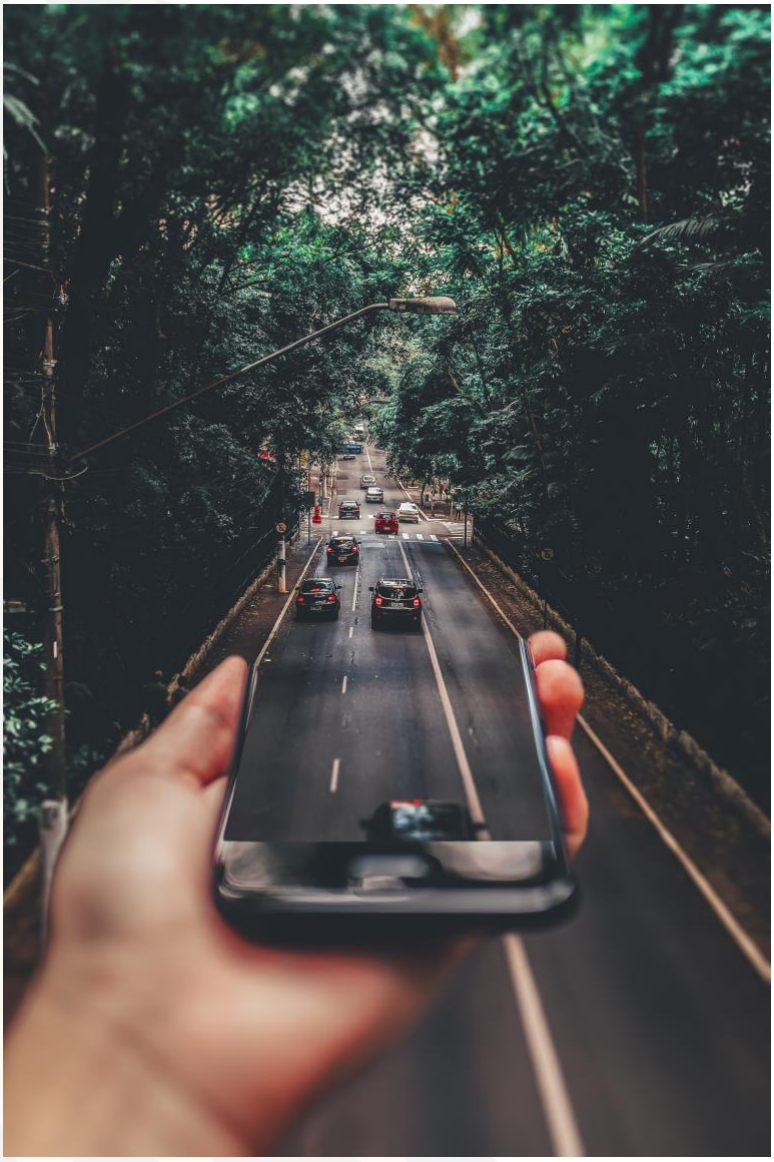

Using Expectations in Institutional Work

A CASE STUDY ON AUTONOMOUS VEHICLES IN THE NETHERLANDS TO IDENTIFY HOW INSTITUTIONAL ENTREPRENEURS USE EXPECTATIONS TO IMPLEMENT DIVERGENT CHANGE

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Summary

Part of this research's aim is to elaborate on the process model of institutional entrepreneurship as proposed by Battilana, Leca & Boxenbaum (2009). This process model shows that institutional entrepreneurs create a vision of change and that they mobilise allies and resources to implement divergent change. This theory, however, does not provide any insights into the activities that institutional entrepreneurs perform to change institutions. Lawrence & Suddaby (2006) proposed several activities for three types of institutional work: creating, maintaining and disrupting institutions. Although this theory provides insight into how institutions are changed, it lacks an elaboration on how expectations are used in these activities. This gap in literature is what this research aims to fill through answering the following research question: "How do institutional entrepreneurs use expectations to implement divergent change?"

In order to find out how expectations are used, the case of autonomous vehicles in the Netherlands has been selected and two types of data have been collected: First, news articles from five different newspapers and two digital news outlets have been collected through LexisNexis and the websites of the digital outlets, and second, interviews are conducted with institutional entrepreneurs.

First, the analysis of news articles provided four different themes of expectations: impact, scenarios, support and technological readiness. For both impact and technological readiness several subthemes could be identified. Second, the analysis of the interviews revealed that all institutional work for the case autonomous vehicles is aimed at either creating or disrupting institutions. In this, it is also found that the expectations that are used most are related to 'Safety' and 'Road Situations & Spatial Planning'. Both these themes are subthemes to 'Impact'.

This research concludes that institutional entrepreneurs use expectations to emphasise their vision and weaken other visions in order to gain support for creating new institutions or disrupting existing institutions. More specifically, highly moral and ethical expectations are used in activities that are aimed at creating institutions and expectations related to the support towards the technology are aimed at disrupting institutions.

Preface

This document shows the results of a master's thesis on the use of expectations in a process of institutional change. This master's thesis is the final part of the Innovation Sciences Master programme at Utrecht University. In short, this thesis investigates how expectations are used by institutional entrepreneurs to change the institutional field surrounding autonomous vehicles. As such, this thesis covers the topics of institutional entrepreneurship, institutional work and expectations.

Acknowledgements

First of all, I would like to thank Dr. Jacco C. M. Farla for his supervision during this thesis. Mainly, I would like to thank him for his seemingly unlimited patience and his guidance and support at times I needed them. In addition, I would also like to thank my second reader Dr. Alexander Peine for his constructive criticism on my research proposal and in advance for the reviewing and grading of this thesis.

Second, I would like to thank all interviewees and other persons of interest that helped me, not only by answering my questions, but also for providing me with insights into the field, interesting points of view, and analytical thoughts about the subject and my thesis.

Last, I would like to thank my partner for his unlimited support, patience, and his availability to listen to my uncensored and unplanned brainstorms, idea-bouncing-sessions and scribbles. I would also like to thank my parents and friends for their support throughout this process and for believing in me.

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1 Introduction

Innovation is not possible without causing resistance. This resistance is not only caused by markets but almost always also by the institutions constraining those markets (van der Geest & Heuts, 2008). In short, an existing problem with the introduction of innovations lies in both existing and non-existing institutions: both legislation and societal norms and values are often not ready for technological change.

Theories on institutional work and institutional entrepreneurship, the latter being a concept first introduced by DiMaggio in 1988, can prove to be important to understand the disruption, maintenance or creation of institutions that are favourable for the introduction of technological change. In short, institutional work is "the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions" (Lawrence & Suddaby, 2006, pp. 215). Additionally, institutional entrepreneurs are a type of change agent that initiate and participate in divergent change (Battilana et al., 2009). They initiate and participate in this change in an attempt to influence change in institutions in favour of their envisioned future (Fligstein, 1997). These visions of the future are a way of conveying expectations about that same future (Berkhout, 2006). In turn, these expectations can shape the actions of the entrepreneurs (Rosenberg, 1976) and are an instrument that actors can use to construct their futures (Berkhout, 2006).

Although Battilana et al. (2009) do describe the characteristics of institutional entrepreneurs, enabling conditions of institutional entrepreneurship and proposed a process model of how these enabling conditions lead to divergent change, it misses a clear identification of actions that are performed by institutional entrepreneurs to, for example, mobilise allies and resources. Battilana et al. (2009) do indicate that actors use visions of change to mobilise allies. This means that they acknowledge, on an abstract level, that expectations play a role in the work of institutional entrepreneurs, but they refrain from specifying this role. This study therefore aims in contributing to this gap by explaining how a vision of change can aid in implementing divergent change.

Actions that are performed by actors are identified in the literature on institutional work (Lawrence & Suddaby, 2006), as are the enabling conditions on different levels and how different types of agency enable different forms of institutional work (Battilana & D'Aunno, 2009). However, this strand of literature does not address expectations or what role they might play in these activities. Last, literature on expectations mentions what role expectations or visions can play in mobilizing allies and resources (Berkhout, 2006). However, it does not describe this in the context of institutional change and whether there is a difference in the use of expectations depending on the intended goal – i.e. disrupting, maintaining or creating institutions. Therefore, this research aims to fill this gap in the literature by answering the following research question:

How do institutional entrepreneurs use expectations to implement divergent change?

The aim of this research is to elucidate in which ways expectations are used within the context of the activities that institutional entrepreneurs carry out. This research wants to find answers to, for example, how institutional entrepreneurs use expectations on a societal level in their

attempt to create new institutions. Additionally, combining existing theories on institutional work, institutional entrepreneurship and expectations will not only identify those mechanisms, but also help in mapping existing expectations and necessary changes, both in regulative and socio-cognitive institutions.

An interesting case to study the creation, maintenance or disruption of institutions is the introduction of autonomous vehicles: in this case it is clear that legislation and societal norms and values are not ready for its introduction (Brodsky, 2016; König & Neumayr, 2017). Autonomous vehicles, often referred to as self-driving cars, are a new technology that combines different technologies into a car that drives and navigates itself (Fagnant & Kockelman, 2015; Narla, 2013; Wadud, MacKenzie, & Leiby, 2016; Yang & Coughlin, 2014). Examples of such technologies are intelligent speed adaptation and lane departure warning systems that have already aided in making traffic safer. This is, for example, visible in the number of fatal car accidents in the European Union: this number has decreased from 76.000 to 34.500 between 1990 and 2009 (Van Wee, Annema, & Banister, 2013). Additionally, it is expected that autonomous vehicles emit less greenhouse gases, reduce congestion, and improve general mobility (Fagnant & Kockelman, 2015; König & Neumayr, 2017; Meyer, Becker, Bösch, & Axhausen, 2017; Narla, 2013; van den Berg & Verhoef, 2016; Yang & Coughlin, 2014).

These expectations are important since, over the last century, the number of cars on the road has increased tremendously, from just a few dozen at the beginning of the previous century, to almost eight-and-a-half million in the Netherlands at the end of 2017, still increasing every year (Centraal Bureau voor de Statistiek, 2018; van Wee & Annema, 2009; Van Wee et al., 2013). This increase has multiple impacts on society: the amount of greenhouse gases contributing to climate change is increasing fast, congestion is an everyday issue and the vast amount of traffic raises safety concerns around the world (Van Wee et al., 2013).

The chosen case study of autonomous vehicles in the Netherlands is suitable for identifying the mechanisms used since it is a very topical subject. This means that institutional entrepreneurs in this field are now in the process of using visions and expectations in order to achieve their goals. However, it also means that the intended institutional change is not yet visible. Nevertheless, the intended institutional change does not have to succeed to be deemed institutional work or institutional entrepreneurship. Therefore, the effects are less important in this study than the processes and activities potentially leading to institutional change.

This research has two contributions to science. First, this research identifies the mechanisms of how institutional entrepreneurs use expectations for the implementation of divergent change. Additionally, the identification of these mechanisms also elucidates the "Divergent Change Implementation" (see Figure 1 on page 14) part of the process model proposed by Battilana et al. (2009).

A more practical relevance of this research is that it maps the expectations of autonomous vehicles in the Netherlands, as well as the processes that play a role in enabling the implementation of autonomous vehicles. Mapping these expectations and identifying necessary changes provides useful insights into the introduction of autonomous cars in the Netherlands.

The remainder of this thesis first discusses the theories that were used in this research. This includes theories on institutional work, institutional entrepreneurship and expectations. The purpose of describing these fields is to identify and define important concepts that helped both in conducting the case study and in designing a model on the mechanisms in which

expectations are used by institutional entrepreneurs to implement divergent change. Thereafter, the methods section describes how data was collected and analysed. Subsequently, the results and analysis are described, and this thesis ends with the conclusions and a discussion of the research, and therefore with an answer to the research question.

2 Theory

This section elaborates on the theories that were used in this research, including institutional theories, such as institutional work and institutional entrepreneurship, and theories on expectations. These theories are relevant for this research since they provide insight into both how institutional change is achieved and how expectations come about and what functions they (can) serve. A combination of these theories led to a conceptual model that has been used in analysing the data and helped in answering the research question.

2.1 Institutional Theory

Institutional theory is an approach to studying organisations (Lawrence, Suddaby, & Leca, 2011) and focuses on "the relationships among organisations and the fields in which they operate" (Lawrence & Suddaby, 2006, pp.215), focusing on the institutional context. In this theory, institutions are defined as "enduring elements in social life […] that have a profound effect on the thoughts, feelings and behaviour of individual and collective actors" (Lawrence & Suddaby, 2006, pp.216). Additionally, for this theory Lawrence and Suddaby (2006) assumed that institutions are a product of goal-oriented, or purposive, action. Moreover, institutions can be both formal and informal in nature, reflecting laws, regulations, rights and constitutions on the one hand and norms and values on the other hand (Lawrence & Suddaby, 2006).

Within institutional theory, there are two fields of study that are closely related yet slightly different: institutional work and institutional entrepreneurship. Both are explained in detail below.

2.1.1 Institutional Entrepreneurship

Although DiMaggio (1988) was one of the first to introduce the concept of institutional entrepreneurs, Battilana et al. (2009) were the first to introduce a process model of institutional entrepreneurship to explain the characteristics, features and actions needed for changing institutions as an entrepreneur.

The definition of institutional entrepreneurs is that they are a type of change agents that initiate and participate in divergent change. Battilana et al. (2009) identified four different characteristics for institutional entrepreneurs: (1) change is not necessarily intentionally initiated, (2) initiated change is not necessarily successfully implemented, (3) they might initiate changes within organizational boundaries or in a broad institutional context, and (4) they do not necessarily need to start a new venture, this is both unnecessary and insufficient (Battilana et al., 2009).

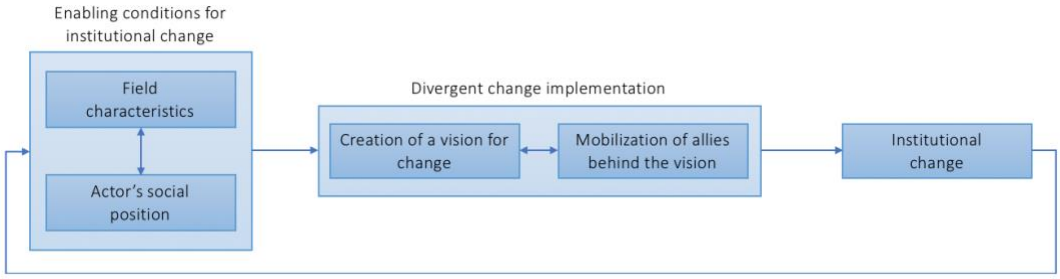

Figure 1 The process model of institutional entrepreneurship (Battilana et al., 2009)

The process model (see Figure 1) describes that there are certain enabling conditions for institutional change, which are the actor's social position and certain field characteristics, e.g. social upheaval, technological disruption, regulatory changes and the degree of heterogeneity and institutionalisation. The latter, the degree of institutionalisation, is of course an inverse: a higher degree of institutionalisation is disabling rather than enabling. When enabling conditions are present at a sufficient level, there is room for the implementation of divergent change through the creation of a vision and mobilizing other actors and resources. When this is successful, institutional change can be achieved (Battilana et al., 2009).

Field characteristics are exogenous to actors' actions, but other actors can have an influence on these characteristics which causes them to be favourable for institutional entrepreneurs. If enabling conditions are present, not all actors present in the field will become institutional entrepreneurs. This means that even though the conditions might enable institutional entrepreneurship, not all actors will exploit this opportunity which suggests the importance of the characteristics of the actor (Battilana et al., 2009). One of these characteristics that is highlighted by Battilana et al. (2009) is the social position of the actor, since this influences his/her relation towards his/her context. Additionally, the actors' social position can influence their access to resources and their perception of the field. Moreover, if an actor is positioned on the intersection between two fields, he/she is more likely to become an institutional entrepreneur. The actor's individual position can also influence this, since the right position can provide legitimacy, which in turn provides him/her with a wide variety of resources (Battilana et al., 2009). Last, the enabling conditions are not solely influenced by the field level conditions and the actors' social position but also by the interaction between these two variables.

Central to the process of institutional entrepreneurship is the aspired implementation of divergent change. To achieve this, actors need to develop a vision for this change and mobilize both allies and resources as well as motivating these allies to achieve and sustain the change (Battilana et al., 2009). A vision for divergent change is created under the support of enabling conditions and is done through three different types of framing. The first type of framing is to underline the problem which the change aims to solve (diagnostic framing). The second type of framing is to shed light on previous arrangements and explain why the new proposed change is superior to that previous arrangement (prognostic framing). The third and final type is focused on providing others with compelling reasons to support the proposed change (motivational framing) (Battilana et al., 2009).

In using these types of framing, social skill is important, even more so for institutional entrepreneurs than for actors initiating non-divergent change, since they have to justify the divergence to get the support of others (Battilana et al., 2009). Fligstein (1997) defined social skill as "the ability to motivate cooperation in other actors by providing those actors with common meaning and identities in which actions can be undertaken and justified". This means that a socially skilled institutional entrepreneur is able to create a vision for divergent change that other actors are inclined to follow, since he/she can relate him-/herself to these other actors (Battilana et al., 2009; Fligstein, 1997).

Mobilizing allies is important in processes of divergent change, since change cannot be achieved without support and because it is intertwined with the creation of a vision (Battilana et al., 2009). In mobilizing allies, it is important to unite actors while reducing contradictions in the coalition, while at the same time emphasizing the failures of existing institutions and norms towards opponents and demonstrate the superiority of the proposed change (Battilana et al.,

2009). Allies can be mobilized both through using discourse and through the mobilization of resources.

If proposed divergent change resonates with actors embedded in the existing institutional structures, one is more likely to mobilize them in favour of the proposed change. This can be done through the creation of a vision, as discussed above, but also through the use of discourse: using the existing narratives (familiar templates) in favour of the proposed institutional change (Battilana et al., 2009). By doing so, the institutional entrepreneur makes the proposal feel familiar while at the same time emphasizing the need for change. This can be done through storytelling which can help in turning around the existing institutional order. Through the use of well-established narrative-styles to construct substantive images of the future, these stories gain legitimacy (Battilana et al., 2009).

Central to institutional theories is the paradox of embedded agency: if change agents' norms and beliefs are shaped by their institutional context, how can they attempt to change those very same institutions? This paradox is important to mention since theories about agency and institutional change cannot hold without discussing it. The process model by Battilana et al. (2009), especially, aims to solve this paradox by identifying enabling conditions for institutional change and explaining how these conditions enable institutional entrepreneurship.

2.1.2 Institutional Work

Institutional work is when either collective or individual actors engage in purposive action aimed at either creating, maintaining or disrupting institutions (Battilana & D'Aunno, 2009; Lawrence & Suddaby, 2006; Lawrence et al., 2011) and "it deals with the relationship between agency and organisations" (Battilana & D'Aunno, 2009, pp.32). The main difference between theory on institutional work and 'regular' (neo-)institutional theories is that it is regardless of the outcome: normally, studies focus only on purposive action with a positive outcome. Institutional work, however, also regards purposive action that has failed its goal. It stresses the activities that are carried out instead of the outcomes achieved.

As can be derived, the goal of institutional work is to either create, maintain or disrupt institutions. Lawrence and Suddaby (2006) describe that for each of these goals, there are different forms of institutional work that may require different actions. Additionally, Battilana and D'Aunno (2009) describe what types of agency enable each type of institutional work and what types of action would match with that combination of agency and institutional work. However, since they provide no explanation of what the different actions entail, this theory is not used in the remainder of this research. An overview of the activities by Lawrence and Suddaby (2006) is shown in Table 1, an overview of the three types of agency and the corresponding types of institutional work by Battilana & D'Aunno (2009) can be found in Appendix A.

Table 1 Types of institutional work (Lawrence & Suddaby, 2006)

	Lawrence and Suddaby (2006)
Creating	○ Advocacy ○ Defining ○ Vesting ○ Constructing identities ○ Changing normative associations ○ Constructing Normative Networks ○ Mimicry ○ Theorizing ○ Educating
Maintaining	○ Enabling work ○ Policing ○ Deterring ○ Valorising and demonising ○ Mythologizing ○ Embedding and routinising
Disrupting	○ Disconnecting sanctions ○ Disassociating moral foundations ○ Undermining assumptions and beliefs

The biggest difference in the definitions of institutional work of Lawrence and Suddaby (2006) and Battilana and D'Aunno (2009) is that the former assumes that the activities can be both intentional and non-intentional and that the latter assumes that it is intentional in nature. However, Battilana and D'Aunno (2009) also note that the level of intent may vary considerably depending on the type of agency that is present in the situation. For this research, Lawrence and Suddaby's (2006) view is followed since the same assumption is made for institutional entrepreneurship: it is not necessarily intentional.

This assumption also shows an overlap with theories on institutional entrepreneurship: both the intent and successful outcome are not necessary. The biggest difference between these two theories is that institutional work studies both collective and individual actors, whereas the subject of research in institutional entrepreneurship is always the individual (Battilana et al., 2009; Lawrence & Suddaby, 2006).

2.2 Expectations

Institutions also shape expectations and thus help in creating opportunities for change in a technological context (Lehoux, Miller, & Daudelin, 2017). However, expectations are also an important resource to institutional entrepreneurs to create a vision of change, and to mobilize allies and resources behind that vision (Battilana et al., 2009; Dorado, 2005; Garud, Jain, & Kumaraswamy, 2002).

The definition of expectations that is used in this paper is a combined definition of Borup et al. (2006, pp. 286) and Berkhout (2006): expectations are real time representations of future technological situations and capabilities, conveyed through images and visions. Additionally, expectations are performative in nature since they "guide activities, provide structure and legitimation, attract interest and foster investment" (Borup et al., 2006, pp. 285-286) and actors use them to construct a future that is, in their eyes, desirable (Berkhout, 2006). This makes expectations essential in shaping the potential of novel technologies, shaping

fundamental change and in guiding social action (Berkhout, 2006; Borup et al., 2006). Additionally, expectations can shape the actions of entrepreneurs (Rosenberg, 1976).

The performative nature of expectations is also reflected in the horizontal dimensions that expectations bridge: they help in coordinating between different actor communities and groups. Aside from bridging this horizontal dimension, expectations also bridge in a vertical dimension (Borup et al., 2006; van Lente, Spitters, & Peine, 2013). Three vertical levels are named differently across the literature but in essence consist of a micro, meso and macro level. Van Lente et al. (2013) have termed these levels the project level, the technological field level and the societal level of frames. These are almost self-explanatory names for the levels which, for example, reflect expectations about the project itself, expectations on the development of the technological field and expectations about societal trends, norms and values, respectively. The dynamic interaction of expectations between all levels and dimensions is of high importance as van Lente et al. (2013) have found that a good alignment of expectations on all three vertical levels increases the risk of a greater disappointment in the hype cycle for technologies (a cycle that displays high expectations (hypes) followed by large disappointments in the technology). However, a situation with greater disappointment is also a situation with high expectations of a technology and in which a lot of allies and resources are mobilised.

Besides their bridging capability, the literature mentions some other characteristics of expectations as well. First, visions are omnipresent since expectations are essential to social action. At the same time, however, visions are individual and specific, but they are always influenced by the social environment in which they exist and have no existence outside that social environment (Berkhout, 2006). This means two things: (1) Agents will always act according to their individual vision of the future and have their private agendas for change, and (2) as support expands over time, individual visions become shared visions. The implication of the latter is that if expectations or visions become widely accepted, they acquire a normative force: people will accept them as facts and they will likely become a self-fulfilling prophecy (Berkhout, 2006).

Second, expectations have both a temporal and socio-spatial variability: they depend on their place in time, society and space. The first of the two also relates to the concept of hypes and disappointments: hypes are created to attract sponsors and help in setting agendas, whereas disappointments are often caused by a misalignment between cultural and organizational factors, and the expectation. However, the memories of past expectations often help to rationalize disappointments and justify new expectations because of past results (Borup et al., 2006). The latter, socio-spatial variability, refers to how people express their trust in an expectation in different environments. For example, a scientist might be very positive regarding the results of his research to the outside world while being more cautious in expressing this trust when among peers (Borup et al., 2006). Figure 2 illustrates the performative function of expectations.

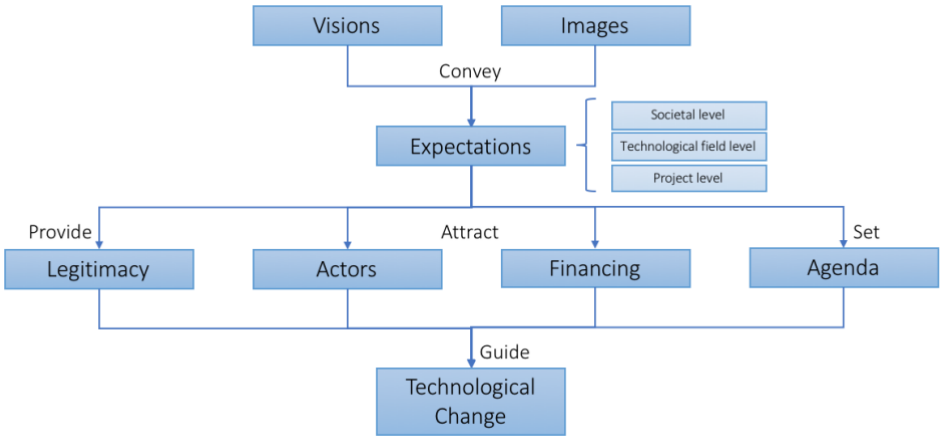

Figure 2 The role of expectations in guiding technological change

Since expectations are representations of either things staying the same or things changing and are therefore always based on attitudes and perceptions of the status quo, visions are used to anticipate and rationalise processes of change (Berkhout, 2006). To emphasize a vision, agents often tend to moralise it: make it seem like either a utopia or dystopia. This also helps in enrolling other actors through attaching a positive or negative value and to give reasons for whether a vision should be pursued. This morality is one important feature of visions. Three other features include: (1) objectives, the expression of possible and desired futures, (2) orders, a set of social and institutional environments in which the objectives can be met, and (3) technologies, tools that can be used to achieve the objective (Berkhout, 2006).

2.3 Conceptual Model

Based on the preceding literature, Figure 3 displays the conceptual model for this study. On the left-hand side, the three levels of expectations, i.e. societal level, technological field level and project level, are represented. On the right-hand side, the three types of institutional work are shown, i.e. creating, maintaining and disrupting institutions. The arrow between the boxes shows the expected relationship between the expectations and institutional work and displays how institutional entrepreneurs use expectations for their activities regarding creating, maintaining or disrupting institutions. Again, identifying these mechanisms will extend the process model of institutional entrepreneurship as proposed by Battilana et al. (2009).

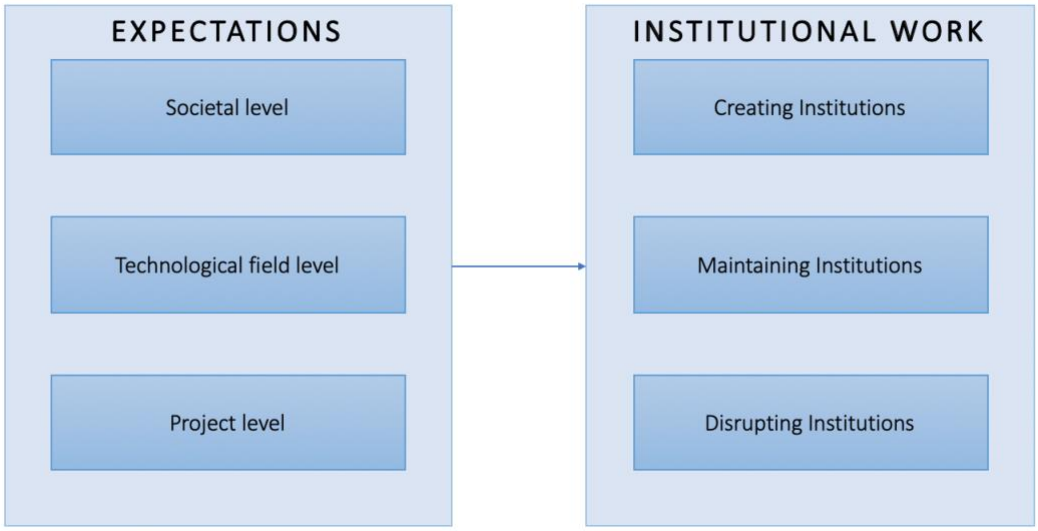

Figure 3 Conceptual model for the mechanism in which expectations are used by institutional entrepreneurs.

3 Methods

3.1 Research Design

This research has a case study design and used a single case study to further develop and sharpen the proposed model. There is some concern in using a single case study; the external validity, or generalizability, of the study is low since the results of a single case study could never be true for the entire population. However, this research aims to deepen a concept that exists in the literature and a single case study means that this can be done both detailed and extensively (Bryman, 2012).

3.2 Data Collection

The data collection for the case study consisted of two, both qualitative, parts: (1) Building a corpus of news articles and (2) Interviews. The rationale for the analysis of news articles is that they provide insight into which expectations exist and on what levels those expectations exist. They can therefore provide a blueprint into what institutions need to change and can thus provide a stepping stone for analysing the interviews. The interviews are, in turn, used to see how institutional entrepreneurs use expectations, be it their own or others', to change institutions.

3.2.1 Collecting News Articles

First, a corpus was built that includes news articles both from Dutch newspapers and Dutch digital news sources. The newspaper articles have been collected using LexisNexis, an online database containing all articles from newspapers and news magazines, both Dutch and international, from 1992 to the present day. All data is available for future research upon request.

The news articles have been collected from the top four newspapers in the Netherlands, based on their circulation and online reach: Algemeen Dagblad, De Telegraaf, De Volkskrant and NRC Handelsblad ("Nationaal Onderzoek Multimedia: Oplage dagbladen 2016 Q4 t/m 2017 Q3," 2018; Stimuleringsfonds voor de Journalistiek, 2018). Additionally, the Financieele Dagblad has been added to this list since this is the only Dutch newspaper to provide a financial-economic perspective and can therefore provide different expectations (Benjamin, 2012; FD, 2018). In addition, articles from ANP.nl, the Dutch press agency, were also included and collected through LexisNexis. Besides newspaper articles, digital news articles have also been included. The biggest digital news sources in the Netherlands are NOS.nl and NU.nl and therefore these are the digital news sources used in this research (Stimuleringsfonds voor de Journalistiek, 2018).

It was intended that the data collection would only include articles from 2012 onwards, since in 2012 Google was the first to demonstrate their fully automated, autonomous vehicle. For this reason, 2012 seemed to be the starting point of a new era of automation (Wadud et al., 2016). However, the searches for each of the keywords included so few articles from before 2012, as can be seen in the overview of articles per year displayed in Figure 4, that these articles have been included. This thus means that articles have been collected from 1992 onwards. Please note that the number of articles in 2018 is not a complete number for this year since the articles that have been collected are all from before April 1st, 2018.

Keywords that have been used in the search include: "autonome auto", "autonoom rijden", "autonoom voertuig", "autonoom", "robotauto", "zelfrijdend voertuig", "zelfrijdend",

"zelfrijdende auto", "zelfsturend voertuig" and "zelfsturende auto". The two keywords consisting of only one word, "autonoom" and "zelfrijdend", have been used whilst collecting data on NU.nl to gain access to the labels that NU.nl uses to categorize their articles and that are only accessible through the articles and therefore include articles for multiple keywords. Using these keywords, 845 news articles and three podcasts were collected.

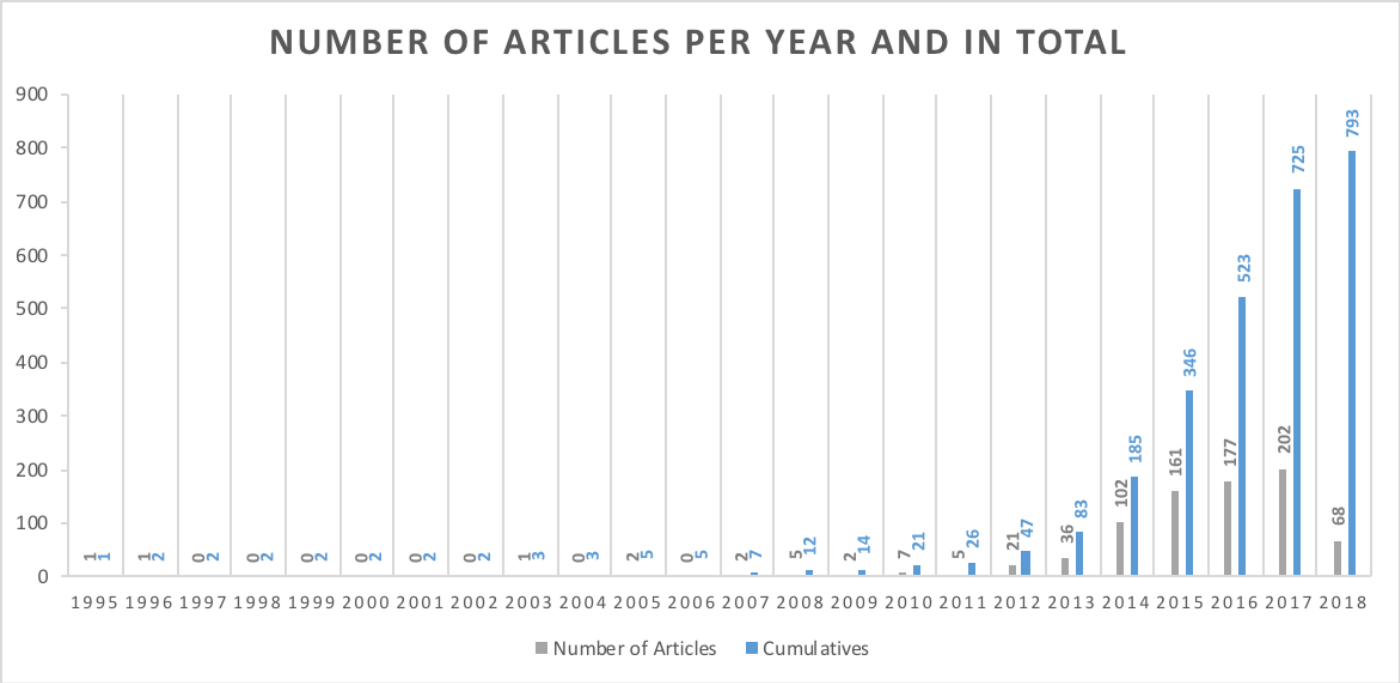

Figure 4 Number of articles per year and cumulative

After collecting all the articles, the first thing that was done is to remove duplicate articles. Table 2 shows the results for each keyword per data source right after the duplicates have been removed, Figure 4 shows the number of articles per year after the duplicates were removed. The primary data collection included almost all articles that would come up in the search, excluding articles that did not discuss self-driving cars or that mentioned self-driving cars solely as an example. Please also note that "Algemeen Dagblad" includes several newspapers across the country. Each of these newspapers publishes the same news articles but they have been collected only once. The numbers for "Algemeen Dagblad" are therefore an aggregate measure.

Table 2 Number of collected articles per data source and keyword

	autonome auto	autonoom rijden	autonoom voertuig	autonoom	robotauto	zelfrijdend voertuig	zelfrijdend	zelfrijdende auto	zelfsturend voertuig	zelfsturende auto	Total
Algemeen Dagblad	15	10	4		17	7		28		13	**94**
Algemeen Nederlands Persbureau	4	11	1		2	2		29		8	**57**
De Telegraaf	17	16	7		5	7		21	1	12	**86**
De Volkskrant	34	11	5		19	7		16		10	**102**
Het Financieele Dagblad	24	18	9		6	5		29	1	32	**124**
NOS.nl		1				3		84		2	**90**
NRC Handelsblad	11	4	11		22	8		28		13	**97**
NU.nl		3		21			16	98		5	**143**
Total	**105**	**74**	**37**	**21**	**71**	**39**	**16**	**333**	**2**	**95**	**793**

The next step was to clean the dataset more thoroughly by removing articles that were not fitting for the scope of this research. This means that all articles that did not concern the Netherlands and/or that did not express any expectations about autonomous vehicles are removed. Table 3 shows how many articles remained per data source and keyword after this process.

Table 3 Number of collected articles per data source and keyword after data cleaning

	autonome auto	autonoom rijden	autonoom voertuig	autonoom	robotauto	zelfrijdend voertuig	zelfrijdend	zelfrijdende auto	zelfsturend voertuig	zelfsturende auto	Total
Algemeen Dagblad	11	9	3		11	4		19		11	**68**
Algemeen Nederlands Persbureau	4	6			2	1		12		5	**30**
De Telegraaf	15	7	7		2	4		10	1	10	**56**
De Volkskrant	18	9	3		13	7		13		5	**68**
Het Financieele Dagblad	13	8	7		6	3		15		20	**72**
NOS.nl		1				3		47		2	**53**
NRC Handelsblad	8	1	8		17	7		20		9	**70**
NU.nl		3		16			10	70		3	**102**
Total	**69**	**44**	**28**	**16**	**51**	**29**	**10**	**206**	**1**	**65**	**519**

3.2.2 The Interviews

The interviews have functioned as the main source of information on how expectations are used by institutional entrepreneurs. Data has been collected to the point of data saturation, with a total of nine conducted interviews. The interviewees reflected different parties involved in the process of institutional change regarding autonomous vehicles and were found through the articles (purposive sampling) and snowball sampling. A more precise, but still general, overview can be found in Table 4.

The interviews were semi-structured since that provided structure to the interview, which ensured that all the right questions were answered, besides having room for new insights and additions from the interviewees' perspective (Bryman, 2012). All data has been made anonymous to ensure the interviewees' privacy. Furthermore, interviewees have been given the choice to receive a transcript from their interview as well as a digital copy of this thesis and their permission to share the transcripts for future research has been asked. If this permission is not granted, the transcript is not available, this can be found in Table 4.

Table 4 General details on the interviewees

	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4	Interviewee 5	Interviewee 6	Interviewee 7	Interviewee 8	Interviewee 9
Government				X				X	X
Private Organisation	X				X				
Network Organisation		X				X**	X		
Consultancy Organisation			X*						
Transcript available?	Y	N	Y	Y	Y	Y	Y	N	Y

* This was a double interview in which two persons from the same organisation were interviewed
** The questions were answered in writing rather than a face-to-face interview

Questions for the interview covered all three levels of expectations, as well as having a certain sensitivity for the time aspect, e.g. by asking how expectations changed over time and whether this changed their approach to changing institutions. This left room for additional insights into performed activities and the dynamics of the expectations. The interview template can be found (in Dutch) in Appendix C.

3.3 Operationalisation of the Concepts

Before being able to analyse the collected data, the concepts that have been highlighted in the theory section have been operationalised. To recap, these concepts are the different activities that are deemed institutional work, the different types of framing and the different levels of expectations. Table 5 shows how these concepts are made measurable for this research. For institutional work, the activities mentioned by Lawrence and Suddaby (2006) are used, since they provide a good overview of what the different activities entail and are therefore more suitable to operationalise.

Table 5 Operationalisation of the concepts

Theory		Concept	Definition
Institutional Work (Lawrence & Suddaby, 2006)	Creating	Advocacy	"The mobilisation of political and regulatory support through direct and deliberate techniques of social suasion" (pp. 221)
		Defining	"The construction of rule systems that confer status or identity, define boundaries of membership or create status hierarchies within a field" (pp. 221)
		Vesting	"The creation of rule structures that confer property rights" (pp. 221)
		Constructing identities	"Defining the relationship between an actor and the field in which that actor operates" (pp. 221)
		Changing normative associations	"Re-making the connections between sets of practices and the moral and cultural foundations for those practices" (pp. 221)
		Constructing normative networks	"Constructing of interorganisational connections through which practices become normatively sanctioned and which form the relevant peer group with respect to normative compliance, monitoring and evaluation" (pp. 221)
		Mimicry	"Associating new practices with existing sets of taken-for-granted practices, technologies and rules in order to ease adoption" (pp. 221)
		Theorising	"The development and specification of abstract categories, and the elaboration of chains of cause and effect" (pp. 221)
		Educating	"The educating of actors in skills and knowledge necessary to support the new institution" (pp. 221)
	Maintaining	Enabling work	"The creation of rules that facilitate, supplement and support institutions, such as the creation of authorising agents of diverting resources" (pp. 230)
		Policing	"Ensuring compliance through enforcement, auditing and monitoring" (pp. 230)
		Deterrence	"Establishing coercive barriers to institutional change" (pp. 230)
		Valorising and demonising	"Providing for public consumption especially positive and especially negative examples that illustrates the normative foundations of an institution" (pp. 230)
		Mythologizing	"Preserving the normative underpinnings of an institution by creating and sustaining myths regarding its history" (pp. 230)

	Embedding and routinising	"Actively infusing the normative foundations of an institution into the participants' day-to-day routines and organisational practices" (pp. 230)
Disrupting	Disconnecting sanctions	"Working through state apparatus to disconnect rewards and sanctions from some set of practices, technologies or rules" (pp. 235)
Disrupting	Disassociating moral foundations	"Disassociating the practice, rule or technology from its moral foundation as appropriate within a specific cultural context" (pp. 235)
Disrupting	Undermining assumptions and beliefs	"Decreasing the perceived risks of innovation and differentiation by undermining core assumptions and beliefs" (pp. 235)
Levels of expectations (van Lente et al., 2013)	Societal level	Expectations about the technology expressed by society, for example politicians, ministers, civilians, insurance companies, or government organisations.
Levels of expectations (van Lente et al., 2013)	Technological field level	Expectations about the technology expressed by actors in the technological field (industry), for example researchers, market players or network organisations
Levels of expectations (van Lente et al., 2013)	Project level	Expectations about one specific project expressed by the actor(s) involved in the project

3.4 Data Analysis

All data, both the corpus of news articles and the interviews, have been analysed using nVivo. nVivo is a program that assists in coding and structuring large amounts of text, as is the case for this research. The coding for the interviews is done according to a coding scheme which is based on the proposed conceptual model and the operationalisation table. However, some open coding based on the text has been included to prevent that important additional activities and resources are not included in the final results. The coding scheme helped in ensuring replicability of the study. Additionally, it guides the interpretations of the text fragments and thus increases consistency. The coding scheme can be found in Appendix D.

For the news articles and podcasts, which were first transcribed, coding was done based on in Vivo coding. This means that the selected text that is coded is the same as the label it has been given. This results in a high number of labels which can then be grouped into certain themes. These themes are based on the labels, and thus on the text, and thus provide insight into which themes are more apparent in the articles. To ensure that also an insight into which expectations exist for each level of expectations exist, the nodes for each theme are also split up into each level. Both the formulation of the themes and the split into the levels of expectation are done by the author and are therefore reliant on the author's interpretation of the texts. The analysis of the news articles was done until a point of data saturation was reached. This means that, in the end, 167 news articles and three podcasts were analysed.

4 Case Description: Autonomous Vehicles in the Netherlands

Autonomous vehicles are vehicles that combine various advanced driving assistance (ADA) technologies and other technologies into a car that can drive itself (van den Berg & Verhoef, 2016; Wadud et al., 2016). There are six different levels of automation as introduced by the Society of Automotive Engineers (SAE) ranging from no automation to full automation, as shown in Figure 5 (Meyer et al., 2017; National Highway Traffic Safety Administration, n.d.; Shladover, 2016; Society of Automotive Engineers International, 2018).

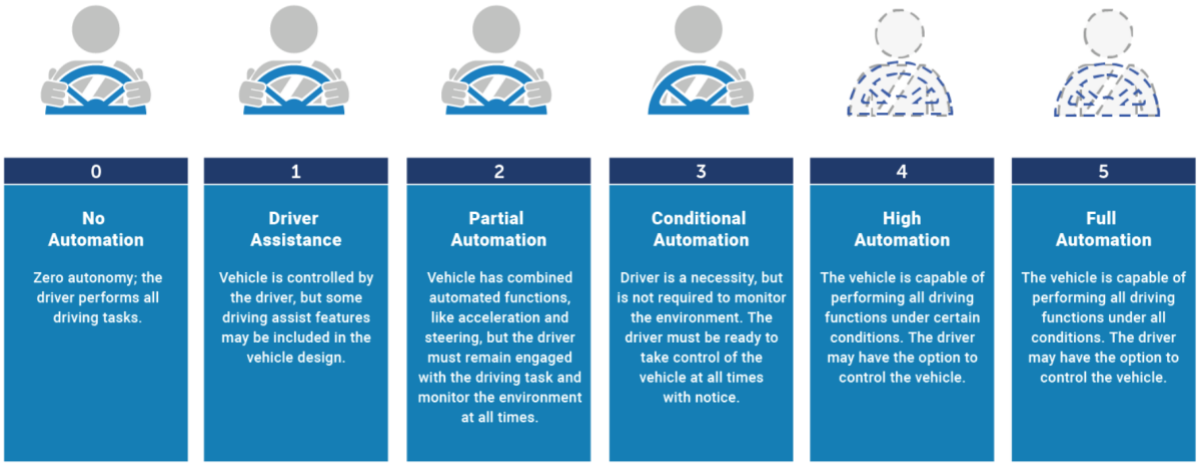

Figure 5 Different levels of automated driving (National Highway Traffic Safety Administration, n.d.)

In 2012, Google demonstrated a fully autonomous vehicle (Wadud et al., 2016) and in September 2013 they reached 500,000 miles driven on public roadways with their autonomous vehicles (Fagnant & Kockelman, 2014).

In the Netherlands, various initiatives exist and have existed to test all kinds of different aspects of autonomous vehicles. Figure 6 shows a timeline of the most important events and developments in the Netherlands that concern autonomous vehicles. This timeline has been constructed using the news articles that have been collected.

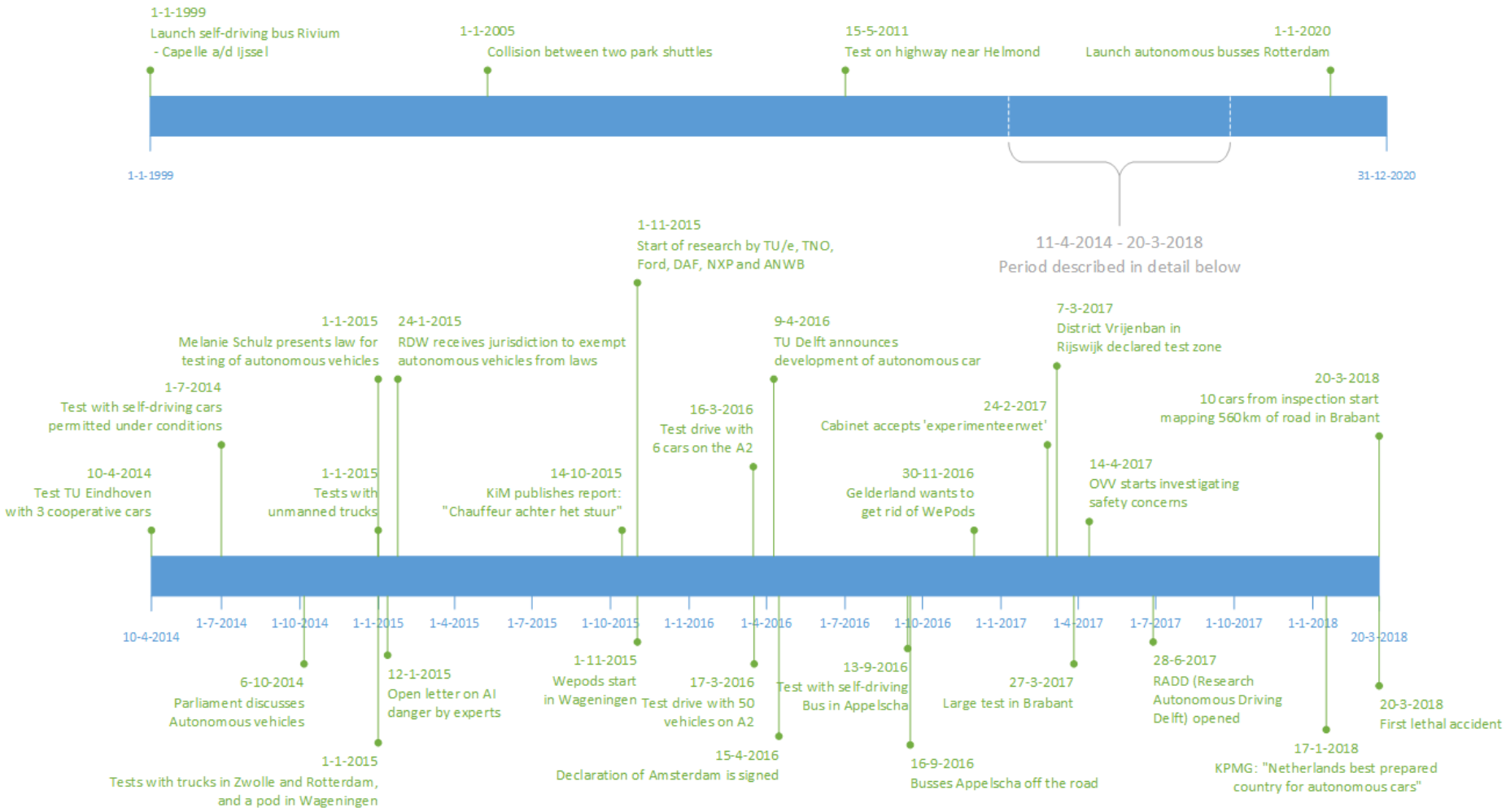

Figure 6 Timeline of events with autonomous vehicles in the Netherlands

The timeline shows that the first implementation of an autonomous vehicle was in 1999 [296]. This concerns a vehicle on a closed circuit that rides from sensor to sensor between metro station Kralingse Zoom in Rotterdam and Rivium in Capelle aan den IJssel. These vehicles had their first accident in 2005 and are to be fully autonomous on the public road by 2020.

The first tests with autonomous vehicles on the public road were conducted in 2011 and 2014 by way of exception in Helmond [409] and Eindhoven [048], the exception was granted by minister Melanie Schultz. The conditions of this type of exception were made formal in July 2014. The House of Representatives discussed autonomous cars for the first time in 2014 [049], leading to a new law to officially allow testing being taken into effect in 2015 [094]. With this law, companies and research institutes could start testing in certain areas after approval, but a driver had to be present in the vehicle at all times. The approval is under the jurisdiction from the Rijksdienst voor Wegverkeer (the national agency for road traffic), or RDW, as of January 24, 2015 [059]. In that same year, the Kennisinstituut voor Mobiliteitsbeleid (KiM, a knowledge institute for mobility policies), published a report that addressed four possible scenarios with autonomous vehicles [013], which is also explained in more detail on page 38. Additionally, a team of researchers from the technical university Eindhoven, TNO (a Dutch research institute), DAF, ANWB (an interest group for mobility), NXP (a Dutch chip-manufacturer) and Ford started a research into technological capabilities and possibilities for autonomous vehicles [740].

Despite an open letter signed by experts all over the world on the dangers of Artificial Intelligence [756], the number of tests with autonomous vehicles in the Netherlands increased, starting with two test drives on the A2 in 2016 [006, 020]. Also in 2016, a test with a self-driving bus in Appelscha starts as a last-mile implementation of an autonomous vehicle [232] and is stopped after just three days [289], and the WEpod on the campus of the Wageningen University is stopped after a year [089].

In February of 2017, the cabinet accepts the bill for the 'Experimenteerwet', a law which allows for experimenting with autonomous vehicles without the driver on board [267]. The bill is now headed for the House of Representatives. In March of that year, the district Vrijenban was declared a test zone for autonomous vehicles and sensors by HR Groep [042]. Additionally, there was a large test with autonomous vehicles in Brabant [012]. Later that year, the Onderzoeksraad voor Veiligheid (OVV, Dutch Safety Board) started a research into the safety benefits and implications of autonomous vehicles [017], and in Delft the Researchlab Autonomous Driving Delft (RADD) was opened to investigate the capabilities and possibilities of autonomous vehicles [294].

All these activities, led to a research report by KPMG stating that the Netherlands is the best-prepared country in the world for the testing and introduction of autonomous vehicles [005]. This is aided by the signing of the declaration of Amsterdam in April 2016 by all infrastructure ministers of Europe which was initiated by, at the time, minister of infrastructure Melanie Schultz [052].

An important event that is missing from this timeline, and from the news articles that have been collected for the analysis of this research, is the submission of a concept law to allow experimenting with autonomous vehicles without the presence of an on-board driver, the so-called 'Experimenteerwet', on November 22, 2017. This law has been accepted by the House of Representatives on April 26, 2018 and by the Senate on September 25, 2018. The reason that these last two events have not been included is that they fall outside of the scope of this research. The law has been published on October 12, 2018 and will be taken into effect on a later date to be determined by royal decree (Eerste Kamer der Staten-Generaal, 2018).

Additionally, the last event on this timeline is not a Dutch event but important nonetheless. It mentions the first lethal traffic accident with an autonomous vehicle in Phoenix, Arizona in the United States [002]. This event is important to mention since it might influence the support, development and introduction of autonomous vehicles worldwide. The actual effect of the accident could not be observed since it falls outside the scope of this research.

5 Results

This section provides the results from both the analysis of news articles and the analysis of the interviews. These results will be discussed in three main parts. First, the expectations that come forward from the news articles will be discussed. It was possible to derive some general themes and subthemes to help structure them and create a concise overview of what expectations about autonomous cars exist. Second, the interviews provided insight into which activities are performed by institutional entrepreneurs. These will be described using the different activities as shown in the operationalization table (Table *5*) in the methods section on page 25. Last, a link between these two parts is made. This link will provide insight into which expectations are used for which activities according to the interviews. Additionally, this part will provide some insights into the differences between the expectations that are used in the different institutional work activities and the expectations that were found in the news articles.

Please note that all quotes in the text, both from the news articles and the interviews, have been translated by the author. Additionally, for the news articles, the numbers correspond with the IDs of the articles as displayed in Appendix B. Likewise, the interviewees' numbers (displayed as [IntX], where 'X' denotes the number) correspond with Table *4* on page 24 in the methods section.

5.1 Expectations

From the news articles, four different themes are identified, as can be seen in Table 6. The numbers in this table denote how often an expectation was coded under the theme. Within some of these themes, several subthemes are also identified, these will be introduced in the sections that address the different themes. After the identification of the themes and subthemes, the different expectations were distributed over the different levels of expectations, according to the definitions as stated in the operationalisation table (Table *5*) in the methods section on page 25. In order to do this as correctly as possible, both the person that expressed the expectation and the content of the expectation were taken into account. The following subsections will discuss the expectations that were found, using the themes as a guideline.

Table 6 The different themes

THEME	Count
Impact	236
Scenarios	58
Support	70
Technological Readiness	176

5.1.1 Impact

This theme focuses on what people expect that the introduction of autonomous vehicles can cause in terms of impact on different subthemes. The subthemes that were identified are economy, environment, institutions, market, road situations and spatial planning, safety and socio-economic. Table 7 shows the distribution of the expectations across the different subthemes.

Table 7 Subthemes for 'Impact'

SUBTHEME	Count
Economy	15
Environment	18
Institutions	22
Market	9
Road situations & Spatial planning	60
Safety	61
Socio-economic	55

Economy

This subtheme addresses all the expectations that concern economic consequences of the introduction of autonomous vehicles. The subtheme encompasses both expectations of economic consequences on a small, business-related, scale and on a larger, more national, scale. Table 8 shows the distribution over the different levels of expectations.

Table 8 Distribution of expectations for 'Economy'

LEVEL	Count
Project level	0
Technological field level	3
Societal level	12

Almost all expectations, regardless of the level it is expressed on, are concerned with saving costs. What attracts attention is that the expectations on a societal level see cost savings in the amount of personnel that is needed [020, 049], whereas expectations on a technological field level see cost savings in fuel [048]:

> *The logistical sector experiments a lot with driving in platoons: this can lead to a lot of savings in labour costs of drivers. [020]*

> *Fuel is a huge cost for logistical companies and if trucks can drive closer behind one another, they can save 10 percent on average in fuel costs by driving in each other's slipstream. [048]*

Expectations on societal level do mention that autonomous vehicles are more efficient [067, 149]. This could, however, also refer to something else entirely than fuel, for example that they can provide more time to people since they can be more productive whilst on the way:

> *Self-driving cars […] could provide lots of extra time to people. [111]*

Other expectations include how autonomous vehicles can lead to a higher production in a country since people can spend more time working [199], how they can lead to lower societal

costs since the number of accidents (and thus (health) damages and deaths) decreases [194], and how they can lead to additional jobs at European car manufacturers [067]. It seems that the same expectations exist on all different levels of expectations.

Environment

The expectations that address the possible environmental impacts of autonomous vehicles are summarized within this subtheme. It includes mainly expectations about reduced fuel use and efficiency which means that there will be less emissions. Table 9 shows how the different expectations for this subtheme distribute over the different levels of expectations.

Table 9 Distribution of expectations for 'Environment'

LEVEL	Count
Project level	1
Technological field level	4
Societal level	13

Most expectations for this subtheme discuss how autonomous cars are more fuel sparing, regardless of the level that the expectations are expressed on. However, there is a difference in the cause for the fuel-sparing property of autonomous vehicles that is mentioned, if one is mentioned at all. On a project level, it is assumed that the platooning of cars leads to fuel savings [059], and therefore less emissions.

On a technological field level, the reason is different in nature: on this level it is expected that possession of vehicles decreases, and vehicles will be shared more, leading to environmental benefits [008, 158].

On a societal level, less reasons are given and the cars being more sparingly is positioned more as a fact. The few reasons given relate to a more efficient use of cars [014] and the communication between cars which could lead to people avoiding traffic jams [093]. The following quote, however, illustrates that the environmental benefits are viewed as a fact, without any specific cause mentioned:

> *'They also drive more efficiently, which is good for humans and environment, according to Schultz.' [072].*

Institutions

This subtheme focuses on the expectations about impacts on several institutions, most address the effect of the introduction of autonomous cars on financial institutions such as insurance policies. Table 10 shows how the expectations are distributed over the different levels.

Table 10 Distribution of expectations for 'Institutions'

LEVEL	Count
Project level	0
Technological field level	2
Societal level	20

As Table 10 shows, almost all expectations on institutions were expressed on a societal level. There are three types of institutions mentioned but the one that has been mentioned the most are insurances and, related to those, liability. One thing everyone agrees on, is that the way car insurances work now will change. Most agree that the insurance premiums will decrease [020, 050, 160], whereas it has also been said that it is still unknown what will happen with insurances, especially regarding liability questions [004]:

> *'The introduction of electrical self-driving cars and the increase of shared cars will have big consequences for future car insurances, predicts Otto. "The liability will change. It's not yet clear how liability will be shaped. When is the driver liable and when the developer of the software or the manufacturer?" [004]*

Other types of institutions that have been mentioned, say that the Driving Hours Act[1] will no longer have a use when all mobility is autonomous and that fines will no longer be given out as autonomous vehicles do not violate traffic laws [026].

On a technological field level there is another expectation, besides one about liability, namely about legislation:

> *'Lohmann is confident that legislation has developed enough by 2020 to allow his driverless busses on the public road. Yesterday, the government approved a bill which should make experiments without drivers on board possible soon.' [296]*

This indicates that, besides expectations on institutions being more prevalent on a societal level, actors on a technological field level are more concerned with legislation that limits/encourages their activities.

Market

This subtheme focuses on the effects that introducing autonomous cars could have on the existing automobile markets. The distributions of the expectations over the different levels is shown in Table 11.

Table 11 Distribution of expectations for 'Market'

LEVEL	Count
Project level	0
Technological field level	3
Societal level	6

[1] An act that dictates how many hours (truck) drivers are allowed to drive without taking breaks and how long the breaks should last, as well as how many hours drivers may work for each week.

All expectations in this subtheme address how the possession of cars will decrease with the introduction of autonomous vehicles because of car-sharing services. On a technological field level, it is expected that current car manufacturers will change their business models [159] and that an additional market will develop for cheaper cars that will mainly be sold in rural areas [196].

On a societal level, there is a difference of opinion on the effect of autonomous vehicles on the market. Some expect that current car manufacturers will change their business models [008], but others expect that they will lose their position on the market and will eventually cease to exist [163].

Road Situations and Spatial Planning

This subtheme addresses how road situations and spatial planning could be affected by introducing autonomous vehicles. Most expectations address the possible reduction or increase of traffic jams and how parking spaces are of less importance after the introduction of autonomous cars, depending on the type of implementation. Table 12 shows how the expectations are distributed over the different levels of expectations.

Table 12 Distribution of expectations for 'Road Situations and Spatial Planning'

LEVEL	Count
Project level	0
Technological field level	29
Societal level	30

There are mostly similarities between the expectations on the technological field level and the societal level. Both address the influence of autonomous vehicles on traffic flow and on spatial planning in cities. When looking at the expectations about the influence of autonomous vehicles on traffic flow, at both levels, there are both positive (traffic flow will get better and there will be less traffic jams [011, 014, 015, 020, 048, 049, 067, 071, 072, 084, 090, 092, 093, 109, 144, 168, 180, 199]) and negative (the number of traffic jams will increase since more people will gain access to mobility [014, 101, 174, 196]) expectations:

> *'Besides, cars can drive closer together when computers take care of the distance between the cars, rather than humans. Because of this, the road system is used more efficiently and there will be less traffic jams.' [263]*

> *'They estimate that the number of travelled kilometres will increase with 16% due to new users and with 53% due to cars driving around empty.' [174]*

Regarding spatial planning, expectations on both levels are more or less the same. On both levels, it is expected that the introduction of autonomous vehicles means that there is less need for parking space leading to a change in the street lay-out [008, 018, 133, 158, 174].

Safety

This subtheme summarizes what possible effects autonomous cars can have on the safety of traffic. Most expectations address how much safer computers are than drivers since they never lose focus, for example. Table 13 shows how the expectations are distributed over the different levels.

Table 13 Distribution of expectations for 'Safety'

LEVEL	Count
Project level	4
Technological field level	23
Societal level	34

The expectations on all levels address that autonomous vehicles are safer, since 90% of traffic accidents are caused by human failure.

> *'The idea is simple: at least 90 per cent of traffic accidents can be traced back directly to human failure. Replace humans by machines and the number of deaths will drop dramatically.' [026]*

On a societal level, there is not really a focus on the cause of failures. These causes do become apparent in the expectations on a technological field level, an example being given by the following quote, in which two causes are mentioned: weather conditions and concentration.

> *'Self-driving cars are not affected by weather conditions. A lot of accidents happen when it rains or when it is foggy. Those weather conditions don't have a grip on the self-driving system. Besides, there are drivers, I also indulge from time to time, that do glance at the WhatsApp they receive or at the caller ID when they are being called. Like this, a large share of drivers is not optimally focused on the road because of all kinds of digital impulses and the hectic state of the traffic around them.' [084]*

Where all expectations on a societal level agree with one another, the expectations on a technological field level differ somewhat. Where most think that autonomous vehicles will indeed be safer, some say that the safety promises have not yet been proven [007].

On a project level, the expectations are more or less the same as on a societal level: the car will be safer, but it is hardly mentioned why this should be the case. There is, however, a slight difference: the expectations are expressed in a different way. On a societal level, the expectations are presented as being a fact: autonomous cars are safer than human drivers. However, on the project level, most expectations are expressed as being a goal of the manufacturer, as is illustrated by the following quote.

'According to him, we will all be driving better and safer, thanks to all build-in assistance systems. "The computer will always intervene super-fast to prevent an accident. Even if people will continue to be in the driver's seat, we could reduce the number of road casualties to zero. And that is our goal."' [164]

Socio-economic

The last subtheme addresses what possible effects autonomous cars could have on society and includes subjects such as social inclusion and loss of jobs. Table 14 shows how the expectations are distributed over the different levels of expectations.

Table 14 Distribution of expectations for 'Socio-economic'

LEVEL	Count
Project level	1
Technological field level	20
Societal level	34

The expectations for this theme are highly varied in content. On both the technological field and societal level, the expectations address how truck and taxi drivers could lose their jobs and how older and less mobile people could profit from this change in mobility [PC1, PC2]:

'Krosse emphasises that after the introduction of the self-driving car, drivers will need to be seated behind the steering wheel for the first few years as controllers, even if it's just to comfort regulators and insurers. The next decade, drivers will be necessary, but it seems unlikely that this profession will survive the 21st century.' [026]

'He also sees possibilities for disability-transport which is now very expensive for municipalities.' [297]

'The elderly can be mobile for longer; disabled persons are no longer bound to their houses and whoever drinks to much when having a night out is suddenly able to drive home in their own car.' [157]

Additionally, it is expressed how rural areas that do not or barely have access to public transport will gain mobility functions and therefore social inclusion:

The six Bernisser villages are poorly accessible by bus right now. A driverless car or bus would be a solution for this problem, says Van der Weg.' [168]

'Disappeared facilities come closer, once again. Care will be within reach, groceries will be delivered. Maybe smaller villages will become attractive again because of this.' [133]

'Self-driving passenger transport is a good alternative to open up villages, instead of the many empty buses.' [290]

5.1.2 Scenarios

This theme addresses what different possible futures or applications people have envisioned for autonomous vehicles. It was not possible to derive subthemes for this theme and therefore the only distribution that has been made is the one for the different levels of expectations, this can be found in Table 15.

Table 15 Distribution of expectations for 'Scenarios'

LEVEL	Count
Project level	5
Technological field level	16
Societal level	37

Possible scenarios mentioned on a project level mostly address how manufacturers aim to produce autonomous vehicles as driverless taxis:

'Google is building its first, own car: an automated vehicle without a steering wheel, without a brake or accelerator pedal and mostly: without a driver. It has to become the taxi of the future.' [167]

The scenarios mentioned on the other levels are more varied. On a societal level, there are expectations that a driver does not have any obligations in the car anymore and can therefore spend his time on something else:

'Driving a car will change dramatically now that the self-driving car is coming. Steering or shifting gears is no longer necessary, looking outside neither. So the car can service as a place of relaxation, an office or cinema.' [173]

The expectations about the vehicles being used as driverless taxis also still exists. These two expectations of the future are most frequently mentioned. Other expectations include that car driving can still be done but only for a means of amusement in places where autonomous vehicles do not frequently come. The 'Kennisinstituut voor Mobiliteitsbeleid' (KiM) has summarized most of these expectations into four scenarios: 1) Mobility as a service, 2) Self-

driving private cars, 3) Letting go of the steering wheel on the highway, and 4) Increased car-sharing [013]:

---

1. *Mobility as a service: Private ownership of cars is no longer necessary since you can call for a car via an app at any moment. Less cars and barely any parking spots are required: cars drive themselves to a terrain outside the city at night. A new target audience is created: the elderly, disabled and drunk people can now be on the road safely. Technology firms possibly take over the public transport organisations in the cities.*

2. *Self-driving private cars: In this scenario people value their own cars too much to switch to self-driving shared cars. Still, steering and accelerating is no longer needed. Self-driving cars can drive closer together and use the roads more efficiently but only if human drivers do not interfere. The transport of goods also changes: trucks do no longer need drivers and therefore do not need cabins. There is much need for technological and societal changes to make this a reality.*

3. *Letting go of the steering wheel on the highway: The technology does not develop sufficiently to let the car drive on its own everywhere, but it is possible on the highway. The driver can watch a short film but has to be able to interfere. This is why guidelines of how fast this should be done – 1, 2, 5 seconds? – should be laid down and there should be buffer zones between highways and cities where drivers drive the car. People will keep their cars for the largest part and the public transport remains as it is.*

4. *Increased car-sharing: The development of self-driving cars is put to a hold due to a lack of societal support. They can be easily hacked, for example, or they will be used as self-driving car bombs. In this scenario, car sharing through apps does increase which means that junctions where people switch to shared cars need to improve. But compared to the other scenarios there are less changes. According to KiM, this does not need to be a transition stage: it could very well be the end stage for self-driving cars.*

These scenarios also sum up the expectations on a technological field level, which thus do not deviate much from the expectations on a societal level.

5.1.3 Support

This theme emphasises on whether or not people support autonomous vehicles and to what extent. As with the theme 'Scenarios', there were no subthemes to be identified within this

theme and just the distribution over the different levels of expectations was made, this distribution can be found in Table 16.

Table 16 Distribution of expectations for 'Support'

LEVEL	Count
Project level	0
Technological field level	1
Societal level	69

All expectations here address the support on a societal level. Expectations on this subject have two orientations: those who think the development is positive and those who think that the development is negative.

> *'For now, a large part of the people seems to rally for the utopia. A world in which the self-driving car contributes to a safer mobility system, traffic jams are reduced or completely eliminated. A society in which people commute without stress, where the lack of parking spots leads to space in the cities and where the energy consumption decreases.' [005]*
>
> *'Multiple studies show us that people who gain experience with – partly – self-driving vehicles generally change their opinion to positive. Therefore, it is important to introduce self-driving cars to the public as soon as possible.' [005]*
>
> *'Almost two-thirds of the Dutch are uncertain about self-driving cars. For men, it is too boring, women do not trust the technology.' [077]*

The quotes above, however, also show that people might change the way they feel about autonomous cars when introduced to it.

5.1.4 Technological Readiness

This theme focuses around expectations that address how far the technology of autonomous cars has developed. Within this theme, there are two subthemes to be identified: Market introduction and technological capabilities. As these names suggest, 'market introduction' focuses on expectations of when this technology will be available on the market whereas 'technological capabilities' focuses on expectations about what the technology can do, now or in within the coming years. Within each of the subthemes, a distribution was made for the levels on which the expectations are expressed. The number of expectations for each of the levels and the subthemes is reflected in Table 17.

Table 17 Subthemes for 'Technological Readiness'

SUBTHEME	Count
Market Introduction	132
Technological Capabilities	45

Market Introduction

As mentioned, this subtheme addresses when it is expected that autonomous vehicles will be available or on the road. Table 18 shows how the expectations are distributed over the different levels of expectations.

Table 18 Distribution of expectations for 'Market Introduction'

LEVEL	Count
Project level	53
Technological field level	37
Societal level	42

The expectations on a project level range from 2017 [071, 176, 199] to 2030 [173, 180], on a technological field level the expectations range from 2018 [078] to 2035 [051] and on a societal level it is expected that the introduction of this technology will be anywhere between 2019 [046] and 2050 [018].

What is important to mention, is that these ranges not only differ a lot, it is quite possible that they address a different extent of autonomy that the technology possesses. This is reflected in the following three statements, for project level, technological field level and societal level, respectively:

From about 2020, the driver is not required to keep his eyes on the road, as is the aim. It should be taken into account that it still might be necessary to intervene. […] Only from 2025 onwards he can relax or take a nap, if need be: the computer will take full control. [172]

Krosse expects the market introduction of the first cars that can and are allowed to drive on the highway, especially in traffic jams, even before 2020. […] How long car manufacturers need before they can introduce affordable robot drivers that are able to safely navigate urban areas, Krosse dare not say. [026]

The first cars that are able to park fully automatically are already available. [011]

In the first statement, two points in time are presented: one for a certain level of autonomy that still requires the driver's attention, and one for a fully autonomous system. The second statement does more or less the same, with a small distinction: it addresses areas in which the

system is fully autonomous that pose different challenges for car manufacturers, namely highways where everyone goes in the same direction and there are less variables versus urban areas where pedestrians and cyclists pose additional difficulties. The last statement only mentions one feature that is built into cars which can operate autonomously. Statements like this one could lead to the belief that autonomous cars are already available whereas in actuality only one feature is automated. These three statements also illustrate something else: the term "autonomous vehicle" or "self-driving vehicle" means something else to different people. This will also be further discussed in 'Discussion and Limitations' at the end of this thesis, on page 53.

Technological Capabilities

As mentioned, this subtheme addresses the expectations about what people think what the technology can do, now or in the future. Table 19 shows how the expectations are distributed over the different levels of expectations.

Table 19 Distribution of expectations for 'Technological Capabilities'

LEVEL	Count
Project level	6
Technological field level	21
Societal level	18

In general, everyone believes that autonomous vehicles will be introduced in the future. However, there is a difference of opinion into what these vehicles are or will be able to do. On a project level, the expectations, overall, are quite positive. All expectations on this level, confirm that autonomous cars are ready for highways and could be introduced there already but most also address that the cars are not yet ready for city centres:

> *'It works fantastically on highways and provincial roads, but it is not yet ready for city centres.' [162]*

These expectations also exist on a technological field level. However, on this level, some other expectations exist as well that relate to human versus technological capabilities. It is recognized that the technology is not ready to be implemented yet in a way where human intervention is not required. For now, humans are still better with uncertain situations:

> *'Human drivers are better at handling these kinds of situations than the computer car.' [196]*

Even though some think that the technology is better at driving cars than humans are, on a societal level this is expected even more. This means that the expectations on the societal level are more heterogenous than they are at the technological field level:

'Such autonomous vehicles make better decisions and can process more information. With sensors, radars and software they can stay at a safe distance from other road users, interfere in time in case of a possible collision and can see traffic jams coming to maneuver around it with the smallest possible detour.' [199]

5.2 Activities

There are multiple barriers that need to be solved by performing institutional work activities. The barriers that come forward from news articles and interviews include a lack of laws and regulations, a lack of knowledge about autonomous vehicles and a misalignment between infrastructure and the technology. From the interviews, multiple activities could be identified that address these barriers as a motivation for action. Appendix E shows a table with all activities that have been performed or are being performed by institutional entrepreneurs. Furthermore, it contains information on how they used expectations for each of the levels. Table 20 below shows a general overview of how many times the three types of institutional work, creating, maintaining and disrupting institutions respectively, were coded according to Table 5 on page 25 in the methods section.

Table 20 Distribution over the types of institutional work

INSTITUTIONAL WORK	Count
Creating institutions	32
Maintaining institutions	0
Disrupting institutions	8

As can be seen here, most activities performed by institutional entrepreneurs were aimed at creating institutions, whereas a few were aimed at disrupting institutions. None of the activities were aimed at maintaining current institutions, which is interesting since it is possible that the established order does perform activities to maintain current institutions. It is possible that this insight was not gained because the interviews did not cover the subject and thus did not provide insight into these activities. However, since this research is concerned with activities leading to institutional change, these activities are also not in the scope of this research. Below, the findings for both 'Creating Institutions' and 'Disrupting Institutions' will be discussed.

5.2.1 Creating Institutions

As mentioned, 'Creating Institutions' has been coded 35 times. Table 21 shows how this translates into how often the different activities that can be performed for creating institutions have been coded.

Table 21 Distribution over the different activities for 'Creating Institutions'

ACTIVITY	Count
Advocacy	10
Defining	0
Vesting	0

Constructing identities	2
Changing normative associations	0
Constructing normative networks	9
Mimicry	3
Theorising	0
Educating	11

Advocacy

The activities that were solely aimed at mobilising other actors to support the institutional change have been coded under advocacy. There is some difference to the goals of the interviewees to perform this activity. Some try to mobilise others, so they can use that support to gain support internally, whereas others try to mobilise others as a direct support. The first situation is illustrated by the following quote:

> *'I thought that if I would try to get this (a driver's licence for cars instead of for drivers, SB.) approved internally, I would get a no-go. So, I first expressed it externally and gained support and when the idea got traction, I started testing it internally.' [Int4]*

However, the following quote mainly illustrates the second example:

> *'In all honesty, I think that what is happening now with the first accidents with and victims of autonomous cars will cause the initial steps towards stronger safety regulations and that because of that the market will be on hold for, let's say, two years or so. And that is not a negative thing because I think that it is good that those regulations come since in the past, we've seen that a technology only gets adopted on a large scale once regulations for the technology are possible.' [Int1]*

Besides the difference in goals between the two quotes above, there is another difference. The first quote has a specific idea for a new institution to be implemented, whereas the second quote mainly shows that there is a need for new institutions but there is no mention of a specific type of institution to implement.

Constructing Identities

Two interviewees are very stern on the role of some actors in the field, which they try to redefine through the activity 'Constructing Identities'. Both interviewees have the opinion that the government should play an active role to ensure a certain outcome in the field:

> *'Something that is closely related to regulations, is that with that (expectations, SB) you can command standards that disrupt or stimulate market mechanisms. And for us that is the influence of the government on*

the market through regulations. If you say, "all those vehicles should have a button that looks like this and does that', and only one vehicle at the time has that function, then that manufacturer has a competitive advantage. So, the government, even if it is the safest and societally most relevant button ever, feels objected to make that the norm because then they will favour somebody, or seem to do so.' [Int2]

'What we see is that the benefits of it (autonomous cars, SB.), so less accidents, better traffic flow, environmental benefits, those lie with the government. We have to make sure that it stays safe and that the traffic flow improves. So, if manufacturers say, "I quit, this is not going to work, I am writing it off, it is too difficult", we will never get those benefits. So, from a government perspective we have to keep pushing those manufacturers to make sure that the developments keep going. That we can get through that valley and that we can really go towards production.' [Int4]

The first quote also recognises that the government probably will never fulfil this role, at least not at this point in time. The second quote puts the role of the government into actively pursuing the benefits of the technology.

Constructing Normative Networks

A large part of the interviewees mentions to be part of or to actively construct a network. A network, however, is not necessarily a normative network. A network becomes a normative network once all parties involved, each with their own specific interests, have a communal goal which they collectively and actively pursue. In order to do so, the network creates a set of rules or other type of institution. The following quote illustrates both the communal goal, namely a safe mobility system, and the variety of actors that can be part of such a normative network:

'My responsibility is to draw up an inventory of which knowledge we have to acquire to get it all on the road safely. So, that is summarized in four or five topics and I have to find out, together with the community that also poses these questions, CBR, RDW, ANWB, automotives, the RAI-association, damage repair companies, insurance companies, so everyone that is involved, where the answers have to come from.' [Int2]

However, this quote does not truly show how they create sets of rules or practices together. This is shown to a larger extent by the following quote:

'Together with Connekt we have the Community for Standards and Practices, which is a collaboration between us, Connekt and TNO, and there we try to establish a number of standards, in cooperation with the technological field.' [Int9]

In this last quote, we see that the government, Connekt (a network organisation) and TNO (a research institute) formed a network that set rules and standards, which are established in collaboration with the technological field. All these different actors may have their own agenda when it comes to autonomous vehicles but the set of rules and standards that they established will help them by achieving a common goal: a safe implementation of autonomous vehicles.

Mimicry

Mimicry is not applied that often but does provide some interesting insights and parallels with existing institutions. In one case, institutional entrepreneurs who work for the government are aiming for regulations were the cars have to pass tests and get a driver's licence, rather than the passenger/driver in the car [Int4, Int8]. In another case, one of the network organisations is thinking of transforming the mobility system to something were you will need a subscription to make use of it, much like other services that people pay monthly or yearly fees for:

> 'We spend about €300 monthly on mobility, including the purchase of a vehicle or a subscription to public transport or taxi's, for every household, so that is a huge amount of money that is already spent and that you could pull towards you. This is how the Mobility as a Service concept was born. When we can get people from possession to use, like with Netflix […], we could offer all existing mobilities, shared cars, bicycles, taxis, rental cars, public transport, aeroplanes, trams, everything there is, on a platform and give people a subscription based on their desired uses, for a fixed fee what nears the amount that we spend on mobility already.' [Int7]

We can see here, that the first quote relates to hard institutions: the driver's licence, whereas the second one relates to norms and values that people have: how much we want to spend on mobility. It must be said, though, that the second one does use mimicry to ease the adoption, but it eases the adoption of an entirely new mobility system, rather than just autonomous vehicles.

Educating

Educating is an activity that almost all actors say they engage in. It is mostly focused on collecting and spreading knowledge about autonomous vehicles and their possible applications, risks and benefits.

> *'By showing people the restrictions that are there and that it is true that they are there and that you can act on them but also to show people that they may be sceptical about the opportunistic claims that some parties make.' [Int1]*
>
> *'We mostly try to influence regulations by sharing the outcomes of our tests.' [Int2]*

For the most part, it is often unclear whether the interviewees mean regulators, the industry or society when they talk about whom they share their knowledge with, like with the first quote above: 'The people' could refer to all three of these actors. In some cases, it is clear whom they are trying to influence, like with the second quote, where sharing the outcomes of their tests, their knowledge, with regulators to influence the outcome of the rule-making process.

5.2.2 Disrupting Institutions

As has been described before, 'Disrupting Institutions' has been coded ten times. Table 22 shows the distribution over the different activities that exist for 'Disrupting Institutions'.

Table 22 Distribution over the different activities for 'Disrupting Institutions'

ACTIVITY	Count
Disconnecting sanctions	1
Disassociating moral foundations	0
Undermining assumptions and beliefs	9

Disconnecting Sanctions

Disconnecting sanctions is not something that is done often. The following quote shows how the interviewee tries to disrupt existing institutions by disconnecting the accompanying sanctions:

> *'What we do is that we create places, like the research lab, where you get a sort of general licence to try out all kinds of situations. So, that is actually a way to progress within current regulations because you can control the conditions. But in general, regulations slow down because a rule that checks if you comply with something wants to test on the basis of documentation but with new technologies, this documentation does not yet exist.' [Int2]*

The quote shows how the interviewee works in the institutional void that exists in the field and tries to keep making progress despite there being no regulations that allow for testing the technology. This way, they challenge the current institutional landscape.

Undermining Assumptions and Beliefs

The argumentation behind undermining assumptions and beliefs is twofold: On the one hand, institutional entrepreneurs undermine the value of pilots, and on the other hand institutional entrepreneurs undermine people's arguments for or against the acceptance of autonomous vehicles.

To address the first argument, two interviewees feel that pilots are no good for the introduction of autonomous vehicles as a new type of transportation [Int1, Int3]. These quotes, especially, show arguments why this is the case:

> *'[…] the question is: what is the use of a pilot? Because pilots are done everywhere. Which means that there is a vehicle going around on a site*

somewhere but what does the Netherlands gain from a pilot like that in order to take a step in the direction of actual autonomous cars? […] In the end, every application should be an independent business case and that means that you have to pick a mobility problem where enough people travel every day, who are prepared to pay for using it every day. And if you add all of that up, it should be a viable business case because without it, it is useless to start a project, even with autonomous cars.' [Int1]

'What you already see in the Netherlands is that many of those pilots, we call it "a stroll round the church", its riding somewhere for two weeks, then the money is gone, which means that the project is gone.' [Int3]

These quotes illustrate what the problem with pilots is, according to the interviewees: it is a temporary project that is not continued when funding stops. This means that there is no development of an actual viable business case and that there is no long-term solution for a mobility issue. Framing the problem in this way, by illustrating that there is no actual use for pilots, undermines the institution of pilots because it basically frames pilots as being useless.

To address the second argument, interviewees indicate that people often express different views or expectations of a technology than what they show in their behaviour. The following quotes illustrate this:

'People often say that they are wary of autonomous cars […] but in all those years that they are riding in Capelle aan den IJssel, if you look at the pods and how people get on and off in the morning: nobody thinks it's special.' [Int1]

'There is quite a difference between what people say they will do and what they actually do. For the most part, behaviour is not rational at all.' [Int9]

What these quotes show is that the interviewees indeed do not view behaviour to be consistent with performed actions. People on the one hand say that they view autonomous vehicles as something to be wary of, whereas they also board one without any hesitation. Framing the behaviour in this way indeed decreases the risks of innovation by stating that although people say they are wary, they do use the technology without any problems. This means that there is an attempt to change this idea that people are hesitant to adapt to this new technology, and thus the norms and values associated with that behaviour, from the interviewee's perspective.

In conclusion, this means that there are, in essence, two goals to the act of undermining assumptions and beliefs: the first argument is aimed at disrupting the institution of pilots, whereas the second argument is aimed at disrupting the norms and values that cause people to have certain images and fears regarding autonomous vehicles.

5.3 Using Expectations

Appendix E shows a table that summarizes what types of expectations are used in the activities by institutional entrepreneurs. The first thing that is apparent is that no expectations were used for disconnecting sanctions. This does not seem weird since it is mainly focused at working through state apparatus to achieve a goal, namely that of disrupting institutions. In the case as discussed under this activity, the interviewee is mainly focused on 'doing' rather than 'thinking' and therefore, this action for this specific case is defined by actions rather than expectations.

Another thing that meets the eye is that there are numerous expectations that are not used in the activities. These expectations address the themes Economy, Institutions, Market and Market Introduction. This could be explained by the characteristics of these expectations. These expectations are more abstract in nature and often address a certain expected goal, for example, a higher productivity, cheaper insurances, a different market, and the introduction of the technology by a certain year. This characteristic makes that these expectations are not necessarily conveyed through a certain vision or image of the future, as is an attribute of expectations (Berkhout, 2006).

As for the expectations and activities that could be linked, the most used expectations are related to safety, or rather the promised additional safety that these vehicles could have. This is not entirely surprising since expectations regarding safety were most prevalent. These expectations were used in the activities 'Advocacy', 'Constructing Identities' and 'Constructing Normative Networks'. These activities used the expectations in a different way.

For 'Advocacy', the expectations, including the themes 'Road Situations & Spatial Planning' and 'Socio-Economic', were used as a kind of leverage in order to mobilise others. These themes contain the expectation that are the most moral and ethical in nature and are therefore most suitable to persuade others into supporting institutions that make this new technology possible through social suasion. This is for example shown in the following quote:

> *'We use the expectations (about increased liveability, SB) to enthuse and mobilise involved parties. If you work towards a collective goal together, you'll achieve more than as separate organisations working alongside each other.' [Int6]*

This quote also shows why advocacy is used: it is easier to achieve goals when there is more support for that goal and when others work towards the same goal.

For 'Constructing Identities', besides 'Safety', expectations about 'Road Situations & Spatial Planning' and 'Environment' were also used. This can be explained by the fact that some expected benefits that relate to these themes are viewed as a government's responsibility. These expectations are therefore used to justify pushing the government in the role of regulator and pusher of technology.

For constructing normative networks only one theme of expectations is used: Safety. This in itself is not extraordinary: as mentioned earlier, safety is the biggest theme on the subject of autonomous cars. This also means that organisations all have this as one of their interests when it comes to implementing autonomous vehicles. Since it is an interest for almost everyone involved, it also is a binding factor in constructing networks and rule structures for that network.

Like with constructing normative networks, mimicry also uses just one theme of expectations: Institutions. This is also not extra-ordinary since mimicry is concerned with linking existing types of institutions with new ones to ease the adoption of the proposed changes. The expectations that surfaced from the news articles that were also mentioned and used according to the interviews are indeed related to an existing institution, namely the driver's licence.

Educating, as were advocacy and constructing normative networks, is one of the activities performed most. The expectations that are used in this activity all relate to the technological capabilities that autonomous vehicles may have. Most actors perform experiments with autonomous vehicles and share the results with the public in order to show them what the possibilities are. Proving these possibilities provides the technology, and therefore the institutions associated with it, with additional legitimacy.

Since the activity 'disconnecting sanctions' does not use expectations, the only activity left to discuss is 'undermining assumptions and beliefs'. The expectations that were mostly used in this activity were related to the support of autonomous vehicles. The expectations that address the support of autonomous vehicles are very heterogenous. This means that people do and do not support the new technology for lots of different reasons. Additionally, the reasons that are expressed often contradict each other or contradict with a current practice. Institutional entrepreneurs use these contradictions to emphasise their vision of the future. For example, interviewee 1 mentions that the non-support of autonomous vehicles is illogical since people use these types of vehicles every day without any problem in Capelle aan den IJssel, as was shown in the quote page 47.

6 Conclusions

This study aimed to elaborate on the process model of entrepreneurship as described by Battilana et al. (2009). This process model recognized that institutional entrepreneurs create a vision for change and mobilise actors and resources but failed to describe what that entails. Theories on institutional work, such as the work by Lawrence and Suddaby (2006), do provide some insight into activities that are performed but refrained from showing how the vision for change relates to those activities. This research therefore aimed to answer the following research question:

> How do institutional entrepreneurs use expectations to implement divergent change?

In this question, the expectations refer to the vision of change as mentioned by Battilana et al. (2009). Berkhout (2006) defined expectations as being conveyed by visions and images. The definition of expectations that is used in this research is the following: "Expectations are real time representations of future technological situations and capabilities, conveyed through images and visions", and is a combined definition of Borup et al. (2006) and Berkhout (2006).

To answer the research question, the case of autonomous vehicles in the Netherlands was selected and the study was divided into two qualitative parts. First, a media analysis was done to map all expectations about autonomous vehicles. This media analysis produced four themes in which the expectations could be grouped: Impact, Scenarios, Support and Technological Readiness. For the first and last theme, several subthemes were identified. Second, interviews with institutional entrepreneurs were conducted to gain insight into how they try to achieve institutional change and how they use different expectations in this process.

From the analysis, it appears that institutional entrepreneurs mostly try to create and disrupt institutions. Creating institutions is mostly done through 'advocacy', 'education' and 'constructing normative networks'. In these activities, 'safety' is the most used theme of expectations as it has the greatest moral value. 'Undermining assumptions and beliefs' is the most performed activity for disrupting institutions. Most of the activities here used expectations about the support of the technology since what people say is often something else from what people show in behaviour, which leads to some contradictions, that can be used in undermining current assumptions and beliefs.

This leads to the following general answer to the research question: Institutional entrepreneurs use expectations to emphasise their vision and weaken other visions in order to gain support for creating new institutions or disrupting existing institutions. A more extensive answer to this question is that the type of expectation that is used differs for the activity that is performed. If the goal is to create new institutions through mobilising political actors and regulators, the moral base of an expectation is generally stronger to emphasize the importance of the new technology and therefore emphasize the need for regulations. This means that expectations regarding socio-economic impacts or consequences for safety, for example, are more important and stronger since they are also the expectations that have been shared most often. Expectations that have been shared more frequently have a higher support in all layers of expectations and are therefore more performative as well. They thus aid in bridging these levels but also aid in bridging the horizontal dimensions of expectations: they help in coordinating between different actor communities and groups. Additionally, these

expectations have been shared more, which implicates that they also acquire a normative force since they are more widely accepted: people will accept them as facts.

However, if the goal is to disrupt institutions through undermining the assumptions and beliefs of people, the expectations are more focused on the support for the technology. In expressing support or non-support people often use contradicting arguments. This contradiction can exist between the arguments themselves but also between the argument that is used and the action that is performed. The interviewees also confirmed that people often show a different behaviour than would be expected when analysing their statements. This contradiction provides argumentation for institutional entrepreneurs to refute the statements that people give. For example: when people say they are wary of the technology, the counter-argument is that in using comparable technologies, users get on and off without a second thought.

The levels on which the expectations are expressed does not seem to matter for performing activities of institutional work. Most, if not all, expectations that have been expressed have been observed on multiple levels of expectations. So, in short, there indeed is a relation between expectations and activities of institutional work but there was no observed relation between the levels of expectations and the different activities of institutional work.

7 Discussion and Limitations

This section describes important points of discussion about the limitations of this research, as well as some implications of the research. Additionally, this section describes suggestions for future research.

7.1 Limitations of the Research

As with every research, this research has some limitations. First, the case of autonomous vehicles is a young one. The industry is not fully developed yet and volatile. Unfortunately, this also means that the population to select interviewees from is very small, which means that the eventual sample is even smaller. Such a small case means that possible respondents are easily reachable, although it also often means that they do not have the time to meet. It does mean, however, that this research does not have a very high general validity. However, this research also concerns a single case study which is aimed at providing an insight into the workings of institutional work and the role of expectations therein. This means that the goal of the study was not to provide a generalizable result but to provide a deeper understanding of the theories involved.

Second, the way the data was analysed is an interpretation of the author. This means that even though it was an iterative process in which the author went back and forth over the coding, the interviews and the news articles, all categorisations are done according to the interpretation of the author. This means that other researchers might make different choices as to what themes to distil from the news articles, how to categorise expectations and activities and distribute the activities over the different levels of expectations. Although this reduces the reliability of the research, the iterative process helped in limiting the reduction of this reliability.

A third point of discussion is that of the interviewees. It is hard to determine to what extent the interviewees are indeed institutional entrepreneurs. The definition for institutional entrepreneurs as proposed by Battilana et al. (2009) is a very broad one but it is believed that all interviewees can be classified as institutional entrepreneurs. All interviewees were aiming at changing the existing institutional landscape so that it fits a radically new technology. This given, they are actively involved in initiating a divergent type of change, namely creating a new institutional landscape, and also actively participate in this change by performing activities of institutional work by creating and disrupting institutions.

Last, there are some concerns about the data that need mentioning. Since news articles were collected from three general sources, newspapers, digital media and ANP, this means that there is a high reoccurrence of articles, especially between newspapers and ANP and between the digital media articles and ANP. The reason for this is that a lot of news outlets use ANP as a primary source for the information they need for their articles. This has two implications: first, it means that there are a lot of articles that have a high degree of similarity between them and some expectations are therefore coded more than once. Second, it also means that these expectations have higher value: since these expectations have been shared more, they have broad-based support and/or a higher acceptance in society.

7.2 Theoretical and Practical Implications

This research has provided insights into the process model of institutional entrepreneurship as proposed by Battilana et al. (2009). It identified how institutional entrepreneurs mobilise allies using a vision of change in performing institutional work activities.

According to theory, there are three types of institutional work that are performed: creating, maintaining and disrupting institutions. Additionally, it was expected that the institutional entrepreneurs who perform these activities use expectations. Although this was found to be true for both creating and disrupting institutions, no activities were identified that were aimed at maintaining institutions for this particular case. First, since this research aims to identify how expectations are used in implementing divergent change, maintain institutions does not directly fall in the scope of this research. Second, it does not mean that these activities do not occur and/or that expectations are not used in these activities. It is very well possible that these activities are performed in a later stage of this case or in other cases. It does mean, that all theoretical implications of this research are related to creating and disrupting institutions and the use of expectations therein.

This research has two theoretical implications. First, this research has identified that institutional entrepreneurs indeed use expectations mainly to emphasise their own vision(s) and weaken that of others. This means that the relation between expectations and institutional work that was expected according to the conceptual model on page 20 is indeed, to some extent, there.

Second, this research shows that institutional entrepreneurs use expectations to support their vision of change through acts of mimicry and undermining assumptions and beliefs and that they use expectations that are highly moral and ethical in nature to mobilise political and regulatory allies. This finding elucidates the “Divergent Change Implementation” (see Figure 1 on page 14) part of the process model proposed by Battilana et al. (2009).

However, according to the theories on expectations that have been discussed in this research, it was expected that there is an interaction between the different levels on which expectations exist. This interaction has not been observed in this case study. This means that this case was not able to confirm these assumptions.

Even so, the theories on expectations also assumed that expectations attract actors and financing, provide legitimacy and set an agenda for change in order to guide technological change. These assumptions can be, partly, confirmed in this research. It has been observed that expectations are indeed used to attract actors through constructing normative networks, for example, but also to attract finance: for example, through constructing identities and ascribing roles to the government and/or businesses to fund and/or facilitate projects. Expectations are also used to provide legitimacy to the new technology through activities of advocacy where the focal point is the added safety of the technology. That expectations set an agenda is not directly observed in this research and can therefore not be confirmed.

The practical implication of this research is that it mapped the existing expectations about autonomous vehicles. On most themes, the expectations are still quite heterogenous. This is partly due to the young and volatile case. It is advised that more funding comes available for research into the impacts and capabilities of the technology. In this, it is also important that all relevant actors and the general society are educated about what the technology can and cannot do at each stage of development and what impacts its implementation can have.

7.3 Suggestions for Further Research

It is suggested that more research is done into how expectations are used in the activities of institutional work, especially to gain more insight into the activities that have not been found for this case. This case was young and small and therefore it is possible that other insights into these activities are missing. It is therefore recommended that this type of research is conducted on a case that is further developed, both technologically and institutionally, especially to gain more insight into activities that are aimed at maintaining institutions and how expectations are used when that is the goal.

Furthermore, a longitudinal study might be able to show whether there is a difference in the activities that are performed when the case progresses further. Additionally, it could provide insights into whether expectations play a different role when the case is young or old or whether the type of expectations shifts when the case progresses over time.

Last, a more elaborate list of institutional activities than the one used by this study, might be able to provide additional insights and/or more detailed overview of the process of institutional change. Moreover, an elaborate list of activities might provide other insights since some activities might be categorized differently.

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Appendices

Appendix A – Agency and Institutional Work

The three types of agency that enable institutional work are represented in this appendix. In short, agency is defined as "actors' ability to operate somewhat independently of the determining constraints of social structure" (Battilana & D'Aunno, 2009, pp.45). The first of the three types of agency – iteration – is past-oriented and describes how actors use situations and patterns from the past to create new institutions. The second type – practical evaluative – is oriented in the present and is concerned with current demands and needs. The third and last type of agency – projective – is future-oriented and focuses on possible future trajectories and can be configured based on the actor's vision of the future.

Battilana and D'Aunno (2009)		
Iterative agency	**Practical-evaluative agency**	**Projective agency**
○ Improvising ○ Modifying	○ Translation ○ Bricolage ○ Reacting to shocks	○ Inventing ○ Creating proto-institutions ○ Establishing institutional mechanisms ○ Advocating Diffusion
○ Enacting institutionalised practices ○ Selecting one, legitimate, institutionalised practice over another	○ Adapting institutionalised practices ○ Bolstering regulative mechanisms	○ Repairing ○ Defending
○ Failing to enact an institutionalised practice ○ Institutional forgetting	○ Avoiding institutional monitoring and sanction ○ Not selecting institutional practices/selecting others	○ Attacking the legitimacy or taken-for-grantedness of an institution ○ Undermining institutional mechanisms

Appendix B – The News Articles

The table below shows all 522 articles that were used in this research.

ID	Article
[2]	Eerste dodelijke aanrijding van zelfrijdende auto met voetganger. (2018, March 20). De Volkskrant, p. 2
[3]	Schenk, N. (2016, April 15). Zelfrijdende auto binnen vijf jaar in de stad. AD/Rotterdams Dagblad, pp. 26-27
[4]	van Harskamp, G. (2017, October 11). Autopolis op de schop. De Telegraaf, p. 29
[5]	Arends, E. (2018, February 9). Nederland is het best voorbereid om zelfrijdende auto op de weg te testen. Het Financieele Dagblad, p. 11
[6]	Voermans, T. (2016, March 16). Wat een keuze: zelf crashen of toch niet uitwijken voor kind?. AD/Rotterdams Dagblad, p. 11
[7]	Heck, W. (2014, May 26). Zelfrijdende auto mag in 2015 de weg op in Californië. NRC Handelsblad.
[8]	van Noort, W. (2016, January 6). Zelfrijdende auto makkelijker te delen. NRC Handelsblad.
[10]	Zelfrijdende auto's Google sluit pact met Chrysler. (2016, May 4). NRC Handelsblad, pp. 2--3
[11]	Heijne, S. & Witteman, J. (2014, October 6). Truck over 5 jaar onbemand de weg op'. De Volkskrant, p. 1
[12]	Voermans, T. (2017, March 28). Bestuurder is straks de zwakke schakel. AD/Rotterdams Dagblad, p. 13
[13]	van Noort, W. (2015, October 14). Mag zelf sturen straks niet meer?; Gevaar! Verboden zelf te sturen. NRC Handelsblad, p. 1
[14]	'Zelfrijdende auto fabeltje'. (2017, May 5). De Telegraaf, p. 16
[15]	Kraaijeveld, M. (2017, March 7). Blind' met de auto door Rijswijk rijden. AD/Haagsche Courant, p. 5
[17]	OVV Zelfrijdende auto's onderwerp van onderzoek door Onderzoeksraad voor Veiligheid. (2017, April 14). NRC Handelsblad, p. 2
[18]	Opeens wordt worstelend Tesla weer zonnige toekomst voorspeld; Zelfrijdende taxi in zicht?. (2015, August 21). NRC Handelsblad.
[19]	Allgrove, B. & Scheer, E. (2017, December 15). 'Zie de zelfrijdende auto als werknemer'. De Telegraaf, p. 27
[20]	van Noort, W. (2016, March 17). Wat als de zelfrijdende auto botst? . NRC Handelsblad, pp. 2--3
[22]	Broekhuizen, K. (2018, March 21). Tegenslag houdt ontwikkeling zelfrijdende auto niet tegen. Het Financieele Dagblad, p. 14
[23]	Bogaard, L. (2015, September 28). Google leert eigen auto's hufterig gedrag'. Algemeen Nederlands Persbureau ANP.
[26]	Heijne, S. & Witteman, J. (2014, October 6). Zelfrijdende auto komt eraan, maar wat als hij brokken maakt?. De Volkskrant.
[27]	van der Heijden NA, R. & Bleijs, B. (2015, June 13). Brieven. Het Financieele Dagblad, p. 13
[33]	van Kuijk, J. (2015, September 19). Rijdt hij of rij ik?. De Volkskrant, p. 52

[38]	Bekende investeerder Bill Gurley is sceptisch over zelfrijdende auto. (2015, March 17). Het Financieele Dagblad, p. 9
[39]	van de Weijer NA, B. (2018, March 23). Iemand doodrijden, hoe vaak mag dat voor de wetenschap?. De Volkskrant, pp. 26-27
[42]	Kraaijeveld, M. (2017, March 7). Zelfrijdende auto doet zijn intrede in Rijswijk. AD/Haagsche Courant, p. 1
[46]	Vlooswijk, E. (2014, May 10). Zwakke punt van zelfrijdende auto is toch nog steeds de mens. De Volkskrant.
[47]	van der Velden NA, C. (2017, June 16). CDA hekelt solo-acties gemeenten. AD/Haagsche Courant, p. 1
[48]	Heijne, S. (2014, April 10). Veel te dicht op elkaar, maar toch veilig. De Volkskrant.
[49]	Vaessen, T. (2014, October 7). Wie temt de Google Car?. Het Financieele Dagblad, p. 4
[50]	Sedee, M. (2015, May 27). Ook de robotauto maakt brokken. NRC Handelsblad.
[51]	Met zelfrijdende auto's mág een mens misschien niet meer sturen. (2015, October 14). NRC Handelsblad.
[52]	Nieuwenhuis, M. (2016, April 15). EU wil in 2019 klaar zijn voor zelfrijdende auto. AD/Rotterdams Dagblad, p. 13
[55]	Schenk, N. (2016, December 31). 'Hij moet soms ook een beetje stout zijn'. AD/Algemeen Dagblad, pp. 40-41
[56]	Vleugel, F. (2015, May 5). Zelfrijdende auto herkent signalen fietsers. Algemeen Nederlands Persbureau ANP.
[59]	Zelfrijdende auto's mogen de weg op; Robotauto's, treintjes en bakens. (2015, January 24). NRC Handelsblad, p. 29
[61]	Ook Intel in zelfrijdende auto's. (2017, March 14). De Volkskrant, p. 33
[63]	Hijink, M. (2017, March 14). Intel heeft de ogen van de zelfrijdende auto hard nodig. NRC Handelsblad, p. 4
[64]	Jan Kingma, D. (2015, July 19). Groot-Brittannië zet in op zelfrijdende auto. Algemeen Nederlands Persbureau ANP.
[67]	Duursma, M. (2016, April 15). Van privacy tot rijafstand: er is nog veel onduidelijk. NRC Handelsblad, pp. 2--3
[71]	Wagendorp, B. (2015, January 24). Zelfrijders. De Volkskrant, p. 2
[72]	Bakker, C. (2014, June 16). Zelfrijdende auto's op openbare weg uitgetest (3). Algemeen Nederlands Persbureau ANP.
[74]	Driessen, C. (2015, August 3). Duitse autoreuzen kopen kaartentak van Nokia. NRC Handelsblad.
[75]	Rolvink Couzy, F. (2016, April 6). Hoe Uber het ov gaat vervangen. Het Financieele Dagblad, p. 7
[76]	van Aartrijk, S. (2018, March 20). Brabant verzamelt weginfo voor autonoom rijden. Algemeen Nederlands Persbureau ANP.
[77]	Zelfrijdende auto is eng én saai. (2015, December 16). AD/Rotterdams Dagblad, p. 13
[78]	van de Weijer NA, B. (2013, June 1). Handsfree rijden. De Volkskrant, p. 5
[83]	TU Delft gaat bouwen aan zelfrijdende auto. (2016, April 9). AD/Haagsche Courant, p. 4

[84]	Kraaijeveld, M. (2017, March 7). 'Blind' door Rijswijk in de auto. AD/Haagsche Courant, pp. 2--3
[85]	van de Weijer NA, B. (2016, April 16). Zelfrijdende auto mist het ware stadsgevoel. De Volkskrant, p. 7
[89]	Spaak, M. (2016, November 30). Gelderland wil af van zelfrijdende auto. Algemeen Nederlands Persbureau ANP.
[90]	Kabinet zet fors in op robotauto. (2014, June 16). De Telegraaf, p. 1
[92]	Bergsma, B. (2014, October 20). Volgende stap naar zelfrijdende auto (2). Algemeen Nederlands Persbureau ANP.
[93]	Lengton, I. (2015, January 22). Ruim baan voor zelfrijdende auto. De Telegraaf, p. 10
[94]	Buddingh, H. (2015, February 9). Slim' rijden? Helmond ligt op kop. NRC Handelsblad, p. 9
[99]	de Klark, M. (2017, March 29). Ik mijd die weg voorlopig. AD/Rotterdams Dagblad, p. 22
[100]	Duits akkoord zelfrijdende auto's. (2017, May 13). De Telegraaf, p. 17
[101]	Daalder, L. (2016, May 23). Het dal van ontgoocheling. Het Financieele Dagblad, p. 17
[102]	Gelder Snellenberg, V. (2017, May 12). Duitsland akkoord over zelfrijdende auto's (2). Algemeen Nederlands Persbureau ANP.
[106]	Stravens, M. (2016, December 14). 'Google's volledig autonome auto ging één brug te ver'. Het Financieele Dagblad, p. 17
[108]	Rolvink Couzy, F. (2016, April 5). `Bestuurder blijft voorlopig de baas'; Maarten Sierhuis, directeur research Nissan, waarschuwt voor hoge verwachtingen. Het Financieele Dagblad, p. 7
[109]	Dasselaar, A. (2010, November 13). Uw auto denkt met u mee. Het Financieele Dagblad, p. 38
[111]	Zelfrijdende carkit. (2016, May 21). AD/Rotterdams Dagblad, p. 19
[121]	Ferschtman, A. (2013, September 8). Daimler werkt aan zelfrijdende auto. Algemeen Nederlands Persbureau ANP.
[123]	Broekhuizen, K. & den Daas, S. (2018, February 3). Artificiële Intelligentie Amerika vs. China. Het Financieele Dagblad, p. 4
[124]	Nissan Leaf. (2014, September 26). Het Financieele Dagblad, p. 9
[125]	Ouwerkerk, G. (2018, March 14). De wereld in kaart brengen. De Telegraaf, p. 27
[131]	Auto's Taxi met chauffeur is snel verleden tijd als het aan Ford ligt. (2016, August 17). NRC Handelsblad, p. 2
[132]	van Essen, M. (2017, June 28). Zelfrijdende auto: appen achter stuur. De Telegraaf, p. 13
[133]	van den Ham NA, H. (2016, July 15). Houten denkt al na over chauffeurloze toekomst. AD/Utrechts Nieuwsblad, p. 1
[138]	Molenaar, J. & Olsthoorn, S. (2017, June 19). Here haalt nieuwe investeerder binnen. Het Financieele Dagblad, p. 11
[141]	Eldering, P. (2018, March 24). Rem op zelfrijdende auto. De Telegraaf, p. 9
[142]	Boersma, H. (2016, May 7). Klopt dit wel?. De Volkskrant, p. 6
[144]	van Keeken, C. (2014, September 12). Zelfdrijdende auto's Achteroverleunen op de A2 zit er nog even niet in. NRC Handelsblad, p. 15

[148]	Tesla Eerste dodelijk ongeval in zelfrijdende auto . (2016, July 1). NRC Handelsblad, p. 1
[149]	van der Most NA, J. (2016, April 14). Europa bereidt zich voor op zelfrijdende auto (3). Algemeen Nederlands Persbureau ANP.
[154]	van der Most NA, J. (2017, October 11). Zelfrijdende auto straks gewoon verzekerd'. Algemeen Nederlands Persbureau ANP.
[155]	Bos, K. (2012, May 8). Zelfrijdende auto toegelaten op wegen Nevada (2). Algemeen Nederlands Persbureau ANP.
[157]	Bremmer, D. (2015, November 20). 'Zelf rijden doe je straks alleen for fun'. AD/Rotterdams Dagblad, pp. 18-19
[158]	de Valk, E. (2016, January 19). Mister Moonshot. NRC Handelsblad.
[159]	van Noort, W. (2016, June 2). Oliestaat Saoedi-Arabië gokt op taxi-app Uber. NRC Handelsblad, p. 1
[160]	Bremmer, D. (2015, April 17). Mijn auto botste uit zichzelf, agent!. AD/Rotterdams Dagblad, p. 15
[162]	van Erven Dorens NA, P. (2018, March 14). ’Elektrische revolutie komt er rap aan’. De Telegraaf, p. 23
[163]	de Waard, P. (2015, September 2). Gaan Fiat, VW, BMW en Ford eraan?. De Volkskrant, p. 29
[164]	Schenk, N. (2018, January 13). Baas in eigen auto. AD/Rotterdams Dagblad, pp. 36-37
[167]	Hijink, M. (2014, May 20). Een taxi zonder stuur. NRC Handelsblad.
[168]	Teitsma, T. (2014, October 22). `Zet onbemande auto in'. AD/Rotterdams Dagblad, p. 7
[172]	Schenk, N. (2017, September 2). Zelfrijdende auto voor de massa. AD/Algemeen Dagblad, pp. 36-37
[173]	Schenk, N. (2015, May 16). Auto wordt woonkamer. Het Financieele Dagblad, p. 42
[174]	Koopmans, C. (2018, January 19). Autonome auto's zullen onze mobiliteit ingrijpend veranderen. Het Financieele Dagblad, p. 9
[176]	Honderd zelf rijdende auto's in Göteborg. (2013, December 4). NRC Handelsblad.
[177]	van de Weijer NA, B. (2017, February 21). Nieuwe 'taal' leert machine en mens communiceren. De Volkskrant, p. 25
[178]	van de Weijer NA, B. (2016, September 1). KITT is onderweg. De Volkskrant, p. 16
[179]	Broekhuizen, K. (2017, January 4). Kunstmatige intelligentie en robots centraal in Las Vegas. Het Financieele Dagblad, p. 15
[180]	van Joolen, O. (2015, April 4). De lange weg van de 'slimme' auto; Techniek en wetten vormen nog barrières bij de snelle opmars van zelfsturende voertuigen. De Telegraaf, p. 36
[181]	Zelfrijdende auto's in 2021. (2017, February 18). AD/Algemeen Dagblad, p. 37
[183]	’Autonome auto’s na 2021 in versnelling’. (2018, March 24). De Telegraaf, p. 9
[184]	Schenk, N. (2017, June 3). Zweten in zelfrijdende Leaf. AD/Rotterdams Dagblad, pp. 28-29
[186]	van de Weijer NA, B. (2016, June 8). Wat als de zelfrijdende auto faalt?. De Volkskrant, p. 3

[188]	van de Weijer NA, B. (2016, December 31). De zelfsturende auto heeft fundamentele problemen. De Volkskrant, pp. 4--5
[189]	van de Weijer NA, B. (2016, June 28). Wie laat de autonome auto in leven: inzittenden of voetgangers?. De Volkskrant, p. 18
[190]	Dirk Hekking, H. & Wolzak, M. (2018, March 24). Dit zijn de autonomieloze middeleeuwen'. Het Financieele Dagblad, p. 4
[191]	Autonoom. (2016, April 1). De Telegraaf, p. 11
[193]	Publieke opinie. (2018, March 23). De Telegraaf, p. 11
[194]	van Lieshout, M. (2016, March 17). Zelfsturend naar Beesd, en terug. De Volkskrant, p. 17
[196]	van de Weijer NA, B. (2015, June 27). Hoe de autonome auto alles anders maakt. De Volkskrant, pp. 12--16
[198]	Kouwenhoven, E. (2018, March 21). Zonnestorm kan leiden tot megafile. AD/Rotterdams Dagblad, p. 15
[199]	Waaijers, C. (2014, December 19). Een klein stapje naar handsfree. Het Financieele Dagblad, p. 124
[201]	van de Weijer NA, B. (2016, April 21). Weg met de mens. De Volkskrant, p. 14
[203]	van Ammelrooy, P. (2016, January 14). Googles zelfsturende auto is nog botsauto. De Volkskrant, p. 2
[204]	Meijer, B. (2016, August 18). Uber en Volvo werken aan zelfrijdende auto. Algemeen Nederlands Persbureau ANP.
[206]	van Raay, M. (2017, March 29). Even niet op de A58. AD/Rotterdams Dagblad, p. 22
[207]	Slump, R. (2015, December 5). Slimme doe-het-zelver; Parkeren. De Telegraaf, p. 12
[210]	Hijink, M. (2018, February 9). Wie wordt de baas in de robotauto?. NRC Handelsblad, p. 6
[212]	Snel in slaap als auto stuurt. (2017, May 13). AD/Rotterdams Dagblad, p. 25
[213]	van de Weijer NA, B. (2018, March 3). Veiligheid voor alles. De Volkskrant, p. 54
[214]	Bijlsma, J. (2017, September 15). Vooruitgang. De Telegraaf, p. 11
[216]	Multitasker. (2018, January 19). De Telegraaf, p. 11
[220]	Pruis, E. & Schotten, S. (2016, October 20). Alle nieuwe Tesla's kunnen autonoom rijden (2). Algemeen Nederlands Persbureau ANP.
[221]	Rijden op 5G. (2016, February 25). De Telegraaf, p. 9
[222]	Waaijers, C. (2015, January 24). Smartphone opent straks de auto en mijdt spookfiles. Het Financieele Dagblad, p. 4
[223]	Meijer, B. (2013, August 27). Nissan verwacht zelfrijdende auto in 2020. Algemeen Nederlands Persbureau ANP.
[225]	Jansen, J. (2016, January 10). Computer moet 'menselijker' rijden. De Telegraaf, p. 4
[226]	Steinbuch, M. (2017, March 21). Verliefd op robots. AD/Algemeen Dagblad, p. 20
[229]	Hijink, M. (2008, March 27). Ruim baan voor de Kitts en Herbies. NRC Handelsblad, p. 14
[230]	De auto van de toekomst is als een ruimtepak dat de bestuurder aantrekt. (2015, January 24). Het Financieele Dagblad, p. 1

[231]	van de Weijer NA, B. (2015, June 27). 'Energiezuinige auto remt komst zelfrijdende auto'. De Volkskrant, p. 17
[232]	Arbouw, E. (2017, January 14). De laatste mijl is nog een eind weg. De Volkskrant, pp. 38-41
[233]	Visscher, Q. (2015, July 31). Zelfrijdende auto gaat de weg op. AD/Rotterdams Dagblad, p. 10
[234]	Schenk, N. (2017, June 24). Stuurloos in vier jaar. AD/Rotterdams Dagblad, pp. 24-25
[236]	Google-auto s rijden ruim 1600 kilometer zonder bestuurder . (2010, October 11). AD/Rotterdams Dagblad, p. 10
[238]	Volvo wil autonoom worden. (2014, May 23). De Telegraaf, p. 21
[239]	NA, A. (2016, October 20). Zelfrijdende auto sAlle nieuwe modellen van Tesla kunnen zelfstandig rijden. NRC Handelsblad, p. 6
[241]	Zomaar een vloot zelfrijdende auto's uitrollen wordt een ramp'. (2016, October 15). Het Financieele Dagblad, p. 10
[242]	van de Weijer NA, B. (2016, March 3). VW blinkt op salon Genève. De Volkskrant, p. 30
[243]	U wilt innoveren? Omzeil de 10 Silicon Valley- valkuilen. (2016, January 23). Het Financieele Dagblad, p. 12
[244]	Meijer, B. (2016, August 16). Ford mikt op zelfrijdende auto in 2021 (2). Algemeen Nederlands Persbureau ANP.
[249]	van de Weijer NA, B. (2018, January 20). Robobabysitter. De Volkskrant, p. 54
[250]	Bijlsma, J. (2017, January 27). Scheiding. De Telegraaf, p. 11
[252]	van de Weijer NA, B. (2017, October 24). Zelfrijdend in konvooi probleemloos van A naar B. De Volkskrant, pp. 18-19
[256]	van Bockxmeer, J. (2017, August 18). Vervoer in 2035: fiets, ov en heel veel apps. Het Financieele Dagblad, p. 6
[257]	van de Weijer NA, B. (2016, July 2). Is de auto van de toekomst wel te vertrouwen?. De Volkskrant, p. 12
[261]	Steenbakkers, M. & Joolen, O. (2015, June 22). Nooit meer botsen. De Telegraaf, p. 22
[263]	Reijerman, R. (2013, October 12). Handen thuis. Het Financieele Dagblad, p. 30
[265]	van der Aa NA, E. (2014, October 20). Vrachtcolonne rijdt straks zelf. AD/Rotterdams Dagblad, p. 11
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Appendix C – Interview Template

Alvast heel erg bedankt voor uw bereidwilligheid om dit interview te doen. Omwille van het onderzoek zou ik graag dit interview willen opnemen, gaat u daarmee akkoord? Als u dat wenst kan zowel het transcript van dit interview en de uiteindelijke scriptie naar u worden toegestuurd. Heeft u bezwaren als het geanonimiseerde transcript na afloop van het onderzoek beschikbaar wordt gesteld voor andere onderzoekers?

Om het interview voor u even kort in te leiden gaat mijn onderzoek over hoe verwachtingen over zelfrijdende auto's in de maatschappij en industrie de acties van institutional entrepreneurs beïnvloeden en hoe deze verwachtingen eventueel gebruikt worden. Een institutional entrepreneur is hierin gedefinieerd als iemand die actief instituties (denk aan wetten, regelgeving, normen, waarden, etc.) rondom zelfrijdende auto's probeert te creëren, veranderen, of verwijderen.

Algemene vragen

- Zou u even kort uw naam en functie willen toelichten?
- Wat is uw rol in de implementatie van de zelfrijdende auto?

Activiteiten voor de implementatie van de zelfrijdende auto

- Kunt u vertellen wat u al heeft bereikt als het gaat om de implementatie van de zelfrijdende auto?
- Waar bent u op dit moment mee bezig?
    - Wat zijn dingen die hiervoor nog nodig zijn?
    - Wie moet er opdraaien voor eventuele kostenposten?
- Zou u kunnen vertellen wat u graag zou willen bereiken als het gaat om de implementatie van de zelfrijdende auto?
    - Wat zijn dingen die hiervoor nog nodig zijn?
    - Wie moet er opdraaien voor eventuele kostenposten?
- In wat voor opzicht verschillen de dingen die u doet van de dingen die op andere punten (door andere actoren) worden gedaan?

Persoonlijke verwachtingen over de zelfrijdende auto

- Wat maakt de zelfrijdende auto volgens u aantrekkelijk voor de toekomst?
- Wat zijn uw verwachtingen over de zelfrijdende auto?
    - Gebruikt u deze verwachtingen om uw doel te bereiken?
        - Zo ja: hoe worden deze verwachtingen gebruikt? U kunt hierbij denken aan het gebruik van verwachtingen voor het in kaart brengen van problemen, of om mensen te overtuigen en/of te mobiliseren.
- Wat moet er nog anders voordat de zelfrijdende auto geïmplementeerd kan worden? Hetzij in de maatschappij/politiek/industrie of in de technologie.

Verwachtingen over de zelfrijdende auto in het technologische veld

- Wat zijn verwachtingen over de zelfrijdende auto in de industrie?
- Verschillen de verwachtingen in de industrie van uw persoonlijke verwachtingen?
    - Zo ja: kunt u deze verschillen benoemen?

    - Zo ja: helpen deze verschillen of werken ze juist tegen in het bereiken van uw doel?
- Gebruikt u deze verwachtingen om uw doel te bereiken?
    - Zo ja: hoe worden deze verwachtingen gebruikt? U kunt hierbij denken aan het gebruik van verwachtingen voor het in kaart brengen van problemen, of om mensen te overtuigen en/of te mobiliseren.

Maatschappelijke verwachtingen over de zelfrijdende auto

- Ondervindt u barrières in de maatschappij in uw pogingen om regelgeving te veranderen of de zelfrijdende auto te implementeren?
    - Zo ja: wat voor barrières zijn dit en hoe belemmeren ze u in het bereiken van uw doel?
    - Zo ja: hoe gaat u om met deze barrières?
- Wat zijn verwachtingen over de zelfrijdende auto in de maatschappij?
    - Hoe helpen of belemmeren deze verwachtingen u?
    - Wijken deze verwachtingen af van uw eigen verwachtingen over de zelfrijdende auto?
- Gebruikt u de verwachtingen die zich op maatschappelijk niveau bevinden?
    - Zo ja: wat doet u daarmee?

Resterende vragen

- Veranderd u uw aanpak gebaseerd op eventuele andere verwachtingen in de industrie of maatschappij?
    - Zo ja: wat doet u dan anders?
- Is het gebruik van verwachtingen anders dan uw persoonlijke verwachtingen heel anders dan het gebruik van uw persoonlijke verwachtingen?
    - Kunt u overeenkomsten en/of verschillen noemen?
- Heeft u het idee dat verwachtingen, hetzij uw eigen of die van anderen, veranderen door de tijd?
    - Zo ja, hoe denkt u dat dat komt en wat zijn de veranderingen die u ziet?

Appendix D – Coding Scheme

Coding scheme for the interviews

- Creating institutions
    - Advocacy
    - Defining
    - Vesting
    - Constructing identities
    - Changing normative associations
    - Constructing normative networks
    - Mimicry
    - Theorizing
    - Educating
- Maintaining institutions
    - Enabling work
    - Policing
    - Deterring
    - Valorising and demonising
    - Mythologizing
    - Embedding and routinising
- Disrupting institutions
    - Disconnecting sanctions
    - Disassociating moral foundations
    - Undermining assumptions and beliefs

Appendix E – Use of Expectations in Institutional Work

INSTITUTIONAL WORK / EXPECTATIONS	Advocacy	Constructing Identities	Constructing Normative Networks	Mimicry	Educating	Disconnecting Sanctions	Undermining Assumptions and Beliefs
Economy							
Environment		1					
Institutions				1			
Market							
Road Situations and Spatial Planning	1	1					1
Safety	3	2	3				
Socio-Economic	1						
Scenarios							
Support							2
Market Introduction							
Technological Capabilities					1		