

The impact of competition law and private standardization on innovation success in domotics by Dutch SMEs

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ABSTRACT,

This research analyses the impact of competition law and private standardization on innovation success in domotics by Dutch SMEs. This paper argues that competition law and private standardization can influence innovation through shaping an industry's competitive context. Even though competition law and formal standards are aimed towards correcting market failures and thus shaping an industry's competitive context to enhance innovation, theory suggests that there are also possibilities for policies to achieve counterproductive results. To test to what extent positive or negative effects can be derived from the Dutch domotics industry, information was gathered by interviewing four managers as representatives of domotics-oriented SMEs. This did not result in the surfacing of any laws specific to the domotics industry that result in market failures. However, private standardization was found in two cases to be obsolete in certain situations due to the speed at which technology advances in the domotics industry. It has also been argued that SMEs' lack of awareness can be a reason why this research was not able to identify competition laws that hamper innovation in domotics. This research therefore provides a basis for further research towards the impact of competition law and private standardization on innovation success in domotics with the concept of law awareness in mind.

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Competition law, formal standards, innovation, domotics, SMEs

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1. INTRODUCTION

Technology is more prominent in our lives now than it has ever been before. An increasing importance of technology in people's everyday lives has led to many new technological developments. The Internet of Things (IoT) is a very important term in this matter. It is defined by Haller, Karnouskos & Schroth (2008) as "a world where physical objects are seamlessly integrated into the information network, and where the physical objects can become active participants in business processes. Services are available to interact with these 'smart objects' over the Internet, query their state and any information associated with them, taking into account security and privacy issues".

1.1 Problem statement and relevance

With such a technology-oriented society, innovation is of increasing importance for all businesses that operate in competitive markets. Technology-oriented enterprises that act in a competitive market have to stay on top of the latest developments to not fall behind their competitors. Also, customers' needs continuously change and advance.

In general, large enterprises have a significant advantage over smaller sized firms when it comes to the successful commercialisation of new products. This is mostly due to the positive correlation between capital and innovation success, and because of information asymmetries (Blind, Petersen & Riillo, 2017). Small and medium-sized enterprises often need help in the form of competition law and formal privatized standards to have a fair chance at survival and profitability alongside the larger players in the industry. Without it, larger firms can have the opportunity to exploit dominant market positions and drive smaller competitors out of the industry. However, there are cases in which these laws and formal standards are actually counterproductive and unduly harm competition and innovation. The main reason for such situations comes from rapid technological advancements. It can occur that novel technologies are being developed that are not fully covered by existing rules yet. While new rules and formal standards are being developed and installed to cover these new technologies, again new developments are done. In essence, competition law can often stay one step behind technological innovations, because they advance too quickly (Blind et al., 2017; Heldeweg, 2011). Contrarily, formal standards are expected to be better suited to keep up with technological innovations, as these standards are developed within the industry itself along the innovation processes of the market.

This research aims to investigate to what extent competition law and formal standards impact innovation. The present research will firstly explain how innovation is affected by competition law and formal standards through an intervening theoretical variable, which is the competitive context of an industry.

Then, to examine what the effects of laws and formal standards are on innovation, a qualitative case study of the domotics industry will be conducted. More specifically, the case study will concern small and medium-sized enterprises that operate in the Netherlands.

1.2 Background

1.2.1 Domotics

Domotics is the one-word synonym of home automation or smart home systems. It is a contraction of the word

domus – which is Latin for *home* – and the English word *robotics* (Hill, 2015). Domotics can be defined as "the set of elements that, when installed, interconnected and automatically controlled at home, release the user from the routine of intervening in everyday actions and, at the same time, provide optimised control of comfort, energy consumption, security and communications" (Hill, 2015). Domotics go hand-in-hand with the Internet of Things, as they are both predominantly characterised by the interconnectability and interoperability of devices. Its possibilities of applications lie in - but are not limited to - logistics, robotics, homes, healthcare, construction and manufacturing (Ehrenhard, Kijl & Nieuwenhuis, 2014).

1.2.2 Competition law and private standardization

Competition law includes regulations that are legal restrictions. These restrictions are established by the government. Companies are by law obliged to adhere to these regulations. The main objective of competition law – or antitrust law as it is denoted in the United States or anti-monopoly law in Russia and China (Li & Li, 2014) – and formal standards is to prevent and correct 'market failures', which are situations in which socially optimal results are not accomplished by market forces on their own. Other objectives of competition law include the protection of consumers' welfare, their freedom of action, and fairness. Furthermore, European competition policy specifically puts emphasis on the importance of protecting small and medium-sized enterprises. The achievement of market integration is another driving force behind competition law (Van den Bergh & Camesasca, 2001).

Private standardization regards formal standards that are not legally enforced. They are instated by standardization bodies that act in a sector-specific context. This process can be regarded as self-regulatory coordination. The basis for these standards lies in consensus among firms in the industry. It is therefore regarded to be a self-regulatory process. Like a network effect, the use of these standards increases as the number of users goes up (Blind et al., 2017).

In situations of market failure, regulatory intervention is needed to restore balance in the industry (Pelkmans & Renda, 2014). By correcting and preventing market failures, competition law seeks to create a legal structure that encourages innovation and economic growth (Pries, 2011). The most common causes of market failures regard too small profit margins, insufficient cooperation between companies, uncertainty in return on investment, slow or insufficient knowledge transfer (Heldeweg, 2011), cases of significant market power abuse (Pelkmans & Renda, 2014), and information asymmetries (Blind et al., 2017; Pelkmans & Renda, 2014).

Another instance in which regulatory intervention is needed stems from regulatory failure and government failure. Such failure can stem from information asymmetries between legislators or standard setters and the concerned industry. In rapidly advancing technological markets, government and standardization bodies have difficulties keeping up with the pace at which technology advances. By the time a new technology is understood by legislators and standard setters, and rules and regulations have been developed and instated, it can be that new

technologies have already been developed that fall outside the scope of these new rules and regulations. The lack of actual scientific and technological knowledge by legislators and standardization bodies means that the true economic value of a new technology cannot be accurately determined by these actors. Such situations are called ‘white elephants’ (Blind et al., 2017). Other examples of government or regulatory failure include administrative burdens, over-specificity of requirements about timeliness or technical standards, or bureaucratic fragmentation leading to inconsistency across innovation policies (Heldeweg, 2011).

1.3 Research questions

The purpose of this research is to identify the ways in which competition law and private standardization impact innovation. This is investigated by examining the domotics industry in the Netherlands, specifically focussing on small and medium-sized enterprises. The main research question is therefore formulated to be:

To what extent do competition law and private standardization stimulate or hamper innovation success in domotics by small and medium-sized enterprises in the Netherlands?

In order to research this matter, the main research question will be divided into two main parts. Because competition law’s main aim is to shape the competitive context of an industry by correcting and preventing market failures, the present research argues that competition law and private standardization affect innovation through shaping the competitive context of an industry. This argument entails two parts that will be further investigated in this paper by answering the following two sub-questions:

- To what extent does an industry’s competitive context impact innovation?
- To what extent do competition law and private standardization impact an industry’s competitive context?

2. THEORETICAL FRAMEWORK

This chapter’s purpose is to lay out a theoretical basis to be used in answering the determined research questions. Competition law and formal standards are primarily aimed towards improving the competitive context of an industry. Therefore, the present research argues that competition law and formal standards make an impact on innovation by changing the competitive context of an industry. A graphical representation of this argument can be seen in figure 1 below.



Figure 1. The relationship between competition law and formal standards, and innovation

First, literature on the topic around the impact of regulation and formal standards on innovation will be discussed and compared to give an overview of the views in this field. Then, the relationship between regulation and formal standards, and innovation will be explained by the

intermediate variable ‘competitive context’. This is done by firstly examining the relationship between innovation and a competitive context. Then, a look will be taken at how regulation and formal standards influence the competitive context, which has been argued to ultimately affect innovation.

2.1 The impact of regulations and formal standards on innovation

Pelkmans and Renda (2014) have found that more prescriptive and rigid regulation hampers innovation, while flexible regulation can actually stimulate innovation. Compliance and red-tape burdens affect innovative activity negatively as well. According to their research, rigid regulations reduce the incentives of companies to invest in research and development (R&D), because their freedom of operation is being limited. The principle that rigid regulation tends to hamper innovation is in line with the view of Stewart (2010). According to his research, strict regulations lead to high compliance costs. This relates to the concept of stringency, which regards the difficulty for firms to comply with newly instated regulatory requirements. Regulation is regarded to be stringent if companies have to significantly alter their current practices to comply. Technological innovations are included in this (Pelkmans & Renda, 2014). Ashford, Ayers and Stone (1985) find stringency to be the most influential factor affecting innovation in technology. Accordingly, stringent regulations can often result in compliance costs. Such cost burdens mean that firms have to invest their resources in complying with regulations rather than being able to spend that allocated money on innovative development (Renda, Schrefler, Luchetta & Zavatta, 2014) Therefore, to that extent regulation can hamper innovation. Nevertheless, on the other hand firms can actually be more motivated to innovate for compliance with regulations. By allocating resources towards complying with – or rather working around – these regulations, innovative solutions can arise. This concept is called circumventive innovation (Stewart, 2010).

Rules and regulations can also influence the type of innovations that arise. In general, two main categories of innovations can be identified: incremental and radical. Incremental innovations entail small improvements steps, which holds keeping the main product the same while advancing only one element. Radical innovations, however, encompass large changes compared to the previous product. The pace at which rules and regulations develop can influence which of these two categories of innovation will be most likely to emerge in the affected industry. Step-by-step regulation will often result in incremental compliance innovations. While this takes a lot of time due to the small innovation steps and minimal incentives for companies to innovate, it also holds a low compliance burden. Contrary to this, far-reaching and fast-paced regulation setting will result in a quick achievement of innovation goals in the form of radical innovations, but will also hold a much higher compliance burden (Stewart, 1981).

Blind et al. (2017) propose another two-sided view on the effect of competition law and regulation on innovation. The level of market uncertainty plays a large role in this effect. Firms that operate in a market with low uncertainty will generally experience a positive impact on their innovative efficiency if it comes to regulatory intervention. Vice versa, in markets with a high level of uncertainty,

regulation will have a negative impact on a company's innovation efficiency. This difference is mostly accredited to higher compliance costs in markets with high uncertainty levels, because information asymmetries are more prominent in uncertain markets.

Ashford and Hall (2011) have argued that environmental legislation and enforcement is the most significant driving force behind technological innovation. According to Porter's hypothesis, firms that are the first to successfully respond to new strict regulations by innovating their technology will have a 'first mover' advantage, thus being able to gain a competitive advantage. Such innovations can often be less costly and of higher quality standards (Ashford & Hall, 2011).

A major challenge lies in companies' awareness of the effects that competition law and formal standards can have on innovation. BDRC Continental (2015) has released a report which states that SMEs' awareness of competition law is very limited. According to this report, the majority of managers that were interviewed had never considered competition law to be an important factor influencing innovation. This stands directly opposite to Ashford and Hall's (2015) statement that regulations can be regarded as the most significant driving force behind technological innovation – be it specifically in environmental legislation. BDRC Continental (2015) has found that managers mostly conduct business on the basis of moral justice to keep up their company's reputation. For instance, it was commonly understood that monopolies and cartels were forms of immoral behaviour. By doing this they seem to find enough certainty that they do not cross any legal boundaries. Reporting a competitor for misconduct was seen by the managers to be an act that could severely damage their company's reputation, while their reputations were seen as very important aspect of their business.

In the report of BDRC Continental (2015) it was also argued that the size of an organization matters in their legal knowledge. Smaller firms generally have less resources to be able to pay attention to legal matters. The primary focus of small firms lies generally on survival in the market, and not on the impact of competition law.

2.2 The impact of an industry's competitive context on innovation

An industry is shaped through its competitive context. According to Michael E. Porter (1979), there are five forces that together determine the competitive state of an industry: the threat of new entrants, the threat of substitute products or services, the bargaining power of suppliers, the bargaining power of buyers, and the rivalry among existing competitors (see Figure 2).

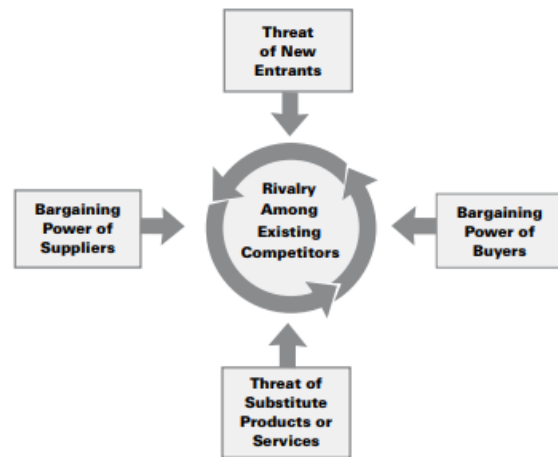


Figure 2. The Five Forces That Shape Industry Competition (Porter, 1979)

2.2.1 The threat of new entrants relates to the degree of difficulty with which new firms are able to enter the market. The more difficult it is for new firms to enter a market, the lower the threat of new entrants is for existing firms. A low threat of new entrants provides - to a certain extent - a stable competitive environment for existing firms in which they can worry less about their profitability being taken away by new players in the industry. Parameters such as entry barriers, exit barriers, switching costs and customer loyalty can give an indication of the threat of new entrants. For example, high entry and exit barriers will likely decrease the amount of new entrants in an industry. This takes away the external pressure for firms to innovate, because with high entry and exit barriers they do not have to worry about new firms trying to compete and taking away a share of the market. Organizations can possibly take advantage of this situation by trying to establish entry or exit barriers. Entrance of new firms into the market is argued to have a positive effect on innovation, as it pressures firms to stay competitive. Low exit barriers may lead to a quicker decline of competitors, increasing the market power of incumbents. As argued before, such situations or market power can result in a significant increase of prices (OECD, 2015a).

2.2.2 The threat of substitutes entails the chances for substitutive goods or services to compete with that of incumbents. A low amount of substitutive products means that companies are less threatened in their sales by others. This can, however, result in a decreased motivation for innovation. If there are little or no competitors offering substitutive products, there is no real external pressure from competitors. On the other hand, a high amount of substitutive products can provide incentives for firms to innovate, in order to differentiate themselves from their competitors to gain market share and increase profitability.

2.2.3 The bargaining power of buyers explains the extent to which buyers can put companies under pressure to reduce prices or to raise quality levels. Buyers' price sensitivity is an important parameter in this force, because it can cause pressure on firms to lower their product's or service's prices. A high degree of buyers' bargaining power can cause a need for firms to innovate. When buyers with a high degree of bargaining power demand a higher product quality, firms are put under severe pressure to comply. This are thus pressures into innovating to meet customer's standards, otherwise they lose market share and profitability.

2.2.4 The bargaining power of suppliers regards the opportunities for organizations' suppliers to put raise the prices or lower the quality of purchased inputs, or to make different arrangements that benefit the supplier. This is highly influenced by the amount of substitutive inputs. If there is only one supplier providing a certain good or service that is of vital importance for a buyer, this supplier can raise its prices as result of a monopoly position. In such cases of high supplier power, buyers can try to innovate their technology in such a manner that the specific scarce inputs of that one supplier are no longer necessary. On the other side of the spectrum, if there is only one supplier of a certain good or service with extraordinarily high profit margins, other firms may seek to replicate this good or service in order to gain a share as well.

2.2.5 The rivalry among existing competitors is a controversial subject regarding its influence on innovation. Aghion, Bechtold, Cassar & Herz (2014) have argued that increased competitive rivalry can lead to significant increases in R&D investments by specifically neck and neck firms. When firms are technologically at the same level, the expected profits resulting from innovation – due to a technological advantage relative to competitors – are marginally higher than. This is referred to as the 'escape competition effect'. However, for firms that lag behind the rest of the market, increased competition leads to an increased technological gap. This gap creates a sense of negativism, resulting in lower R&D investments. A prime argument for this holds that laggards are always only one technological step behind leaders. When technological leaders invest in R&D to innovate one step, laggards can simply copy the leader's previous step to be only one step behind again. It was also found that increased competitive rivalry generally decreases the amount of neck and neck firms in an industry, meaning that technological differences across firms become larger.

2.3 The impact of regulations and formal standards on an industry's competitive context

In the previous chapter it has been established that competition law is primarily aimed towards preventing and correcting situations of market failure by means of regulatory intervention. Furthermore, market integration, the protection of consumer welfare and the protection of small and medium-sized enterprises are other goals competition law strives towards achieving.

The OECD (2015a; 2015b) has gathered the most important instances in which competition law can harm competition, and combined these into the 'Competition Checklist'. This specific checklist will be elaborated on in this chapter, in order to be used in assessing to what extent competition law and private standards affect the competitive context of an industry. Even though the intention of competition regulations and standards are to improve the competitive context of an industry, the purpose of the OECD's checklist is to identify laws and regulations that can unduly harm competition. It states four categories of situations in which policy proposals need further competition assessment. These four categories are then divided into three to five more specific situations each:

- (A) Limits the number or range of suppliers
- (B) Limits the ability of suppliers to compete
- (C) Reduces the incentive of suppliers to compete

(D) Limits the choices and information available to customers"

2.3.1 The number or range of suppliers

The first category entails policies that limit the number or range of suppliers. This creates chances for the abuse of dominant market positions, which harm competitors in weaker positions, and ultimately customers. Actors with significant market power have the ability and opportunity to raise prices and decrease quality at the cost of competitors and customers. Furthermore, with a low number of competing firms, possibilities for collusion arise. This can lead to a decrease of incentives to innovate, which then can result in unmet customer demands, and ultimately economic inefficiency.

The first situation in this category entails 'grants of exclusive rights for the provision of a certain service or the production of a good'. Such rights can result in situations of significant market power, in which monopoly pricing is amongst the main possible problems that can arise.

The second point in the category of supplier limitations is 'the establishment of a license or permit system as a requirement of operation'. Obligations for licenses and/or permits create a barrier or restriction for entrance of new suppliers. In general, the aim of such license or permit obligations is to protect consumers, over-protection can harm the innovative capacity of an industry.

Thirdly, policies that 'limit the ability of some types of suppliers to provide a good or service' can harm competition. There can be policies developed aimed towards the promotion of certain suppliers. For instance, governments might want to favour small suppliers, or suppliers from a certain geographical region. This does however mean that firms which fall outside of this category will be prejudiced.

Fourthly, policies can 'significantly raise the costs of entry or exit'. Such costs can for example come from unnecessarily high product testing requirements, or extremely high educational standards for employees. Such extraordinarily high entry or exit costs can deter the potential entrance of new firms into the market.

The last type of policies in this category relates to 'restrictions in the flow of goods, services, capital and labour'. Jurisdictional boundaries can sometimes prevent the free flow of sales and other economic transactions. This reduction of a free flow can result in a limited number of suppliers, which restricts the opportunities for consumers to buy, as well as the possibilities for suppliers to compete across multiple areas.

2.3.2 The ability of suppliers to compete

The second category of policies that unduly harm competition regard limitations on the abilities of suppliers to compete. By restricting the opportunities of suppliers to be competitive, the intensity of rivalry deters, which can result in a reduction of both quality and quantity of available products.

Firstly, policies can be present in an industry that 'control the prices at which goods or services are sold'. In market situations where naturally only a small amount of suppliers is present, governments can instate minimum or maximum prices to protect customers from unfair pricing behaviour. However, when pricing regulations are instated in markets that do not contain a low amount of suppliers, minimum or maximum prices can harm innovative activities. When minimum prices are instated, low-cost providers will be cut off. In the case of maximum prices, firms' incentives

to innovate will be hampered when desired benefits can only be achieved above that maximum price. In that case, innovation will simply not occur. Research by Vernon (2005) has predicted that a new policy regarding the regulation of prices in the pharmaceutical market in the United States has resulted in a decline of R&D investments in the industry by between 32.7% and 23.4%. While this result does not concern the domotics industry, it does give an empirical example of how price regulation can severely harm innovation.

Secondly, policies can 'restrict advertising and marketing' practices of organizations. Restrictions on advertising and marketing can take the form of limitations on advertisements for products that are regarded as having a negative impact, such as prohibitions on advertisements for alcohol or tobacco. Also, advertising towards certain 'vulnerable' groups – such as children or mentally ill people - can be limited or prohibited. However, restrictions on advertising and marketing can be unduly too broad, which results in a decreased potential for firms to attract new customers.

The third situation in this category regards policies around 'standard setting for product quality that provide an undue advantage to some suppliers over others or that are above the level that many well informed customers would choose'. These policies are intended to provide a security of product quality for consumers, as well as ensuring compatibility of products from different suppliers. Nevertheless, such standards can for instance harm the potential for organizations that focus on low-cost products, which generally yield a lower quality.

The final type of policies in this category entails 'raising the costs of some suppliers relative to others'. Regulations can be instated that require the use of certain production technologies in order to provide a certain quality standard. However, as mentioned in the previous policy type of this category, such regulations can cut off low-cost product providers. Also, organizations that receive subsidies are more likely to be able to achieve cost advantages. They can use these subsidies to invest in raising their product or service's quality, or they can lower their prices to gain more customers, while maintaining a profitable margin.

2.3.3 The incentive of suppliers to compete

The third category of policies that can unnecessarily restrain competition entail reductions in the incentives for suppliers to compete intensively. Regulations can for example unduly facilitate co-ordination between actors in the market, or reduce the incentives for customers to switch between different suppliers.

Firstly, 'self-regulation and co-regulation' are the mechanisms through which privatised standards are joined into governmental regulations. This can ensure technical standards are met and that these are appropriately advanced along technological improvements. But, self-regulation and co-regulation can be subject to regulatory capture, which means that incumbents can influence policy or standard setting in their favour (Blind et al., 2017; Heldeweg, 2011).

The second situation in this category entails 'requirements to publish information on supplier prices, outputs or sales'. The main goal for policies that require publication of such information is to improve consumer information. But, publishing this type of information has the potential to help in cartel forming, because cartels can more effectively monitor their competitors.

The third and last type of policies in this category regards 'exemptions from general competition laws'. It is argued that in some cases, industries can actually benefit from exemptions from competition law. However, this does naturally provide risks for anti-competitive practices.

2.3.4 The choices and information available to consumers

First of all, policies can 'limit the ability of consumers to decide from whom they purchase'. For example, some rules prohibit the sales and purchasing of pharmaceutical products online. However, when policies over-regulate, consumers' choices are diminished.

Furthermore, policies that 'reduce the mobility of customers by increasing the costs of changing suppliers' can harm competition. Regulations that result in high switching costs give a source of market power to suppliers, because customers have to either comply with supplier's demands, or pay the high switching costs.

Lastly, policies that 'fundamentally change information required by buyers to shop effectively' can negatively impact competition. Nutritional information labels on foods, for example, can be a useful source of information to compare alternatives. However, when these information needs are fundamentally changed, this can have a significant effect on the difference in suppliers.

3. METHODOLOGY

The purpose of this research is to examine what the impact of competition law and formal standards is on innovation in domotics, with a specific focus on Dutch SMEs. In the previous sections it has been argued that competition law and formal standards affect innovation by shaping the competitive context of an industry. 'Competition law and formal standards' is the independent theoretical variable in this relationship, 'innovation' being the dependent theoretical variable. 'Competitive context' influences the dependent theoretical variable, but is in turn dependent on the intervening theoretical variable.

3.1 Data gathering

The process of empirical data gathering only pertains to the impact of competition law and regulations on the competitive context of an industry. The main reason for this decision of focus regards time and resource constraints. As the present research concerns a bachelor thesis with only a limited amount of time and other resources, decisions to focus only on certain empirical aspects of the specific topic have to be made for the benefit of the research's quality.

To research the impact of competition law and regulation on innovation via the intermediate variable 'competitive context', the qualitative case study research method has been employed. This allowed for an open and explanatory way of doing research. To gather empirical data, structured interviews have been held with managers of Dutch SMEs that are active in the domotics industry. The interviews were conducted obtrusively (Dooley, 2009), because for this type of research it is practically impossible to gather participants without explaining their role in the research. Furthermore, interviews have been held via the phone for reasons of practicality for both parties, which all lasted around thirty minutes each. The interview was purposely

designed to fit within this time frame, to try and make participation in this research as attractive as possible. It was assumed that the longer the interview would be, the lower the chances are for potential participants to engage in this research. This assumption stems mostly from the fact that participants do not get a direct reward out of participating in this research. It is expected that participants will mostly participate out of the kindness of their heart, in combination with an interest in the outcomes of this research, as well as the fact that participation will only take approximately half an hour.

3.2 Sampling

For the purpose of this research, potential participating companies had to fulfil several criteria. First of all, the company has to be active in the domotics industry. Next to that, they have to actually develop their own domotics products. There are many domotics firms that act as a distribution platform for domotics, offering a wide range of products from different domotics developers. Because this research is focussed on product innovation specifically, such companies have not been included in the sample. Furthermore, the focus of this research lies on the Netherlands, for reasons of practicality. Participating companies have to therefore be Dutch and market their product(s) in the Netherlands. Lastly, the company has to be an SME, or a micro-enterprise – as they are not included in the categorization of SMEs, but can prove to be valuable for this research. To determine which companies are regarded as an SME, the criteria of the Dutch Chamber of Commerce will be used (Dutch Chamber of Commerce; 2016, April 27). According to these criteria, a company is an SME if they have less than 250 employees and their turnover of the previous booking year is below a value of €40,000,000.

Eventually, four participants were found for this research. Prior online research about the four companies was conducted to be confident that these firms would actually fit the criteria. Full certainty could not be guaranteed beforehand, because measures such as yearly turnover were not retrievable beforehand. Therefore, the first set of questions in the interview was designed to check whether the companies fully fulfilled the different criteria. A form was signed by all four managers stating that they have been informed about the purpose of the research and interview, and that they voluntarily agree to participation. Furthermore, they are notified that they are free to retract their agreement for participation at any moment. Also, the participants were told that all information will be processed confidentially and company names will be anonymized in the paper.

Two interviews were fully recorded by use of a call recorder smartphone app. At the very beginning of the interview the participants gave verbal consent for this. One interview was not recorded because of negligence by the researcher, but all answers were written down during the interview. There was one case company that did not want to agree to an interview via telephone, but the manager was willing to answer my list of interview questions and return them via e-mail. Even though this takes away the possibility for a conversation and extra explanation about concepts to avoid misunderstandings – next to the fact that the manager's answers were quite limited, it does still provide for an extra source of information.

3.3 Operationalization

The empirical focus for this research lies on the impact of competition law and formal standards on the competitive context of an industry. In order to examine this, the theoretical constructs have to be operationalized into observable concepts. These operationalized concepts will then be formed into questions for the interview.

As mentioned before, the first part of the interview contains questions to confirm that the participating firms fulfil the pre-established criteria. Firms are asked how many employees they have, what their yearly turnover is and what sector they operate in.

Next, the managers' view on innovativeness is measured. Even though the theoretical variable innovation is not directly part of the empirical part of this research, investigating the managers' view on innovation is still important. It provides a referential background for conclusions about the intervening variable. The importance of innovation, the view on innovation, and the measurement of innovation are the three main theoretical constructs used to operationalize the dependent variable 'innovation'.

The last section of the interview entails the contents of the OECD's Competition Checklist (OECD, 2015). The four categories of policies that can harm competition are divided into three to five situations. For the purpose of this research, these situations have been translated into questions. However, many of these situations contained very specific terms that cannot be reasonably expected to be understood by all managers. Therefore, it was made sure that all questions in this category were accompanied by an explanation, where needed. For the majority of questions, examples were given that were expected to be easy to understand. The four categories that the questions were about are: limitations to the number of suppliers, limitations to the ability of suppliers to compete, reductions in incentives of suppliers to compete, and limitations on the choices and information available to customers.

4. RESULTS

In the following chapter the information that is retrieved from the different interviews will be given. Firstly, information about the innovativeness of the firms will be given. Then, with the use of the OECD's Competition Checklist, the regulatory encounters of the four case companies will be presented. The answers given by the managers are put into their according category of the checklist.

Innovation is often deemed to be the driver of business success. To stay ahead of the competition, one must move forward; innovate. All four companies that have been interviewed agreed on this presumption. They all find innovation to be very important in their firm. The domotics industry is an evolving market that is quickly growing due to the increasing focus on technological advancements in people's lives. The 21st century is one of technological dominance. In such a technology-oriented market that is also quickly evolving, companies must innovate to stay on top of things. However, it was noted that the 'classical' domotics sector is not as innovative as the current rising sector. It was explained that the classical sector, in which several tens of thousands euros

have to be invested by a customer to completely wire his house, is not evolving that quickly. This is mostly explained by the ease of use and implementation costs. Wiring a house during the construction might have some advantages, but the main disadvantage is its flexibility. The current, quickly rising, type of domotics is gaining more popularity because it is so easy to implement. In one instance it was specifically mentioned that innovation is or core importance for the company, because they constantly adapt their product. The hardware stays the same, but the software is updated constantly. According to the manager, after for instance three months, the product in its totality will be entirely different from what it used to be, because the software is updated so often. It was also firmly believed that this constant alteration is the biggest strength of their product. Upgrading products so regularly is what can set domotics suppliers apart from their competitors. Other companies in the market often bring out a product that has a certain use, but with no constant updates. None of the case companies actually measure their innovativeness in any way. There are no specific numerical values that are attached to the companies' innovative success.

4.1 Company A

Company A is a startup with less than ten employees and a yearly turnover of below €700.000, which classifies them as a micro-enterprise.

4.1.1 Competition law & Private standardization

The OECD's Competition Assessment Toolkit: Competition Checklist (*OECD, 2015a; 2015b*) provides a list of policies that can harm competition. This includes policies that:

(A) Limit the number or range of suppliers

1. Grant exclusive rights for a supplier to provide goods or services

Because the company is so new and has developed and marketed only one product, Company A is often left out of others' supply chains. In the business-to-business market, buyers mostly seek to find suppliers that are able to offer an entire solution at once, instead of having to look for numerous companies with each providing their own part of the smart-home-puzzle. This situation results in the presence of exclusive contracts. Such contracts are used all the time by firms in the industry.

2. Establishes a license, permit or authorisation process as a requirement of operation

There are certain norms that are often used in the industry, which are the so-called NEN-norms and CE-norms. The development of domotics for office spaces entails such norms. In fact, they are applicable to all buildings that entail the use of electrical equipment, so they are not domotics-specific. These norms are prescribed, but therefore not mandatory. Sometimes norms can become outdated and obsolete. For instance, Company A produces a product that combines two existing technologies. There are several norms regarding those technologies, but none pertaining to products combining them.

Nevertheless, practically all customers require the norms and standards to be adhered to. Even the government requires this, while they legally do not oblige it.

3. Limits the ability of some types of suppliers to provide a good or service

Small and medium-sized enterprises are more than willing to innovate in order to attract more customers, but in the domotics market you need a 'long arm' – as the interviewed manager calls it, meaning a far-reaching influence. Often, the larger companies in the industry have a better chance at gaining new customers, because they have such a 'long arm'. This exempts the smaller firms from the competitive process.

4. Significantly raises cost of entry or exit by a supplier

The main entry barrier for the domotics market is regarded to be the process for attaining certifications and norms.

5. Creates a geographical barrier to the ability of companies to supply goods, services or labour, or invest capital

The manager does not know of policies regarding the supply of goods. However, on the buying side, for instance municipalities and provinces are only allowed to spend their budget in their respective regions. This is logical, but does restrict the geographical spread to some extent.

(B) Limits the ability of suppliers to compete

1. Limits sellers' ability to set the prices for goods or services

The manager does not know about any price-setting limitations in the industry.

2. Limits freedom of suppliers to advertise or market their goods or services

It is not allowed to engage in door-to-door marketing for the domotics industry. However, there is a growing amount of possibilities for this kind of marketing pertaining products that help in energy savings, because the downsides outweigh the benefits of energy savings that improve the well-being of Mother Earth.

3. Sets standards for product quality that provide an advantage to some suppliers over others or that are above the level that some well-informed customers would choose

The manager does know about any rules or standards pertaining to this.

4. Significantly raises costs of production for some suppliers relative to others (especially by treating incumbents differently from new entrants, or vice versa)

There are a lot of subsidy opportunities around energy savings, mostly in the infrastructure sector. Insulation materials and double glassed windows are two examples named by the manager. However, there are rarely subsidy possibilities for devices that reduce energy usage, which is the category under which Company A's product falls. The company is trying to manoeuvre its way into the boundaries for subsidies, but at the moment they are not profiting from that.

(C) Reduces the incentive of suppliers to compete

1. Creates a self-regulatory or co-regulatory regime

The manager does now know about policies pertaining to this.

2. Requires or encourages information on supplier outputs, prices, sales or costs to be published

Company A is not obliged to do this.

3. Exempts the activity of a particular industry or group of suppliers from the operation of general competition law

The manager is not aware of any policies regarding this matter.

(D) Limits the choices and information available to customers

1. Limits the ability of consumers to decide from whom they purchase

The manager is not aware of any policies regarding this matter.

2. Reduces mobility of customers between suppliers of goods or services by increasing the explicit or implicit costs or changing suppliers

The manager is not aware of any policies regarding this matter.

3. Fundamentally changes information required by buyers to shop effectively

There are no vast information requirements towards buyers for domotics products, just the standard information as for all consumer products.

4.2 Company B

Company B between five and ten years old with less than ten employees and a yearly turnover categorised between €700.000 and €12.000.000, which classifies them as small enterprise. Their products are predominantly marketed in the business-to-business context.

4.2.1 Competition law & Private standardization

The OECD's Competition Assessment Toolkit: Competition Checklist (*OECD, 2015a; 2015b*) provides a list of policies that can harm competition. This includes policies that:

(A) Limits the number or range of suppliers

1. Grants exclusive rights for a supplier to provide goods or services

Exclusive contracting occurs regularly in the industry, by competitors, but also by Company D itself.

2. Establishes a license, permit or authorisation process as a requirement of operation

Standard electronic approvals are obliged to be allowed to produce and sell in the market for electronic products. CE certificates, and FCC and EN compliance tests are used in the domotics market. However, these are applicable to all companies that are active in a market for electronic equipment, so it is not domotic-specific. These do, however, delay the time-to-market a bit. This can vary across industries, and across firms as well.

3. Limits the ability of some types of suppliers to provide a good or service

The manager is not aware of any policies regarding this matter.

4. Significantly raises cost of entry or exit by a supplier

There are entry costs present for suppliers of domotics. These pertain primarily to certifications, licenses and norms that need to be adhered to. There are no specific high exit costs applicable.

5. Creates a geographical barrier to the ability of companies to supply goods, services or labour, or invest capital

There are no policies that restrict the geographic spread of domotics suppliers.

(B) Limits the ability of suppliers to compete

1. Limits sellers' ability to set the prices for goods or services

The manager is not aware of any policies regarding this matter.

2. Limits freedom of suppliers to advertise or market their goods or services

The manager is not aware of any policies regarding this matter.

3. Sets standards for product quality that provide an advantage to some suppliers over others or that are above the level that some well-informed customers would choose

The manager is not aware of any policies regarding this matter.

4. Significantly raises costs of production for some suppliers relative to others (especially by treating incumbents differently from new entrants)

Company B is able to receive subsidies for their products. It is moderately difficult to obtain these, but the manager was not willing to disclose how much these receivable subsidies can amount to.

(C) Reduces the incentive of suppliers to compete

1. Creates a self-regulatory or co-regulatory regime

The manager is not aware of any policies regarding this matter.

2. Requires or encourages information on supplier outputs, prices, sales or costs to be published

The manager is not aware of any policies regarding this matter.

3. Exempts the activity of a particular industry or group of suppliers from the operation of general competition law

The manager is not aware of any policies regarding this matter.

(D) Limits the choices and information available to customers

1. Limits the ability of consumers to decide from whom they purchase

This is not applicable to the domotics industry

2. Reduces mobility of customers between suppliers of goods or services by increasing the explicit or implicit costs or changing suppliers

This is not applicable to the domotics industry.

3. Fundamentally changes information required by buyers to shop effectively

The manager is not aware of any policies regarding this matter.

4.3 Company C

Company C is the only case company in this research that was established before the year 2000. The company has between ten and fifty employees and a yearly turnover categorised between €700.000 and €12.000.000, which classifies them as a small enterprise. They aim to be a socially responsible actor in the market that can make a difference in the lives of the weaker people in society. This explains why they mostly market their domotics products in the healthcare market, predominantly aimed at the elderly.

4.3.2 Competition law & Private standardization

The OECD's Competition Assessment Toolkit: Competition Checklist (*OECD, 2015a; 2015b*) provides a list of policies that can harm competition. This includes policies that:

(A) *Limits the number or range of suppliers*

1. *Grants exclusive rights for a supplier to provide goods or services*

It is not uncommon in the industry that Company C operates in to engage in exclusive contracting. On one hand, Company C tries to engage in framework agreements to ensure a lasting flow of assignments. On the other hand, when other firms engage in exclusive contracts, it can sometimes be that Company C has no possibilities to deliver its product to certain customers, because they are contractually unavailable.

Patents are another tool for attaining exclusive rights. This is very commonly done in the industry, but Company C does not own any patents, nor does it intend to. They find that publishing offers enough intellectual protection for freedom-to-operate.

2. *Establishes a license, permit or authorisation process as a requirement of operation*

NEN-norms are the most common standardization tools in the industry. For instance, NEN 7510 is an important norm, which entails the protection of information in the health care sector. Because Company C produces domotics for this particular industry, this norm is of regular importance for the innovation process. Furthermore, ISO certifications are often needed in the industry. These can cost a lot of money, and often external parties have to be involved in this process. However, the company sometimes does not make use of norms and product standards. Even though they are important in the industry to provide a basis of standardization, and quality and safety standards, the company finds its products too innovative to fit within the borders that these norms and standards provide. There are fully allowed to do this, because such norms are not legally enforced. Certain norms and standards are too outdated, because they are cannot keep up with the rapid technological advancements that are being made in the industry. For example, there are certain NEN-norms regarding call-in systems for nurses. These norms state that such systems should make use of analogue telephone lines, while virtually all domotic products in this area make use of digital telephone lines. Because the company does not always use certain norms or standards, it can sometimes experience difficulties in acquiring customers. However, the manager says that customers more often find Company C than that Company C has to go looking for customers. In such cases, adherence to norms and standards are not the priority of either party.

3. *Limits the ability of some types of suppliers to provide a good or service*

The manager does not know about any policies regarding this.

4. *Significantly raises cost of entry or exit by a supplier*

There are no real significant entry or exit barriers experienced in the industry, apart from the capital investments needed in certifications, norms and standards.

5. *Creates a geographical barrier to the ability of companies to supply goods, services or labour, or invest capital*

This is not the case in the domotics market.

(B) *Limits the ability of suppliers to compete*

1. *Limits sellers' ability to set the prices for goods or services*

There are no policies or standards regarding price-setting in domotics.

2. *Limits freedom of suppliers to advertise or market their goods or services*

Companies are not allowed to directly contact demented elderly. They are considered to be a vulnerable group that is too easy to be exploited in the wrong manner, and therefore have to be protected. Other than that, there are no real barriers in the advertisement of domotics.

3. *Sets standards for product quality that provide an advantage to some suppliers over others or that are above the level that some well-informed customers would choose*

The manager does not know about any policies regarding this.

4. *Significantly raises costs of production for some suppliers relative to others (especially by treating incumbents differently from new entrants)*

Because Company C is active in the health sector, they are able to receive various kinds of subsidies. However, the process around such subsidies are so complicated and time-intensive that they rather not engage in it. Often, the time-savings of not engaging in subsidies can turn out to be more profitable than going through the trouble of acquiring subsidies.

(C) *Reduces the incentive of suppliers to compete*

1. *Creates a self-regulatory or co-regulatory regime*

The manager does not know about any policies regarding this.

2. *Requires or encourages information on supplier outputs, prices, sales or costs to be published*

There are no policies that require the publishing or such information in domotics.

3. *Exempts the activity of a particular industry or group of suppliers from the operation of general competition law*

The manager is not aware of any policies regarding this.

(D) *Limits the choices and information available to customers*

1. *Limits the ability of consumers to decide from whom they purchase*

The focus of Company C lies on selling domotics in the health care sector. This sector contains publicly owned, societal organizations, such as hospitals. These organizations have to engage in public tendering for their purchases, which means that they have to adhere to specific tender norms. For instance, for purchases above a certain value a pre-determined minimum amount of tenders have to be offered.

2. *Reduces mobility of customers between suppliers of goods or services by increasing the explicit or implicit costs or changing suppliers*

The manager does not know of any policies regarding this matter.

3. *Fundamentally changes information required by buyers to shop effectively*

This is not really the case in the domotics sector. For technology that adhere to the NEN norms, labels have to be provided that show this, however this is not specific to domotics, but pertains to all technologies.

4.4 Company D

Company D is several years old, an SME of 5-20 employees and has turnovers in the second category. The company has a consumer-facing system under its own brand, offering a combination of hardware and software for home automation.

4.4.1 Competition law & Private standardization

The OECD's Competition Assessment Toolkit: Competition Checklist (OECD, 2015a; 2015b) provides a list of policies that can harm competition. This includes policies that:

(A) Limits the number or range of suppliers

1. Grants exclusive rights for a supplier to provide goods or services

One instance was mentioned of a company that engages in exclusive contracting. This exclusive contracting results in an exclusivity towards retailers, but not towards customers. The exclusive contract is instated with a specific retailer, which means that all other willing retailers are left out of the supply chain. Even though there are no contracts with individual customers, it does mean that customers only have one suppliers from which they can buy the specific product(s). Company D does not use exclusive contracts themselves. It can occur that they have only one retailer or supplier, but this is no contractual exclusivity.

2. Establishes a license, permit or authorisation process as a requirement of operation

There are standards for wireless equipment that are regulated by the government, which you have to certify lawfully in order to fit your product within the norms' boundaries. Furthermore, there are a few European rules, for example CE norms that are applicable to a wide range of consumer electronics. However, these regulations are not specific to the domotics industry, but rather for the entire market of consumer electronics. 'Whether it regards smart lamps or dumb lamps, they are all subject to the same basic rules'. Other than that, there are no real important legal issues. In the industry itself, there are often certifications for wireless technologies, some being stricter than others. Also, they are mostly only encountered once in a product's life cycle.

A specific example was mentioned regarding the use of the Bluetooth logo. Sub-modules of Company D's product are equipped with Bluetooth technology. However, the use of Bluetooth technology in a product and the use of the Bluetooth logo on that product are separated. To be allowed to use the Bluetooth logo, approval has to be paid for. Company D does not find this to be valuable for their sub-modules, so the product does not have a Bluetooth logo, while it does make use of the technology. Many competitors do not always use the Bluetooth logo either.

3. Limits the ability of some types of suppliers to provide a good or service

There are no policies that pertain to this matter.

4. Significantly raises cost of entry or exit by a supplier

Mostly certifications and norms create barriers to entry. Barriers for exit regard for example warranty measures. If a company exits the market, they are by European law still accountable for two years of warranty payments. This holds for every consumer product.

5. Creates a geographical barrier to the ability of companies to supply goods, services or labour, or invest capital

There are no legal geographical limitations in the domotics market.

(B) Limits the ability of suppliers to compete

1. Limits sellers' ability to set the prices for goods or services

There are no limitations in price-setting for domotics products.

2. Limits freedom of suppliers to advertise or market their goods or services

There are also no noticeable limitations regarding advertisements.

3. Sets standards for product quality that provide an advantage to some suppliers over others or that are above the level that some well-informed customers would choose

The manager is not aware of any policies regarding this matter.

4. Significantly raises costs of production for some suppliers relative to others (especially by treating incumbents differently from new entrants)

It is quite difficult to receive subsidies, because Company D is not active in the health care industry. There are more opportunities to receive subsidies for products that are positioned in that market.

Furthermore, established firms in the industry generally also have established partners, which means that they can sometimes enjoy an advantage in having a shorter certification process than others. However, on the other hand everyone basically has to adhere to the same rules, so in that sense there are no real differences.

(C) Reduces the incentive of suppliers to compete

1. Creates a self-regulatory or co-regulatory regime

Such policies are not yet present.

2. Requires or encourages information on supplier outputs, prices, sales or costs to be published

The company has to submit year reports to the Chamber of Commerce every year, but he is not sure whether that information is publicly available. Nonetheless, he concludes his answer by saying that it is either the case for all Dutch companies, or none.

3. Exempts the activity of a particular industry or group of suppliers from the operation of general competition law

This is not happening in the domotics industry.

(D) Limits the choices and information available to customers

1. Limits the ability of consumers to decide from whom they purchase

This is not the case in the domotics sector.

2. Reduces mobility of customers between suppliers of goods or services by increasing the explicit or implicit costs or changing suppliers

This also does not occur in the industry.

3. Fundamentally changes information required by buyers to shop effectively

In the privacy policy for online consumer products has to be explained what will happen with the personal data that is gathered by the product. However, this is not specific for the domotics sector, because it is applicable for all sorts of platforms that rely on online practices.

5. ANALYSIS

In this chapter, the results from the four interviews will be analysed. Similarities, differences and striking answers will be further elaborated on. These results will be used to answer the sub-question: “To what extent do competition law and private regulation impact an industry’s competitive context?”, as the empirical focus for this research is on this section of the relationship between competition law and private standardization, and innovation.

First of all, exclusive contracting is named by all four managers to be present in their industry. Most managers regard it as a common practice, even though the OECD (2015a) has identified this occurrence to be potentially harmful to competition. When firms engage in exclusive contracting, they take away the potential for other firms to engage with a certain buyer. This can be a form of competition harm. However, on the other hand exclusive contracting provides positive effects for the actors engaged in the contract, because they are provided a solid business connection with a reduced threat of competitors.

When asked about what types of regulations the companies deal with the most, all four participants answered by explaining something about standards, norms, or certifications. Two interviewed managers wrongfully denote CE certifications as norms. CE marking is not a mode of authentication, but it does signify that the product meets health, safety and environmental protection requirements (European Commission, 2018 January 15). In the Netherlands, CE marks are obliged in the domotics industry (Rijksoverheid, n.d.). This error, however, could also very well simply be rooted in semantics, rather than in wrongful knowledge. Furthermore, NEN-norms – which normalise standards - are mentioned in two cases. One manager mentioned FCC compliance tests, which are governed by an American organization. According to the FCC’s website, such compliance tests only pertain to goods sold in the United States (Federal Communications Commission, n.d.), so the Dutch domotics suppliers only have to deal with these compliance tests if they want to sell in the United States. All-in-all, the various types of certifications and norms that the case companies mentioned are not specifically related to the domotics industry. They mostly pertain to the sales of electronic technologies in general.

It is noteworthy to mention that one manager explained that they do not always adhere to certain norms. His experience is that, due to technological advancements, norms can sometimes become outdated. He gives an example of NEN-norms regarding call-in systems for nurses. Norms require products for this purpose to use analogue phone lines, while domotics products nowadays all use digital technologies. In such cases, the company decides to not apply for such norms. It is acknowledged by the manager that leaving such norms out of the product’s portfolio can influence customers’ view on the product, but on the other hand norms that are outdated inherently do not provide much practical value for customers, even though they are intended to. Company A’s manager explains a similar situation regarding norms. It was found that new technologies can often make existing norms obsolete.

The manager of Company C is convinced that customers more often find them than that they have to go looking for new customers. In that sense, the manager feels that adherence to norms can, at least to some extent, not always

be needed, along with the statement that norms can often be too outdated. Contrarily, the manager of Company A explains that even though the norms are not obliged by law, in practice they are often required. He finds that even the government requires these norms to be adhered to in the domotics products that they buy.

In two instances minor limitations in advertisements were mentioned. However, these do not directly affect the normal business processes.

According to the OECD (2015), subsidies can provide a cost advantage for receiving firms. All firms agree on the notion that subsidies are among the possibilities for gaining income. However, the process for receiving such subsidies can be very complicated and time intensive, according to Company C. Company A experiences difficulties with subsidies, because these only pertain to products regarding energy savings – mainly in infrastructure, and not in devices for cutting down energy usage. The differences in receiving subsidies can lead to a change of the competitive context. Firms that are able to receive subsidies in a non-time-intensive manner can allocate this money towards innovative practices (OECD, 2015).

Overall, none of the four case companies mentioned that they had specific problems with regulations or standards. When asked several questions about this topic, a general pattern arose. All managers could primarily name regulations that were applicable to a very wide range of products. For instance, CE markings were named by three of the four companies, but these do not result in an unfair balance across competitors. No specific rules of standards that pertain to domotics products could be named by any of the managers.

6. CONCLUSION

The impact of regulation on innovation has been widely discussed among researchers. This research paper adds to this discussion by specifically looking at competition law in the Dutch domotics industry. The present research has argued that competition law and private standardization can influence innovation through shaping an industry’s competitive context. Even though competition law and formal standards are aimed towards correcting market failures and thus shaping an industry’s competitive context to enhance innovation, theory suggests that there are also possibilities for policies to achieve counterproductive results. To test to what extent positive or negative effects can be derived from the Dutch domotics industry, information was gathered by interviewing four managers as representatives of domotics-oriented companies.

This did not result in the surfacing of any laws specific to the domotics industry that result in market failures. None of the managers reported any problems they faced regarding competition laws. Therefore, it cannot be concluded that competition law necessarily has either a negative or positive impact on innovation in the Dutch domotics sector for SMEs.

Nevertheless, there is a striking result derived from the interviews. Two case managers explained that norms and standards can sometimes be outdated and become obsolete, because of the rapid technological innovations in the market. However, one manager noted that norms and standards are still very important in the industry, because they are practically always required by customers – such as the government - even though these are not legally

obliged. On the other hand, Company C states that they sometimes do not adhere to the norms and standards of the industry, because their products are too new to fit within the parameters of these norms or standards. Also, they find that their customers often find them without needing confirmation in the form of norms or standards being met. The fact that none of the managers found that they had encountered problems with competition law or private standards can possibly be explained by the lack of legal awareness of managers in SMEs (BDRC Continental, 2015). Because SMEs have only limited resources, there are no dedicated managers for monitoring legal issues. The interviewed managers have no primary task in legal issues either, which means that there are chances present that these managers are not fully knowledgeable on the topic of competition law. This is an assumption that stems from sub-contextual observations, which provide a possibility for future research.

Thus, while there is no empirical evidence found in the interviews that competition law harms innovation in the Dutch domotics sector for SMEs, private standardization is found to have a negative effect to some extent. While norms and standards are aimed at providing a secure measure for customers, it has been found that these norms and standards in some cases can be outdated and become obsolete due to the rapid technological innovations in the domotics market. With this knowledge, Company C actually ignores the use of norms for some of their products, because outdated norms do not prove anything practically useful for the customer. This finding provides a basis for further research in combination with the finding of the BDRC Continental (2015) that SMEs' awareness of competition law is very minimal.

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