understandable and insightful for everyone, and everyone can make the consideration and decide for themselves.

In addition, this research contributes to the academic literature of designing digital identity. The model presented in figure 2 has contributed to the development of knowledge and insights about how to design digital identity more ethically. The three triangles present the core findings of the research and show what is important for a more ethical design of digital identity. First, the values should be pursued by organizations to design digital identity more ethically. In society we should change the current design of digital identity and the way we monetize data. Awareness, governance framework and adoption of SSI is needed to realize a more ethical design of digital identity. These three aspects are influences each other, which mean all the aspects are important when designing digital identity. For example, while creating a governance framework the current way we monetize data and the proposed values should be considered. The model can be applied to other technological developments or can be used as starting point for further research to expand our knowledge about the ethical design of digital identity.

Since SSI is still very new and not well known in academic literature, this research also contributes to the academic literature of SSI. The respondents of this research were all from the SSI market. Therefore, the open codes of industry norms and professional codes of ethics can be seen as characteristics of the SSI markets. This contributes to the academic literature of the SSI market.

6.4 Limitations of the research

First, the theoretical limitations will be discussed. Ethics, digital identity, and SSI are difficult concepts to define. In each interview, the respondent was asked to define the concepts, but the respondent often found it difficult to define these terms. This can influence the validity of this research since the terms may not have been unambiguously defined by the respondent. In addition, not the entire model of McDevitt et al. (2007) can be applied to the ethical challenge of designing a digital identity. The model of McDevitt et al. (2007) is very extensive and with this research, there is no time to examine the whole model. Also, the model does not consider the technological side of the ethical challenge, so some technologically specific aspects may not be explored. Finally, the research is about ethical challenges. Ethical challenges are often difficult to investigate because people like to see themselves as 'ethically' good. As a result, respondents tend to give socially desirable answers. As a researcher, I remained as critical and objective as possible to limit the socially desirable answers.

43

In addition, there are also methodological limitations. First, only interviews are used as a data collection method. The validity of the study would have been higher if multiple data collection methods were used (Vennix, 2016). In that case, the information from different data collection methods can be compared and the conclusion of the study can be strengthened. Secondly, my contact person within the SSI market was my brother. I already had information and was involved with my brother's work. This may have affected the reliability of the study. As a researcher, I remained as objective as possible to avoid getting too involved with my brother. Thirdly, Animo was used as a starting point for this research. This may have influenced the design of the research. To minimize the influence, I received feedback from people outside of Animo and my supervisor. Finally, access to the SSI market is gained via Animo and my brother. This determines which respondents of the SSI market can be approached, which data is collected and how the respondents provided answers. This also influences the reliability of the research (Vennix, 2016). People with the greatest knowledge about SSI and digital identity have been approached, and contacts outside of Animo were also allowed to participate in this research. To give the respondents the opportunity to speak freely in the interviews it was emphasized that the answers will be handled discreetly.

Another important limitation of this research is that the suggested improvements and implications in this research are difficult to realize. Most of the proposed implications are big changes that will take time to realize. Moreover, the question is whether organizations such as Facebook and Google are willing and able to implement these implications.

6.5 Recommendations for further research

There are several suggestions for further research. First, different ways of data collection can be added to create a more reliable picture of the situation. Second, the whole model of McDevitt et al. (2007) can be tested to get a more complete picture of the ethical challenge. Third, we can examine other variables in the context of digitization. For example, it is possible to add a variable 'technology'. In the interviews, it was said that technology has a huge impact on society, and this influence the ethical challenge and decisions. This allows a more complete picture of the technological side of the ethical challenge.

Since it is difficult to implement the proposed improvements, further research can determine which changes organizations are willing and able to implement. Eventually, further research can conduct research to evaluate the implemented changes. This can be used to determine whether the proposed improvement in this research will lead to a more ethical design of digital identity.

44

6.6 Personal reflection

6.5.1 Strengths

The process of writing a thesis went well for me. I have not experienced much stress with meeting the deadlines, because I started on time and worked in a structured way. In addition, I did the research at my brother's company which made it easy to keep in touch. My brother was very helpful which made it easier to ask questions when I didn't understand things. I find the subject of my thesis very interesting because it is so new and topical issue. I already knew things about the topic trough my brothers, and therefore I felt very involved in this research.

6.5.2 Weaknesses

This was the first time I had to write an assignment or essay in English. I found this very difficult. My English writing and speaking can be improved. In addition, I found the process of writing a master's thesis very difficult. You get a lot of feedback and points for improvement so sometimes makes you lose the motivation to continue writing. I found it difficult to stay positive and to keep faith in the process.

6.5.3 Learned lessons

It is important to start your thesis on time and quickly find a company where you can conduct your research. I am glad that I did my research at a company where you know someone. This ensured a nice cooperation and few problems with coordinating the planning of the thesis. Besides that, sometimes you got stuck while writing your thesis. When this happened, I contacted my fellow students or my supervisor and this helped me to continue writing.

6.5.4 Future plans

I hope to complete my master's degree. I am happy that I was able to conduct research on my own and that I experienced what it is like to do research. I can use this experience when I go into the research field or if I start doing research with my job.

References

Allen, C. (2016). The path to self-sovereign identity. Retrieved from:

  http://www.lifewithalacrity.com/2016/04/the-path-to-self-soverereign-identity.html

Animo Solutions. (2021). Retrieved from: https://animo.id/

Baars, D. S. (2016). Towards self-sovereign identity using blockchain technology (Master's
  thesis, University of Twente).

Bartlett, D. (2003). Management and business ethics: a critique and integration of ethical
  decision-making models. *British Journal of Management*, *14*(3), 223-235.
  https://doi.org/10.1111/1467-8551.00376

Bleijenbergh, I. L. (2013). *Kwalitatief onderzoek in organisaties*. Amsterdam: Boom Lemma.

Bowen, G. A. (2006). Grounded theory and sensitizing concepts. *International journal of
  qualitative methods*, *5*(3), 12-23. https://doi.org/10.1177/160940690600500304

Brady, F. N., & Wheeler, G. E. (1996). An empirical study of ethical predispositions. *Journal
  of business ethics*, *15*(9), 927-940. https://doiorg.ru.idm.oclc.org/10.1007/BF00705573

Cambridge Dictionary. (n.d.). Norms. *Cambridge dictionary.* Retrieved from:
  https://dictionary.cambridge.org/dictionary/english/norm

Cameron, K. (2005). The laws of identity. Retrieved from:
  https://www.identityblog.com/stories/2005/05/13/TheLawsOfIdentity.pdf

Conrad, C. (1993). *The Ethical Nexus.* Ablex: New Jersey.

Dubois, A., & Gadde, L. E. (2002). Systematic combining: an abductive approach to case
  research. *Journal of business research*, *55*(7), 553-560.
  https://doi.org/10.1016/S0148-2963(00)00195-8

Ferdous, M. S., Chowdhury, F., & Alassafi, M. O. (2019). In search of self-sovereign identity
  leveraging blockchain technology. IEEE Access, 7, 103059-103079.
  http://doi.org/10.1109/ACCESS.2019.2931173

Ishmaev, G. (2020). Sovereignty, privacy, and ethics in blockchain-based identity
  management systems. Ethics and Information Technology, 1-14.
  https://doi.org/10.1007/s10676-020-09563-x

Järvinen, M. & Mik-Meyer, N. (2012) *Qualitative analysis: eight approaches for the social
  sciences.* Los Angeles: Sage

Jones, S. K., & Hiltebeitel, K. M. (1995). Organizational influence in a model of the moral
  decision process of accountants. *Journal of Business Ethics*, *14*(6), 417-431.
  https://doi.org/10.1007/BF00872084

Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. *Handbook of socialization theory and research, 347*, 480.

Kohlberg, L., & Hersh, R. H. (1977). Moral development: A review of the theory. *Theory into practice, 16*(2), 53-59. https://doi.org/10.1080/00405847709542675

Kohut, G. F., & Corriher, S. E. (1994). The relationship of age, gender, experience and awareness of written ethics policies to business decision making. *SAM Advanced Management Journal, 59*(1), 32.

Lim, J. (2020). Self-Sovereign Identity: The Harmonising of Digital Identity Solutions Through Distributed Ledger Technology. *ANU Journal of Law and Technology, 1*(2), 98-120.

McDevitt, R., Giapponi, C., & Tromley, C. (2007). A model of ethical decision making: The integration of process and content. Journal of Business ethics, 73(2), 219-229. https://doi.org/10.1007/s10551-006-9202-6

McDevitt, R., & Van Hise, J. (2002). Influences in ethical dilemmas of increasing intensity. *Journal of Business Ethics, 40*(3), 261-274. https://doi.org/10.1023/A:1020543929684

Moor, J. H. (2005). Why we need better ethics for emerging technologies. Ethics and information technology, 7(3), 111-119. https://doi.org/10.1007/s10676-006-0008-0

Mühle, A., Grüner, A., Gayvoronskaya, T., & Meinel, C. (2018). A survey on essential components of a self-sovereign identity. Computer Science Review, 30, 80-86. https://doi.org/10.1016/j.cosrev.2018.10.002

Rest, J. R. & Narváez, D. (Ed.). (1994). *Moral development in the professions: Psychology and applied ethics*. Psychology Press.

Satybaldy, A., Nowostawski, M., & Ellingsen, J. (2020). Self-Sovereign Identity Systems: Evaluation Framework.

Schäffner, M. (2019). Analysis and evaluation of blockchain-based self-sovereign identity systems. Master's thesis.

Singhapakdi, A., & Vitell, S. J. (1990). Marketing ethics: Factors influencing perceptions of ethical problems and alternatives. *Journal of Macromarketing, 10*(1), 4-18. https://doi.org/10.1177/027614679001000102

Soltani, R., Nguyen, U. T., & An, A. (2018, July). A new approach to client onboarding using self-sovereign identity and distributed ledger. In 2018 IEEE International Conference on Internet of Things (iThings) and IEEE Green Computing and Communications

(GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE
Smart Data (SmartData) (pp. 1129-1136). IEEE.

Sovrin Foundation. (2018). *Why is digital identity a problem?* Retrieved from:
https://sovrin.org/faq/why-is-digital-identity-a-problem/

Symon, G., & Cassell, C. (2012). Qualitative organizational research. London: SAGE
publications Ltd.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation
data. *American journal of evaluation*, *27*(2), 237-246.

Trevino, L. K., & Youngblood, S. A. (1990). Bad apples in bad barrels: A causal analysis of
ethical decision-making behavior. *Journal of Applied psychology*, *75*(4), 378.
https://doi.org/10.1037/0021-9010.75.4.378

Vennix, J. A. M. (2016), *Onderzoeks- en interventiemethodologie.* Amsterdam: Pearson.

Verschuren, P., & Doorewaard, H. (2015). *Het ontwerpen van een onderzoek* (5de editie).
Den Haag, Nederland: Boom Lemma.

Whipple, T. W., & Swords, D. F. (1992). Business ethics judgments: A cross-cultural
comparison. *Journal of Business Ethics*, *11*(9), 671-678.
https://doi.org/10.1007/BF01686347

Appendix 1: Format for the interviews

First, thank you very much for participating in this research. I am writing my master thesis for the master Organizational Design and Development, so I am not a SSI expert. I conduct research on how to design digital identity more ethically from an SSI perspective. This interview is to collect data for my research. The interview will last approximately one hour. I will handle the answers discreetly and the answers will only be used for my thesis.

Your name is not mentioned anywhere in my thesis. Further personal background information on your role and function within the SSI market can help to get a better picture of the SSI market. If you prefer to remain completely anonymous, personal background information about your role and function within the SSI market can be omitted. Do you prefer to remain completely anonymous or is the use of personal background information allowed?

I would like to record the interview so that I can use the answers for my analysis. Do you mind if the interview is recorded?

I would also like to mention that research into ethics sometimes contains sensitive questions. If you don't want to answer questions or you do not feel comfortable, this is not necessary. Do you have any questions before we start?

Also, during the interview, feel free to ask questions if something is unclear.

Shall we begin?

Introduction

- Could you briefly introduce yourself by explaining what you do within the SSI market?
- This interview is mainly about ethics. Could you describe what ethics means to you?

The ethical challenge of the SSI market

- Do you think that ethics also plays an important role with SSI? Why?
- Could you explain what SSI is? Why is SSI needed?
- Do you think we need ethics in the SSI market?
    - Why do you think we (don't) need ethics in the SSI market?
- What is the problem with digital identity nowadays? And why is this a problem?

- What is the biggest ethical challenge of the SSI market?
    - Do you see designing digital identity more ethically as the biggest ethical challenge right now?
    - Ethical challenge = designing digital identity more ethically

Model of McDevitt et al. (2007)

- How do you deal with the ethical challenge of designing digital identity? What needs to be done to fix this? What is the role of SSI?
    - Do you think SSI can help? How?
- **The external environment:** industry norms, political & law, professional codes of ethics, societal norms, and economics & competition,
    - Industry norms
        - What are important norms to design digital identity more ethically?
        - Do the principles or Allen play an important role in the SSI market? Why?
        - Do you think the principles contribute to the ethical behaviour of the SSI market?
    - Political and law
        - Do you think that laws based contribute to design digital identity more ethically? How? And how does this ensure ethical design or behaviour?
        - What is the role of the government? And the EU
    - Professional codes of ethics (also addressed in the beginning)

- What means ethics to?
- What is needed to design digital identity more ethically/to behave ethically?

- Societal norms
    - Do you think society is aware of the problem regarding digital identity?
    - Why do they not care?
    - What is needed to change the way society deals with digital identity nowadays?
        - How can this help to ensure ethical behaviour or design?
- Economics and competition
    - What does the monetization of identity look like?
    - What is the business model of organizations currently designing digital identity? How do these companies deal with competitions?
    - What is the business model of SSI organizations?
    - Are the economic incentives to design digital identity more ethically?
    - Do you think this can contribute to design digital identity more ethically?

<u>Closing questions</u>

- What would you do if you had the opportunity to design digital identity more ethically? What would you do and how would you do this?
    - How would you organize the SSI market (or your organization) to promote ethical behaviour?

- I have asked many questions about ethical conduct in the SSI market. Are there any other aspects that I have not asked about?

Closing text:

- These were all the questions in the interview. Thank you very much for your cooperation. Do you have any questions?

Appendix 2: Overview of all the codes

Table 4: *Overview of all the codes*

Selective code	Axial codes	Open codes
External environment	Industry norms	Give control to the user
		Working open source
		Enabling decentralization
	Political/legal	The need for regulation
		The role of the government
		The role of the European Union
	Professional codes of ethics	Consider the consequences of your actions and decisions
		Pursuing inclusivity
		Pursuing transparency
	Societal norm	Privacy
		Freedom of choice
		Awareness
	Political/economic	Monetization
		The role of organizations
		Benefits for organizations