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**Business strategies for managing legislative requirements:
A case study of legislative sustainability requirements for biofuels in the EU**

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Abstract: Businesses employ different strategies to manage legislative requirements; however, there is little science-based understanding of the strategies that are in use. This study introduces a general legislation maturity model for businesses that includes company profiles, strategies and activity levels in relation to legislative requirements. Four strategies, namely defensive, adaptive, proactive and lead, are described through a case study of legislative sustainability requirements for biofuels in the EU that are organised according to their urgency and validity to biofuel producers, and the associated activity levels. This model will help managers to identify the strategies they employ, more systematically select strategies, understand the spatial and temporal scales and more efficiently allocate legislation management resources. The legislation maturity profiles, strategies, activities and urgency-validity framework are applicable in other industries.

Keywords: biofuels, business, sustainability, EU, legislation, Renewable Energy Directive, defensive strategy, adaptive strategy, proactive strategy, lead strategy

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1 Introduction

Complying with legislation is a prerequisite for any business; as such, legislation-related activities should form the backbone of everyday business operations. Non-compliance puts business continuity at risk and compliance with legislation represents the first step towards sustainable business (Baumgartner, 2009; Baumgartner and Ebner, 2010; Fava, 2014).

Legislation is dynamic and interactive in nature and requires frequent managerial attention and action. The regulatory and administrative burden that is placed on contemporary businesses is frequently discussed by representatives of the European Union (EU) (COM(2014) 368 final). The EU (including the European Parliament, the European Council, the Council of the European Union and the European Commission) gives a large number of legislative acts, (regulations, directives and decisions) every year. For example, between 1990 and 2016 the EU has given an average of 2480 basic legislative acts and 676 legislative amending acts per year. (EUR-Lex, 2017a.) The onus is placed on the business operator to screen these acts and identify those that apply to their operations or industry.

Businesses that aim to be sustainable in the EU market from a legislative perspective are required to operate at different regulatory and temporal levels. To ensure compliance with applicable legislative requirements, businesses are expected to follow legislation both at the EU and Member State level. Furthermore, although the EU-level legislation largely aims to harmonise legislation between the Member States, various interpretations and practices arise (COM(2014) 368 final). To identify opportunities to influence forthcoming legislation, businesses need to keep abreast of many publications and developments including, for example, preparatory documents, preparation processes, international agreements, legislative processes, authorities and procedures for verifying compliance.

In recent years, EU legislation has increasingly focused on sustainability, which was traditionally managed at company level; for example, through voluntary standardisation and certification systems that stakeholders typically demand. The implementation of Directive 2009/28/EC on renewable energy sources (RED) has had a direct impact on the bioenergy sector. It includes mandatory sustainability criteria for bioliquids for all energy purposes and liquid and gaseous biofuels for transport. Furthermore, the proposal for an amended RED (RED II), which was published in November 2016, recommends that the sustainability and greenhouse gas saving criteria outlined in RED are extended to all biofuels regardless of their form (liquid, gaseous, solid) or end-use (COM(2016) 767 final).

Company approaches to the management of legislative requirements are rarely examined in scientific literature. Establishing a systematic legislation management approach is essential to managing all dimensions of legislative compliance. This paper presents an in-depth exploration of the dimensions of legislative compliance from a managerial perspective using the EU sustainability requirements for biofuels as a case study. This study is based on the following research question and objective.

Research question: What strategies do biofuel producers employ to ensure compliance with legislative sustainability requirements in the EU?

Objective: To systematically classify and analyse the strategies biofuel producers use to ensure compliance with EU legislative requirements that relate to the sustainability of biofuels.

This theoretical study employs a qualitative research approach. The study classifies legislation management strategies, explores the dimensions of compliance with legislation and establishes a legislation maturity model based on previous literature. The study reviews relevant legislative documents related to the sustainability requirements for biofuels in the EU and analyses their relationship with different compliance strategies.

It is anticipated that the results of this study will help managers to assess the strategies that are in use, to more systematically select strategies, to understand the spatial and temporal scales and to efficiently allocate resources to the management of legislation.

2 Theoretical background

2.1 Compliance with legislation as the first stage of corporate responsibility for sustainability

Compliance with legislation is mandatory for any company, irrespective of any ambitions the company has in the pursuit of corporate responsibility, sustainability, ethics or satisfying stakeholder interests. However, the legislative activities of companies can be positioned in relation to and are affected by all the aforementioned interrelated aspects. Compliance with legislation is the first step to sustainable business (Baumgartner, 2009; Baumgartner and Ebner, 2010; Fava, 2014). A maturity model of corporate responsibility for sustainability (Kasurinen et al., 2017) can be employed to develop a better understanding of the relationship between compliance with legislation and sustainability. As a company takes more responsibility for sustainability that exceeds legislative requirements, it evolves towards a ‘truly sustainable business’ (Dyllick and Muff, 2016; Shevchenko et al., 2016).

Compliance with legislation is a specific case of meeting stakeholder requirements. According to stakeholder theory, corporate responsibility is understood as a company’s responsibility to its stakeholders (Freeman et al., 2010). Therefore, businesses cannot be sustainable without satisfying stakeholder interests (Freeman et al., 2010). Broadly speaking, stakeholder interests include the needs of the natural environment (planet, ecosystems), the needs of humankind (social, human) and the economic interests of shareholders. Legislation represents an instrument by which stakeholders can express their interests to, for example, a company. Legislative requirements integrate the interests of several stakeholder groups and are often accomplished through compromises. The stakeholder groups, the interests of which manifest as legislative requirements include communities, competitors, employees, and possibly the natural environment as advocated, for example, by non-governmental organisations. Further legislation-related stakeholder groups include the authorities to which an operator is required to verify compliance with applicable laws. Furthermore, a company can, itself, influence the legislative requirements that apply to its operations. Therefore, legislation is not only about meeting external requirements but it can be an internal issue. This study takes into account the interactive nature of legislation.

Many scholars have questioned, whether a higher overall maturity of corporate responsibility for sustainability leads to a higher proactivity in relation to legislative requirements, and vice versa. For example, Aguinis and Glavas (2012), Papagiannakis et al. (2014) and Lozano (2015) found that legislative requirements are a powerful external driver of corporate sustainability. Furthermore, Buysse and Verbeke (2003) found that, in the case of environmental management, more pressure from stakeholders, including legislative stakeholders, can motivate a more proactive environmental strategy. Shevchenko et al. (2016) argued that many stakeholders tend to allow compensating sustainability activities that enable the continuance of fundamentally unsustainable business instead of coercing companies to adopt truly sustainable solutions. Also, Heikkurinen and Ketola (2012) described how companies that follow the traditional corporate responsibility approach tend to outsource their responsibility and ethics to stakeholders. Thus, stakeholder requirements and expectations determine the level of corporate responsibility for sustainability activities (González-Benito and González-Benito, 2006; Lozano, 2015). Papagiannakis et al. (2014) found that aiming at mere compliance could delay the transition towards sustainability and that this is

specifically an issue with strict legislation. Strict legislation can restrict the opportunities for radical innovations that are necessary to achieve sustainability (Shevchenko et al., 2016). Another reason for such a relation could be that companies with primarily business economic sustainability targets instead of broader sustainability ambitions are likely to focus on compliance with minimum costs (Montabon et al., 2016). In conclusion, legislation plays a significant role in turning businesses towards sustainability; however, it cannot adequately create stakeholder pressure towards innovative sustainable business solutions.

Some scholars argue that a correlation exists between the number of stakeholders companies create value for and the extent to which they take responsibility for sustainability (Buisse and Verbeke, 2003; Dyllick and Muff, 2016). Furthermore, maturing companies set sustainability targets that more widely concern the environment and society instead of setting cost, efficiency and legislative compliance-oriented targets. Simultaneously, the temporal perspective shifts from short to long term, and from instant profits to long-term sustainability concerns and license to operate (Schumpeter, 2014; Dyllick and Muff, 2016). In contrast to the traditional extrinsic stakeholder responsibility approach, literature suggests that companies could take intrinsic corporate responsibility for sustainability based on their internal ethics (Heikkurinen and Ketola, 2012). Eventually, the overall business perspective shifts from 'business first' to 'sustainability first', which involves adopting a strong sustainability approach (Dyllick and Muff, 2016; Kasurinen et al., 2017). This thinking is analogous to Kohlberg's 1963 model of moral development in the field of social psychology. This model outlines how human morality develops in three stages: first, obedience to external authority and avoidance of punishment; second, more internalised norms and the pursuit of acceptance from others; and third, independent judgement guided by internal moral and chosen principles. The minority of humans have the capability to reach the third stage of moral development. (Helkama, 2001.) From a business perspective, the first two stages resemble the outsourced stakeholder responsibility, and in the maturity of corporate responsibility for sustainability model, specifically the levels of legislative compliance and seeking acceptance from multiple stakeholders through value creation.

2.2 Legislation maturity profiles, strategies and activity levels

In previous scientific literature, legislative compliance has typically been addressed in a basic form as the minimum prerequisite for conducting business anywhere and as the first mandatory step towards sustainable business (Baumgartner, 2009; Baumgartner and Ebner, 2010; Fava, 2014). However, a more in-depth exploration of legislative compliance reveals that it can be divided into further dimensions and does not purely consist of a binary compliance versus non-compliance division. The dimensions of legislative compliance can be described similarly as in other business maturity models. Several authors and companies have developed models to evaluate the maturity of company activities. Such models relate to, for example, market position (Mintzberg et al., 2007; Porter, 1980; Wilson et al., 1994); strategic management (Ansoff, 1984; 1987; Hovisalmi and Niskala, 2009); environmental strategy (Ketola, 2005; Linnanen et al., 1994; Mårtensson and Westerberg, 2014; Wrisberg et al., 2002); corporate social responsibility (Heikkurinen, 2010; Ketola, 2005); reaction to changes (Kamensky, 2004; Kolk and Mauser, 2002); or more recently, sustainability (Baumgartner, 2009; Baumgartner and Ebner, 2010; Fava, 2014; Kasurinen et al., 2017; Ketola, 2010). The current study is concerned with company legislation maturity profiles, and the related strategies and activity levels. Figure 1 shows the legislation maturity model.

Company legislation maturity profile	Strategy on legislative requirements	Activity level with regard to legislative requirements	Description of activity
Forerunner	Lead strategy	Proactive	Activity on company's own terms
Influencer	Proactive strategy	Proactive	Voluntary activity
Compliant	Adaptive strategy	Reactive	Taking initiatives
Follower <small>The minimum strategy and activity level required by legislation</small>	Defensive strategy	Reactive	Forced activity
Neglectful	N/A	Inactive	N/A
Ignorant	N/A	Inactive	N/A

Figure 1. Company legislation maturity profiles, strategies and activity levels related to legislative requirements (compiled of ideas presented by Aarras, 2006; Buysse and Verbeke, 2003; Heikkurinen, 2010; Husgafvel et al., 2013; Ketola, 2005; Linnanen et al., 1994; Rimppi, 2010; Vesa (ed.), 2015; Wrisberg et al., 2002)

The legislation maturity profiles are compilations of the company strategies and activities related to legislative requirements. The profiles are depicted as steps. When a company proceeds to the next step and achieves a higher profile, the strategy on legislative requirements evolves from a defensive or adaptive strategy into a proactive or lead strategy, and the activity that results from the implementation of the strategy develops from reactive to proactive. Although the ideal direction of development is towards maturity, the shifts between the levels are not necessarily unidirectional or linear. Furthermore, the profiles and strategies are generalisations. The premises of company profiling are not addressed in this study. Thus, the width of a step does not depict the share of biofuel producers or any other companies on that step. In addition, companies could apply different strategies to different legislative requirements or laws (Baumgartner and Ebner, 2010).

To comply with legislation, companies should adopt a defensive strategy and the follower profile as a minimum. One possible motivation for employing a defensive strategy to fulfil legislative requirements is that it frees company resources for alternative purposes other than actively screening, anticipating and influencing legislation. This strategy may also be a necessity. Small enterprises may be forced to abide by the follower profile because they do not have sufficient human resources to proactively monitor legislative developments (González-Benito and González-Benito, 2006; Vesa (ed.), 2015). Followers may also prefer to concentrate on the core business, for example product design, which may not actively include consideration of environmental or social sus-

tainability issues. Buysse and Verbeke (2003) identified such follower companies that are primarily compliance-oriented within the context of environmental issues; i.e., concerned about legislative requirements.

Followers perceive compliance with legislation simply as a means of maintaining a competitive position (Heikkurinen, 2010) and, analogous to Kohlberg's theory, avoiding punishment (Helkama, 2001). This defensive strategy represents a reactive approach by which organisations respond to requirements as and when they emerge, often unexpectedly. Followers often employ a disorganised approach to managing legislative requirements, and often experience difficulties complying in time. (Rimppi, 2010.) Followers may only pay attention to legislative requirements as a result of customer enquiries (Vesa (ed.), 2015) and may encounter difficulties demonstrating compliance (Rimppi, 2010). It is questionable as to whether the followers that employ reactive approaches to complying with legislative requirements have any strategy in place at all. The main strategic aim could be to avoid punishment (Helkama, 2001). Followers have not felt the urge to take a proactive approach to compliance, and, as such, employ a defensive strategy. Followers (of all profiles in Figure 1) are probably most likely to fall into the ignorant or neglectful categories with regard to individual legislative acts or requirements. Furthermore, issues, such as additional costs, deteriorating reputation, or exclusion from the market, could emerge due to poor preparation for legislative changes.

Ignorant and neglectful companies do not have a systematic strategy for complying with legislation in place. The common feature of these inactive companies is that they often fail to take timely action to comply with emerging legislative requirements and, thus, are typically non-compliant. Inactivity could result from simple unawareness of the requirements (ignorant companies) or a conscious decision to breach legislation (neglectful companies). Neglectful companies can, however, be very active and aware of their legislative environment. A forcing legislation could motivate a resistance effect among some companies (Rintanen, 2006). In principle, inactivity cannot guarantee sustainable operations, because compliance with legislative requirements is mandatory. However, if local authorities do not strictly monitor compliance, they effectively encourage neglectful responses to legislative requirements. The legislation maturity model assumes a positive view of righteous compliance with legislation. However, it is possible for companies to distort the truth when submitting statutory reports to authorities and to subsequently continue performing unsustainable activities (Montabon et al., 2016). Such companies are incorrectly perceived to be compliant; however although such breaching strategies do occur, they are not included in the model.

Compliant companies that employ an adaptive strategy to legislative requirements do so to enhance their competitive advantage (Heikkurinen, 2010) by achieving compliance and by being able to readily verify their compliance (Linnanen et al., 1994). Although, similar to companies that employ a defensive strategy, companies that implement an adaptive strategy are mainly reactive, they follow a more systematic approach to managing legislative requirements, taking the initiative to map and learn the applicable legislative requirements. Furthermore, they give themselves more time to achieve compliance (Rimppi, 2010). If the ability to employ a longer-range temporal perspective is considered, compliant companies could be considered to be more mature in the overall model of corporate responsibility for sustainability than followers.

A proactive or a lead strategy is fundamentally different to a defensive or adaptive strategy, which are inherently reactive. Some organisations adopt a proactive strategy to complying with legislation because it provides them with a means of detecting, or, in case of a lead strategy, of creating a new competitive advantage (Heikkurinen, 2010; Husgafvel et al., 2013; Linnanen et al., 1994). In addition, proactive and lead strategies could mitigate the risks associated with, for example, the continuity of business, the market position of the product, and the reputation of the company. It is likely that companies that proactively address legislative issues also excel in other aspects of sustainability, thus being further along the overall maturity scale of corporate responsibility for sustainability than reactive companies. Furthermore, larger and more internationalised companies tend to adopt a more proactive approach to complying with environmental legislation (González-Benito and González-Benito, 2006).

Companies that employ a proactive or lead strategy tend to anticipate, be prepared for, influence, and create future requirements in good time. Influencers advocate their interests by influencing legislative requirements as they are in the process of preparation. Forerunners seek change and new business opportunities (Ansoff, 1984). Forerunners may be able to dictate future legislative requirements and set the minimum acceptability level for the business branch. However, forerunner activity requires willingness to increase short-term risks to profits, as benefits may concretise in the long term (Ketola, 2005; Schumpeter, 2014). An internal motivation and moral (as in Kohlberg's model) and insourced ethics are required at these levels, especially among the forerunners that operate on their own terms. Furthermore, proactivity is information and resource intensive (Carballo-Penela and Castromán-Diz, 2014).

3 Materials and methods

3.1 Scope: Case sustainability of biofuels in the EU

This study concentrated on sustainability requirements that originate from the RED and biofuels that are in the scope of the RED. Because the sustainability requirements outlined in the RED are divided between different stages of a biofuel life cycle, and the responsibility for managing the requirements at different stages of this life cycle varies across different operators in the supply chain, it was essential to first determine the operator's perspective from which the current study would be conducted. The biofuel producer's perspective was selected for two reasons. First, accountability for demonstrating that the biofuel complies with the sustainability requirements of the RED falls on the producer of the final product (2010/C 160/01). Because compliance with the RED requires intensive cooperation between entities throughout the supply chain, the actions of the biofuel producer have repercussions for the rest of the supply chain. Second, producers of final products tend to come under higher pressure from external stakeholder groups than other operators in the value chain and as a consequence of the pressures, are likely to exhibit overall proactivity; instead of seeking minimum compliance. (González-Benito and González-Benito, 2006.) Thus, biofuel producers represent the ideal perspective from which to study the entire scale of company legislative maturity profiles. As mentioned above, in their study of environmental proactivity, González-Benito and González-Benito (2006) found that, aside from external stakeholder pressures, additional determinant factors that predict greater environmental proactivity include larger company size and broader internationalisation. However, such factors were not predetermined in this study. Instead, this study assumed that any biofuel producer could make independent strategic choices related to the management of legislative sustainability requirements.

3.2 Information search

To answer the research question and meet the objective of this study, it was necessary to review relevant legislative documents, including the RED, that relate to the legislative sustainability requirements for biofuels in the EU. Legislative documents were systematically identified from the web pages of the different EU Commission Directorate Generals (DGs) that are responsible for policy-development and implementation in their own areas of expertise. The web pages of the following DGs were screened due to the relation between their areas of expertise and biofuel sustainability requirements: Energy (DG ENER), Climate Action (DG CLIMA), Environment (DG ENV), and Mobility and Transport (DG MOVE). (EC, 2016a.) The EUR-Lex database was also searched for relevant documents. The key search terms that were employed were biofuels, biomass, sustainability requirements, sustainability criteria and renewable energy. Some DG web pages contained lists of relevant documents. The sustainability issues of biofuels fall mainly under the DG ENER. However, possible related legislative developments were studied from the other DGs. Furthermore, documents often cross-referenced each other and such references facilitated the identification of further relevant documents.

In total, 34 documents (see Appendix I) were identified that met the objective of this study to connect different strategies to complying with legislative requirements with different types of documents because the sample of documents incorporated several different types of legislative measures. A total of 8 of the included documents included current mandatory requirements,

whereas the remaining 26 could serve as tools for the anticipation of future mandatory requirements. The mutual relationship of the legislative documents is fixed, and their classifications are established (EUR-Lex, 2017b). This consistency facilitated the development of a reliable comparison.

Exploration of the Commission web pages quickly produced a relatively large number of legislative documents; however screening these to identify relevant documents could be time-consuming. Such challenges and the uncertainties associated with this approach only serve to highlight the legislative burden that is placed on companies and the importance of systematic company approaches to managing legislation.

3.3 Analysis

The objective of this research was to conduct a systematic classification and analysis of the strategies biofuel producers use to manage of legislative sustainability requirements for biofuels in the EU. Figure 1 introduced the literature-based classification of company legislation maturity profiles, strategies to manage legislative requirements and related activities. Next, it was necessary to classify the legislative documents that contain sustainability requirements such that they could be connected with different strategies to complying with legislative requirements. A common factor in all maturity profiles, strategies and activities is the point at which the company reacts, or proactively takes action in response to external legislative pressure. Consequently, it was deemed necessary to analyse the urgency of the legislative documents.

The urgency-validity fourfold table in Figure 2 was applied to classify the legislative documents. Stakeholder theorists have suggested legitimacy, power and urgency as criteria for determining stakeholders' salience for a company (Buisse and Verbeke, 2003). Respectively, Figure 2 uses urgency and validity to classify legislative and other stakeholder requirements. The legitimacy of legislative requirements is self-evident because legislation offers no other choice for businesses but compliance. The same applies to the indisputable power of legislation over businesses, as changes in legislation could alter, relocate or terminate business operations (Montabon et al., 2016). Figure 2 resorts to the urgency criterion and suggests that companies could classify requirements hierarchically on an urgency scale. The urgency scale distinguishes those requirements that require immediate compliance from those that may require compliance in the future. Furthermore, Figure 2 suggests that companies could simultaneously classify requirements on a validity scale, which distinguishes between mandatory and voluntary requirements. Mandatory requirements include those requirements with which compliance is mandatory to achieve local legitimacy; i.e., legislative requirements. Voluntary requirements include other stakeholder requirements with which compliance is voluntary but could help companies to achieve a broader license to operate (Schumpeter, 2014) and to anticipate legislative requirements.

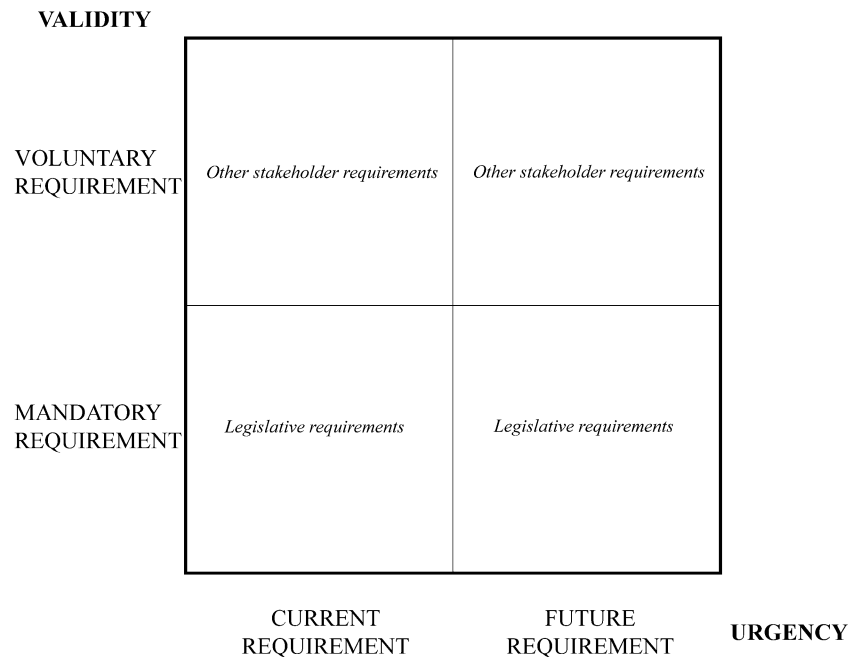


Figure 2. A division of validity and urgency of requirements

In the analysis, each legislative document related to biofuel sustainability requirements that was identified in the literature review was evaluated with regard to five aspects. The first two aspects were related to the urgency-validity framework (Figure 2) and the other three aspects were related to the legislation maturity model (Figure 1). Appendix I presents the stages of the analysis.

First, the urgency and validity of the legislative documents were evaluated according to Figure 2. The urgency evaluation was simply based on the date at which the documents entered into force, the starting date of the national application of the requirements, if applicable, or the date of publication. The urgency scale was divided according to current and future time dimensions only. Unless past documents contained currently valid provisions, they were interpreted to facilitate the anticipation of future legislation developments. Because the documents were legislative, their validity was deemed to be mandatory. However, all documents did not contain direct mandatory provisions. Therefore, second, the documents were evaluated with regard to whether they contained direct provisions or provided indirect assistance to the application, or anticipation, of provisions. Thus, the division into direct/indirect impact was part of the validity evaluation.

After the urgency-validity analysis was completed, the legislation maturity levels that could be applicable to each document were analysed. Therefore, third, the type of activity according to Figure 1 that a biofuel producer would exhibit with regard to each document was evaluated based on the urgency, validity and direct/indirect impact. Fourth, based on the type of activity and urgency-validity and direct/indirect evaluation, the relevant legislative maturity level was evaluated according to Figure 1. That is, the maturity level activities that were required with regard to each document were assessed. In other words, companies at certain maturity levels are active with re-

gard to each document. Fifth, the strategies that required activity were listed according to the maturity profile in Figure 1. The applicability of different legislation maturity profiles, strategies and activities across each of the four fields was further qualitatively discussed, see Section 4.

4 Results and discussion

Appendix I presents a chronological list of EU policy documents related to the sustainability of biofuels that were found in the review and that could be relevant at different legislation maturity levels together with the results of the analysis of each document according to the urgency-validity framework (Figure 2) and the legislation maturity model (Figure 1). This section is divided according to the alternative strategies that can be employed to comply with legislative sustainability requirements for biofuel production outlined the legislation maturity model.

4.1 Defensive strategy

Followers that adopt a defensive strategy and reactive approach to legislation compliance mainly address current or imminent mandatory legislative requirements, which the forerunners and influencers have proactively shaped, influenced and prepared for over a long period and which compliant companies have prepared for in advance to achieve early compliance.

In theory, followers aim to achieve compliance in time, but not earlier than required. Ansoff (1987) stated that such a reactive mode to strategic management could be effective if no sudden changes occur in the operational environment and the changes that do occur are repetitive. EU legislative processes (from the first initiative to implementation) can take years (The Federation of Finnish Technology Industries, 2010). As such, a defensive strategy can be applicable. In the EU legislative environment detailed rules and guidance related to the application of the sustainability criteria have been occasionally emerging, requiring biofuel producers to be alert. For example, the RED includes a sustainability criterion that restricts the production of biofuel feedstock on highly biodiverse grassland. Later, the Commission gave Regulation (EU) No 1307/2014 on defining the criteria and geographic ranges of highly biodiverse grassland. Furthermore, expected changes, such as directive revisions occur at predetermined times, for example the RED II (COM(2016) 767 final). Montabon et al. (2016) referred to a statement by the Bank of England that many companies tend to underestimate the risks that changing environmental legislation presents to businesses. Such a tendency could lead to the selection of a defensive strategy for dealing with legislative requirements. In the biofuel context, non-compliance with the biofuel sustainability criteria would, for example, suspend subsidies to biofuel production (2009/28/EC). Another theory is that defensive companies could aim to achieve compliance at the minimum cost (Montabon et al., 2016). However, defensive companies that have a short temporal perspective could experience that the changes in legislation are made quite suddenly, and these changes could result in defensive companies encountering unexpected expenditure.

The exploration of the EU biofuel legislation indicated that, to achieve timely compliance, it is necessary to anticipate legislation to a certain extent. Companies should become aware that they are late to comply even if they react instantly to any applicable mandatory requirements they encounter. A defensive strategy and reactive approach could be suitable if a biofuel producer follows the developments of legislation at both the EU and national level. The requirements of directives do not oblige biofuel producers on the day of their publication or the day of their entry into force, but when they are implemented into national law. For example, the RED was published on 23 April 2009, entered into force on 25 June 2009 and was nationally implemented by 5 December 2010. Because of the extensive sustainability criteria outlined in the RED that require management

of the whole supply chain and systems in place for verification of compliance, compliance from the first day onwards (5 December 2010), which would be the aim of any defensive strategy, required anticipatory preparations. Merely following national legislation does not, therefore, represent sufficient management of legislation in the EU. Furthermore, because regulations are applied across the EU area and directly affect business, similarly to decisions, which apply to their addressees (European Union, 2015), a defensive strategy and reactive approach to EU legislation could mean that followers are late to comply and, as such, are ignorant or neglectful companies. Anticipation is, therefore, also required at the EU level.

The results imply that, to achieve timely compliance with a defensive strategy, a company should possess some knowledge of the legislative processes at both EU and national level, have personnel following the legislative requirements (at least part-time) and have some kind of inventory of the applicable legislation in place (Rimppi, 2010). Because compliance with legislation can be resource and knowledge intensive (Carballo-Penela and Castromán-Diz, 2014), small enterprises and those companies that are strictly focused on their core business and profitability may experience difficulty securing these resources. Some followers may find themselves fortunate that they do comply while some may occasionally fall into the categories of non-compliant ignorant and neglectful companies. A reactive approach that is taken to the extreme can be quite risky and irresponsible.

4.2 Adaptive strategy

As Appendix I illustrates, the RED sustainability criteria are not static, but are continually under development (for example the RED) (COM(2016) 767 final). Both the RED and the RED II proposal include requirements to reduce greenhouse gas emissions of biofuels. The (EU) 2015/1513 directive aims to further restrict greenhouse gas emissions that result from indirect land use change in biofuel operations, and should be nationally implemented by 10 September 2017. Although these new requirements might not be nationally implemented before 10 September 2017 in the Member States, they are beyond influencing at the EU level. However, through early preparation for the new requirements and early compliance, biofuel producers could reach a compliant position in the legislation maturity model. Compliant companies should be interested in proposals for directives that are likely to become mandatory requirements in the future. A document that would currently be of interest is the RED II.

The adaptive strategy clearly requires an organised approach. Therefore, a compliant company may need to invest in a thorough background study of applicable requirements and a management system by which legislative requirements are monitored. Furthermore, organisations will also need to employ personnel who are knowledgeable about the principles of legislative processes and who are responsible for following legislative developments (at least part-time). (Rimppi, 2010.)

Current compliance with future requirements, such as those related to greenhouse gas emissions from indirect land use change, could give a biofuel producer a competitive advantage. For example, compliant companies could communicate their consideration of, and compliance with, future legislative requirements to customers and, thereby, enhance their reputation. Furthermore, the

adaptive strategy could reduce legislative risks; for example, discontinuity of business or unexpected costs and sanctions, which followers are more prone to. These advantages also apply to influencers and forerunners.

4.3 Proactive strategy

A proactive strategy and approach to managing legislative requirements include two important aspects for biofuel producers: influencing and anticipating. On the national scale, biofuel producers can influence legislation and its interpretation through national politicians, authorities and interest groups. However, in the EU, the significance of the development of the EU policy is emphasised both in influencing and anticipating because the EU policy and legislation have a major direct impact on national laws. Thus, following the EU preparatory documents helps biofuel producers anticipate national legislation and influence EU legislation at an early stage. Influencers are interested in anticipating and influencing on a voluntary basis.

Appendix I only takes into account documents and excludes, for example, important lobbying activities. Concentrating on the legislative documents means concentrating only on the final products of interactive multi-stakeholder legislative processes. Therefore, a company that only concentrates on the documents is inevitably not a true influencer, let alone a forerunner. Participation in the processes, for example through public consultations, is required.

Biofuel sustainability criteria that recently required proactive participation from biofuel producers are in the process of development. The preparation of the RED II as well as a bioenergy sustainability policy that will come into force after 2020 has begun. Public consultations are means by which biofuel producers can influence policy developments. The public consultation on the preparation of RED II ended in February 2016 (EC, 2016c) and the public consultation on the preparation of a sustainable bioenergy policy for the period after 2020 ended in May 2016 (EC, 2016d). Such opportunities highlight how the EU invites biofuel producers to cooperate with the legislators to create justified legislation and advocates for proactivity (Rintanen, 2006). Further means of influencing include lobbying EU politicians directly or via interest unions with regard to the development of sustainability requirements, and lobbying EU authorities with regard to the interpretation and application of sustainability requirements.

Further documents that may be of interest to a proactive biofuel producer as a means of anticipating legislation include both the documents that will be published in the future and previously published documents, such as strategies, roadmaps, reports, proposals and impact assessments. The emergence of sustainability criteria in the RED (published in 2009 and implemented in 2010) were mentioned, for example, in 2005 in the COM(2005) 628 final Biomass action plan. A further document of interest may be the Commission report, which should be submitted by the end of 2017 and will include, for example, the adjusted estimated emission factors for indirect land use change ((EU) 2015/1513, Article 3).

Influencers are likely to exceed current legislative requirements (Ketola, 2010), and therefore, they have the vision of how the industry can be taken to a new level through developing the legislative requirements. It seems likely that the companies that are proactive with regard to legislation are

proactive in many sustainability aspects and in society in general. In addition to systems for following and anticipating legislation, as discussed in the context of adaptive strategies, proactive companies are required to have an organised system and network in place for influencing and lobbying. Participation in public consultations could probably be led by a company manager who utilises support and information from the operational level. The more intensive influencing or lobbying the company aims to achieve, the more likely it is that full-time personnel will be required for this purpose (Rimppi, 2010.)

4.4 Lead strategy

As the main focus of this study was on legislative requirements, other stakeholder requirements that can be considered as voluntary were not studied in detail. However, legislation does not develop independently from other requirements, such as bioenergy certification schemes, or research and cannot, thus, be studied in isolation. Furthermore, as stated above, legislative requirements consist of the integrated interests of various stakeholder groups. Therefore, further means of anticipation for biofuel producers that adopt a lead strategy would include the screening of requirements, expectations, trends and research, and competitor benchmarking in the current/future-voluntary field (Figure 2).

Useful developments for proactive forerunners to follow and to take part in include the development of standards, such as the ISO 13065 Sustainability Criteria for Bioenergy, customer, supplier, investor, and NGO requirements and expectations, competitors' activities, international agreements, and other megatrends. A further means of anticipation could be following the development of bioenergy sustainability legislation outside the EU (cf. Scarlat and Dallemand, 2011). Furthermore, following (e.g. van Dam and Junginger, 2011) or participating in research efforts could help biofuel producers to formulate their own sustainability goals and to anticipate and shape possible legislative developments. Similarly, in terms of macro-level developments, a common management practice is to follow the political, economic, social, technological and ecological (PESTE) factors (Kamensky, 2004).

One justification for company proactivity in the management of legislation is that, since industries are experts in their own areas of business and activity, their participation in the development of legislation is crucial (Rintanen, 2006). This study suggests that a proactive or lead strategy could be knowledge and resource intensive (Carballo-Penela and Castromán-Diz, 2014). As such, a problem could occur with, for example, activating small enterprises that do not have sufficient resources to participate in legislative processes. The concerns of these organisations may go unheard, and their only option will be to follow the legislative developments to the best of their abilities.

Intuitively, a proactive or lead strategy to complying with legislative requirements would seem natural for companies at different levels of maturity of corporate responsibility for sustainability. First, Rintanen (2006) stated that society might shift (sustainability) responsibilities to business organisations that do not belong to the business and require unnatural business behaviour. Businesses with a low level of overall responsibility for sustainability that mainly care about their own interests, focus on business economic sustainability (Dyllick and Muff, 2016) and question whether sustainability is good for the company (Montabon et al., 2016) could have quite a strict view of the sustainability responsibilities of businesses. Presumably, such businesses would be

interested in proactively defending their traditional business practices as opposed to extending sustainability requirements. Second, a proactive or lead strategy to legislation is relevant for companies that are willing to create innovative sustainable business. Either way, joint efforts are essential to the development of sustainability legislation because sustainability is a complex, multi-level concept that neither companies nor governments can solve in isolation (Loorbach et al., 2010; Rintanen, 2006). In contrast to reactive companies, proactive companies are more likely to perceive legislation to be an internal, rather than external, issue because legislation seeks to balance the interests of those who participate in its formulation.

5 Conclusions

This study identified a defensive, adaptive, proactive and lead business strategy to managing legislative requirements and the associated business activities. These activities span a wide scale from inactive to proactive approaches. Synergies could be achieved with the overall maturity of corporate responsibility for sustainability as the company proceeds towards proactivity with regard to legislative requirements. The analysis of the strategies in this paper could raise awareness among managers that are able to more systematically define their strategies on legislative requirements and then proceed to their implementation.

The approach presented in this paper represents one method by which the management of the complex field of sustainability requirements throughout the life cycle of a biofuel product can be screened and grouped. Biofuel producers could distinguish their strategy at each stage of the biofuel production chain, place legislative requirements in the urgency-validity framework and address other stakeholders' requirements. Biofuel producers could make decisions on the intensity of their strategy concerning biofuel sustainability legislation based on the urgency of individual sustainability requirements; i.e., the date at which they enter into force. Furthermore, they could distinguish whether the legislative documents contain direct requirements or indirectly imply possible future requirements.

To achieve the minimum timely compliance and a legislation maturity profile of a follower, biofuel producers should monitor the changes in legislation at the EU level, not merely at the national level. To anticipate and influence legislation, it is necessary to be aware of the EU-level policy developments. This study highlighted the opportunities for proactive company activity with regard to legislation that exist, including influencing, lobbying and anticipation. A proactive approach requires monitoring future legislative requirements, voluntary requirements from other stakeholder groups and macro-level developments in addition to current legislative requirements.

Shifting towards a proactive or lead strategy to complying with legislative sustainability requirements is beneficial to biofuel producers because it allows them to prepare for, and influence, future requirements. These strategies help to minimise risks to business by avoiding unexpected legislative changes and costs. Furthermore, an anticipatory strategy could help companies to achieve a competitive advantage. Proactive companies recognise that legislation is an internal issue rather than an external pressure, as legislation is a compromise of the interests of those who participate in its formulation.

Identifying which legislative documents are relevant within the extensive documents that are available could be time-consuming and knowledge and resource intensive. Furthermore, as legislation is dynamic, businesses must continually follow or influence changes according to their selected strategy. Managers, thus, need to be able to allocate sufficient resources to this legislative work in accordance with the selected strategic level.

This study introduced a theoretical legislation maturity model, which should be further empirically tested in real company cases. Furthermore, this study concentrated on legislation related to the sustainability criteria for biofuels in the EU. The applicability of the legislation maturity model

and the urgency-validity framework could be further tested by extending the legislative and geographical scope of the study. Because the maturity model and the urgency-validity framework are not industry specific, they could be applied in the context of legislation of any industry or service of any size and any position in the supply chain.

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Appendix I

The literature review shows the EU policy documents related to biofuel sustainability requirements and the analysis shows the stages and results of analysis of the documents with regard to their urgency and validity to a biofuel producer, direct and indirect impact on a biofuel producer, type of activity required from a biofuel producer, relevant legislation maturity profiles with regard to each document and currently applicable strategies that require activity with regard to each document. Y = Year, M = Month, D = Day. The numbers 1–5 indicate the stages of the analysis.

Literature review						Analysis				
Date (of publication)			Identifier	Type of document	Topic of document (Entry into force, Date from which requirements apply)	Urgency-validity (Fig. 2)		Legislation maturity (Fig. 1)		
Y	M	D				1. Urgency, Validity	2. Validity: Direct, Indirect	3. Activity	4. Maturity profiles that require activity	5. Strategies that require activity
1998	10	13	98/70/EC	Directive	Fuel quality directive (FQD) (Entry into force: 28 Dec 1998; Date from which requirements apply: 1 Jan 2000)	Current mandatory	Direct	Forced compliance according to national implementation	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead
2005	12	7	COM(2005) 628 final	Policy	Biomass action plan	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2005	12	7	SEC(2005) 1573	Impact assessment	Biomass action plan	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead

2007	1	10	COM(2006) 848 final	Roadmap	Renewable energy roadmap	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2007	1	10	SEC(2006) 1719	Impact assessment	Renewable energy roadmap	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2007	1	10	SEC(2006) 1720	Summary of impact assessment	Renewable energy roadmap	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2008	1	23	COM(2008) 19 final	Draft directive	Renewable Energy Directive (RED) proposal	Future mandatory	Direct	Voluntary anticipation	Compliant, Influencer, Forerunner	Proactive, Lead
2008	1	23	SEC(2008) 85/3	Impact assessment	RED proposal	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2009	4	23	2009/28/EC	Directive	RED (Entry into force: 25 June 2009; Date from which requirements apply: 5 Dec 2010)	Current mandatory	Direct	Forced compliance according to national implementation	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead
2010	6	19	2010/C 160/01	Information/Notices: Interpretation guidance	Communication: voluntary schemes and default values in the EU biofuels and bioliquids	Current mandatory	Indirect	Forced compliance	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead

					sustainability scheme					
2010	6	19	2010/C 160/02	Information/Notices: Interpretation guidance	Communication: practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels	Current mandatory	Indirect	Forced compliance	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead
2010	12	22	COM(2010) 811 final	Report	Report: indirect land-use change related to biofuels and bioliquids	Future mandatory	Indirect	Voluntary anticipation	Compliant, Influencer, Forerunner	Proactive, Lead
2011	1	12	2011/13/EU	Decision	Decision: information about biofuels and bioliquids to be submitted by economic operators to Member States (Date from which requirements apply: 13 Jan 2011)	Current mandatory	Direct	Forced compliance	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead

2011	12	15	COM(2011) 885 final	Roadmap	Energy Roadmap 2050	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2011	-	-	SEC(2011) 1565	Impact assessment	Energy Roadmap 2050	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2011	-	-	SEC(2011) 1565/2	Impact assessment	Energy Roadmap 2050	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2012	9	14	C(2012) 6287 final	Communication of a decision concerning the application of the Article 3(4)	Communication: Article 3(4) of RED	Current mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2012	10	17	COM(2012) 595 final	Draft directive	Proposal for amendment of the RED and FQD	Future mandatory	Direct	Voluntary anticipation	Compliant, Influencer, Forerunner	Adaptive, Proactive, Lead
2012	10	17	SWD(2012) 343 final	Impact assessment	Proposal for amendment of the RED and FQD	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2013	1	24	COM(2013) 17 final	Strategy	A European alternative fuels strategy	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead

2013	3	27	COM(2013) 169 final	Green paper/policy	A 2030 framework for climate and energy policies	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2013	-	-	[...](2013) XXX draft	Draft proposal of a directive (unpublished, dropped)	Proposal for a Directive: sustainability criteria for solid and gaseous biomass used in electricity and/or heating and cooling and biomethane injected into the natural gas network	Future mandatory	Direct	Voluntary anticipation, influencing	Compliant, Influencer, Forerunner	Proactive, Lead
2014	1	22	COM(2014) 15 final	Policy	A policy framework for climate and energy in the period from 2020 to 2030	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2014	1	22	SWD(2014) 15 final	Policy	A policy framework for climate and energy in the period from 2020 to 2030	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2014	12	8	(EU) No 1307/2014	Regulation	Defining the criteria and geographic ranges of highly biodiverse grassland (Entry into force: 29 Dec	Current mandatory	Direct	Forced compliance	Follower, Compliant, Influencer, Forerunner	Defensive, Adaptive, Proactive, Lead

					2014; Date from which requirements apply: 1 Oct 2015)					
2015	9	9	(EU) 2015/1513	Directive	Directive amending FQD and RED to reduce indirect land use change for biofuels and bioliquids (Entry into force: 5 Oct 2015; Date from which requirements apply: 10 Sep 2017)	Current mandatory	Direct	Forced compliance according to national implementation	Follower, Compliant, Influencer, Forerunner	Adaptive, Proactive, Lead
2016	11	30	COM(2016) 767 final	Draft directive	RED II proposal	Future mandatory	Direct	Voluntary anticipation, influencing	Compliant, Influencer, Forerunner	Adaptive, Proactive, Lead
2016	11	30	SWD(2016) 416 final	Evaluation	RED REFIT evaluation for RED II	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2016	11	30	SWD(2016) 417 final	Summary of evaluation	RED REFIT evaluation for RED II	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead
2016	11	30	SWD(2016) 418 final:	Impact assessment	RED II proposal	Future mandatory	Indirect	Voluntary anticipation	Influencer, Forerunner	Proactive, Lead

			Parts 1, 2 and 3							
2016	11	30	SWD(2016) 418 final: Part 4	Impact assess- ment	RED II proposal	Future mandatory	Indirect	Voluntary anticipa- tion	Influencer, Forerunner	Proactive, Lead
2016	11	30	SWD(2016) 419 final: Part 1	Sum- mary of impact assess- ment	RED II proposal	Future mandatory	Indirect	Voluntary anticipa- tion	Influencer, Forerunner	Proactive, Lead
2016	11	30	SWD(2016) 419 final: Part 2	Sum- mary of impact assess- ment	RED II proposal	Future mandatory	Indirect	Voluntary anticipa- tion	Influencer, Forerunner	Proactive, Lead
2016	11	30	COM(2016) 860 final	Policy	Clean Energy For All Europe- ans	Future mandatory	Indirect	Voluntary anticipa- tion	Influencer, Forerunner	Proactive, Lead