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# It is not easy being green: increasing sustainable public procurement behavior

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### Abstract

To achieve greater sustainability, governments need to continuously adapt their purchasing activities to innovations in the market. Sustainable procurement is a decision-making process in which the decisions of procurers determine if the full potential of sustainable procurement is used. The decisions and thus behaviour of procurers are therefore crucial for the successfulness of sustainable procurement. According to organizational theory, commitment to change could influence this behaviour. Hence, in the study, we examined if commitment to implement sustainable procurement increases sustainable procurement behaviour by Dutch public procurers and what determines this commitment to implement sustainable procurement are. Our study shows first that both affective commitment to implement sustainable procurement and procedural justice increase sustainable procurement behaviour. In addition, the results show that commitment to change acts as a mechanism between fit with vision, ecological sustainability attitude, procedural justice and sustainable procurement behaviour.

**Keywords:** sustainable public procurement; sustainable procurement behaviour; commitment to change; organizational change; innovation; survey

### 1. Introduction

Public procurement represents 16% of the European Union (EU) gross domestic product and is consequently key part of demand-oriented innovation policy (Rolfstam 2009; Brammer and Walker 2011). Governments use procurement to stimulate the development of sustainable technologies (Erdmenger 2003). An increasing amount of scholars is studying barriers and drivers of sustainable procurement (Günther et al. 2013; Brammer and Walker 2011; Meehan and Bryde 2011; Michelsen and de Boer 2009). Most studies focus on factors such as lack of funding, expertise or personnel (Brammer and Walker 2011), aspects of the policy itself such as no supporting criteria or missing scope (Melissen and Reinders 2012) or a combination of both (Günther et al. 2013; Giunipero, Hooker, and Denslow 2012). These studies thus tend to seek explanations on the organizational level and appear to overlook factors that are connected to the individual procurer. Within the procurement process decisions of procurers determine if the full potential of sustainable procurement is used (Günther and Scheibe 2006). The behaviour of procurers is therefore crucial. However, previous procurement policies have caused public procurers to develop risk-averse behaviour, which have made them less likely to engage in innovative projects (Rolfstam 2012). Implementing sustainable procurement and especially using the full potential of sustainable procurement, therefore, requires public procurers to change their behaviour.

Organizational change scholars consider commitment to change the most important determinant of employee behaviour and desirable work outcomes (Choi 2011; Meyer et al. 2002) and found it effective in altering environmental behaviours (Lokhorst et al. 2013). With the exception of a study by Grandia et al. (2014), no studies about the commitment to change of public procurers, or the antecedents of their commitment to change in the specific context of sustainable public procurement were found. This study attempts to fill this void by answering the following research question: How does the commitment to change of Dutch public procurers influence their sustainable procurement behaviour and what are the antecedents of their commitment to change? To answer this question, a survey was sent to all public procurers working in the Dutch national government.

The theoretical framework regarding commitment to change and behaviour is discussed in the next section; in Section 3, we discuss what could possibly influence commitment to change; in Section 4, the methodology is discussed; in Section 5, the findings are presented; Section 6 concludes, followed by a discussion of the limitations of the study and suggestions for future research in Section 7. The paper ends with a reflection on the findings.

## **2. Commitment to change and behaviour**

The behaviour of public procurers regarding sustainable procurement<sup>1</sup> or “actions by the procurer to incorporate (ecological) sustainable procurement in the procurement process” has received little attention from scholars. Most studies into sustainable procurement study it at the organizational, national level or even international level (Erridge and Hennigan 2012; Melissen and Reinders 2012; Preuss 2009), rather than at the level of the individual public procurer. Very little is therefore known about what sustainable procurement behaviour is and how it can be influenced.

We do however know something about employee behaviour in general and how this can be influenced. For example, Griffin, Neal, and Parker (2007) developed a model of positive work role behaviours, stating that a proficient and proactive member of the organization would talk positive about the organization and make suggestions to improve the overall efficiency of the organization. These behaviours can also be applied to sustainable procurement; thus, a proficient and proactive procurer will speak positively about sustainable procurement and make suggestions to improve the overall efficiency of sustainable procurement.

Organization studies frequently researched employee behaviour in relation to desirable work outcomes and found commitment to change one of the most important aspects in explaining employees’ behaviour and desirable work outcomes (Choi 2011; Meyer et al. 2002). Commitment was originally conceptualized in terms of organizational commitment or “the relative strength of an individual’s linkage to the organization” (Choi 2011). More recently, Herscovitch and Meyer (2002) build on their general theory of workplace commitment (2001) and proposed a model about commitment to change. They (2002) define commitment to change as “a force (mind-set) that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative” and discern three types of commitment that are each fuelled by a different force. First, a desire to provide support for the change based on a belief in its inherent benefits (affective commitment); second, a recognition that there are costs associated with failure to provide and third, a sense of obligation to provide support for the change (normative commitment) (Meyer et al. 2002, 475).

Since then commitment to change has received a vast amount of attention from scholars and the concept of commitment to change has proven to be distinct from organizational commitment (Choi 2011; Fedor, Caldwell, and Herold 2006). A recent study by Grandia et al. (2014) suggested that the type of commitment to change could positively influence the degree of sustainable procurement in procurement projects. This finding is in line with earlier findings that “commitment to change reflects behavioural intentions to support a change initiative and behavioural consequences are associated with different forms of commitment to change” (Choi 2011; Meyer et al. 2002). Commitment to change is thus expected to positively impact sustainable procurement behaviour.

H1: A high degree of commitment to implement sustainable procurement will increase the degree of sustainable procurement behaviour.

## **3. Influencing commitment to change**

In the management of change literature, five themes or issues are considered common to all change efforts: content issues, context issues, process issues, outcome issues and leadership issues (Armenakis and

Bedeian 1999; Kuipers et al. 2014). Content issues refer to issues related to the content of the change, such as the change strategy (Kuipers et al. 2014). Process issues refer to how the organizational change has come about (Van der Voet 2014). The strength of context variables on the successfulness of organizational changes, such as organizational characteristics are also emphasized (Choi 2011). Factors belonging to each of these issues of organizational change have been found to influence commitment to change (Choi 2011). In this research, we have therefore identified an important factor for each issue that is expected to influence the commitment to change of the public procurers: fit with vision (content), procedural justice (process), red tape (context) and leadership style (leadership). In addition, a complete model of change should not only address macro-level forces, such as content, process and contextual factors, but also micro-level factors, such as individual differences (Walker, Armenakis, and Bernerth 2007). We therefore added an individual level factor to the conceptual model (ecological sustainability attitude) that we expect will increase the commitment to change of the public procurers.

The factors were identified based on organizational change and sustainable procurement literature. The conceptual model conceptualizes the relation between the five factors and commitment to implement sustainable procurement (commitment to change) and sustainable procurement behaviour. For example, a study by Michaelis, Stegmaier, and Sonntag (2010) found commitment to change fully mediated the relationship between transformational leadership and followers' innovation implementation behaviour. In our model, commitment to change acts thus as a mechanism that mediates the relationship between the five factors and sustainable procurement behaviour. For example, we do not expect that a lot of red tape will directly cause procurers to show less sustainable procurement behaviour, we expect that a lot of red tape will make them less committed to change, which will subsequently cause them to show less sustainable procurement behaviour.

Based on prior research, we do not expect the five factors to directly influence the sustainable procurement behaviour, but that commitment to change is operating as a mechanism between the five factors and sustainable procurement behaviour (Figure 1). The following hypothesis describes this mechanism:

H2: Commitment to change mediates the relationship between fit with vision, procedural justice, red tape, transformational leadership, ecological sustainability attitude and sustainable procurement behaviour.

In the following paragraphs, the five factors affecting commitment to change are discussed in-depth.

### 3.1. Change content: fit with vision

Content issues refer to the change that is being implemented and are specific for each organization (Walker, Armenakis, and Bernerth 2007). They are primarily factors that underlie the organization's long-term relationship with its environment and define its overall characters, mission and direction (Armenakis and Bedeian 1999). With regard to the content of the change, Parish, Cadwallader, and Busch (2008) found that a fit between the organization's strategic vision and the change itself could increase the commitment of employees to the change. A fit between the strategic vision of the organization and organizational change refers to the degree to which the change being implemented is congruent with the overall direction of the organization (Noble and Mokwa 1999; Parish, Cadwallader, and Busch 2008). Parish, Cadwallader, and Busch (2008) found this fit to be positively related to all three types of commitment to change (affective, continuance and normative). This also matches Rolfstam's (2012) theory that innovation of public procurement emerges as a result of a match between different exogenous and endogenous institutions. Which in this case would suggest that a fit between the organizations strategic vision (an endogenous institution) and the policy on sustainable procurement (an exogenous institution) would increase innovation in public procurement (i.e. sustainable procurement). Also because a previous study on sustainable procurement showed that in certain Dutch public organizations sustainability is key part of the organization's strategic vision and in others it is not (Grandia 2015), we expect that a fit between the organization's vision and the policy on sustainable procurement could increase the commitment of procurers to change.

H3: A good fit between the organizations strategic vision and the sustainable procurement policy increases the degree of commitment to implement sustainable procurement.

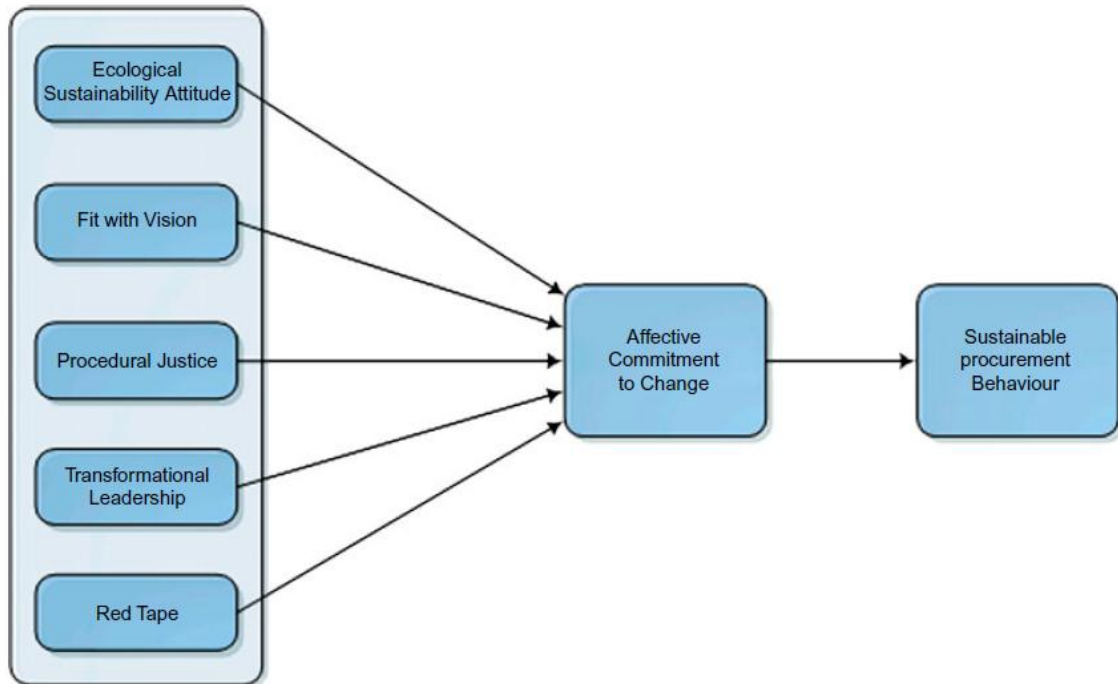


Figure 1. Conceptual model.

### 3.2. Change process: procedural justice

Where content issues involve the specifics of the change and the organization itself, process issues refer to the actions taken during the introduction and implementation of the proposed change (Walker, Armenakis, and Bernerth 2007; Armenakis and Bedeian 1999).

For example, actions regarding participation and involvement in the change, communication about the change or perceived fairness of the change process (Choi 2011). In this study, the focus lies on fairness (procedural justice) because an increasing number of studies have demonstrated that it is strongly related to employees' positive attitudes, values and supportive behaviour towards the organization and change (Foster 2010; Colquitt 2001). We include procedural justice as a process antecedent of commitment to change because it allows us to measure if the perception of the fairness of the procedures used to implement sustainable procurement (e.g. ecological procurement criteria) influences the commitment to change of procurers. The following hypothesis is therefore formulated:

H4: A high degree of procedural justice increases the degree of commitment to implement sustainable procurement.

### 3.3. Change context: red tape

The third change factor, contextual issues, refers to pre-existing forces in the organization's external or internal environment, such as technological advances, levels of professionalism, organizational slack, leadership or history of change (Walker, Armenakis, and Bernerth 2007; Armenakis and Bedeian 1999) that can reduce commitment to change (Armenakis and Bedeian 1999; Choi 2011). As organizations can do very little to change the external context (Walker, Armenakis, and Bernerth 2007), this study focuses on an important internal contextual factor: red tape. This allows us to take into account possible perverse effects of the high degree of formalization of public procurement.

Public procurement is subject to public review and as result requires complete transparency (Walker and Brammer 2009). This need for transparency is enforced via national and international rules, regulations, laws and procedures, such as the EU Public Procurement Law. As a result, public procurement is highly formalized. However, formalization, or the degree to which organizational activities are manifested in written documents regarding procedures, job descriptions, regulations and policy manuals (Hall 1996; Van der Voet 2014), can result in negative effects known as red tape (Bozeman and Scott 1996; Van der Voet 2014). Red tape is defined as "rules, regulations, and procedures that remain in force and entail a

compliance burden but do not serve the legitimate purposes the rules were intended to serve” (Bozeman 1993). Formalization only results in red tape when the observed rules do not further the objective of the organization and resources are wasted (Bozeman and Feeney 2011). Red tape has always been an issue for public procurement. As early as 1919, a scholar wrote about red tape hampering procurers in bidding, delivering goods and paying bills (Thomas 1919). Since this issue has not lessened (Thai 2001).

As there is little empirical evidence relating red tape to commitment to change, our argument is based on broader literature about organizational change, employee motivation and commitment. Red tape has been found to play a negative role on satisfaction processes in public organizations (Pandey and Scott 2002; Giauque et al. 2012) and is negatively related to the implementation of IT innovations (Moon and Bretschneider 2002). High degrees of red tape can delay and interrupt decisions to implement innovations and thereby influence the mind-set that binds the procurers to the action deemed necessary for the successful implementation of sustainable procurement. Our hypothesis is therefore as follows:

H5: A high degree of red tape will diminish the degree of commitment to implement sustainable procurement.

### 3.4. Leadership: transformational leadership style

Leadership is considered one of the key drivers of organizational change implementation (Herold et al. 2008; Higgs and Rowland 2005; Van der Voet 2014), and transformational leadership is the most frequently studied antecedent of employee commitment to change (Herold et al. 2008; Podsakoff, MacKenzie, and Bommer 1996). Transformational leaders have been found able to communicate a vision and bring employees together to achieve a change goal. Because they have the trust, admiration, loyalty and respect of their followers, they become motivated to do more than they are originally asked to do (Yukl 1999; Podsakoff, MacKenzie, and Bommer 1996). As a result, transformational leadership is often found to positively influence commitment to change (Herold et al. 2008; Michaelis, Stegmaier, and Sonntag 2010). Although the role of top or senior managers is often highlighted for the initiation of a change, direct supervisors have an important role during the implementation of change (Van der Voet 2014). This study therefore focuses on the leadership style of the direct supervisors, rather than the leadership style of for example the Minister or Director General.

H6: A transformational leadership style of the direct supervisor increases the commitment to implement sustainable procurement.

### 3.5. Individual value congruence

Besides more macro-level factors, each organization includes a range of different individuals. These individuals have dispositional and personality characteristics that could influence organizational attitudes and behaviours (Walker, Armenakis, and Bernerth 2007; Choi 2011). Commitment, and especially affective commitment, means that a respondent is committed to a change because he or she finds the change (in this case sustainable procurement) valuable. Studies show that people actively select and believe information that matches their personal values (value congruence). To find out if personal values and attitude towards sustainability influence the commitment to change of the procurers, we have included ecological sustainability as an antecedent of commitment to change. For example, a public procurer that loves nature and tries to be very environmentally friendly could be more committed to implementing sustainable procurement than a procurer who hates nature and the environment. The following hypothesis is therefore formulated:

H7: A positive attitude towards ecological sustainability increases the degree of commitment to implement sustainable procurement.

## **4. Methodology**

To test the hypotheses, a survey was deemed the best research design for the following reasons. First, a survey allows us to measure the sustainable procurement behaviour of the entire population of public procurers working in the Dutch national government. Second, a survey allows us to test whether the hypothesized relationships and mediation exists. All public procurers working in the Dutch national government therefore received an invitation to take part in the survey in May of 2014. Before discussing the selection, response rate and measures of the survey, we will provide some insight into sustainable public procurement in the Netherlands.

### 4.1. Sustainable public procurement in the Netherlands

In 2009, the Dutch national government indicated sustainable public procurement as one of its priorities and has subsequently developed and implemented a Sustainable Procurement Programme (Melissen and Reinders 2012). The goal was that the national government would procure 100% sustainable by the end of 2010 and according to their sustainable procurement monitor, this goal was met. The Sustainable Procurement Programme makes a certain degree of sustainability compulsory, but also asks procurement project teams to aim for more (non-compulsory sustainability). This leaves room for project teams to vary in the degree of sustainability of their procurement projects. Several studies on sustainable procurement have shown that indeed procurement projects show great variation with regard to the degree of sustainable procurement (Brammer and Walker 2011; Grandia et al. 2014; Meehan and Bryde 2011).

#### 4.2. Selection and response rate

The exact number of Dutch civil servants involved in public procurement in the Dutch national government is unknown, but it is approximately around 950 civil servants. They work in 20 centralized or specialized procurement centres.<sup>2</sup> Eleven centres provided names and contact information of their procurers. One procurement centre only submitted the names of their employees; missing contact information was subsequently added from the intranet of the Dutch national government. Due to reorganizations, the procurement centres from the Department of Waterways and Public Works and the Ministry of Defence were unable to provide any information. The names and contact information of the procurers working in these organizations were therefore manually retrieved from the intranet. This procedure explains why we do not know the exact number of public procurers in the Dutch national government.

In May 2014, an invitation to take part in the web-based survey was sent via email to all (949) identified public procurers working in the Dutch national government. To increase the response rate, the survey was mentioned in a newsletter, on professional procurement web fora, twitter, and two reminders were sent by the chief procurement officer of the national government to all non-respondents. If an out-of-office reply was received, a personalized invitation was sent after the respondent returned to work. We received 368 full or partial returns of our questionnaire. Of those who did not complete the survey, several provided reasons to the authors. The majority indicated they were not a procurer (20 respondents), had retired or switched jobs (six respondents) or had no functioning e-mail address (nine respondents) and could not be reached and were thus excluded from the population. This brings to total population to 914. With regard to the non-response, several respondents (29) were on holiday, pregnancy leave and mission abroad. In addition, a couple of procurers stated that they started their job as a procurer in the last month or were only responsible for managing the contract and therefore were unable to answer the questions and fill out the survey. Of the returned questionnaires, 80 were deemed invalid, as too few questions had been answered. The valid overall response is 288, which results in a response rate of 31.5% of the entire population of 914. Of the valid responses, 223 (77.4%) were from men and 63 (21.9%) of women. This is in line with the population, which consist for 70% of men. The average age of the respondents is 47. The average age of the population is unknown, but it does match the ages of civil servants in the Dutch national government in general (Ministry of the Interior and Kingdom Relations 2014). The education level of the respondents is high, 80.5% has at least a Bachelor degree or the equivalent of a Bachelor degree. However, this high percentage matches the job requirements asked in job vacancies for procurers (Ministry of Infrastructure and the Environment 2014).

#### 4.3. Measures

For all constructs existing and validated scales were available and used. To measure the reliability of the scales, the Chronbach's alpha was calculated for each scale. Experts and public procurers working in the Dutch national government tested the functionality and comprehensibility of the survey and the used constructs.

Sustainable procurement behaviour was measured via an adapted and extended version of the scales by Griffin, Neal, and Parker (2007) for organization member proficiency and pro-activity. The scales were originally developed to measure a different kind of employee behaviour, but rewording the sentences and adding items allowed us to measure sustainable procurement behaviour. Examples of items are: "how often have you talked positively about sustainable procurement" and "how often have you searched for additional information about sustainable procurement or sustainability?" The scale contains 10 items, and is measured on a 5-point scale ranging from "never" to "frequently". The scale has a Chronbach's alpha of .932, which shows the scale to be robust.

To measure the commitment to change of the procurers, the scale by Herscovitch and Meyer (2002) was used. Almost all studies into commitment to change use this scale to measure the three types of commitment to change discerned by them and have proven it to be valid (Choi 2011). The scale consists of 18 items divided into normative commitment to change, affective commitment to change and continuance commitment to change. Although we formulated hypotheses regarding commitment to change in general, we will measure and analyse the three types of commitment to change separately which allows us to draw conclusions that are more specific. In accordance with the original scale, a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree) was used. Example items are: 'I feel a sense of duty to work towards this change' and 'I do not think it would be right of me to oppose this change'. The full scale has a Chronbach's alpha of .783. Subscales have Chronbach's alpha of .827 (affective commitment), .734 (normative commitment) and .636 (continuance commitment). Dropping items did not improve the scales.

The perceived fit between the change and the organization's vision was measured using a 3-item scale developed by Noble and Mokwa (1999). An example item is: "The change is consistent with other things going on in my department". The items are measured using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree) and has a Chronbach's alpha of .866.

The perceived level of red tape was measured using a single item by Pandey and Scott (2002): "If red tape is defined as burdensome administrative rules and procedures that have negative effects on the organization's effectiveness, how would you assess the level of red tape in your organization?" This measure is a good index measure from both an empirical and theoretical perspective and congruent with the theoretical definitions of red tape (Pandey and Scott 2002). The perceived level of red tape is measured on a scale from 0 to 10, with 10 being the highest level of red tape.

We used the transformational leadership scale developed by De Hoogh, Den Hartog, and Koopman (2004) to measure how transformational procurers find the leadership style of their direct supervisor to be. The scale is part of the larger charismatic leadership in organizations scale. The transformational leadership scale proved very robust with a Chronbach's alpha of .960. All items are measured on a 7-point Likert type scale. Examples of items are: "my direct supervisor stimulates employees to develop their talents" and "my direct supervisor has a vision and picture of the future". The degree of perceived procedural justice was measured using a 7-item scale developed by Colquitt (2001). The scale draws on important works in the field and the wording of the items allowed us to adapt the items to our specific situation. The items are measured on a 5-point Likert type scale ranging from 1 (to a very small extent) to 5 (to a very large extent). Examples of the items are: "have you been able to express your views and feelings during those procedures?" and "have those procedures been based on accurate information?" The resulting scale has a Chronbach's alpha of .854, which is good.

A scale developed by Alcock (2012) was used to measure the ecological sustainability attitudes of the procurers. This scale was selected because it avoids reference to specific behaviours or issues that might not be applicable to all respondents (e.g. car ownership). The six items have a 5-point Likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). Examples of the items are: "The environment is a low priority for me compared with a lot of other things in my life" and "I personally need to change my way of life so that future generations can continue to enjoy a good quality of life and environment". The Chronbach's alpha of this scale was the lowest at .609, but we have used the scale nonetheless.

In addition to the variables described above, the following control variables were included: gender, age, education level and management position. The hypothesized relationships among the variables were analysed using SPSS version 22.

## 5. Findings

Our conceptual model hypothesizes that commitment to change acts as a mechanism that mediates the relationship between red tape, fit with vision, procedural justice, ecological sustainability attitude, transformational leadership style and sustainable procurement behaviour. To see if commitment to change is indeed a mediating variable we carried out a mediation analysis, based on the method proposed by Baron and Kenny (1986), and a bootstrapping analysis. In the following paragraphs, we will present the outcomes of the analyses. Table 1 shows the outcomes of the four steps of the mediation analysis.

As the *first* step of the Baron and Kenny method, we regressed the control variables plus the hypothesized mediator (three types of commitment to change) onto the dependent variable (sustainable procurement

behaviour). Although we hypothesized that all three types of commitment to change would influence sustainable procurement behaviour, the regression analysis (Table 1, step 1) found only affective commitment to change to be significantly related to sustainable procurement behaviour ( $\beta = .42^{***}$ ). Thus, only commitment to change based on an inherent belief in the benefits of sustainable procurement causes more sustainable procurement behaviour. Our first hypothesis is therefore only supported for affective commitment to change. In our next steps, we thus only look at affective commitment to change as a possible mediator.

In the *second* step, the control variables plus the hypothesized independent variables (procedural justice, leadership, fit with vision, red tape and ecological sustainability attitude) are regressed together on affective commitment to change (mediator as dependent variable) to ascertain that there is a relation between the mediator and antecedents. According to the Baron and Kenny method, a significant relationship between the independent variables and the mediation variable is a requirement for mediation. This step showed a significant relationship between procedural justice ( $\beta = .14^*$ ), fit with vision ( $\beta = .33^{***}$ ), ecological sustainability attitude ( $\beta = .31^{***}$ ) and affective commitment to change. Our third, fourth and seventh hypotheses are hereby confirmed. Thus, the more respondents perceive a fit between the strategic vision of their organization and sustainable procurement policy (fit with vision – hypothesis 2), perceive the procedures used to implement sustainable procurement as just (procedural justice – hypothesis 3) and have a positive attitude towards ecological sustainability (ecological sustainability attitude – hypothesis 7), the more affectively committed to implement sustainable procurement they are. However, not all hypotheses were supported by our analysis in this step. Our fourth and fifth hypotheses suggested that a transformational leadership style of the direct supervisor would increase commitment to change, whereas a high degree of red tape would decrease the commitment to change. However, the regression analysis showed no significant relationship between either transformational leadership and affective commitment to change, or red tape and affective commitment to change. Our fourth and fifth hypotheses are therefore not supported by the results.

In the *third* step, we regressed the hypothesized independent variables plus control variables on the dependent variable (sustainable procurement behaviour) to check if the antecedents are related to the dependent variable. If the independent variables and the dependent variable are not significantly related to each other, there is no mediation. In this step, we found that procedural justice ( $\beta = .27^{***}$ ), fit with vision ( $\beta = .22^{***}$ ) and ecological sustainability attitude ( $\beta = .17^{***}$ ) are all significantly related to sustainable procurement behaviour, and transformational leadership and red tape were not significantly related to sustainable procurement behaviour.

However, if we add affective commitment (*step 4*) to the regression analysis, the significance of the relationship between fit with vision and ecological sustainability attitude and sustainable procurement behaviour disappears. The fact that by adding affective commitment to change to the regression analysis, fit with vision and ecological sustainability attitude are no longer significantly related to sustainable procurement behaviour means that mediation is present. We can thus state that affective commitment to change is the mechanism that mediates the relationship between fit with vision, ecological sustainability attitude and sustainable procurement behaviour. Interestingly enough, the relationship between procedural justice and sustainable procurement behaviour remained significant ( $\beta = .22^{***}$ ), even though this variable is also significantly related to affective commitment to change. This result shows that procedural justice influences sustainable procurement both directly and indirectly via affective commitment to change.



**Table 1. Mediation analysis**

<i>Predictors</i>	<i>Step 1: β Sustainable Procurement Behaviour</i>	<i>Step 2: β Affective Commitment to Change</i>	<i>Step 3: β Sustainable Procurement Behaviour</i>	<i>Step 4: β Sustainable Procurement Behaviour</i>
Age	-.05	-.06	-.09	-.07
Gender	.08	-.03	.06	.07
Management position	.03	-.01	.01	.01
Education level	.1	.01	.06	.06
Affective Commitment	.42***	-	-	.35***
Normative Commitment	.05	-	-	
Continuance Commitment	-.06	-	-	
Procedural Justice	-	.14*	.27***	.22***
Leadership	-	.08	-.01	-.04
Fit with Vision	-	.33***	.22***	.11
Red Tape	-	-.08	.02	.05
Ecological sustainability attitude	-	.31***	.17**	.06
R <sup>2</sup>	.24	.37	.24	.31
* = $\alpha \leq .05$ . ** = $\alpha \leq .01$ . *** = $\alpha \leq .001$				

With the Baron and Kenny method, we are able to see that affective commitment to change acts as a mediator. However, this analysis does not tell us whether this mediated relationship is significant. We therefore also employed a bootstrapping analysis (Hayes 2009; Preacher and Hayes 2004). The bootstrapping analysis showed that the relationship between fit with vision and sustainable procurement behaviour is indeed significantly mediated by affective commitment to change (BootLLCI = .1140 and BootULCI = .2398). The relationship between ecological sustainability attitude and sustainable procurement is also significantly mediated by affective commitment to change (Boot-LLCI = .1689 and BootUCLI = .3577). And the same holds for the relationship between procedural justice and sustainable procurement behaviour, which is partially mediated by affective commitment to change (BootLLCI = .0872 and BootUCLI = .2062).

Based on the outcomes of the analyses, an empirical model can be constructed (Figure 2) that shows all the significant relationships between the variables. The model shows that a high ecological sustainability attitude, fit with vision and procedural justice increase the affective commitment to change of the respondents, which in turn increase their sustainable procurement behaviour. However, a high degree of procedural justice does also directly cause the procurers to show more sustainable procurement behaviour. In the next section, we will discuss the conclusions that can be drawn from the results and the empirical model in more detail.

## 6. Conclusion

Because the decisions of the procurers determine whether the full potential of sustainable procurement is used, their behaviour is considered to be critical for the implementation of sustainable procurement. However, previous procurement policies have caused procurers to become more risk-averse and less likely to partake in innovative projects.

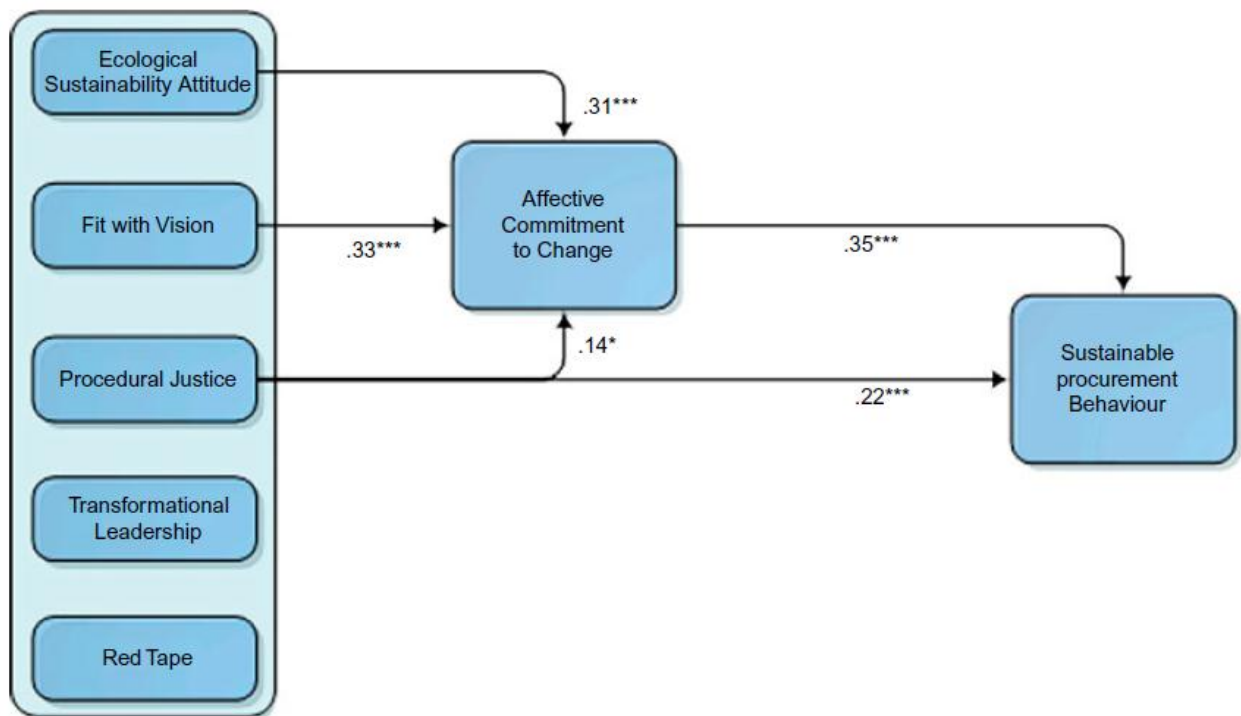


Figure 2. Empirical model.

Their behaviour thus needs to change in order to reach the full potential of sustainable procurement. In this study, we therefore examined the sustainable procurement behaviour of public procurers in the Dutch national government, at the level of the individual procurer. This in contrast with most studies into sustainable procurement, that examined sustainable procurement practices at the organizational, national or even international level (e.g. Erridge and Hennigan 2012; Melissen and Reinders 2012; Preuss 2009), thereby overlooking what happens at the level of the individual procurer. Because little is known about the procurement behaviour of procurers and what influences this behaviour, we borrowed insights into general employee behaviour and its determinants from change management theory and developed a conceptual model. To test the model, we send a survey to all public procurers working in the Dutch national government. Based on the results of the survey, we can draw five conclusions.

*First*, the results show that the degree of sustainable procurement behaviour varies across the population of procurers. Even though they might be procuring different goods and services, all the respondents are working in the same national government, under the same laws and regulations and are implementing the same sustainable procurement policy. Their sustainable procurement behaviour however varies greatly, which suggests that their behaviour is thus also being influenced by other factors, which brings us to our second conclusion.

*Second*, sustainable procurement behaviour is influenced by only one specific type of commitment to change: affective commitment to change. Theoretically, three types of commitment to change can be distinguished: affective, normative and continuance commitment to change. However, our results show that only if the commitment of the procurers to change is based on an inherent belief in the benefits of sustainable procurement (affective commitment), procurers show more sustainable procurement behaviour. Thus, if procurers are committed to change because of pressure from their peers or out of a fear for penalties, they do not show more sustainable procurement behaviour. This is a relevant result, because this suggests that public organizations that want to increase the sustainable behaviour of public procurers will not reach their goal via penalties or peer pressure. Only an inherent belief of the procurer itself in the benefits of sustainable procurement will increase the sustainable procurement behaviour of the public procurer.

However, our *third* conclusion is that there is another factor that directly causes procurers to show more sustainable procurement behaviour, which public organizations might find easier to influence: procedural

justice. Based on existing research, we expected that if procurers perceived the procedures that were used to implement the policy on sustainable procurement as just, they would become more committed to the change and thus more willing to implement sustainable procurement. However, our results show that if the procurers perceive a high degree of procedural justice, they do not only become more committed to change, but also directly show more sustainable procurement behaviour. Affective commitment to change thus only partially mediates the relationship between procedural justice and sustainable procurement behaviour, because there is also a direct relationship with procedural justice. Public organizations that want to increase the sustainable procurement behaviour of their procurers should therefore look closely at the procedures they use and want to use to implement the policy further and ensure that they are perceived by the procurers as just. They could, for example, do this by inviting procurers to take part in the development of procedures or policy documents.

We did however not find all hypotheses to be correct. Our fourth conclusion is that a high degree of red tape and transformational leadership of the direct supervisors do not influence commitment to change or sustainable procurement behaviour. Although the procurers reported a high degree of red tape, this appears to be a constant for all procurers. Red tape is simply a factor that all procurers have to deal with in their work, but that does not specifically decrease their commitment to change or sustainable procurement behaviour. The same holds for leadership. Although having a direct supervisor with a transformational leadership style leadership' might make the job of the procurer better in general, this does not significantly influence their commitment to change or show sustainable procurement behaviour. Thus, although fewer red tape and more transformational leadership might be desirable in general, it will not help public organizations increase the commitment to change and subsequent sustainable procurement behaviour of their procurers.

Our fifth and final conclusion is that affective commitment to change does significantly and fully mediate the relationship between fit with vision, ecological sustainability attitude and sustainable procurement. This means that affective commitment to change is the mechanism that connects fit with vision, ecological sustainability attitude with sustainable procurement behaviour. Thus, the more the procurers perceive a fit between the strategic vision of the organization and the more positive their attitude is towards ecological sustainability issues, the more affectively committed the procurers will be to implement sustainable procurement, which subsequently causes more the procurers to show more sustainable procurement behaviour. Our finding that the more procurers perceive a match between the organizations strategic vision (endogenous institution) and the policy on sustainable procurement (exogenous institution) increases their commitment to change and their subsequent procurement behaviour thus supports Rolfstam's theory (2012) that a match between endogenous and exogenous institutions is important for innovation in public procurement to occur. By ensuring that there is a match between the exogenous institution of the policy and the endogenous institution of the organization strategic vision, public organizations can influence and increase commitment to change and subsequent sustainable procurement behaviour.

## **7. Limitations and future research**

Our study also has a number of limitations. First, the results of our study and the practical implications should be considered in light of the limited context of the study. Although a large portion of the population of procurers, working in all the procurement centres of the Dutch national government, took part in our survey we should remain careful in generalizing our findings to other procurers or civil servants working in other (public) organizations or countries. For future research, it would thus be very interesting to carry out a comparative study and examine the commitment to change and sustainable procurement behaviour across different layers of the government or countries.

Second, although our results show that affective commitment to change, procedural justice, fit with vision and ecological sustainability attitude play an important role in determining the sustainable procurement behaviour of the surveyed public procurers, these are only some pieces of the puzzle. The larger part of the variance in behaviour remains unexplained and calls for additional research. For example, our results show that a transformational leadership style of the direct supervisor does not have a direct impact on sustainable procurement behaviour. However, this does not mean that more specific leadership factors, such as management support or attitude of the leader towards ecological sustainability, might not be influencing sustainable procurement behaviour. In addition, we have left an array of other variables unstudied that other scholars consider to be influencing employee behaviour, such as perceived behavioural control and subjective norms (Ajzen 1991), organizational stress (Vakola and Nikolaou 2005) and change cynicism (Walker, Armenakis, and Bernerth 2007). As well as other factors, that sustainable

procurement literature deems barriers to implementation, such as legal barriers and a (lack of) finance or knowledge (Brammer and Walker 2011; Günther and Scheibe 2006).

## 8. Reflection

In a time of ever tightening budgets and achieving more value for less, the focus on procurement as a policy tool to achieve desired outcomes in society increases. To fully utilize all the potential of sustainable procurement, the behaviour of public procurers is crucial. The commitment of actors engaged in procurement to embrace policy objectives or strategies is considered essential to generate the effort and energy necessary for a successful project, and determines where an organization places itself on the continuum of innovator to laggard (Herscovitch and Meyer 2002; McLaughlin 1990; Meyer and Herscovitch 2001; Parish, Cadwallader, and Busch 2008; Preuss 2009). Public organizations that want to become innovators rather than a laggard, and want to increase their share of innovation in public procurement, do not only need to ensure that there is a match between endogenous and exogenous institutions (Rolfstam 2012), but also need to consider the role of the public procurer in this process (Rolfstam 2009). Our study shows that the sustainable procurement behaviour of the public procurers is directly and indirectly influenced by four factors: affective commitment to change, procedural justice, fit with the organization's vision and their attitude towards ecological sustainability and the environment. Half of these factors (affective commitment and ecological sustainability attitude) find their roots in the individual values and beliefs of the procurers. Interestingly enough, all of the factors that proved to be not to significantly influence sustainable procurement behaviour or commitment to change, are external factors brought on by others. Both continuance and normative commitment to change have no significant influence on sustainable procurement behaviour, nor did we find leadership and red tape to significantly influence affective commitment to change. Thus, the degree of sustainable procurement behaviour of procurers largely depends on their personal beliefs and attitudes.

On the one hand, this makes it difficult for public organizations to exert direct influence on the behaviour of their employees. On the other hand, this does not mean that public organizations cannot do anything. Both sustainable procurement behaviour and affective commitment are influenced by the degree of perceived procedural justice of the procedures used to implement sustainable procurement. And a good fit between the vision of the organization and the policy on sustainable procurement increases affective commitment to change, and subsequent sustainable procurement behaviour. Both procedural justice and fit with vision are factors that are developed by the organization itself and can thus be influenced and adjusted.

Overall, we can conclude that it is not easy being green. It requires a great dose of affective commitment to change, and a positive attitude towards ecological sustainability from procurers. However, public organizations can make it easier to be green, by ensuring there is a fit between their strategic vision and their sustainable procurement policies, and allowing procurers to influence the procedures and thus increasing procedural justice. Thereby, making it easier for the organization itself to be green too.

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## Notes

1. Green public procurement, environmentally responsible public procurement, green purchasing and eco-procurement are other terms that are used to describe the same phenomenon or policy. In this research, the more general term "sustainable procurement" is used because it is the closest match to the Dutch name of the policy, "Duurzaam Inkopen". However, the Dutch policy on sustainable procurement studied only involves environmental or green procurement criteria. Social criteria are part of another policy with a different design and implementation scheme and are therefore incomparable and thus not part of this study.
2. The Tax and Customs Administration, Public & Communication Agency, Forensic Care, Northern Procurement Centre, Ministry of Defence (five centres), Ministry of Security and Justice, Ministry of Infrastructure and the Environment, The Government Buildings Agency, National Institute for Public Health and the Environment, Netherlands Enterprise Agency, the Directorate of the Immigration Chain, Procurement Cooperation the Hague

and the Department of Waterways and Public Works (three centres). The Department of Waterways and Public Works and the Ministry of Defence have multiple specialized procurement centres within their organization.

3. A bootstrapping analysis gives a robust estimate of the mediation and provides bias-corrected confidence intervals that help us examine whether the indirect effects are significant (Vermeeren 2014). If the interval between the upper and lower bound does not include zero, the indirect relationship is considered significant (Preacher and Hayes 2004). The results are based on bias corrected and accelerated confidence intervals set at .95 with 1,000 samples (replacement).

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