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The Emergence of Proto-Institutions in the New Normal Business Landscape: Dialectic Institutional Work and the Dutch Drone Industry

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ABSTRACT In the current business landscape, in which technology-enabled entrepreneurship is part of the New Normal, regulatory institutional structures are in constant flux. Previous studies have framed the challenges facing entrepreneurs in mature organizational fields as avoiding the power of overbearing regulators long enough to establish the legitimacy of their ventures. In fields typified by New Normal conditions, however, regulatory frameworks for evaluating new technology-enabled ventures are often still lacking. Regulators may choose to actively reach out to entrepreneurs to arrive at a better understanding of the radical technological changes and high-frequency entrepreneurial behavioural adaptations that occur in these settings. To grasp how novel regulatory institutional structures come about in the New Normal business landscape, we conducted a processual study of the emergence of a new technology that is the Dutch remotely piloted aircraft systems (drone) industry between 2000 and 2018. Our findings show that regulatory proto-institutions result from *dialectic institutional work* in the form of structured interactions between entrepreneurs and regulators. Specifically, we present a process model that reveals how new regulatory structures evolve in contexts where high levels of technological and behavioural change induce systemic uncertainty, and enlarge the interdependence between entrepreneurs and regulators. We suggest that our process theory of proto-institutional emergence generalizes towards other organizational fields in which technology-enabled entrepreneurship has become the main driver of growth. Theoretically, our findings speak to the literatures on institutional work, proto-institutional emergence, and the New Normal business landscape.

Keywords: (dialectic) institutional work, drones, entrepreneurship, industry emergence, New Normal, proto-institutions

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INTRODUCTION

How do regulatory proto-institutions arise in the type of technology-enabled and behavioural change-prone organizational fields that are emblematic for the New Normal business landscape? Prior research on institutional work has predominantly focused on the relationship between agency and structure, gleaning inspiration also from the literature on institutional entrepreneurship (Garud et al., 2002; Greenwood and Suddaby, 2006; Maguire et al., 2004). Others have stressed that 'institutional work insists on the need to consider the permanent recursive and dialectical interaction between agency and institutions' (Lawrence et al., 2011, p. 55), thus pointing to the interactive element of institutional work. However, a complete picture of institutional emergence requires that we move beyond heroic accounts of how institutional entrepreneurs struggle with fully entrenched institutions (Peng et al., 2017). Especially in the New Normal business landscape, in which technology-enabled entrepreneurship often is the norm (Hitt et al., 1998; Verbeke, 2018), our current theoretical understanding of institutional change does not suffice for grasping how key stakeholder groups like entrepreneurs and regulators jointly contribute to proto-institutional emergence. In fact, Forbes and Kirsch's (2011, p. 589) earlier claim that the study of entrepreneurial activities in emerging industries 'remains relatively neglected by researchers' still rings true today.

We define the New Normal business landscape as an environmental condition in which new growth opportunities primarily stem from robust entrepreneurial activities that are enabled by technological innovation and new business models, and where responsiveness to these growth opportunities leads entrepreneurs to make major and sometimes frequent change to their behaviours (see Verbeke, 2018). In combination with the increasing financial and capacity constraints facing governments (Abels, 2014; Davis, 2009), the technological and behavioural volatility that is constitutive of the New Normal furthermore necessitates regulators to actively seek entrepreneurs' input in the regulatory process, and make it more co-creational (see Ahlstrom and Bruton, 2010; Lewin and Volberda, 1999). Under such conditions, the grip of regulatory proto-institutions – novel normative and regulatory prescriptions that are not yet fully legitimated and diffused (Lawrence et al., 2002; Zietsma and McKnight, 2009) – on entrepreneurial behaviour is looser than it might otherwise be in more mature fields. Because regulators cannot fully oversee the new realities that emerge from entrepreneurial activities in such contexts, and yet are eager to facilitate initiatives that hold the promise of economic development, entrepreneurs are given considerable leeway to participate in the creation of regulatory proto-institutions. Entrepreneurial behaviour hereby becomes an important source of industry regulation in itself, in that the regulatory proto-institutional prescriptions entrepreneurs face have sprung, at least in part, from their own interactions with regulators. At present, however, we lack theory explaining how entrepreneur–regulator interactions lead to regulatory proto-institutional emergence. Our aim is to develop a process-theoretical account of these dialectic interaction patterns between entrepreneurs and regulators, based on multiple complementary sources of longitudinal qualitative data (Faems and Filatotchev, 2018). We document the micro-momentary actions through which entrepreneurs shape their own regulatory contexts in interaction with regulators. These actions have a profound conditioning effect on the opportunity and constraint structures facing later generation entrepreneurs.

Our study is set in an organizational field that is representative of the New Normal business landscape: the Dutch industry for businesses that produce, commercially operate, and/or deliver services for remotely-piloted aircraft systems (RPAS), colloquially referred to as drones. We rely on several sources of longitudinal qualitative data, including participation in industry events, analysis of archival data, field notes, and personal observations, as well as 27 semi-structured, in-depth interviews with industry participants. Our analyses show how the regulatory proto-institutions in this field have emerged in four consecutive evolutionary phases. Proto-institutional structures emerge in each phase as a joint entrepreneurial and regulatory response to challenges and opportunities experienced in prior phases. At the same time, new structures also give rise to institutional frictions,[1] which continue to mount until they cause an institutional transition that sounds in a next evolutionary phase (Padgett and Powell, 2012; Schneiberg, 2006). Our results thus have a strong processual character, in that entrepreneur–regulator interactions occur in different phases of the proto-institutional emergence process, and play a central role in moving the emergence process along from one phase to the next.

Our study makes several theoretical, empirical, and practical contributions. First, by introducing the concept of *dialectic institutional work*, we go beyond the commonly researched interplay between agency and structure to illustrate how diverse entrepreneur–regulator interactions in the New Normal business landscape contribute to proto-institutional emergence. We specifically build on Lawrence and colleagues (2011, p. 56), who state '[e]xamining institutional work in the context of emergent institutional processes points to the actions of those who affect, or attempt to affect, institutional processes at both the general and the local levels'. Following these authors' advice, we apply the institutional work lens to analysing the emergence of proto-institutions in a New Normal setting. This is in line with work by Ozcan and Gurses (2018, p. 1811), who point to the need 'to consider the various contradictory and complementary institutional work done by the different actors involved in institutional processes (Delbridge and Edwards, 2008)'. Second, by translating our findings into a clear framework, we show how entrepreneurs and regulators create new proto-institutions in the New Normal business landscape. Specifically, we contribute to the literature on institutional emergence (Padgett and Powell, 2012) by documenting a process through which proto-institutions can evolve. In doing so, we respond to a call by McMullen and Dimov (2013) for more process-oriented approaches in entrepreneurship studies and to the 'need for more studies to clarify how scholars, managers and policymakers can better understand and interact with emerging industries' (Forbes and Kirsch, 2011, p. 590).

In addition, this work advances our collective understanding of the New Normal business landscape by showing that under conditions of radical technological change and frequent behavioural adaptations (Hitt et al., 1998; Verbeke, 2018), entrepreneurs and regulators face greater uncertainty and interdependence than in more mature organizational fields. These parties are especially interdependent in the New Normal business landscape because growth from existing businesses has stagnated in many fields, which gives centre stage to high-growth entrepreneurial ventures; public pressure on governments to regulate newly emerging fields is on the increase; and financial and capacity constraints facing federal and local governments (including the state level in the USA and the member state level in the European Union) necessitate regulatory co-creation

(Abels, 2014; Benton, 2013; Davis, 2009; Dabla-Norris et al., 2015; El-Erian, 2010; Martin et al., 2012). The New Normal business landscape is thus in need of theory on how entrepreneurs and regulators jointly co-create new regulatory frameworks. We argue and show that dialectic institutional work is a dominant form of policymaking in the New Normal business landscape, and that the resultant process of proto-institutional emergence might also be found in other nascent fields characterized by technology-enabled entrepreneurship, including blockchain-based fintech companies, platform-based sharing economy firms, and decentralized renewable energy generation. In all these cases, entrepreneurship around sustaining or disruptive innovations are likely to engender regulatory institutional change (Ahlstrom et al., 2018; Kumaraswamy et al., 2018).

LITERATURE REVIEW

Entrepreneurs face uncertainty regarding the future of their ventures, not only due to the uncertain nature of the business itself, but also because of fast change in the business environment (Ahlstrom and Ding, 2014; Ozcan and Gurses, 2018). This is especially true in the New Normal business landscape, in which institutionally determined opportunity and constraint structures are still in flux. Whereas it used to take decades for industries to mature, following a predictable pattern of industry evolution (Aldrich and Ruef, 2006; Klepper and Graddy, 1990), institutional emergence is currently more rapid and less predictable due to the impact of radical technological change and frequent behavioural adaptations of involved stakeholders (Verbeke, 2018). We therefore need new frameworks to help us understand how regulatory proto-institutional structures emerge in these novel contexts (Young et al., 2014). The literatures on institutional work and proto-institutions and their emergence offer excellent points of departure for developing these new frameworks.

Institutional Work

Institutional work describes the 'purposeful action of individuals and organizations aimed at creating, maintaining and disrupting institutions'. Scholars in this area have mostly been concerned with 'understanding the role of actors in effecting, transforming and maintaining institutions and fields' (Lawrence and Suddaby, 2006, p. 215). Institutional work activities have previously been documented in the literatures on institutional entrepreneurship, institutional change, and deinstitutionalization (Lawrence et al., 2009). In theorizing the process of institutional creation, Lawrence and Suddaby (2006, p. 221) distinguish between three sets of practices. These start with 'overtly political work in which actors reconstruct rules, property rights and boundaries that define access to material resources', which they refer to as vesting, defining, and advocacy work. The authors then point to work directed at changing norms as well as constructing identities and networks 'in which actors' belief systems are reconfigured'. Lastly, actions aimed at mimicry, theorizing, and educating involve 'abstract categorizations in which the boundaries of meaning systems are altered'.

The focus in institutional work lies on actions taken by actors in relation to institutions (DiMaggio, 1988; Fligstein, 1997; Oliver, 1991). Whereas earlier studies in the

neo-institutional tradition tended to focus on the impact of institutionalized norms on organizational structures, recent research puts more emphasis on agency – up to the extent that entrepreneurs are portrayed 'as powerful, heroic figures able to drastically shape institutions' (Lawrence et al., 2009, p. 3). Indeed, institutional entrepreneurship can be seen as one stream of research within the institutional work framework (Lawrence and Suddaby, 2006, p. 216). However, it has also been argued that the creation of new institutions requires more resources and mobilizing power than what can be mustered by even the most heroic of institutional entrepreneurs; the institutional work needed to create new institutions inevitably has to draw on a broader collective of actors. These are not only institutional entrepreneurs, but also actors 'whose role is supportive or facilitative of the entrepreneur's endeavours' (Lawrence and Suddaby, 2006, p. 217; Leblebici et al., 1991).

While the institutional entrepreneurship literature generally focuses on the entrepreneur as the most important actor in creating new ventures, markets, and organizational fields, the relationships between entrepreneurs and other stakeholders should not be disregarded. Lawrence et al. (2011, p. 54) stress that Berger and Luckmann (1966, p. 43) already pointed out that the creation of new institutions is 'arising directly from reciprocal typifications that occur in the habitual interaction of individuals'. Consideration of these interactions and relationships is crucial for understanding the institutional work processes leading to proto-institutional emergence. In the New Normal business landscape in particular, in which technology-enabled entrepreneurship is rampant and constantly invokes behavioural change, new opportunity and constraint structures emerge out of the recursive interactions and relationships between entrepreneurs and regulators, with neither party being clearly in the lead of this process.

Proto-Institutions

Proto-institutions are 'institutions in the making' (Lawrence et al., 2002, p. 283). They consist of practices, rules, and technologies that are not yet fully established, but have the potential to become conventional institutions once they are accepted and diffused throughout a field. Thus, they form 'a particular set of institutional arrangements as a solution to some problem' (Zietsma and McKnight, 2009, p. 148), where this 'problem' often arises from novel practices, rules, and technologies that have no standardized or institutionalized way to be dealt with. Unsurprisingly, proto-institutions are more likely to be found in emergent fields and in the New Normal business landscape (Maguire et al., 2004).[2]

Research on proto-institutions focuses on collaboration, co-creation, and partnerships to explain the processes shaping the emergence of future institutions. In their study of an NGO in Palestine, Lawrence and colleagues (2002) zoom in on interorganizational collaborations to explain the emergence of proto-institutions, while Boxenbaum (2004) classifies the emergence of diversity management in the Danish context as a proto-institution. Zietsma and McKnight (2009) study the Canadian coastal forest industry and identify the co-creation processes that occur when proto-institutions form. Webb et al. (2010) conceptualize proto-institutions as network-level influences that help multinational enterprises overcome institutional-level obstacles. Helfen and Sydow (2013, p. 1079) define

proto-institutions as 'the *institutional* outcomes of negotiation work' (emphasis in original), and Hensel (2018, p. 225) investigated organizational responses to proto-institutions in an effort to show 'how clashes of semi-edited and unedited accounts about the proto-institution affected its adoption and implementation'. With a slightly different focus, but related to proto-institutions, is the description of Marti and Mair (2009, pp. 109–11) of provisional institutions. These are instrumentally built institutions that serve a temporary interest (here: poverty alleviation) for a certain period of time. In comparison to proto-institutions, provisional institutions are created with the intention of being a transitional means to an end. The proto-institutions that we explore go beyond temporary structures, however, in that they spring from mutual interaction patterns involving multiple stakeholder groups, whose intent it is to let these institutions acquire a more permanent character.

In sum, different actors are involved in shaping the New Normal business landscape by means of their active participation in emerging technology-enabled and behaviourally fickle contexts. As new practices emerge and new rules form, regulatory proto-institutions are created as a pragmatic response to recurring problems in areas like public safety and privacy. Exploring the institutional work involved in creating these 'candidates for institutionalization, if only enough members of the field will adopt them' (Zietsma and McKnight, 2009, p. 148) in the context of the New Normal is vital. Therefore, the research question that our study addresses is: *How do regulatory proto-institutions arise in the type of technology-enabled entrepreneurship-intensive and behavioural change-prone organizational fields that are emblematic for the New Normal business landscape?*

METHODS

To address our research question, we relied on qualitative data from multiple sources, allowing us to build theory inductively on the basis of continuous data analysis. We compared our ongoing analyses to new insights, while remaining open to new themes emerging directly from the data, thus following an iterative process of data collection and analysis (Reay and Jones, 2016). We continued our data collection and analysis efforts until theoretical saturation was reached – the point at which no or few new insights could be generated by including more data. This is the best suited methodology for engaging with the under-researched theme of proto-institutional emergence in the New Normal business landscape because we witnessed many ongoing developments as they took place. The processual nature of our research question, asking the 'how' type of question, allowed us to generate the type of deep insights that only qualitative data are able to provide (Barley, 1990; Langley, 1999).

Research Context: The Dutch RPAS Industry

The International Civil Aviation Organization (ICAO) defines RPAS as a 'set of configurable elements consisting of a remotely-piloted aircraft, its associated remote pilot station(s), the required command and control links and any other system elements as may be required, at any point during flight operation' (International Civil Aviation Organization, 2011, p. 12).[3] Initially, RPAS were developed for military purposes, with the first 'drones'

being launched during World War I (Austin, 2011). However, conceptions of flying machines date back to about 2500 years ago, when engineers in ancient Greece were interested in building mechanical birds or when, in China, a wooden hawk was developed (Dalamagkidis et al., 2012). Modern RPAS have been used in military conflicts and war zones. They have been used in Afghanistan since 2001, for example, for carrying out targeted kill missions (Gregory, 2011; McBride, 2009). Only recently have RPAS begun to be used for civil purposes (Braun et al., 2015). The Dutch commercial RPAS industry emerged from the leisure-driven market for model airplanes. At the beginning of the 21st century, aircraft systems became more affordable and available to a broader public. This process was facilitated by the rise of mass-market producers such as the Chinese DJI, with their flagship aircraft, a quadricopter called the 'Phantom' (The Economist, 2015).

The Dutch RPAS industry is an appealing setting in which to study the emergence of proto-institutions for three reasons. First, entrepreneurial activity involving RPAS has increased in recent years and technology in this area continues to develop quickly. Flying a RPAS is not only seen as an entertaining leisure activity, but many companies have formed around them, either as operators, producers, or in related services for RPAS users (such as consultancy, online applications, or training). On the one hand, this offers a wide range of opportunities for entrepreneurs. On the other, this development also has implications for other stakeholders, including policy makers and citizens whose physical safety and privacy may be at stake. Second, the global sales of commercial RPAS are estimated to yield 4.8 billion USD in 2021, a remarkable increase from 608 million USD in 2014 (WinterGreen Research, 2015). In Europe alone, the industry is expected to generate 10 billion EUR annually by 2035 and over 15 billion EUR by 2050 (SESAR, 2016). This illustrates the economic relevance of our research setting. Third, the field is in its formation phase and many developments – be they technological or regulatory – are still unfolding. Efforts have been made to draw up regulatory instruction guides along the way, such as a roadmap issued by the European RPAS Steering Group in 2013 and a 'prototype' regulation document put forward by the European Aviation Safety Agency (EASA) in 2016. However, only in 2018, EASA was granted EU-wide rule-making competency for all civil drones.[4] In spite of these efforts, the implementation of these frameworks still lies in the future, and harmonized rules for international airspace (similarly to manned aviation) remain years away. As such, an established institutional framework is not yet in place and development in this industry is still ongoing.

Data Collection

Our study includes data derived from active participation in the field, archival data and interviews. This is in line with what Gioia et al. (2013, p. 19) regard as 'good qualitative research'; namely, drawing from several qualitative sources with an emphasis on field observation and archival data while at 'the heart of these studies is the semi-structured interview'. We conducted our interviews and field research between February 2015 and June 2017 and performed archival research between February 2015 and October 2018. Our geographical focus is on the Netherlands, but we also took Europe-wide and even worldwide developments into consideration in order to draw the bigger picture.

Fieldwork. We attended six major industry conferences (Hardy and Maguire, 2010; Lampel and Meyer, 2008): one held by the American RPAS industry association with a focus on European developments (Unmanned Systems Europe), two held by the European RPAS industry associations (RPAS CivOps and RPAS Civil Policy), one European business-to-business conference (SkyTech), one European logistics conference (Unmanned Cargo Aircraft Conference) and one Dutch logistics conference (Airneth). We also attended meetings held by the Dutch RPAS industry association (DARPAS), as well as a public parliament meeting at the Dutch House of Representatives. Notes were taken during or after these meetings to supplement the more personal accounts of the interviewed informants. We sought ethnographic immersion in the field, using field notes to capture our experiences. Forbes and Kirsch (2011) stress that this 'real-time' approach is particularly well suited to studying the emergence of a new field. We spent about 75 hours at these conferences, workshops, and meetings. Most interviews conducted with entrepreneurs were combined with a visit to the entrepreneurs' firms, to get an impression of their work environment. Products were shown by and informal conversations were held with the interviewees, as well as with other employees. We spent approximately 15 hours at those entrepreneurs' firms. Throughout the data collection period, we maintained our awareness of the risk of becoming too close to the data, as too much researcher involvement can lead to the blind adoption of the point of view of the study's subjects. In an effort to avoid this, we followed Gioia and colleagues' (2013) lead by having one author adopt an outsider perspective, that is, abstaining from being involved in actual fieldwork and critically reflecting on all accounts by playing the devil's advocate.

Archival data. We also collected presentations given at industry gatherings. We collected 3,593 slides making up 240 presentations given at industry conferences, workshops, and seminars. Two videos shown during these meetings were also included. Regulators and government representatives are often invited to engage in conversation with industry stakeholders, and these presentations are an important source of information on the perspective of regulators. For instance, new policy plans were communicated during these presentations and progress updates were given by governmental working groups. As presentations are widely used to communicate and exchange ideas, they are particularly well suited to be used in our analysis. Table I describes the archival data we collected and analysed.

Interviews. We conducted 27 semi-structured, in-depth interviews: 20 with Dutch entrepreneurs, four with representatives of regulatory bodies,[5] and 3 with other stakeholders (a commercial pilot working for a start-up RPAS manufacturer, the director of geo-information at an aerial mapping company, and an employee of an intergovernmental economic institution dealing with RPAS-related topics). We relied on a theoretical sampling approach. After being introduced by the chair of the Dutch RPAS association, we approached several entrepreneurs for an interview. At the end of each interview, the interviewee was asked to refer us to other key players in the field, based on the categories and themes that emerged during the interview. By following up on our emerging theoretical ideas, we construed a sample that included various

Table I. Overview archival data

Conference/Workshop	*Date*	*Total No. of Presentations (Slides)*	*Of Which: Entrepreneurs/Firm Representatives*	*Of Which: Regulators*	*Of Which: Other Stakeholders*
AUVSI Unmanned Systems Europe, Brussels (Belgium)	3 March 2015	18 (234)	4 (51)	11 (164)	3 (19)
ICAO's First Global RPAS Symposium, Montreal (Canada)	23/24/25 March 2015	86 (1405)	14 (242)	48 (785)	24 (378)
Skytech, London (United Kingdom)	24 April 2015	9 (186)	4 (72)	–	5 (114)
Workshop on Drones by the Dutch Ministry, The Hague (Netherlands)	28 May 2015	7 (52)	2 (25)	4 (16)	1 (11)
RPAS CivOps – The European Civil RPAS Operators' Forum, Brussels (Belgium)	19/20 January 2016	28 (425) *also* two videos	9 (158)	10 (122)	9 (145)
EUROCAE Workshop, Brussels (Belgium)	4 March 2016	10 (153)	1 (16)	3 (35)	6 (102)
3rd International Unmanned Cargo Aircraft Conference, Enschede (Netherlands)	26 May 2016	8 (153)	3 (63)	–	5 (90)
EASA Workshop on Drones, Cologne (Germany)	20 June 2016	12 (141)	–	7 (89)	5 (52)
High Level Conference on Drones, Warsaw (Poland)	24 November 2016	30 (295)	7 (47)	13 (144)	10 (104)
Airneth Seminar on UAVs, The Hague (Netherlands)	8 December 2016	3 (53)	2 (35)	–	1 (18)
European Civil RPAS Policy, Regulatory & Innovation Forum, Brussels (Belgium)	13/14 June 2017	29 (496)	9 (161)	8 (114)	12 (221)
TOTAL		**240 (3593)**	**55 (870)**	**104 (1469)**	**81 (1254)**

businesses, producers, operators, and service providers, as well as entrepreneurs who had discontinued their venture. Table II contains a description of our sample.

All interviews were conducted in Dutch, with the exception of one interview held in English. We used open-ended questions, and probing was used to give interviewees the space to express deep thoughts and elaborate on answers. These interviews were conversational, but we did make use of an interview protocol to ensure that certain key topics were covered in all conversation (see Appendix 1). As Gioia and colleagues (2013) suggest, all questions were focused on our research question but did not lead the respondents in any particular direction. We started by asking entrepreneurs about the process of starting their own business, how they approached their venturing endeavours, any challenges they might be facing (both in the Netherlands and abroad), and their views on future developments. Regulators were asked about their work practices related to RPAS, their interaction with entrepreneurs, as well as their views on the current situation, problems they face in their work, and future developments both domestically and EU-wide. Interviews with other informants were used to obtain an alternative perspective, and were treated as background information to understand multiple viewpoints on the issue at hand. These interviews largely followed the entrepreneurs' interview protocol. Most interviews were conducted face-to-face (N = 20), and the remainder by telephone (N = 7). We translated the interview quotes used to illustrate our findings into English ourselves, but had the translation reviewed by an English native speaker conversant in Dutch. All interviews were recorded and transcribed verbatim. In a single case (Respondent 21), the recording device malfunctioned and an interview summary was written afterwards. On average, interviews lasted about 75 minutes. We obtained a total of 446 pages of transcripts (Arial, 11 pt., single line spacing) from almost 30 hours of interviews.

Data Analysis

We adopted an interpretivist epistemology, consistent with the constructionist research stream, which posits that the social world is constructed through the actions of individuals acting upon it (Charmaz, 2014). We employed a pattern-inducing technique to analyse our data, in which 'researchers gather empirical textual data that range from interview to direct observation and often include personal experience, […] cluster text segments in meaningful categories that they believe reveal actor behaviours […and…] make sense out of the grouped data' (Reay and Jones, 2016, pp. 449–50). We analysed our data using NVivo 11. Archival data was first sorted into three categories – presentations by entrepreneurs, presentations by regulators, and presentations by other stakeholders – and were then analysed. Presentations by other stakeholders include those given by universities, lawyers, industry associations, test sites, training and certifying agencies, research institutions, and industry consortia. Naturally, our own presentations were excluded from the analyses. During open coding, we stayed close to the participants' vocabularies and sorted information into meaningful categories. Afterwards, we went through the codes and looked for connections between the direct information gathered from the first step in the analysis process. From this, broad themes emerged. Finally, we grouped themes together, which led to the overall constructs that are an important part of our process model, the diverse entrepreneur–regulator interactions. Table III displays the codes, broader themes and overall constructs.

Table II. Interview sample overview

Respondent	*Classification*	*Firm Description*	*Function*
R1	Service provider (non-flying)	Consultancy	Self-employed
R2	Manufacturer	Manufacturing	Co-founder, CTO
R3	Service provider (non-flying)	Consultancy, conference organization	Founder, CEO
R4	Service provider (non-flying)	ICT solutions	Self-employed
R5	Manufacturer	Manufacturing	CEO
R6	Manufacturer, operator	R&D, manufacturing	Co-founder, CEO
R7	Operator	Inspection, search and rescue, mapping, remote sensing	Co-founder, marketing and sales director
R8	Operator *(firm discontinued)*	Emergency response, law enforcement, security	Co-founder, COO
R9	Operator	Bird pest control	Co-founder
R10	Operator	Energy generation	Co-founder, director
R11	Operator *(firm discontinued)*	Aerial mapping, remote sensing	Founder
R12	Operator	Film and photography	Co-founder, managing director
R13	Manufacturer	Manufacturing	Compliance officer
R14	Operator	Inspection, security, mapping, aerial imagery	Co-founder
R15	Governmental institution	Governmental institution	Supervisory body
R16	Governmental institution	Governmental institution	Supervisory body
R17	Operator	Film, inspection	Founder
R18	Operator	Geodata	Director geoinformation
R19	Manufacturer, operator	Medical supply, traffic management, IT solutions	Founder
R20	Manufacturer	Manufacturing	Co-founder
R21	Intergovernmental economic institution	Intergovernmental economic institution	Economist
R22	Operator	Film and photography	Self-employed
R23	Operator	Film and photography	Self-employed
R24	Governmental institution	Governmental institution	Rule-making body
R25	Governmental institution	Governmental institution	Rule-making body
R26	Operator	Film and photography, service platform, inspection	Co-founder
R27	Operator	Film and photography, service platform, inspection	Co-founder

Table III. Data structure

Entrepreneurs' Perception: Rules Apply/Are Followed			
Regulatory Context as Enabling		*Regulatory Context as Constraining*	
Regulation as precursors of competitive advantage	*Rules as conduit for good regulatory relations*	*Regulatory attempts lagging practice*	*Regulations are unnecessarily limiting*
• Adherence to strict rules guarantees high quality operations ('if you can fly in NL, you can fly everywhere') • Knowledge of rules in manned aviation helps to understand how the system works and why rules are important • Difficult regulatory framework allows for specialisation, offer clear advantage	• Feeling of ownership of rules, having a say in it • To be taken seriously you need to play by the rules • Government is partner, not enemy	• It is all about 'politics', unclear who decides and how • Technology and market are ready and developed, only laws are not • Regulators do not understand the needs of entrepreneurs • Rules that apply to manned aviation are falsely translated to drones	• Too many restrictions as to what is allowed, too much uncertainty • Long and exhausting process as rules change continuously, frustrating • Better to go abroad, to other countries where more is allowed
Entrepreneurs' Perception: Rules Do Not Apply/Are Not Followed			
Disregarding Regulatory Context		*Exception in Regulatory Context*	
Regulation has no direct effect	*Regulation is not adhered to*	*Regulation needs to be more nuanced*	*Regulations openly disregarded*
• Rules do not directly affect service provider, can adjust to changes	• Consequences for unlawful behaviour are low/cheap • Taking risks without considering or being aware of consequences, e.g., crash into big crowd • 'Forced' into illegal behaviour (government too slow, rules too difficult) • Want to be responsible, but lack knowledge ('they don't know enough')	• Rules currently do not cover different applications, user groups • Procedures do not match reality, so one should not obey • What is allowed for leisure users should also be allowed for commercial users • Rules for manned aviation are falsely translated to drones	• Rules may not be followed, but this is also communicated to regulators

Table III. *Continued*

Regulators' Response: Facilitating			
Co-Creation through Rule Selection		*Co-Creation through Rule Refinement*	
Regulatory change stems from learning	*Regulatory change based on external forces*	*Regulation as starting point for discussion*	*Regulation as inclusive as possible*
• Learning and gaining experience is part of the process ('flexibility in the rules is essential') • 'Reflect state of the art: best practices based on best available evidence and analysis'	• When EU-wide regulations come into place, certain rules will need to be abandoned	• New regulation for mini-drones was implemented to lower the threshold of operating according to rules • Rules did not take producer/test sites into account, but will be adjusted to facilitate entrepreneurs' needs • It is easier for professional firms that are known for safe operations to 'get things done' their way	• 'Need to obtain buy in from all involved parties' • 'One size does not fit all'
Regulators' Response: Restricting			
Compliance through Rule Reinforcement		*Compliance through Rule Proliferation*	
Regulation as given basis for operation	*Regulation due to newness of RPAS*	*Regulation disobeyed unintentionally*	*Regulation and monitoring increasing*
• Rules apply to the majority of cases, need to be followed • 'Operate within the bounds of existing legislation'	• Basis for all rule-making is aviation law and its principles need to be reinforced • RPAS will have to prove to be as safe as current manned vehicle operations	• Lack of understanding of complex rules • Lack of awareness of current rules • Informing customer sufficiently so that illegal operator would not be chosen again	• 'more specific rules' for RPAS that weren't needed in manned aviation before • Pressing charges, increasing monitoring by police

We then turned to Langley and colleagues (e.g., Langley, 1999; Langley and Abdallah, 2011; Langley et al., 2013) and followed their methodological recommendations for process research. We teased out re-occurring interactions between regulators and entrepreneurs, and questioned their underlying beliefs and behavioural motivations. To validate these findings, we presented them to a variety of stakeholders at a conference where both entrepreneurs and regulators were present. Through discussion, we sought to understand whether the framework we saw emerging from the data matched the perceived reality of industry insiders. Our findings were positively received and confirmed.

In the end, no comments were made that led to major changes of the regulator–entrepreneur interactions we found to be characteristic for our research setting. We also built a chronological timeline detailing more than 65 events and occurrences relating to the development of the RPAS industry in the Netherlands, the EU, and worldwide. We then employed temporal bracketing to meaningfully categorize these events (Langley, 1999). We looked for time spans that were internally homogeneous and externally heterogeneous. This allowed us to differentiate between four distinct evolutionary phases, which were included in the model we build. Finally, we placed the entrepreneur–regulator interactions we uncovered in the timeline of events. This allowed us to go beyond a purely synchronic illustration of interactions, which tends to 'freeze time' (Barley, 1990, p. 223), and rather present a fully diachronic analysis of how regulator–entrepreneur interactions shape and are part of the process by which proto-institutions arise. As the resulting visual representation is rather stylized, we stress that in reality there is overlap between phases and interactions.

FINDINGS

Overall Process of Proto-Institutional Emergence

The process by which regulatory proto-institutions in the Dutch RPAS industry emerge is best typified by cooperation between rule makers and entrepreneurs, rather than by a top-down approach in which regulators dictate the terms.[6] A Dutch regulator proudly described the Dutch approach as one that is 'flexible' and built on 'co-creation' (presentation at European Civil RPAS Policy, Regulatory and Innovation Forum in Brussels, 2017). At the EU level as well, the rules proposed by EASA are seen as 'tentative and […] presented to generate a debate' as regulators 'need feedback from industry now' (presentation at EASA Workshop on Drones in Cologne, 2016). The European Organisation for Civil Aviation Equipment (EUROCAE), an organization that develops aviation industry standards, summarized the process as: 'industry and regulator →working together' (presentation at High Level Conference on Drones in Warsaw, 2016). A representative of EUROCONTROL, the European Organisation for the Safety of Air Navigation, speaks of a '[p]ragmatic European approach' (presentation at AUVSI's Unmanned Systems Europe in Brussels, 2015) when discussing current rule-making efforts. In a report on the safe use of RPAS, the European Parliament issued a statement in which it 'considers that the industry, regulators, and commercial operators must come together to guarantee legal certainty' (European Commission, 2015). The need for a joint approach is thus recognized by a variety of parties, both domestically and at the EU level.

Our evidence shows that Dutch rule makers are aware of their knowledge gap, and actively approach industry stakeholders to find workable solutions. Rule makers had to rely on their 'gut feeling' in the past (Respondent 25). As the minister of Infrastructure and Environment pointed out during a committee meeting, regulators may even need to make arbitrary decisions in order to elicit feedback from the entrepreneurs who will be subjected to the new regulations. She explained how the 4 kg weight limit was chosen for newly proposed regulations covering so-called 'mini-drones':

> *I was wondering myself why four kilograms was chosen and not, for example, one kilogram. You can see a variety of weights in our neighboring countries, and there are hardly any rules for drones from one to seven kilograms. (...) Four kilos has been chosen as it is the middle of one and seven kilograms, and was intended as a starting point for discussion with the drone industry. Consultations with the industry have shown that a limit of one kilogram is acceptable for a drone where there are no demands of the pilot and that does not require separate examination. (...) We want to make rules that allow for innovations.* (Dutch House of Representatives, 2015)

This quote illustrates the willingness of regulators to involve the people that will ultimately have to deal with the new regulations. Entrepreneurs welcomed this openness and were happy to contribute to shaping the nascent regulatory context. One respondent, an entrepreneur with many years of industry experience who had started a number of firms, described this process as follows:

> *We are simply trying to create a commercial company which meets all the requirements of the government and also cooperates. We're also working with them, we work very well together with the government, and I have been allowed to advise both the Dutch government and European authorities concerning regulations. Purely because we know what we are talking about. If you're sitting in a meeting with relevant European stakeholders, then I'm the only one who actually flies [a drone] and knows what he's talking about.* (Respondent 11)

Regulators, of course, have a different perspective on developments within the emerging industry than entrepreneurs do. Entrepreneurs not only have more extensive knowledge of the market, but can also draw on different formative past experiences. An interactive process thus enables rule makers, as well as entrepreneurs, to be freed from wrongful assumptions about the status quo. This is illustrated by a conversation one of the interviewed entrepreneurs had with an employee of the Environment and Transport Inspectorate, an agency of the Ministry of Infrastructure and Environment:

> *Sometimes a person [at that agency] who sits behind his desk has very different ideas. I've had this conversation many times, [they say]: 'You are a commercial operator, so you always go one step further'. I think that is very illogical. I put my business at stake, which means that I will never go as far as a hobbyist would. I am exercising much more caution. They had a very different perception. They thought that there is a commercial interest behind it, there is money to be earned, so you take more risks. (…) We do not operate a 1,500 Euro system, we use systems that cost 20,000 or 30,000 Euro, so you won't take any risks, because again, that is a risk to your business. You don't do that, while they [the agency] had a very different belief, which was quite striking.* (Respondent 7)

Other advisory bodies, like the Joint Authorities for Rulemaking of Unmanned Systems (JARUS), which includes representatives from 50 countries and contributes to the development of an RPAS regulatory framework for the safe integration of RPAS into airspace, included a stakeholder team into their structure. They recognized '[p]artnership as the key to success' and required '[b]road stakeholder involvement'. Thus, JARUS created a Stakeholder Consultation Body ensuring that industry stakeholders like manufacturers, industry associations, air navigation service providers, standardization bodies, operators

and pilots were involved (presentation at EASA Workshop on Drones in Cologne, 2016; RPAS CivOps in Brussels, 2016). The same goes for other EU agencies, as an EASA representative stated that they were 'committed to work in cooperation with all stakeholders' (RPAS CivOps in Brussels, 2016). The Swiss Federal Office of Civil Aviation even believed that 'a smart regulator (…) is part of the Drone Ecosystem [and] develops with the Ecosystem standard scenarios to reduce the authorisation effort and the administrative burden' (presentation at EASA Workshop on Drones in Cologne, 2016). Thus, the intention to co-create the regulatory context is inherent in the RPAS industry.

While the regulatory process is Europe is collaborative in nature, this does not mean that it is easier or faster than regulatory processes elsewhere. Entrepreneurs who hope to move forward as quickly as possible still tend to experience the process as tiresome. Respondent 5, for example, stated that 'the rule making, how it goes with these agencies, I find it really tiring, extremely slow'.

Having presented our insights into the process, we now turn to the different phases that characterize proto-institutional emergence in the Dutch RPAS industry and the distinct entrepreneur–regulator interactions that gave rise to proto-institutional emergence during the study period.

Phases of Proto-Institutional Emergence Driven by Distinct Entrepreneur–Regulator Interactions

We distinguish between four phases of proto-institutional emergence in the RPAS industry between 2000 and 2018. Each phase spans two to five years, and includes 7–28 events.[7] We observe several cascading effects (Verbeke, 2018) through which international and EU-level developments influence Dutch regulatory developments and condition the activities of actors within the Netherlands. The separate phases represent a way to map the process of proto-institutional emergence in the New Normal business landscape. We illustrate which interactions between entrepreneurs and regulators give the impetus for proto-institutional emergence. We find that RPAS entrepreneurs share two fundamental beliefs about the nature of the regulatory environment. They either recognize the existence of rules they need to adhere to, or they perceive the rules as extant, but not applicable to themselves. Between RPAS regulators, we find two different beliefs about how best to create the regulatory context. They either hold a facilitating view of what the new regulatory context should entail, or have a more constraining take on the regulations to be established. Although we label certain regulators' responses to entrepreneurial activities as constraining, rule makers were generally open to input from industry stakeholders ('EMPOWER Stakeholders' as demanded by ICAO; presentation at High Level Conference on Drones in Warsaw, 2016). Whereas regulations can be constraining, the regulatory process is highly collaborative, as illustrated in the previous section.

In what follows, we outline the way in which interactions play out when entrepreneurs and regulators are faced with the joint task of creating an effective regulatory context (Table IV presents an overview of these interactions), and illustrate how they shape certain phases in the process of proto-institutional emergence (Figure 1 provides a visual illustration of the model). Additionally, we highlight which proto-institutions had emerged at the point where the institutional frictions endemic to those proto-institutions sounded

Table IV. Entrepreneur–regulator interactions

Perception Entrepreneur	*Enactment Entrepreneur*	*Response Regulator*	*Enactment Regulator*	
Rules Apply	Enabling	Constraining	Compliance through Rule Reinforcement	→ Playing by the Increasingly Clearer Rules
Rules Apply	Constraining	Facilitating	Co-creation through Rule Selection	→ Working on Better Regulation
Rules Do Not Apply	Disregarding	Constraining	Compliance through Rule Proliferation	→ Why Care about the Rules?
Rules Do Not Apply	Exception	Facilitating	Co-creation through Rule Refinement	→ Changes in Regulation Needed

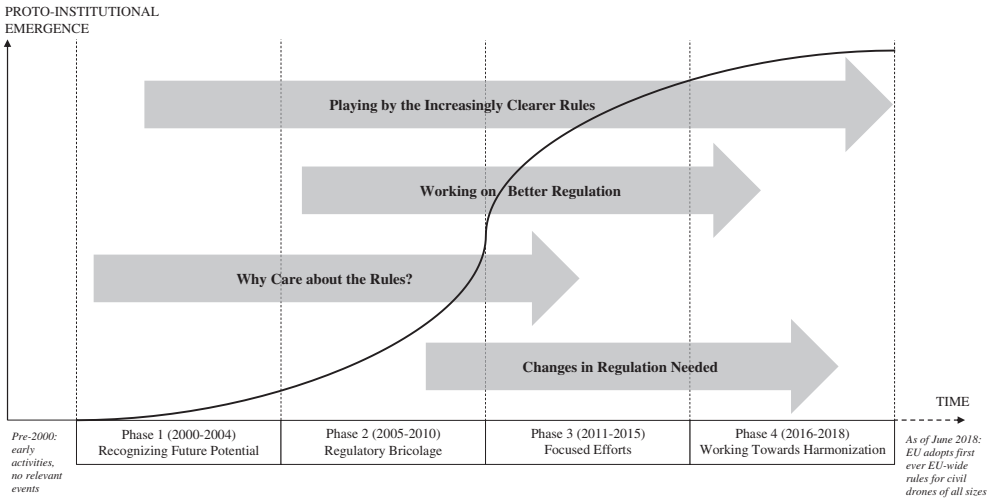

Figure 1. Entrepreneur–regulator interactions

in a transitional moment proceeding from one evolutionary phase into the next. We also document the nature of these institutional frictions themselves (see Table V).

Phase 1 (2000–04): Recognizing Future Potential. Before 2000, only limited activities were connected to RPAS. From the turn of the millennium onwards, however, several relevant events took place on a European scale, such as the foundation of the first European industry association for RPAS in 2000 (UVS International), and the organization of a first EU-funded awareness-raising workshop in 2001. In 2002, the establishment of the European Aviation Safety Agency, EASA, followed. In the same year, the European Commission recognized and mentioned RPAS for the first in the general strategic aerospace policy framework, and a taskforce was formed between the Joint Aviation Authorities (JAA) and European Organisation for the Safety of Air Navigation (EUROCONTROL). EASA officially became operational in 2003, taking up its mandate for RPAS certification in Europe, initially for systems of more than 150 kg. In an attempt to develop an early concept of RPAS regulation, the JAA/EUROCONTROL task force published their final report in 2004.

Typical for this period is a type of entrepreneur–regulator interaction in which regulators seek to enforce compliance from entrepreneurs, while the latter see the regulatory environment as mostly enabling (*Playing by the Increasingly Clearer Rules*). This interaction creates a regulatory context in which regulators seek to set certain baseline rules, which are affirmed by entrepreneurs by adjusting their behaviour to these rules. When reflecting on the circumstances in which RPAS businesses operate, we found a number of entrepreneurs who recognized that the rules in place apply to their businesses. According to Respondent 14, who worked for the Dutch police before starting his own firm, following the rules means that 'you have to read [current rules] carefully and comply with them. It's really as simple as that'. To the extent that regulations stemming from general aviation laws are already in place during this early phase of *Recognizing Future Potential*,

Table V. Transitional characteristics of emerging proto-institutional arrangements

	Emerging Proto-Institution	*Institutional Friction*	
Phase 1 (2000–04) Recognizing Future Potential	Entrepreneurs that disregard existing frameworks are faced with constraining responses by regulators (*Why Care about the Rules?*), while regulators enforce compliance from entrepreneurs that view current situation as enabling (*Playing by the Increasingly Clearer Rules*). RPAS emerged as a **new civil market category**, and became an object of interest for previously unconcerned governmental bodies and industry initiatives.	Increasingly, after the RPAS industry emerged as a cognitive category, the need to engage in concrete regulatory future actions was felt by all industry actors.	transition
Phase 2 (2005–10) Regulatory Bricolage	While interactions between entrepreneurs and regulators from the previous phase continue, both parties start engaging in co-creation activities: rule selection occurs when entrepreneurs are constraint in developing promising new business models (*Working on Better Regulation*), while regulators also make exceptions for other cases in which refinement is needed (*Changes in Regulation Needed*). Attempts on all levels, national to international, to propose **policy guidance frameworks** while entrepreneurial initiatives continue to grow.	Gradually, industry actors are faced with a plethora of disconnected regulation and recognize that further coordination and structuration is required.	transition
Phase 3 (2011–15) Focused Efforts	While most interactions between entrepreneurs and regulators from the previous phase continue, interactions between rule-disregarding entrepreneurs that evoke constraining regulator responses (*Why Care about the Rules?*) phase out. Standardization efforts intensify as **mutually referential interim practices, standards and certifications structures** emerge; rule-making bodies acknowledge and reference each other's work.	Progressively, although regulatory instructions are beginning to become more focused, industry actors experience the limitations of not having established binding and collective rules yet.	transition
Phase 4 (2016–18) Working Towards Harmonization	Two of the remaining interactions are slowly phasing out (*Working on Better Regulation; Changes in Regulation Needed)*, and agreement is reached broadly on all levels and between most stakeholders. Rule reinforcement by regulators and acceptance by entrepreneurs continue to be dominant until the end (*Playing by the Increasingly Clearer Rules).* Increasing clarity and common agreement on how RPAS should be understood, how they should be dealt with systematically, and how this should be reinforced appropriately and in a unified manner as the development reaches **regulatory harmonization**.		
	Regulatory Institution Formed		
	In 2019, the European regulation that was agreed upon in 2018 (and marked the end of Phase 4) was published in the Official Journal of the European Union. The details of the regulation outlined there are binding for all EU countries.		

entrepreneurs with a background in manned aviation seemed to profit from their in-depth knowledge in this area, allowing them to interpret these rules as enabling structures. Respondent 13, with a background in manned aviation, remembered that 'in the beginning, I had to read a lot to get an understanding about how it all works. For me it's easy, because 90 per cent of it is a copy of manned aviation [law]. That's what I know already'.

In contrast to the belief that current rules apply to their company, another group of entrepreneurs operates on the belief that rules do not apply to them, which evoked a more restrictive regulatory response (*Why Care about the Rules?*). This interaction is built on a disregard of the given regulatory context, causing regulators to create new and more restrictive rules to constrain entrepreneurs portraying a careless attitude to extant regulatory frameworks. Some entrepreneurs knowingly disregarded the rules in place, especially during the early stages of the *Recognizing Future Potential* phase, when flying RPAS was not as common as in later phases, and when the consequences for non-compliance were usually limited. Effective policing was not in place at that time and it was often unclear what constituted illegal activities (personal communication). Especially entrepreneurs who are part of the RPAS industry, but do not operate unmanned aircraft themselves (e.g., they offer consultancy and related products/services), felt that rules do not apply to them and can thus safely be disregarded. As Respondent 1 put it, 'my company is purely doing consultancy work. And interim project leadership for different kind of projects. I do not fly [a drone] myself'. These entrepreneurs are indifferent to many rules, as they do not directly facilitate or constrain their entrepreneurial activities. However, while rules do not apply to them directly, this does not mean that these entrepreneurs remain totally unaffected by regulations. Respondent 4 developed a mobile application that makes it possible for RPAS operators to register their upcoming flights, to see who is flying at a certain location, and to check whether they are currently operating in a no-fly zone. For that reason, he believed that the current rules do not apply to his firm and would not affect him greatly: 'It is just the way that it will be and I will adjust my app [mobile phone application] accordingly'. This group of entrepreneurs does not receive much attention from rule-makers, and does not necessarily seek to interact with them.

In sum, in this first phase the EU and related parties recognized that RPAS were an upcoming phenomenon in civil markets. Previously unconcerned governmental bodies and industry initiatives became aware of RPAS' implications for general aviation operations. While entrepreneurs showed both rule following and rule avoiding behaviour, regulators enforced compliance through rule proliferation and reinforcement. However, all actors increasingly experienced the institutional frictions stemming from lacking future-oriented regulatory actions, which contributed to the transition to the second phase.

Phase 2 (2005–10): Regulatory Bricolage. RPAS activities were brought to international attention in 2005, when the Air Navigation Commission of ICAO requested their discussion. This was followed the next year with ICAO's first exploratory meeting on the issue and a second meeting in 2007 that led to the establishment of a dedicated study group (UASSG) to look into the development of regulatory frameworks. UASSG became operational in 2008 and during the same year, JARUS was also put in place

with the same objective. On European scale, a number of advisory documents were published in this phase. A consortium formed by UAVnet (Civilian UAV Thematic Network), CAPECON (Civil UAV Applications and Economic Effectivity of Potential Configuration Solutions) and USICO (UAV Safety Issues for Civil Operations) proposed a strategic agenda and action plan in 2005, while EASA proposed a RPAS certification policy. Two years later, the Agency published a response document covering 270 pages of comments and detailed responses to the earlier proposed certification policy draft. In 2008, the European Commission issued their first study analysing current RPAS activities and detailing their future vision of the field. The same year, the European Parliament and the Council of the European Union decided to grant EASA more competency in aviation rule-making (often referred to as Basic Regulation), which was followed by the publication of general RPAS type certification principles in 2009. Also, a number of new consortia and working groups emerged EU-wide, such as the EUROCAE working group on RPAS to develop certification and standards in 2006. The following year, SESAR (Single European Sky ATM Research) Joint Undertaking was formed to provide guidance to the European air traffic management system concerning RPAS integration issues. Also in 2007, the INOUI (INnovative Operational UAV Integration) Consortium was formed to focus on the integration of RPAS into airspace more generally, which was followed by the publication of the consortium's final report in 2010. Next to the working groups and reports, personal exchanges were facilitated through the European Commission's Directorate-General for Mobility Transport's first hearing on RPAS in 2009, while the European Commission organized a RPAS conference together with the European Defence Agency in 2010. In the Netherlands, the first rules for model airplanes were published in 2005, aimed at regulating small unmanned aircraft with a weight of less than 25 kg. This was the first step taken by the Netherlands to regulate behaviours concerning RPAS.

With the number of initiatives on the increase and with additional rule-making attempts underway, another distinct entrepreneur–regulator interaction type emerged, with entrepreneurs acknowledging the existence and applicability of rules and regulations, but also perceiving these as being restrictive. To promote industry development, regulators responded by trying to make rules and regulations more facilitative (*Working on Better Regulation*). Specifically, regulators consulted with entrepreneurs to identify which rules worked and to eliminate the ones that did not, such as the ones perceived by entrepreneurs as unnecessarily restrictive. Both parties were thus working in concert to create better regulations. Respondent 17 runs a company that uses RPAS for aerial filming and photographing. He felt that 'the rules are not even that clear, there are a number of them that are enormously binding and restricting'. Others agreed that the regulation 'is very unclear at the moment in the Netherlands and it is also [the country] where you are allowed the least in the commercial setting' (Respondent 27). These sentiments were widespread in this phase of *Regulatory Bricolage*, when the first RPAS-specific rules were published. When rule makers found that there was a large group of stakeholders who believed the current situation to be untenable, they showed their willingness to continue with a sub-set of rules and regulations that were more practical to use. While 'legislation is a prerequisite that can be quite restrictive', rule makers realized that 'it also offers

opportunities, so that with a collaboration between the government and the industry you have to see how at one point we can get innovation off the ground' (Respondent 24).

While entrepreneurs continued to adhere to rules that they perceived as applicable to their businesses (*Playing by the Increasingly Clearer Rules*), rules still had to be made more accessible, especially during the early phase of *Regulatory Bricolage* when little was communicated in a tailored way to the general public. This required a mutual willingness to invest extra effort into understanding the current situation, reading through legislative texts and/or getting involved with other industry stakeholders and regulatory institutions. However, this group of entrepreneurs also saw the extant rules as enabling, making it possible for their businesses to sustain and enhance their operations. The owner of an aerial inspection company elucidated this point:

> *To us, regulation is a fact. We have to deal with it. We have very limited influence on it. We may be able to change a few things about the conditions in the Netherlands, but we don't have any influence at all on what's happening in England or Germany. (…) Many people say: the regulations need to be better. But it's all very clear. Those rules are still as clear as they can be. (…) This week I was asked to sign a petition against the new regulations. I replied: no, because I am pleased with the new rules, which really annoyed some people.* (Respondent 12)

We also observed ongoing interactions between rule-disregarding entrepreneurs and constraining regulators in this phase (*Why Care about the Rules?).* Reflecting on the state in the Netherlands, Respondent 19 (who also manufactures his own RPAS) remained convinced that 'if you want to create an operational [RPAS] system here, you will need to do things that are not allowed'. Respondent 22 agreed with this perspective and stated that after the first regulations came into place in the Netherlands, he continued to operate 'illegally' to be able to keep his air photography business alive:

> *… legislation changed in such a way that nothing was allowed anymore and then I just carried on. I can't just apply for unemployment benefits like: 'yes, I am not allowed to fly anymore', so you just continue. I mean, I have no alternative.*

Regulators responded to this kind of behaviour by seeking to constrain it. They aimed to prevent illegal activities and stressed, as one Dutch rule-maker clearly stated, 'law enforcement on illegal operations' (presentation at European Civil RPAS Policy, Regulatory and Innovation Forum, Brussels, 2017). Regulators also needed to create rules to reduce grey areas. For example, additional rules were created that needed to be 'efficient [for the police] to control the use of drones', as a member of the European Commission claimed (presentation at EUROCAE Workshop in Brussels, 2016). As the police became better educated on the use of drones and the accompanying regulations, they were able to spot illegal behaviour more easily and to fine the perpetrators. Nonetheless, this did not prevent all entrepreneurs from engaging in illegal activity. Respondent 23, an entrepreneur in the film and photography sector, made it clear that 'if the penalty is only 350 Euro, I will take the risk of being fined; I'm still making the shot. Because if I get ten shots and they only get me one time, well, so what?'. Thus, for some, the risk of being caught and fined seemed out of balance in relation to the disproportionate potential upside of

continuing to carry out illegal flights. Based on these 'rather negative' (Respondent 16) experiences, regulators learned and created additional rules in an effort to prevent illegal activities from taking place.

Towards the end of this phase, it became obvious that there were many entrepreneurs who believed that their company did not need to adhere to current regulations, because their firm represented an exception or special case that needed to be dealt with separately. Regulators met this demand with a collaborative approach, as they understood that exceptions were necessary for some cases in which refinement was needed (*Changes in Regulation Needed*). This type of interaction was built on the acknowledgement that there were exceptions that went beyond the given regulatory context, for which regulators needed to redefine rules to facilitate entrepreneurial actions that could not be executed in adherence to current regulations. Thus, changes in regulations were needed for certain RPAS uses.

In sum, during this second phase RPAS activities occurred on both the international and Dutch scenes, and regulatory development at the EU level intensified. Attempts were made on all levels to propose policy guidance frameworks while entrepreneurial initiatives continued to grow. However, all of these efforts seemed uncoordinated, and although parties did acknowledge the work of others, arriving at common frameworks proved to be cumbersome. Many parties drew on different pieces of information and produced a range of proposals and frameworks. While interactions between entrepreneurs and regulators were frequent, all parties involved experienced the institutional friction of not yet having consolidated the plethora of disconnected regulations, which sounded in the transition to the next phase.

Phase 3 (2011–15): Focused Efforts. In 2011, ICAO published a formal report on RPAS that became an important reference document for international RPAS regulatory developments. Then, in 2014, ICAO replaced the RPAS working group UASSG with a panel that was given the task to explicitly focus on supporting the regulatory process. One year later, ICAO published a RPAS Manual including more technical details on airspace integration and management. Supporting these international efforts, also in 2015, the International Organization for Standardization (ISO) set up a subcommittee aimed at developing standards around RPAS. In its efforts to consider not only the national rule-making authorities, but also industry stakeholders, JARUS launched its Stakeholders Consultation Body in the same year to solicit feedback from the RPAS field as a whole. The European Commission organized a series of five workshops in 2011 to grasp what the challenges in the development of the European RPAS industry were. In 2012, the European Commission published a strategy document and created the European RPAS Steering group with the goal of drawing up a roadmap for RPAS integration by 2016, which was published the next year. Next to its existing RPAS working group, EUROCAE formed an additional working group in 2012, which only focused on smaller/lighter RPAS. The Unmanned Aerial Systems in European Airspace (ULTRA) consortium formed in the same year and presented their final report in 2013. Others also continued their work: EASA proposed an alignment of the European Common Rules of the Air in 2012, published a concept of operations for RPAS in 2015, along with a policy initiative to update its Basic Regulation of 2008. EASA also introduced a regulatory framework

for RPAS operations the same year, and followed up with concrete proposals by the end of 2015. This regulatory framework mentioned three categories in which RPAS might be regulated in the future, based on their risk. In order to clearly map European regulatory developments, the DroneRules project was established in 2015. With a website as its main outlet, current rules of each EU country were made publicly accessible to foster awareness, clarity, and understanding. Another important European event of 2015 was the Riga Declaration, which was the result of an RPAS conference. The document talked about five principles on which the EU would focus its future efforts to stimulate the development of the RPAS industry. A half year later, the European Parliament published a report supporting the removal of the existing 150 kg limit for EU-wide regulations. By the end of 2015, the European Commission adopted a new, comprehensive strategy for the European aviation sector. In the Netherlands, the Dutch industry association for RPAS was founded in 2012. The previously issued rules for model airplanes were revised in 2013 to distinguish between leisure use and professional use. They also included the general prohibition to use unmanned aircraft up to 150 kg, but with the possibility to apply for an exemption when flying RPAS for commercial use. In 2015, rules for model airplanes were revised again with the publication of the first set of rules for commercial RPAS. Although commercial operators were not required to apply for an exemption anymore, other certificates were needed. In 2014, the Dutch Ministry of Justice and Security drew up an action plan for RPAS regulation. In the same year, the first lawsuit involving RPAS occurred as a Dutch journalist was fined for using his RPAS too close to an airport without permission. The Dutch Ministries of Safety and Justice, Infrastructure and Environment, and Economic Affairs collectively organized a conference in 2015 and issued a report expressing their views on RPAS afterwards. This was followed by a general consultation in the Dutch House of Representatives, which discussed RPAS-related issues.

During this phase, disregarding entrepreneurial behaviour that was met with constraining regulatory responses (*Why Care about the Rules?*) slowly phased out. Especially in the Netherlands, the lawsuit against the journalist who flew his RPAS without permission during the phase of *Focused Efforts* represented a milestone in this regard. Ultimately, regulators sought to find 'a good balance', as 'you will always have drone operators that fly illegally' (Respondent 25). As the regulatory context was still in its infancy, the first set of regulations was created to 'allow people to start flying drones' (Respondent 24) and rule-makers were aware that they would subsequently need to add more rules. A Dutch rule maker who was involved in this process recalled that, after the initial publication of new regulations, 'we immediately published a future plan, immediately after the regulations: this is where we want to go, that's what we refer to as our policy intentions'.

Entrepreneurs who valued existing regulatory frameworks continued to interact with the regulators seeking to enforce them (*Playing by the Increasingly Clearer Rules*). Interestingly, some entrepreneurs even expressed that their customers asked more of them in terms of safe and secure operations than what current rules demanded at that point in time (personal communication). In such cases, entrepreneurs spoke of '[s]mart customers [d]emanding much more than regulation requires' (presentation at AUVSI's Unmanned Systems Europe in Brussels, 2015). Thus, in addition to complying with regulations, the market itself occasionally required more from some RPAS firms.

During this phase regulatory frameworks were frequently refined, and co-creation activities between entrepreneurs and regulators continued. Rule selection processes were initiated when entrepreneurs felt constrained in their development of new business models (*Working on Better Regulation*). According to one entrepreneur: 'legislation has quite been a problem, quite often you couldn't do things, you weren't allowed to do things or a new law was being put in place' (Respondent 6). New RPAS applications often did not fit extant regulatory frameworks, testifying to the fact that '[t]echnology has always preceded regulation' (presentation at ICAO's First Global RPAS Symposium in Montreal, 2015). While the industry was still forming and proto-institutions were still in flux, regulations were subject to virtually continuous change. So much so even that Respondent 8 expressed his concern that 'at a certain moment, there will be more and more rules, and more…'. There was a desire for the government to 'talk more openly with industry players, like us, to introduce legislation that is more structured and not make all sorts of sudden changes' (Respondent 6).

During this phase, many entrepreneurs requested to be treated as an exception to the rules, as many new business models did not fit the extant regulation (*Changes in Regulation Needed*). Especially when entrepreneurs were able to demonstrate that their operations were safe, regulators showed their willingness to refine existing rules to permit useful RPAS applications. As a Dutch policymaker stated: 'Of course we also try to look ahead. And it's important that you do so together. Otherwise, we won't get there!' (Respondent 24). For example, Respondent 9 founded a company aiming to operate RPAS at airports for the purpose of pest control, as many airports face challenges with birds damaging aircrafts when aircrafts and birds collide. The issue here was that airports are no-fly zones for RPAS, while they would obviously benefit from the entrepreneur being exempted from the rules. This entrepreneur realized that the application of RPAS that he envisioned 'is so specific that we need to keep on talking [with regulatory bodies]' to arrive at a workable solution. Such solutions should not make compromises with regard to safety, but they should also enable useful innovations. Many productive interactions between entrepreneurs and regulators were observed during this phase of *Focused Efforts*, during which Dutch rule-making activities intensified. Respondent 16, who worked at a governmental institution, stated that 'if you want to do something that deviates from the rules, that's always possible if you can show that you'll be able to do it in a safe manner'. In general, this group of entrepreneurs was aware that their input into the refinement of rules was essential for creating a future context that would be workable for them. Respondent 2, a producer of RPAS, stated that '[w]e have good contact with those who make the laws and regulations, and we are all on the same page. They also know that they need to change it to make sure that we can fly'. He continued to stress that 'a good dialogue with the authorities is very important'. When presenting our findings on the types of entrepreneur–regulator interactions at an industry conference, we received feedback from an entrepreneur telling us that he was 'exactly that special case' we had just talked about (personal communication). In response, during his presentation, he asked rule makers to put more effort into allowing operations for the greater good of society (as his firm uses RPAS to deliver humanitarian aid and disaster relief).

In sum, during this third phase even more regulatory activities accumulated in a short time span. Attempts were made to bundle efforts and focus on achieving the common

goal – rule-making for a safe and secure integration of RPAS into the Dutch economy and into Dutch airspace – together. This resulted in collective standardization efforts, with recommended practices, guidance material, suggested standards and certification structures emerging in which rule-making bodies acknowledged and referenced each other's work. While interactions involving disregarding entrepreneurs who evoked rule proliferation by regulators became less prevalent, all other interaction types were still present during this phase. But even though the efforts of all actors became more focused on creating a common policy framework, they still experienced the institutional friction of not yet having established collectively binding rules, which greatly contributed to the transition to the next phase.

Phase 4 (2016–18): Working Towards Harmonization. Internationally, the last phase was less eventful as European developments seemed to come to a common conclusion. ICAO published a preliminary concept of operation for RPAS in 2017 and the OECD released a report in which RPAS were discussed as part of the transportation mix for the first time. In the EU, SESAR Joint Undertaking published two studies in 2016: one on RPAS demonstration projects and one on the economic potential of RPAS for Europe. Also, EUROCAE merged its two separate working groups together to develop standards for all types of RPAS. The European UAS Standards Coordination Group (EUSCG) was formed in 2017 to work on RPAS standardization activities. The same year, EUROCONTROL published a concept of operation for integrating RPAS into air traffic management and the Airports Council International (ACI) followed a year later with a position paper on this issue. In 2018, SESAR Joint Undertaking published a roadmap for RPAS integration also considering issues concerning air traffic management. The year concluded with the Helsinki Declaration, which included a plea for light rules and simple regulation and was published as a result of yet another European RPAS conference. EASA further refined the proposed categories for RPAS in 2017 and published its proposed regulations in early 2018, before the EU adopted the new Basic Regulation for aviation in the summer of 2018. As of that point, EASA was granted the mandate for rule-making regarding RPAS of all kinds, regardless of their weight. With the publication of a regulation aimed at RPAS of no more than 4 kg, the Netherlands made their last attempted in 2016 to introduce interim regulations, while the foreshadowing of EU-wide rules was already clear. In 2018, the Dutch House of Representatives organized a hearing and discussion session in which the Ministry of Infrastructure and Water Management sought more insights into the use of RPAS, their opportunities and challenges.

While some rules continued to constrain entrepreneurs in exploiting opportunities, regulators were still willing to facilitate entrepreneurship through rule selection (*Working on Better Regulation*). For example, with the introduction of new regulations covering RPAS up to 4 kg during the phase of *Working Towards Harmonization*, in July 2016 a conscious decision was made to reduce the administrative burden for entrepreneurs. Whereas certain new rules came into effect, less useful ones were suspended. One example is 'abolishing the obligation to report to the mayor' (Respondent 24) when RPAS flights are executed. Also, RPAS operators were no longer required to have an operations handbook or a medical certificate, nor did they need to file a NOTAM, which is a notice about the upcoming flight with relevant information (Staatscourant, 2016). Respondent 25, a Dutch

policymaker, explained that this was the case because 'we wanted to look much more at the positive side. So, there was a real impetus to work, in particular, on being more stimulating'. Upon realizing that certain rules were seen as constraining, regulators responded with facilitation in the form of selective rule suspension. This type of interaction slowly began to phase out when actors realized that the RPAS industry would soon be covered by EU-wide regulation, trumping national legislation. 'The EASA proposed to regulate all drones at the EU level' (presentation at the 3rd International Unmanned Cargo Aircraft Conference in Enschede, 2016), which was set in motion in 2012 (presentation at RPAS CivOps in Brussels, 2016). This meant that a number of Dutch national rules were to disappear. All EU member states and industries were invited to deliver insights for 'best practices in the field of civil aviation [to be adopted] based on best available evidence and analysis' (presentation at RPAS CivOps in Brussels, 2016).

Eventually, *Playing by the Increasingly Clearer Rules* became the dominant type of interaction between entrepreneurs and regulators. For instance, a Dutch representative and member of the European Commission, stated that 'enforcement of legislation is essential for the successful integration of drones into European airspace' (video shown at the RPAS CivOps in Brussels, 2016). To achieve this, EASA called for 'compatible standards to support enforcement' (presentation at EASA Workshop on Drones in Cologne, 2016). But such standards require a joint effort, in which 'gradual implementation of legislation and technology standards [go] along with the real needs of the industry' (presentation at the High Level Conference on Drones in Warsaw, 2016). In general, regulators expressed contentment with entrepreneurs and other industry parties that adhered to the current rules (personal communication). Rule reinforcement mostly acquired a confirmatory function, as commonly accepted regulations continued to exist. This became increasingly important as the process of proto-institutional emergence moved along to reach the end of the *Working Towards Harmonization* phase. The regulators' response was constraining, in that rules that were seen as workable by both parties gradually set the boundaries for future operations. However, in the event that entrepreneurs do not follow rules, 'we have enforcers, we have the police and the Inspectorate and both have the responsibility to reinforce [the rules]', as a Dutch rule maker put it (Respondent 24).

In a similar vein, regulators continued to assume a facilitating role in responding to situations in which current regulations did not accommodate special cases. Further rule refinement was needed, as the 'widened range of operations requires more regulatory flexibility to keep rules proportionate', as a member of the European Commission clearly articulated (presentation at EUROCAE Workshop in Brussels, 2016). In this emerging industry, 'one size does not fit all' (presentation at High Level Conference on Drones in Warsaw, 2016). As such, Respondent 21, an employee of an intergovernmental organization with an advisory function, concluded:

> *Current rules may be fine for 99% of the existing firms in the industry, but nevertheless, there is still the 1 per cent that is doing good work, but doesn't fit within regulations. In that case, governments should make exceptions, for example, flying at airports. Many won't be allowed and won't need to fly there, but, for example, for cargo purposes it may be necessary.*

In summary, in this fourth phase, national and international stakeholders both understood that the common European framework for RPAS rule-making was almost in place. Workshops and meetings were mostly organized with the intent to inform, not to regulate. Publications by stakeholder groups during that time focused on issues beyond the regulatory process, such as technology, infrastructure, or standards. All actors worked on arriving at a common agreement on how RPAS were to be understood, how they should be dealt with systematically, and how this should be reinforced appropriately and in a unified manner. The ending point of our analysis marks June 2018, when the EU adopted a common European regulation for all civil RPAS, regardless of their size or weight. This is an appropriate point in time, from which on the RPAS industry in the Netherlands is covered by EU-wide rules.

DISCUSSION

Dialectic Institutional Work

Much of what we know about how institutions are created is derived from studies carried out in relatively mature settings, the findings of which may not apply to the New Normal business landscape. Specifically, the logic of compliance, according to which entrepreneurs are seen as institutionalized actors (somewhat devoid of agency) in hierarchically regulated fields, does not apply in emerging fields in which the implications of novel technologies are still imperfectly understood and in which institutionalized yardsticks for establishing legitimacy have not yet emerged. While more recent work has recognized the importance of institutional entrepreneurs in the creation or disruption of institutions, this work often lacks a fine-grained interactional understanding, portraying entrepreneurs as heroic individuals who act in opposition to other stakeholders. What we need instead is a more interactive and dialectic vision, in which entrepreneurs are seen as the co-creators of their institutional surroundings and in which regulators develop legal frameworks in consultation with pioneering entrepreneurs. The resulting proto-institutions, by their very nature, are instable, but adaptive. Across the various stages of their emergence, institutional frictions tend to mount time and again, which eventually result in transitional moments that cause this evolutionary process to pivot and change course (Padgett and Powell, 2012; Schneiberg, 2006). The effort to engage in evolutionary adaptations is frequently observed in fields prone to technology-enabled entrepreneurship, where actors with vested interests have incentives to change the trajectory of proto-institutional emergence, without having the incentive to abandon them altogether. The process of proto-institutional emergence that can be observed in the New Normal business landscape thus closely follows a dialectic approach[8] in which entrepreneurs and regulators work together in shaping the institutions of the future. Thus, both parties engage in *dialectic institutional work*.[9]

Lawrence and Suddaby (2006, pp. 221–222) provide insights into institutional creation work and identify practices that focus on rules, namely advocacy work, i.e., 'the mobilization of political and regulatory support', defining work, i.e., 'construction of rule systems that confer status or identity, define boundaries of membership or create

status hierarchies' and vesting work, i.e., 'the creation of rule structures that confer property rights'. These activities are important to proto-institutional emergence, since there is 'far greater potential for rules-based work to lead to the *de novo* construction of new institutions' (p. 228, emphasis in original). We find that this is also applicable to proto-institutional emergence in the New Normal business landscape, as entrepreneurial action often precedes regulatory response. New entrepreneurial initiatives cannot be fitted into existing regulatory frameworks by mere extension of earlier frameworks, such as the body of regulations and conduct established in manned aviation. In the early beginnings of institutions, we especially observe advocacy work. Subsequently, proto-institutions evolve processually, driven by dialectic institutional work between two (or more) actors that contribute to their emergence. The novelty value of our work lies, in part, in shifting the focus from the myth of the heroic institutional entrepreneur towards a consideration of how multifaceted collectives of actors jointly contribute to institutional change or emergence. This leads us to discuss the three interconnected contributions our study makes to the literatures on institutional work and proto-institutional emergence, and to understanding the New Normal.

Contributions

Institutional work. Lawrence et al. (2011, p. 55) highlight that the 'concept of institutional work insists on the need to consider the permanent recursive and dialectical interaction between agency and institutions' and existing studies in institutional work examined the relationship between agency and structure (Battilana and D'Aunno, 2009; Canning and O'Dwyer, 2016). However, the micro-foundational processes by which actors come to shape structure are at the same time the product of interaction between these very actors. This has been largely overlooked by scholars focusing on institutional work processes. By introducing dialectic institutional work, we aim to shift the focus towards the interactions occurring between actors while engaging in the creation of new institutions. Thus, we take the discussion in the institutional work literature one step further by not only shifting the 'gaze away from the "organizational field" and large-scale social transformations, and attend more closely to the relationship between institutions and the actors who populate them' (Lawrence et al., 2011, p. 57), but also to the relationship between these actors themselves. Interestingly, Ozcan and Gurses (2018, p. 1793) point out that existing 'institutional work has largely considered state actors as indistinguishable and static, and focused on reinforcing existing policies for institutional maintenance purposes'. Our findings show, however, that the interaction dynamics involving state actors are more nuanced and that regulators do not form one monolithic body. We thus confirm Ozcan and Gurses' (2018) findings and conclude that not only in regulatory category emergence, but also in proto-institutional emergence in the New Normal business landscape, our conceptualizations of regulators' behaviour demand more nuance.

To the best of our knowledge, Hargrave and Van de Ven (2006) are the only researchers who attempted to introduce dialectics to the study of institutional work. However, in studying the interactions between institutional actors, the authors focus on 'change [that] emerges from interactions between proponents of current institutional arrangements and parties espousing contradictory arrangements' with 'new arrangements that […] are then

challenged by proponents of alternative arrangements as the dialectical process recycles' (p. 122). This approach seems most suitable for institutional change, as it assumes some degree of existing institutional arrangements, but profits from refinement when applied to institutional emergence. In settings of proto-institutional emergence, where established views that need to be challenged are missing, our study provides insight into the process of dialectic institutional work by actors who jointly engage in the creation of proto-institutions. Similarly, looking at interaction processes in building proto-institutions, Helfen and Sydow (2013) focus on 'inter-organizational negotiations as a form of institutional work' (p. 1073). The authors describe negotiation work as practices through which two organizational actors quite intentionally resolve conflict arising from given, dissatisfactory institutional arrangements by developing and adhering to agreed-upon new ones. In contrast to these authors' work, we document a far less structured and less orchestrated process of institutional (re)design, which is nonetheless bounded and stabilized by a dialectic dynamic. More specifically, dialectic institutional work often entails several interactions and multiple interaction types between involved actor groups occurring simultaneously, as previously shown in Figure 1. We thus provide a more nuanced view on interaction processes as they occur when entrepreneurs and regulators engage in dialectic institutional work, especially in emerging contexts such as those found in the New Normal business landscape, where traditional concepts fall short of explaining observed outcomes.

Lawrence and Suddaby (2006, p. 249) have urged scholars that only by studying the emergence of institutions using institutional work can theorists 'avoid the subjective illusion of institutional outcomes and begin to unpack the relational and interactive moments of institutional production'. We believe that with our study, we were able to answer this call, documenting the interactions in the Dutch RPAS industry that drive proto-institutional emergence. This brings us to the contributions we make to literature on proto-institutional emergence.

Proto-institutional emergence. While Hargrave and Van de Ven (2006) conceptually lay out institutional innovation and change as a dialectic process within established organizational fields, our research adds to studies of new institutions by explicating the diverse entrepreneur–regulator interactions in emerging organizational fields. Importantly, in newly forming technology-enabled organizational fields, actors are actively involved in shaping proto-institutions that may or may not prevail in the future. As such, we respond to the call by Bruton et al. (2010, p. 434) for researchers to consider the 'institutional-individual mindset' connections that impact behaviour and supply additional evidence of entrepreneurial behaviour situated in its various contexts (Ucbasaran et al., 2001; Zahra et al., 2014). We show that entrepreneurs are not only exogenous 'rule-takers', but also influence the creation of the context in which they operate as endogenous 'rule-makers'. Regulatory efforts occur in response to behaviour espoused by entrepreneurs who actively share their future visions of the emerging institution with regulators, such that regulatory interventions do not occur in isolation in a top-down manner (Bylund and McCaffrey, 2017). New regulations are not unlike entrepreneurial opportunities; they are socially construed as regulators observe and interpret how new organizational fields emerge, while entrepreneurs aim to influence their regulatory behaviour. Thus, we contribute to research on proto-institutional emergence by offering a deeper

understanding of the dynamics that underlie the activities of different actors in an emerging context exemplary for the New Normal business landscape. Eventually, the socially constructed reality in which entrepreneurs and regulators operate emerges from and is redefined by their actions. Our study thus responds to the call by Douhan and Henrekson (2007, p. 22), who caution scholars not to be 'restricted to analyzing how institutions affect the level and type of entrepreneurial activity', but instead to also 'consider how entrepreneurial activities affect institutions'. The shared construction of reality by all stakeholders involved in proto-institutional emergence extends beyond the assumption that regulators shape institutions in a one-sided manner. In our research, we have had the unique opportunity to trace and reveal the dialectic institutional work shaping future institutions in real time, during the adaptively unstable and pivot-prone proto-institutional emergence stage.

Understanding the New Normal. Finally, our study contributes to a better understanding of the New Normal business landscape. While Hitt and colleagues (1998) have previously drawn attention to the emergence of a 'new competitive landscape' which became apparent at the end of the 1990s, we currently face a turbulent world typified by more rapid (and wider) economic, political, and technological change. Existing research in strategy, innovation and entrepreneurship focuses on the implications that these New Normal conditions have for consumers (Etzioni, 2011), firms (Hitt et al., 2016) and society at large (El-Erian, 2010), but we also need to better understand how actions at the micro-level shape the New Normal business landscape at the macro-level and vice versa. Entrepreneurs and regulators, in particular, are becoming increasingly interdependent in the New Normal business landscape for several reasons (see Abels, 2014; Benton, 2013; Davis, 2009; Dabla-Norris et al., 2015; El-Erian, 2010; Martin et al., 2012). First, because economic growth from existing businesses has stagnated in many fields, regulators are becoming increasingly anxious to promote and sustain high-growth entrepreneurial ventures. Second, recent policies of economic isolationism and protectionism have resulted in stagnating international trade and FDI flows, pushing entrepreneurs and regulators alike to strengthen domestic competitiveness and focus on national markets. Third, public pressure on governments to regulate newly emerging fields is on the increase, urging them to reach out to entrepreneurs to reduce knowledge gaps and information asymmetries. Fourth, financial and capacity constraints facing federal and local governments (including the state level in the USA and the member state level in the European Union) necessitate regulatory co-creation. All of these factors combined demonstrate that we need stronger theory on how entrepreneurs and regulators jointly co-create new regulatory frameworks in the New Normal business landscape. With our study, we have made an important first step in this direction, but we call upon researchers working in strategy, innovation and entrepreneurship to build upon our conceptualization of dialectic institutional work to uncover how regulator–entrepreneur interactions can help facilitate successful business founding, growth and management under New Normal conditions.

Building on work by Verbeke (2018), we see the New Normal business landscape as being characterized by both radical change and high-frequency behavioural adaptations. As we have shown for the Dutch RPAS industry, radical change stemming from

advances in RPAS technology, coupled with entrepreneurial initiatives to create new business models that cannot be captured by extant regulatory frameworks, drive proto-institutional emergence in the New Normal business landscape through dialectic institutional work. Examples of such radical changes include the numerous new business models that entrepreneurs have created by employing drones. These range from addressing grand challenges (e.g., using tethered drones to transform wind power into energy; employing drones for disaster relief in difficult-to-reach areas) to innovative ways of replacing human workers in dangerous, high-risk environments (e.g., inspection of oil flares and gas towers; employment in the mining industry to inspect hazardous sites). High-frequency behavioural changes also occur during this process, because both entrepreneurs and regulators interact in different ways and adapt their responses accordingly. For instance, high frequency behavioural changes can be found in the form of the numerous new rules, standards, certifications, and practices that have emerged during the relatively short period of time in which we studied the RPAS industry. In the period from 2011 to 2015 alone (Phase 3), we counted 28 impactful events occurring in regulatory space.

We also have uncovered and explicated several cascading effects – multilevel institutional change patterns in an organizational field in which change at a higher level of aggregation or in higher order systems initiates changes at a lower level (or vice versa) – within the New Normal business landscape (Verbeke, 2018). These effects are bidirectional; as entrepreneurs' beliefs concerning future institutions shape their behaviour in interacting with regulators, the outcome is field-level emergence of proto-institutions. Such effects, cascading from the micro-level to the macro-level, can be observed when dialectic institutional work provides the impetus for proto-institutional emergence. On the other hand, we have also uncovered cascading effects trickling down from the macro-level to the micro-level in building regulatory frameworks. Policy makers and entrepreneurs operating at the national level in the Netherlands eventually needed to adhere and accommodate to rules stemming from the EU. Therefore, we add to the discussion on cascading effects in the New Normal business landscape that these can be two-sided. Some effects are driven by overarching macro-developments trickling down to the individual level, whereas others originate at the micro-level but end up influencing industry-wide institutional emergence progresses.

We thus propose that our conceptualization of dialectic institutional work provides a useful lens for understanding the dynamics of proto-institutional emergence in the New Normal business landscape. In settings typified by New Normal conditions, new technologies and their applications tend to fuel new forms of entrepreneurship (Christensen et al., 2019). Furthermore, these new entrepreneurial initiatives demand novel regulatory institutions, because the Schumpeterian 'new combinations' of which they consist rarely fit existing frameworks (Schumpeter, 1934). Finally, due to the mounting financial and capacity constraints weighing on national and local governments, these regulatory institutions must increasingly be developed in co-creation with entrepreneurs. In short, dialectic institutional work is a process commonly observed in the New Normal business landscape, even though specific boundary conditions will determine how precisely this newly documented type of institutional work will play out in other organizational fields.

Limitations and Future Research

As we chose a specific organizational field in which to conduct our research, boundary conditions apply to our study, which simultaneously resemble fruitful directions for future research. First, since the Dutch RPAS industry is a context in which new technologies fuel the development of the field, interactions between entrepreneurs and regulators in less technology-driven fields may be different. For example, risks associated with system failures and crashes weigh heavily in the RPAS context, whereas these technology-related challenges are not as relevant in other fields. Future research may, therefore, look at organizational fields that do not form around technologies, but around products and services instead. Second, the Dutch RPAS industry is primarily a case of technology-enabled entrepreneurship rather than a case of technological development and diffusion. This entails opportunities for researchers with a particular interest in the regulation of new technologies. We believe that a comparative conceptual exploration of negotiation work (Helfen and Sydow, 2013) and dialectic institutional work would be a particularly interesting exercise, to assess which concept has the greatest explanatory power in such settings. Third, a salient feature of our research setting is that a vast number of stakeholders in the RPAS industry have a background in or are familiar with manned aviation. This prior knowledge and familiarization with practices, conventions and codes in the manned aviation field may have impacted these actors' approach to interacting in the newly emerging field we studied. This offers interesting opportunities for researchers to more closely examine the influence of prior knowledge of or prior affiliation with a related industry on the formation of new institutions. Fourth, an interesting question is whether dialectic institutional work is conducive to the development of what Acemoglu and colleagues (2005, 2012) call inclusive institutions which facilitate economic growth (Tomizawa et al., 2019). In this analysis, which contrasts such arrangements with extractive institutions captured by political and economic elites, inclusive institutions are a main driver of equality and economic development because they enfranchise the human capital of otherwise disenfranchised non-elite actors (Acemoglu and Robinson, 2012). A speculative but interesting thesis to explore in the future is whether dialectic institutional work, which is by definition an open process that draws on the inputs of numerous entrepreneurs together with regulators, could be a process that is capable of producing inclusive institutions. It would appear that the involvement of multiple entrepreneurs in the process of proto-institutional emergence would ensure the continued openness of the resultant institutional structures towards future entrepreneurial initiatives as well as the general enfranchisement of future generations of entrepreneurs. Fifth, a final intriguing question is whether the type of innovation matters to the process by which an emerging institutional context takes shape. In the case of the Dutch RPAS industry, the introduction of drones in Dutch airspace seems to have ensued a process of sustaining (as opposed to disruptive) innovation, since the novel entrepreneurial opportunities opening up because of this introduction did not majorly upset any industry incumbents. A question for future research is whether more disruptive innovations will elicit a similarly accommodative response from regulators, or whether entrepreneurial disruption is more likely to spawn regulatory blowback. To sum up, we have illustrated interactions between stakeholders by means of a model that we believe to accurately represent all that was

observed in the emerging field we studied. However, because the complexity of processes in the social world may exceed what we were able to capture in our model, our study should be seen as offering a first step in the direction of understanding proto-institutional emergence in the New Normal.

CONCLUSION

In this study, we asked: How do regulatory proto-institutions arise in the type of technology-enabled entrepreneurship-intensive and behavioural change-prone organizational fields that are emblematic for the New Normal business landscape? We addressed this question by offering a process-theoretical account of how, under New Normal conditions, novel regulatory institutional structures emerge from repeated, structured interactions between entrepreneurs and policy makers. Two broad conclusions can be drawn from our account. First, under New Normal conditions, regulatory proto-institutions arise from dialectic institutional work involving both entrepreneurs and policy makers, without either of them leading the process. The relationship between the actor groups involved in proto-institutional emergence processes is thus best described as being iteratively interdependent. Second, the proto-institutions that derive from the initial interactions between entrepreneurs and policy makers are best seen as temporary solutions to immediate problems: they represent a sort of regulatory 'truce' that is bound to be broken when endogenous institutional frictions create pivotal moments sounding in a subsequent stage of institutional development. In our theorization, proto-institutions are thus explicitly not to be seen as embryonic yet inherently representative manifestations of future institutions, but rather as the non-recurring evolutionary stages of an emergent trajectory leading up to full-fledged institutions.

NOTES

[1] Institutional frictions arise when institutional arrangements become increasingly inapt at remedying the social or economic problems for which they were once designed, causing the actors embedded in and dependent upon these institutions to search for alternative solutions or develop costly workarounds. Such frictions derive from an incoherent configuration of elements within an institutional arrangement or from "duels" between competing arrangements (Yiu et al., 2014).

[2] We thank one of our reviewers for pointing out that salient studies on proto-industrial development tend to date back further than the time periods typically discussed in the proto-institutional emergence literature. The work by Sheilagh Ogilvie (1997) should be mentioned in this regard, as it carefully documents historical developments in the area of institution-building and the design of key social institutions in the Black Forest textile industry in the eighteenth century.

[3] Note that we will refer to RPAS (Remotely Piloted Aircraft Systems) in the remainder of this paper. Others refer to UAV (Unmanned Aircraft Vehicle) or UAS (Unmanned Aircraft System) more broadly. Although 'drones' colloquially capture a wide variety of unmanned aircraft, the term historically has a rather negative connotation.

[4] It should be noted that before June 2018 in Europe, only aircraft with a weight of more than 150 kg were bound to be regulated by EASA. Aircraft that are lighter were regulated by each country's national aviation authorities. On top, ICAO aims to provide an international regulatory framework.

[5] We refer to representatives of regulatory bodies when describing individuals representing governmental authorities, such as national regulators, supervisory bodies, other European and Dutch legislative agencies or supra-national mandated workgroups. These are decision-makers shaping, implementing and monitoring the regulatory context (Elert et al., 2016).

[6] We acknowledge that there are other users of RPAS, e.g., non-commercial users who are flying toy drones in their leisure time. However, these are small-scale operations and this group of users is not actively interacting with regulatory bodies, and thus not contributing significantly to shaping proto-institutions in the New Normal business landscape.

[7] Due to space constraints, we decided to make an 11-page table presenting a detailed timeline of the events unfolding in the Dutch, EU, and international contexts during each phase described in this study available as an online supplement through Figshare: doi.org/10.25397/eur.8870351.v1

[8] We follow Zeitz (1980, p. 73) in our definition to refer to dialectics as 'the basic logic of social interaction'. Although we do not apply techniques of dialectical analysis in our study, we propose that the processes we document can themselves be seen as dialectic, thereby following Benson (1977, p. 3) who claims that the 'dialectical view is fundamentally committed to the concept of process'.

[9] We would like to thank the Special Issue editor Prof. David Ahlstrom for encouraging us to introduce this term, which perfectly captures our findings.

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APPENDIX 1. Interview protocols.

Topic Area	*Sample Questions*
Entrepreneurs	
Venture founding	• How did you start your business? • What kind of resources were important to use? How did you get them?
Interactions with regulators	• How important do you regard relationships with government institutions? • Could you please describe the kind of interactions you have with regulators?
Industry context	• What does it mean to you to be an entrepreneur in the RPAS industry? • How do you keep up with (regulatory) developments in the industry?
Regulatory developments	• Are you more focused on Dutch or European rules and regulations? • Where does the industry stand in five years concerning rules and regulations?
Regulators	
Work practices	• How did your work change since RPAS became more popular? • Can you describe some of the problems you face in your work?
Interaction with entrepreneurs	• How does the interaction with entrepreneurs look like? • How flexible are you in helping entrepreneurs?
Industry context	• What will be more important in the future, Dutch regulations or Europe-wide ones? • What are your thoughts on illegal operations/flights?
Regulatory developments	• What are remaining, important questions that need to be answered in the future? • What do you expect will change within the next five years?