

Cognitive styles, user acceptance and commitment to strategic plans in public organizations: an empirical analysis

Bert George, Sebastian Desmidt, Eva Cools & Anita Prinzie

To cite this article: Bert George, Sebastian Desmidt, Eva Cools & Anita Prinzie (2017): Cognitive styles, user acceptance and commitment to strategic plans in public organizations: an empirical analysis, Public Management Review, DOI: [10.1080/14719037.2017.1285112](https://doi.org/10.1080/14719037.2017.1285112)

To link to this article: <http://dx.doi.org/10.1080/14719037.2017.1285112>



© 2017 The Author(s). Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 15 Feb 2017.



[Submit your article to this journal](#)



Article views: 493



[View related articles](#)



[View Crossmark data](#)

Cognitive styles, user acceptance and commitment to strategic plans in public organizations: an empirical analysis

Bert George^a, Sebastian Desmidt^b, Eva Cools^c and Anita Prinzie^d

^aDepartment of Public Administration and Sociology, Erasmus University Rotterdam, Rotterdam, The Netherlands; ^bDepartment of Human Resource Management and Organizational Behavior, Ghent University, Gent, Belgium; ^cVlerick Business School, Gent, Belgium; ^dNGDATA, Gent, Belgium

ABSTRACT


Given the lack of insights into the micro-determinants of strategic planning (SP) in public organizations, this study uses information-processing theory and self-efficacy theory to investigate individual-level predictors of commitment to strategic plans among planning team members (PTMs). Specifically, we investigate whether plan commitment is contingent upon the fit between PTMs' preferred way of information-processing (i.e. their cognitive style) and the information-processing characteristics underlying SP processes in public organizations. Based on data gathered with 439 PTMs from 203 Flemish municipalities, we find that PTMs with a creating and planning style are committed to strategic plans because they deem SP useful.

KEYWORDS Cognitive styles; rational planning; strategic planning; user acceptance; information-processing

Introduction

Strategic planning (SP) in public organizations has been defined as 'a deliberative, disciplined effort to produce fundamental decisions and actions that shape and guide what an organization (or other entity) is (its identity), what it does (its strategies and actions), and why it does it (mandates, mission, goals, and the creation of public value)' (Bryson 2010, S256). The deliberative, disciplined and decision-making nature of SP implies that it can be viewed, according to information-processing theory (IPT) (Simon 1973), as an organizational information-processing system during which information is gathered, analysed and used to formulate strategic options and select strategic goals (Rogers, Miller, and Judge 1999). Because SP in public organizations is typically undertaken in situations that are ambiguous, uncertain and consequential, the information-processing characteristics of SP often include (a) the necessary creativity to deal with uncertainty, generate ideas and come up with good or perhaps visionary strategies, (b) a reasonably systematic approach that attends to a host of concerns (e.g. political and administrative) and (c) both analysis and synthesis to transform a variety of data into meaningful information for decision-making (Bryson 2011). Although these characteristics are typically categorized and differentially

CONTACT Bert George  George@fsw.eur.nl

 Supplemental data for this article can be accessed at <http://dx.doi.org/10.1080/14719037.2017.1285112>.

© 2017 The Author(s). Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

emphasized within different approaches to SP, in practice these often blend and emerge together (Bryson 2015; Ferlie and Ongaro 2015).

Even though SP processes have become omnipresent in many public organizations (Bryson 2010), the effectiveness of public SP remains subject to debate. While there is meta-analytic evidence on a positive relation between planning processes in general and performance in, mostly US and UK, local governments (Walker and Andrews 2015), there remains criticism on the mechanistic nature of SP in particular and its inapplicability in the public sector (e.g. Bovaird 2008; Radin 2006). Moreover, empirical evidence on SP's effectiveness in public-sector contexts other than the US or the UK is generally lacking (George and Desmidt 2014). As a result, the comment of Walker and Boyne (2006, 375) that the effectiveness of planning processes is largely 'a shot in the dark' still seems to be valid in the specific case of SP in public organizations.

Bryson, Crosby, and Bryson (2009) argue that a micro-level perspective could be useful to address the debate on public SP's effectiveness because empirical studies are typically focused on the macro-level relation between SP and organizational performance (e.g. Poister, Pasha, and Edwards 2013; Walker and Boyne 2006). Although these studies provided crucial insights, they exhibited limited attention to the micro level of SP by (a) neglecting the individuals involved in planning (Bryson, Crosby, and Bryson 2009; George and Desmidt 2014, George et al. 2016) and (b) operationalizing SP's effectiveness through outcomes (e.g. performance) as opposed to output (e.g. commitment to strategic plans) (Pollitt and Bouckaert 2004, George et al. 2016, George and Desmidt 2016).

Building on the call of Bryson, Crosby, and Bryson (2009), this study adopts a micro-level perspective on SP's effectiveness by examining the relation between cognitive styles of planning team members (PTMs), PTMs' acceptance of the SP process and PTMs' commitment to strategic plans. By looking at commitment to strategic plans as a dependent variable, we offer insights into a crucial individual-level process output of SP in public organizations. Earlier research has suggested that PTMs' commitment to the strategic plan is an important driver of successful strategy implementation (Parayitam and Dooley 2009) because it 'decreases the likelihood of major resistance from those who dislike change' and 'creates a vision or a valued cause that motivates [PTMs] to ensure a successful implementation' (Olson, Parayitam, and Bao 2007, 203). In other words, commitment to the strategic plan implies that PTMs consider the plan as a set of strategic ideas worth implementing and thus become an important part of the guiding coalition necessary to implement these ideas (Bryson, Crosby, and Bryson 2009).

Based on IPT (Simon 1973) and self-efficacy theory (Bandura 1982), we argue that PTMs' cognitive styles and acceptance of the SP process are individual-level predictors of plan commitment. Specifically, we argue that commitment to strategic plans is contingent on the fit between PTMs' preferred way of information-processing (i.e. their cognitive style) and the information-processing characteristics underlying SP processes in public organizations. This is an important research avenue because individual-organizational information-processing fit has been found to play a key role in individuals' acceptance of organizational information-processing systems (Armstrong, Cools, and Sadler-Smith 2012), which, in turn, is linked to the behavioural intention to fully adopt this system and its output (Lu, Yu, and Lu 2001). Applied to SP in public organizations, we expect PTMs' cognitive style to be related to their acceptance of the SP process while acceptance of the SP process is expected to be related to commitment to implement the strategic plan.

The study's assumptions were tested using a sample of 439 PTMs from 203 Flemish municipalities. In line with public-sector reforms in a variety of OECD countries, Flemish municipalities have been required, by law, to change their planning procedures by adopting an SP process to formulate multi-annual policy plans (George, Desmidt, and De Moyer 2016; Boyne 2001). Although our research focus lies at the individual level, the study's respondents are clustered within municipalities. Consequently, our individual-level data are analysed using structural equation modelling with clustered standard errors to account for organizational-level variables that might bias the findings.

The contributions of our study are fourfold. First, we contribute to the debate on SP's effectiveness in public organizations by investigating determinants of commitment to strategic plans, a crucial ingredient for successful plan implementation (Olson, Parayitam, and Bao 2007). Second, we address the call of Bryson, Crosby, and Bryson (2009) for the adoption of a micro-level perspective in SP research by focusing on the individuals responsible for plan formulation (i.e. PTMs). Third, by choosing Flemish municipalities as the empirical setting, we complement the literature by offering evidence on SP in a non-US and non-UK local government setting which simultaneously offers similarities with other public-sector settings and reforms worldwide (George and Desmidt 2014). Fourth, because of our focus on individuals and our adoption of concepts from cognitive psychology, we contribute to the recent emergence of a Behavioral Public Administration (Grimmelikhuijsen et al. 2016) and Behavioral Strategic Planning-approach (George 2016).

In what follows, we elaborate on our theoretical framework and the hypothesized model. Next, we present the methods employed, details of the data analysis and its results. Our findings suggest that the cognitive style of PTMs indeed matters to their acceptance of SP, which, in turn, is associated with their commitment to strategic plans. How these relations materialize, however, partially deviates from our hypotheses derived from IPT and self-efficacy theory. We discuss the implications of these findings for public management research and practice.

Theory and hypotheses

Figure 1 displays the underlying hypothesized model of this study. The model states that PTMs' cognitive style is associated with their perceived ease of use and usefulness of the SP process (i.e. user acceptance), which, in turn, is associated with their commitment to implement the strategic plan. We employ IPT (Simon 1973) to hypothesize the relation between cognitive styles and user acceptance, whereas the hypothesized relation between user acceptance and plan commitment draws on self-efficacy theory (Bandura 1982). Importantly, although our study is, we believe, the first to adopt this specific conceptual chain when studying SP, the logic underlying the chain (i.e. cognitive styles relate to user acceptance, user acceptance relates to the intention to exhibit specific behaviour) is grounded in a variety of behavioural studies (e.g. Lu, Yu, and Lu 2001; Chakraborty, Hu, and Cui 2008; Saeed, Yun, and Sinnappan 2009). The remainder of this literature review highlights the key concepts presented in Figure 1 and elaborates on the hypothesized relationships.

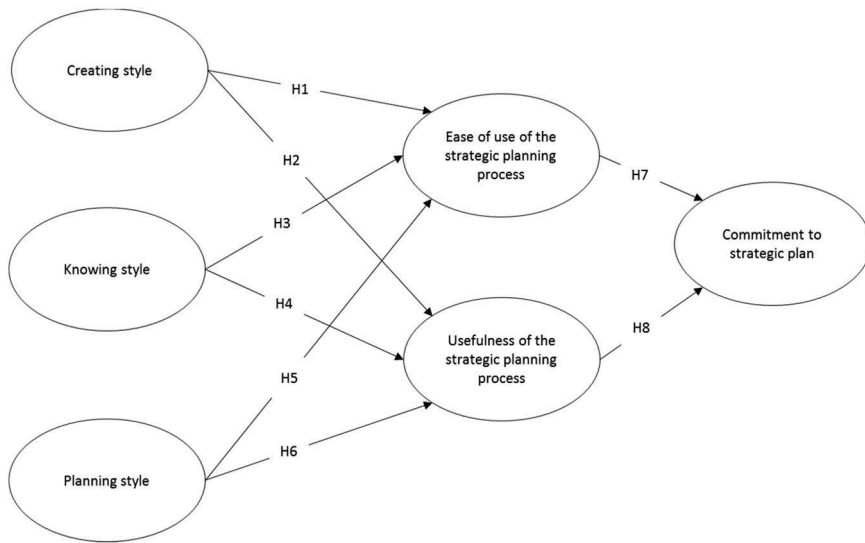


Figure 1. Hypothesized model.

Cognitive styles and user acceptance

Based on IPT (Simon 1973), we argued in the previous section that SP can be viewed as an information-processing system intended to help PTMs gather, analyse and use information to select strategic goals through a process typically involving both creativity and intuition, a reasonably systematic approach and analysis as well as synthesis (Bryson 2011). Ideally, one would expect that such an SP process results in a plan that is successfully implemented by the actors involved in the plan implementation process. Successful plan implementation, however, depends in part on the behavioural intent of individuals – typically grouped in a ‘guiding coalition’ – who show a commitment to implement the plan throughout and beyond the organization (Bryson, Crosby, and Bryson 2009). Such commitment to plan implementation is thus a behavioural matter, which implies that behavioural insights can be useful to understand its determinants (Grimmelikhuijsen et al. 2016). Self-efficacy theory (Bandura 1986, 1982), for example, suggests that individuals will only be motivated to engage in specific behaviour if they think that this specific behaviour will produce positively valued outcomes (i.e. outcome expectations) and if they are confident in their ability to perform the behaviour successfully (i.e. efficacy expectations). In his research on the use of information (technology) systems, Davis (1989, 320) labelled these two aspects as ‘user acceptance’ and argued that if individuals find an information system useful (i.e. ‘using a particular system [will] enhance [...] performance’) and easy to use (i.e. ‘using a particular system [will] be free of effort’), they are likely to exhibit the behavioural intent to use the system. Extrapolating these behavioural insights to SP implies that in order to understand PTMs’ commitment to implement plans (i.e. behavioural intent), we need to analyse the determinants of user acceptance (i.e. perceived usefulness and ease of use) of the underlying SP process.

In order to identify individual-level predictors of PTMs’ acceptance of the SP process, we draw on IPT. Central to IPT is the argument that both organizational management processes as well as individuals are information-processing systems with specific

attributes (Rogers, Miller, and Judge 1999; Simon 1973). Consequently, the acceptance of organizational management processes is, in part, contingent upon the extent to which the information-processing characteristics of the process match those of the individual (Cools, Van den Broeck, and Bouckennooghe 2009; Kroll 2014; Nutt 2006). In cognitive psychology, an individual's preferred way of information-processing is labelled 'cognitive style' (Armstrong, Cools, and Sadler-Smith 2012) which has indeed been linked to, for instance, preferences towards performance information use (Kroll 2014) and preferences towards budgetary decision-making (Nutt 2006). Extending these insights to SP, we expect that when the cognitive style of a PTM fits the information-processing characteristics of SP, the PTM's acceptance of the SP process will be higher (e.g. Armstrong, Cools, and Sadler-Smith 2012; Lu, Yu, and Lu 2001; Chakraborty, Hu, and Cui 2008).

Historically, cognitive styles have been predominantly conceptualized as a bipolar dimension that makes a distinction between an analytic and an intuitive way of thinking (Hodgkinson and Sadler-Smith 2003). Recently, multidimensional views took the forefront (Sadler-Smith 2009), arguing that cognitive styles cannot be captured by only two dimensions (Sadler-Smith, Spicer, and Tsang 2000). Following these evolutions, we used the three-dimensional Cognitive Style Indicator (CoSI) model of Cools and Van den Broeck (2007), which distinguishes between a creating, a knowing and a planning cognitive style.

First, people scoring high on the creating style tend to make decisions primarily based on intuition or gut feeling (e.g. Cools, Van den Broeck, and Evans 2008; Knockaert et al. 2015). Creators search for renewal, see problems as opportunities and feel comfortable in situations of uncertainty and freedom (Cools and Van den Broeck 2007). As indicated earlier, SP in public organizations is often undertaken in situations that are ambiguous and uncertain. Such situations imply that a 'one-size-fits-all' strategy is rarely applicable and not all aspects and consequences of (future) problems are always known. The generation of creative and innovative ideas as well as the flexibility to cope with uncertainty are thus typically at the heart of many SP processes (Bryson 2011). These aspects seemingly fit well with creators' preferences for renewal, problem-solving and uncertainty. Hence, we hypothesize the following:

H1: A creating style is positively related to PTMs' perceived ease of use of the SP process.

H2: A creating style is positively related to PTMs' perceived usefulness of the SP process.

Second, people scoring high on the knowing style have strong analytical skills, are proficient in logical reasoning and search for accuracy (Cools and Van den Broeck 2007). Knowers like to make informed decisions on the basis of a thorough analysis of facts and logical and rational arguments (e.g. Cools, Van den Broeck, and Evans 2008; Knockaert et al. 2015). One of the information-processing characteristics of SP is indeed its focus on both analysis and synthesis, where a variety of data are transformed into meaningful information for decision-making by using tools such as a SWOT analysis (Bryson 2011). These analytic tools seemingly fit well with knowers' preferences for analysis and informed decision-making. Hence, we hypothesize the following:

H3: A knowing style is positively related to PTMs' perceived ease of use of the SP process.

H4: A knowing style is positively related to PTMs' perceived usefulness of the SP process.

Third, people scoring high on the planning style are attracted by structure and prefer a well-organized environment (Cools and Van den Broeck 2007). Planners like to make decisions in a structured, systematic way and are concerned with the efficiency of the process (e.g. Cools, Van den Broeck, and Evans 2008; Knockaert et al. 2015). A structured, systematic way to strategy formulation is also typical to the information-processing system that is SP in public organizations. For instance, 'step-by-step' approaches such as Bryson's (2011) 10-step Strategy Change Cycle are often used to ensure a reasonably systematic approach that attends to a host of concerns, including political, social, administrative, legal and technical concerns. Such a reasonably systematic approach seemingly fits well with planners' preferences for structured and well-organized decision-making. Hence, we hypothesize the following:

H5: A planning style is positively related to PTMs' perceived ease of use of the SP process.

H6: A planning style is positively related to PTMs' perceived usefulness of the SP process.

User acceptance and commitment to strategic plan

Due to our argument that successful plan implementation is, in its nature, a behavioural outcome preceded by a behavioural intent (Bryson, Crosby, and Bryson 2009), we can extrapolate the insights of self-efficacy theory to our hypotheses. As discussed, self-efficacy theory (Bandura 1986, 446) argues that 'in any given instance, behaviour would be best predicted by considering both self-efficacy and outcome belief, with self-efficacy indicating how well an individual can execute specific behaviour (i.e. ease of use) and outcome belief indicating the extent to which an individual believes the behaviour will result in positive outcomes (i.e. usefulness) (Bandura 1982). In this study, the focus lies on the behavioural intent of PTMs to actually implement the formulated strategic plan in practice, and thus safeguard its strategic ideas throughout the organization (Bryson, Crosby, and Bryson 2009), an intention which is described as PTMs' commitment to the strategic plan (Olson, Parayitam, and Bao 2007). Therefore, drawing on self-efficacy theory (Bandura 1986, 1982), we hypothesize the following:

H7: Perceived ease of use of the SP process is positively related to commitment to the strategic plan.

H8: Perceived usefulness of the SP process is positively related to commitment to the strategic plan.

Methods

Empirical setting

This study focuses on PTMs within Flemish municipalities. In Flanders (i.e. the northern, Dutch-speaking part of Belgium), local authorities have been required by law to adopt an integrated policy and management system starting from January 2014. The coerced adoption of this system requires a change in the planning procedures of Flemish local

authorities. Specifically, the cornerstone of the new system is the development of a multiannual municipal plan by adopting a systematic plan development process with clear deadlines, analysing the municipality's internal and external environment and coming up with a set of strategic goals based on these analyses. The developed plan can also be updated yearly based on new information (George, Desmidt, and De Moyer 2016). The responsibility for developing the plan is assigned, by law, to the city manager who has the option of composing a planning team to support the plan development process. Restricting our analysis to Flemish municipalities offers the advantage that (a) SP is conducted within a similar time frame and institutional setting, thus allowing us to better compare empirical findings (De Bruijn and Van Helden 2006) and (b) other influences on plan commitment (e.g. legal constraints, economic shocks, policies of higher governments) are controlled for (Goeminne and Smolders 2014).

Units of analysis

The actual units of analysis are the individual PTMs within Flemish municipalities. For the purpose of this study, we define PTMs as all individuals who are identified as key players in the plan formulation process, irrespective of whether they have a political, managerial or non-managerial role. Typically, literature on SP in public organizations identifies political leaders, managerial staff as well as non-managerial staff as responsible for SP (George and Desmidt 2014; Bryson, Berry, and Yang 2010). We thus prefer this broad and factual definition of PTMs as opposed to a narrow and theoretical definition (e.g. only top management team members). The rationale underlying our units of analysis is twofold. First, because we wanted to make sure that our respondents would be capable of adequately replying to our questions (MacKenzie and Podsakoff 2012), we needed expert informants involved in SP. Second, the literature stresses the importance of a 'guiding coalition' for effective strategy implementation (Bryson, Crosby, and Bryson 2009). Hence, we propose that – at the very least – the planning team should be a starting point within this coalition. Importantly, although one might argue that PTMs are positively biased towards user acceptance of SP and plan commitment, our descriptive statistics (see Table 1, means ranging from 4.2 to 4.8 on a seven-point Likert scale) do not seem to support a strong and systematic positive bias.

Data collection

Data were derived from an electronic survey conducted in March–April 2015 among PTMs in Flemish municipalities. To ensure face validity (Lee, Benoit-Bryan, and Johnson 2012), the survey was extensively reviewed by experts, including SP-consultants who advise Flemish municipalities, managers in Flemish local authorities (excluding municipalities but subjected to the same change in planning procedures) and full professors with both academic and managerial experience in Flemish local authorities. The actual data collection process encompassed two phases and can be viewed as a multistage sampling procedure. First, the city managers of all 308 Flemish municipalities were contacted to identify the PTMs. The city managers of 241 Flemish municipalities agreed to participate in the study and provided the contact information of, in total, 998 PTMs. Second, all 998 PTMs were invited to participate in an electronic survey. In total, 439 PTMs responded (i.e. a response rate of 44per cent). These PTMs are distributed over 203 Flemish municipalities (i.e. 66per cent of

Table 1. Descriptive statistics for the research constructs (*N* = 439).

	Mean	SD	Median	Min.	Max.	Correlations ^a and construct reliabilities in parentheses					
						1	2	3	4	5	6
<i>Study variables</i>											
1. Creating style	5.6	.7	5.7	3.2	7.0	(.86)					
2. Knowing style	5.5	.8	5.7	2.7	7.0	.32**	(.76)				
3. Planning style	5.5	.7	5.7	2.3	7.0	.25**	.54**	(.85)			
4. Perceived usefulness of SP process	4.6	1.1	4.8	1.0	7.0	.22**	.17**	.26**	(.91)		
5. Perceived ease of use of SP process	4.2	1.2	4.3	1.0	7.0	.18**	.15**	.12**	.54**	(.88)	
6. Commitment to strategic plan	4.8	.9	4.8	1.5	7.0	.27**	.17**	.26**	.52**	.32**	(.81)

^aAll calculations are Pearson correlations.
*Correlation is significant at the .05 level (two-tailed).
**Correlation is significant at the .01 level (two-tailed).

all Flemish municipalities). Eighty municipalities have one respondent while 123 municipalities have more than one respondent (ranging from 2 to 12 PTMs, with an average of 2.9) (see the Supplemental data, Table A for more information on the frequency distribution).

We tested for non-response bias by comparing responses of late and early respondents through time trend extrapolation (Lee, Benoit-Bryan, and Johnson 2012). No significant differences were identified. The respondents to our survey were primarily male (52.4per cent), with a mean age of 44 years (SD = 9). On average, they had been with the municipality for 14 years (SD = 10). A small percentage of respondents (6.6per cent) had a political function, whereas the large majority (93.4per cent) held an administrative function. More than half of the respondents (61.8per cent) were either a city manager, financial manager or department head, whereas 31.6per cent held a non-managerial administrative function.

Analysis of the data indicates that there are only 82 missing observed variable values (i.e. 0.7per cent of all observed data) (see the Supplemental data, Table B for a detailed overview). Specifically, the percentage of missing values per observed variable range from 0.2per cent to 2.1per cent while only two variables have more than 1per cent of the observed data missing. To avoid reducing the number of respondents, missing data were imputed at item level. Given the limited missing rate and the fact that data are Missing Completely At Random (MCAR test chi-square = 876.65, df = 847, *p* = .233), missing data were imputed using the single imputation expectation-maximization method (EM) rather than a multiple imputation method. EM is ‘unbiased and efficient when the missing mechanism is ignorable’ (Dong and Peng 2013, 9).

Measures

All constructs were measured using seven-point Likert scales (ranging from strongly disagree (1) to strongly agree (7)). Plan commitment was measured with the six-item scale developed by Olson, Parayitam, and Bao (2007). This scale focused on the extent to which PTMs were prepared to put time and effort in successful plan implementation, and the content of the plan was in line with their expectations regarding the best strategies for their municipality (Olson, Parayitam, and Bao

2007; Parayitam and Dooley 2009). Ease of use and usefulness of the SP process were measured with four items respectively, developed by Hung, Chang, and Yu (2006). The items for both ease of use and usefulness were adapted to the specific context by asking respondents to focus on the ease of use and usefulness of the plan development process underlying the mandated change in planning procedures within Flemish municipalities. Cognitive style was measured with the eighteen-item CoSI of Cools and Van den Broeck (2007): seven items for the creating style, four items for the knowing style and seven items for the planning style. We chose CoSI because recent developments in the cognitive styles field argue that there are more dimensions than the historically used two cognitive styles (intuitive versus analytical) and the CoSI indicator is recommended as a state-of-the-art three-dimensional measure which addresses these developments (Armstrong, Cools, and Sadler-Smith 2012). Moreover, strong support has been found for CoSI's construct and predictive validity in different western and non-western samples (Armstrong, Cools, and Sadler-Smith 2012; Cools, De Pauw, and Vanderheyden 2011; Cools and Van den Broeck 2007). An overview of the included items can be consulted in the Supplemental data, Table C.

Despite the fact that the intervals between the values of the seven-point Likert scales cannot be presumed equal and thus fall, strictly speaking, within the ordinal level of measurement, the employed Likert scales will be treated as if they are continuous to allow the use of parametric tests. Notwithstanding some controversy, treating seven-point Likert scales as continuous is deemed acceptable when sets of Likert scales, with sufficient internal consistency, are used to analyse an underlying variable because this adds variability to the data (Allen and Seaman 2007). In addition, there are many studies of robustness indicating that applying parametric tests to Likert-scale data 'doesn't increase the chance [of an erroneous conclusion] very much (or even not at all)' (Norman 2010, 627).

Finally, typical controls used by studies on cognitive style and user acceptance include age, education, gender and tenure (e.g. Knockaert et al. 2015; Cools, Van den Broeck, and Bouckennooghe 2009). However, the logic underlying the adoption of controls is that (a) there is a theoretical explanation underlying the selection of these controls and (b) the controls are significantly correlated to the dependent and independent variables of interest (Bernerth and Aguinis 2016). Because these arguments do not apply to our study, we followed the recommendations of Bernerth and Aguinis (2016) and omitted these controls from our analysis. Moreover, due to our chosen data analytical technique, which accounts for clustering of individuals in municipalities, as well as our homogenous empirical setting, municipal-level controls were not included.

Common method bias

This study relies on perceptual data collected through self-reported surveys which implies that common method bias (CMB) could be a concern (Favero and Bullock 2014). However, despite its limitations, using self-reported surveys as sole information source can be an appropriate measurement method when 'both the predictor and criterion variables are capturing an individual's perceptions, beliefs, judgments, or feelings' (Podsakoff, MacKenzie, and Podsakoff 2012, 549). Nevertheless, in order to mitigate the potential impact of CMB, we used a set of *ex ante* remedies and

executed ex post analyses (MacKenzie and Podsakoff 2012; Podsakoff, MacKenzie, and Podsakoff 2012).

First, in line with recent advice on survey design in public management research (Lee, Benoit-Bryan, and Johnson 2012), we applied the following ex ante remedies: (a) we only included measures that were previously published to enhance concurrent validity, (b) we avoided complex and abstract questions, (c) response options were clearly labeled, (d) a lag time was installed between the different constructs by placing them on different pages and incorporating buffer items, (e) the cover letter stressed that the respondents' personal opinion is of critical importance and that there were no right or wrong answers, (f) the cover letter stressed the voluntary nature of participation and guaranteed anonymity and finally (g) an academic and practitioner committee pre-tested the survey (MacKenzie and Podsakoff 2012; Podsakoff, MacKenzie, and Podsakoff 2012).

Second, we conducted an ex post statistical analysis. The single-common-method-factor approach was used to control for CMB (Podsakoff, MacKenzie, and Podsakoff 2012). Two measurement models were compared: one in which questionnaire items load on their constructs as well as on a latent common method factor and one that only contains the hypothesized model's constructs. The model with the method factor did not significantly improve the fit over the hypothesized factor model (Tucker-Lewis Index (TLI) = .045), although the variables' factor loadings continued to be significant. Subsequently, the test results suggest that substantial CMB is absent.

Data analysis and results

Univariate and bivariate analysis

Table 1 presents the univariate and bivariate statistics for the study's measures. The variables' Cronbach's coefficient alphas (ranging from .76 to .92) provide the first evidence of construct reliability (see the section 'Multivariate analysis' for more detailed analyses).

Multivariate analysis

Because the data were collected using a multistage survey whereby individuals (i.e. PTMs) are clustered in a higher-order group (i.e. municipalities) and the developed conceptual model contains latent variables, lavaan.survey (an R package) (Obersky, Nov. 2015, version 1.1.3) was used. Specifically, lavaan.survey constructs latent variable models while correcting for the clustered survey design by (a) 'aggregating' the structural equation model parameter estimates over any cluster (Skinner, Holt, and Smith 1989) and (b) adjusting the standard errors based on the design (Muthén and Satorra 1995). In the Supplemental data, section D, we discuss in detail the proportion of variability of the study's variables that is between-cluster.

The latent variable model was developed using a two-step approach (Anderson and Gerbing 1988). In the first step, we conducted confirmatory factor analysis to assess the fit of the measurement model to the data. In the second step, we estimated the relationships between the constructs. Both the measurement and the structural models were analysed using a pseudo-maximum likelihood estimation with bootstrapping (5,000 bootstrapped covariance matrices), as well as corrected estimates,

standard errors and chi-square-derived fit measures for the clustered survey design. Non-standardized parameter estimates of these relationships are reported because all measures have the same scale and using the measure's original measurement unit facilitates interpretation.

Step 1. Psychometric properties of the measures: the measurement model

The survey-design adjusted chi-square of the multifactor measurement model is $\chi^2_{301} = 505.87$ ($p < .0001$). Consequently, the normed chi-square is 1.68 and meets the criterion for acceptance (< 5) (Schumacker and Lomax 2004). Although it has been argued that a positive chi-square could indicate that the model is unacceptable, other authors demonstrate that the chi-square index is almost always statistically significant when using larger sample sizes and can be disregarded if the more sensitive fit statistics provide evidence of model fit (Hair, Black, and Babin 2010). Hair, Black, and Babin (2010) advise, for models with $N > 250$ and between 12 and 30 observed variables, that the following cut-offs should be used to determine goodness-of-fit: TLI $\geq .92$, root mean square error of approximation (RMSEA) $< .07$ (with comparative fit index [CFI] $\geq .92$) and standardised root mean square residual (SRMR) $< .08$ (with CFI $\geq .92$). The constructed measurement model meets the required thresholds: TLI = .95, RMSEA = .039, SRMR = .050, CFI = .95.

After establishing an acceptable model fit, the measurement model was further tested for construct, convergent, discriminant and nomological validity.

First, we looked at construct validity. The included measures are believed to be related to their respective constructs because the loading of each factor is significantly different from zero and nontrivial (absolute standardized loadings $> .60$). In addition, all item factor loadings are significant (explained variance ranging from .35 to .85) while the average variance extracted and the construct reliability of each construct exceeds .50 and .60 respectively (Hair, Black, and Babin 2010). Second, evidence of convergent validity is provided via the significant size of the completely standardized factor loadings ([.59, .92], average $\lambda = .74$) (Fornell and Larcker 1981). Third, regarding discriminant validity, all constructs are believed to measure different concepts because the largest bivariate correlation (.66) is below the .85 threshold (Kenny 2012). In addition, the Fornell and Larcker (1981) discriminant validity test and a collapsed factor discriminant validity test provide further proof of the constructs' discriminant validity. Moreover, multicollinearity does not seem to be an issue given the low average bivariate correlation of .33 and the fact that no measure shares more than 34 per cent of its variance while the calculated variance inflation factors does not exceed 1.5. Fourth, the fact that the majority of the correlations between the constructs are positive, as expected based on theory, suggests nomological validity.

Step 2. Relationships between the latent variables: the structural model

The significance and strength of each of the hypothesized effects was analysed in a structural model which indicates that the developed model accurately captures the pattern of relationships found in the data: $\chi^2_{304} = 519.51$, $p < .0001$, CFI = .95, TLI = .94, RMSEA = .04, SRMR = .06 (see Step 1 for interpretation and cut-offs). To gain a better understanding of the possible mediations in the proposed structural model, bootstrap bias-corrected confidence intervals (CIs) (5,000 samples) were used to determine the significance of the indirect effects within the multiple mediation path analytic model. Specifically, where the CI does not cross zero, a significant indirect association is assumed (Preacher and Hayes 2008). Table 2 reports the unstandardized estimates and CIs of the conducted mediation tests including both direct and indirect effects.

Table 2. Unstandardized estimates and confidence interval limits for the mediation tests.

Path	Direct effect			Indirect effect			Total effect		
	b(SE)	95% CI	Sign.	b(SE)	95% CI	Sign.	b(SE)	95% CI	Sign.
Crea → Eas → Com	.261 (.08)	[.094, .428]	.002	-.024 (.02)	[-.063, .015]	.228	.422 (.11)	[.214, .629]	.000
Crea → Use → Com	.261 (.08)	[.094, .428]	.002	.185 (.07)	[.041, .328]	.012	.422 (.11)	[.214, .629]	.000
Kno → Eas → Com	-	-	-	-.011 (.01)	[-.038, .015]	.410	-.054 (.08)	[-0.210, .101]	.49
Kno → Use → Com	-	-	-	-.043 (.08)	[-.210, .118]	.581	-.054 (.08)	[-0.210, .101]	.49
Pla → Eas → Com	-	-	-	-.004 (.014)	[-.032, .023]	.766	.279 (.126)	[.032, .527]	.027
Pla → Use → Com	-	-	-	.283 (.134)	[.021, .545]	.034	.279 (.126)	[.032, .527]	.027

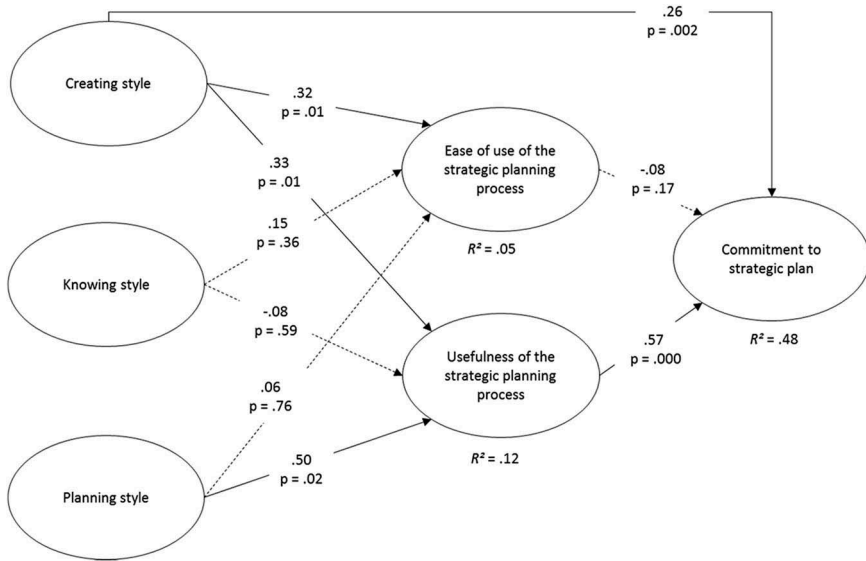


Figure 2. Final structural model (unstandardized estimates).

Although the hypothesized model (see Figure 1) contained six possible mediations, the mediation test results (Table 2) confirm only two of them. The findings indicate that usefulness fully mediates the relationship between a planning style and plan commitment, while it partially mediates the relationship between a creating style and plan commitment. Consequently, as shown in Figure 2, the hypothesized structural model was extended with a direct relation between a creating style and plan commitment.

The model fit indexes suggest that the revised structural model is accurate ($CFI = .95$, $TLI = .95$, $RMSEA = .039$, $SRMR = .051$, $\chi^2_{303} = 507.60$, $p < .0001$) and (marginally) outperforms the original model. Figure 2 presents the parameter estimates for the final structural model as unstandardized regression weights and the explained variance of the endogenous variables.

The results confirm the assumption that PTMs' cognitive style are related with perceived ease of use and usefulness of the SP process. The findings indicate that a creating style has a direct positive association (confirming H1 and H2) with both ease of use (95per cent bias-corrected bootstrap CI [.08, .56], point estimate of $b = .32$, $p < .05$) and usefulness (95per cent bias-corrected bootstrap CI [.10, .56], point estimate of $b = .33$, $p < .01$). We did not find support for H3 and H4 as the findings indicate that a knowing style had no direct association with neither ease of use (95per cent bias-corrected bootstrap CI [-.17, .46], point estimate of $b = .15$, $p = .36$) nor usefulness (95per cent bias-corrected bootstrap CI [-.36, .21], point estimate of $b = -.08$, $p = .59$). The results also indicate that a planning style had no direct association with ease of use (95per cent bias-corrected bootstrap CI [-.29, .40], point estimate of $b = .05$, $p = .76$) (rejection of H5) but confirms the direct positive association with usefulness (H6) (95per cent bias-corrected bootstrap CI [.09, .91], point estimate of $b = .50$, $p < .05$). Usefulness, in turn, has a direct positive association with plan commitment (acceptance of H8) (95per cent bias-corrected bootstrap CI [.42, .71], point estimate of $b = .57$,

$p < .0001$) while the relationship between ease of use and plan commitment proves to be insignificant (rejection of H7) (95per cent bias-corrected bootstrap CI $[-.19, .03]$, point estimate of $b = -.08$, $p = .17$).

The analyses furthermore indicate that the revised structural model contains two mediations. First, perceived usefulness of the SP process fully mediates the relationship between a planning style and plan commitment (95per cent bias-corrected bootstrap CI $[.02, .55]$, point estimate of $b = .28$, $p < .05$). Second, perceived usefulness of the SP process partially mediates the relationship between a creating style and plan commitment (indirect effect: 95per cent bias-corrected bootstrap CI $[.04, .33]$, point estimate of $b = .18$, $p < .05$, direct association between a creating style and plan commitment: 95per cent bias-corrected bootstrap CI $[.09, .43]$, point estimate of $b = .26$, $p < .01$).

Discussion

We contributed to the debate on SP's effectiveness in public organizations by addressing the call for more micro-level research in the context of public SP (Bryson, Crosby, and Bryson 2009). Specifically, we examined two individual-level determinants of PTMs' commitment to strategic plans, namely PTMs' cognitive style and their acceptance of SP. More insights into individual characteristics that are associated with plan commitment is crucial because plan commitment is considered to be a key process output of SP that precedes successful plan implementation (Olson, Parayitam, and Bao 2007). We hypothesized that a fit between PTMs' cognitive information-processing style and the information-processing characteristics of SP is associated with SP acceptance, which in turn influences plan commitment. We found partial support for our hypotheses, although not all results provided support for the expected information-processing fit perspective.

We found that it is highly relevant to focus on user acceptance in the context of the implementation of SP within public organizations. The importance of user acceptance is illustrated through the positive relation between PTMs' perceived usefulness of the SP process and their commitment to the strategic plan (H8). As hypothesized, PTMs who consider the SP process useful for the performance of their municipality are more likely to indicate that they are committed to implement the plan. Interestingly enough, the same rationale does not apply to PTMs' perceived ease of use of the SP process (H7). This finding is relevant for public organizations because previous research illustrated that the adoption of SP requires time, technical expertise and organizational resources and SP processes are inherently difficult to adopt and execute (George and Desmidt 2014; Boyne et al. 2002). However, the difficult nature of SP does not necessarily impede the commitment of PTMs to implement the resulting strategic plan. What seems to be more important is whether these PTMs find that the SP process is likely to increase the performance of their organization. In this sense, we recommend governments and municipalities to organize 'plan for planning' sessions before the actual initiation of SP, during which they can stress arguments related to the usefulness of SP for the performance of the organizations at hand (Bryson 2011; George, Desmidt, and De Moyer 2016).

Looking at the influence of PTMs' individual cognitive style on their acceptance of SP, we found that PTMs with a creating style are more likely to find the SP process both easy to use and useful, PTMs with a planning style are more likely to find the SP process useful whereas a knowing style is not significantly related to ease of use nor

usefulness of the SP process. These findings – some of which are counter to our theoretical argument – could mirror the specific character of SP processes in a public-sector setting versus a private-sector setting. Specifically, in private organizations, the adoption of SP might be the result of fad and fashion, advice from consultants or mimetic/normative isomorphism but typically leaves ample flexibility to adapt the process and its output to the specific organizational context (Abrahamson 1991; Wolf and Floyd 2013). In the public sector, however, the adoption of SP is in many cases the result of a change in procedures enforced by law – which includes a structured time frame, process as well as output. In such settings, PTMs are also often confronted with ambiguity and uncertainty – thus necessitating both creativity and adaptability during SP. We draw on this distinctiveness throughout our further discussion.

The results for the creating style support our hypothesized positive relations (H1 and H2). In our research setting, SP was a change in planning procedures put forth by the Flemish Government. As is the case in many public organizations, SP was thus conducted in an ambiguous and uncertain context, requiring the necessary flexibility and creativity to change existing procedures and adopt the new approach while simultaneously generating ideas on what would be relevant strategies for the municipality. Creators are known for their positive attitude towards change in general, as well as their ability to cope with uncertainty and generate innovative ideas (Cools, Van den Broeck, and Evans 2008). In the Flemish context, SP thus seemed to offer the optimal environment for creators to thrive in – explaining their higher acceptance of the SP process. The impact of this finding cannot be underestimated. One of the widespread stereotypes of SP is its overly and almost mechanistic focus on strategy analysis – with little room for intuition and creativity (Mintzberg 1994). If this type of ‘silo’-thinking focused on one specific, analysis-driven approach to SP indeed emerged in our research setting (Bryson 2015; Ferlie and Ongaro 2015), it seems highly unlikely that creators would be so favourable towards the SP process. More so, as is apparent from our other findings, the creators are the ones who seem to be the actual ‘process champions’ of SP in Flemish municipalities – and not the analysis-driven knowers.

The results for a planning style support our argument that planners are more likely to accept SP processes. This finding, however, is limited to PTMs’ perceived usefulness (H6) and does not apply to PTMs’ perceived ease of use (H5). Again, the underlying reason for this finding could lie in the specific context of SP in Flemish municipalities. People with a planning style are not fond of change and uncertainty in general and hence are reluctant towards the burden that implementing this change in planning procedures might bring, irrespective of the fact that they do consider SP useful for their organization (Cools, Van den Broeck, and Evans 2008). The fact that the procedural change will first require planners to organize themselves differently might result in the perception that SP is not a ‘change in chewable bites’ hence clarifying the non-significant link with ease of use (Kemp, Funk, and Eadie 1993). In this sense, it will be important to convince PTMs with a planning style that the SP process will not only be useful, but, in the long run, also easy to use even though it will require some initial effort. Focusing on the ‘natural’ fit between SP’s reasonably systematic approach to strategy formulation and planners’ preferences for structure and organization can help in building convincing arguments.

The non-significant results for a knowing style contrast with the hypothesized positive relation between knowing and SP acceptance (H3 and H4). A knowing style is typically associated with a preference for analysis and rationality, which at first sight seems to correspond well with SP's use of analytical tools such as a SWOT analysis. However, knowers' preference for lengthy analysis and intellectual freedom could hold a potential pitfall. Specifically, the procedural change underlying SP in Flemish municipalities contains strict time frames and a request to include specific structured output (George, Desmidt, and De Moyer 2016). First, it is possible that PTMs with a knowing style find this time frame to be insufficient for the in-depth analysis of data that constitutes their favoured approach to decision-making (Cools, Van den Broeck, and Evans 2008). Hence, if knowers are not given the time to execute their lengthy analysis during SP, it is likely that they find the SP process to lack a thorough analytical dimension. Second, knowers prefer intellectual challenges and the necessary intellectual freedom (Cools, Van den Broeck, and Evans 2008). The predefined and structured output might seem too restrictive for them, in the sense that they lack the intellectual freedom to approach SP as they would prefer to. The question that thus remains is how SP in public organizations can leave ample flexibility for the type of intellectual and thorough contributions and analyses that would stimulate the knowers in the planning team.

Finally, apart from the relation between (a) user acceptance (i.e. ease of use and usefulness) and plan commitment and (b) cognitive styles and user acceptance, we also found evidence for the mediating role of PTMs' perceived usefulness of the SP process. Specifically, our findings indicate that creators and planners are more likely to illustrate a behavioural intent to implement strategic plans because they perceive SP as a useful procedural change which will enhance the performance of their organization. Both planners and creators thus prove to be essential PTMs when SP is introduced as a procedural change in public organizations because they can become the guiding coalition and champions who promote the strategic plan during its implementation throughout and beyond the organization (Bryson, Crosby, and Bryson 2009). Nevertheless, the challenge lies in also convincing PTMs with a knowing style to champion the strategic plan because their lack of commitment might stimulate resistance during plan implementation.

Limitations

Four limitations of our study need to be taken into account. First, we focused on one aspect and unit of analysis of public SP, namely individual PTMs. Other aspects and units of analysis such as SP process characteristics, organizational characteristics and planning team characteristics can also influence SP in public organizations (Bryson, Crosby, and Bryson 2009; George and Desmidt 2014; Armstrong, Cools, and Sadler-Smith 2012). Second, our study employs cross-sectional data drawn from one self-report survey. We are thus limited to associative relations and issues of common source bias cannot be completely ruled out (Favero and Bullock 2014). Third, although our sampling procedure was aimed at identifying expert informants, respondent bias could be an issue because we only survey individuals 'responsible' for plan formulation. Fourth, our analysis might suffer from omitted variable bias because we did not include controls in our model. Future research could address these limitations. Multilevel studies could incorporate individual-level, team-level and

organizational-level variables in the same model. Additionally, studies could include archival and survey-based data or use experimental methods to avoid common source bias. Longitudinal studies could also provide insights into the evolution of user acceptance towards SP based on SP's lifecycle. Studies could also look at other employee groups (e.g. lower-level staff or professionals) and identify whether our findings hold or might differ depending on the proximity of an individual to the SP process. Finally, drawing on the initial findings of our study, future follow-up qualitative studies can help to elucidate and fine-grain the theoretical underpinnings of an information-processing model of SP.

Conclusion

Our study complements the current organizational-level, performance-oriented and Anglo-Saxon focus of empirical studies on SP in public organizations. Specifically, we illustrate how strategic plans in Flemish municipalities can receive the necessary commitment needed for successful implementation. We argue that this commitment is, in part, contingent upon the match between the individual characteristics of PTMs and the characteristics of the SP process. Importantly, our study counterbalances the dominant stereotype of SP as an overly mechanistic and analytical approach that limits intuition and creativity by illustrating that, in Flemish municipalities, PTMs with a creating style are the actual process champions of SP. Our study thus suggests that a micro-perspective on public SP – which takes into account the practitioners underlying SP processes – has rightly been singled out as a crucial research avenue to understand why plans succeed or fail in public organizations. We conclude that within this micro-perspective, both cognitive styles and user acceptance are relevant individual-level determinants of commitment to strategic plans.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- Abrahamson, E. 1991. "Managerial Fads and Fashions: The Diffusion and Rejection of Innovations." *Academy of Management Review* 16 (3): 586–612.
- Allen, E., and C. Seaman. 2007. "Likert Scales and Data Analyses." *Quality Progress* 40 (7): 64–65.
- Anderson, J. C., and D. W. Gerbing. 1988. "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach." *Psychological Bulletin* 103 (3): 411. doi:10.1037/0033-2909.103.3.411.
- Armstrong, S. J., E. Cools, and E. Sadler-Smith. 2012. "Role of Cognitive Styles in Business and Management: Reviewing 40 Years of Research." *International Journal of Management Reviews* 14 (3): 238–262. doi:10.1111/j.1468-2370.2011.00315.x.
- Bandura, A. 1982. "Self-Efficacy Mechanism in Human Agency." *American Psychologist* 37 (2): 122–147. doi:10.1037/0003-066X.37.2.122.
- Bandura, A. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bernerth, J. B., and H. Aguinis. 2016. "A Critical Review and Best-Practice Recommendations for Control Variable Usage." *Personnel Psychology* 69 (1): 229–283. doi:10.1111/peps.12103.

- Bovaird, T. 2008. "Emergent Strategic Management and Planning Mechanisms in Complex Adaptive Systems - the Case of the UK Best Value Initiative." *Public Management Review* 10 (3): 319–340. doi:10.1080/14719030802002741.
- Boyne, G. A. 2001. "Planning, Performance and Public Services." *Public Administration* 79 (1): 73. doi:10.1111/1467-9299.00246.
- Boyne, G. A., J. S. Gould-Williams, J. Law, and R. M. Walker. 2002. "Plans, Performance Information and Accountability: The Case of Best Value." *Public Administration* 80 (4): 691–710. doi:10.1111/padm.2002.80.issue-4.
- Bryson, J. M. 2010. "The Future of Public and Nonprofit Strategic Planning in the United States." *Public Administration Review* 70: s255–s267. doi:10.1111/j.1540-6210.2010.02285.x.
- Bryson, J. M. 2011. *Strategic Planning for Public and Nonprofit Organizations: A Guide to Strengthening and Sustaining Organizational Achievement*. San Francisco: Jossey-Bass.
- Bryson, J. M. 2015. "Strategic Planning for Public and Nonprofit Organizations." In *International Encyclopedia of the Social & Behavioral Sciences*, edited by J. D. Wright, 515–521. Oxford: Elsevier.
- Bryson, J. M., F. S. Berry, and K. Yang. 2010. "The State of Public Strategic Management Research: A Selective Literature Review and Set of Future Directions." *The American Review of Public Administration* 40 (5): 495–521. doi:10.1177/0275074010370361.
- Bryson, J. M., B. C. Crosby, and J. K. Bryson. 2009. "Understanding Strategic Planning and the Formulation and Implementation of Strategic Plans as a Way of Knowing: The Contributions of Actor-Network Theory." *International Public Management Journal* 12 (2): 172–207. doi:10.1080/10967490902873473.
- Chakraborty, I., P. J.-H. Hu, and D. Cui. 2008. "Examining the Effects of Cognitive Style in Individuals' Technology Use Decision Making." *Decision Support Systems* 45 (2): 228–241. doi:10.1016/j.dss.2007.02.003.
- Cools, E., A.-S. De Pauw, and K. Vanderheyden. 2011. "Cognitive Styles in an International Perspective: Cross-Validation of the Cognitive Style Indicator (CoSI)." *Psychological Reports* 109 (1): 59–72. doi:10.2466/04.09.11.PR0.109.4.59-72.
- Cools, E., and H. Van den Broeck. 2007. "Development and Validation of the Cognitive Style Indicator." *The Journal of Psychology* 141 (4): 359–387. doi:10.3200/JRLP.141.4.359-388.
- Cools, E., H. Van den Broeck, and C. Evans. 2008. "Cognitive Styles and Managerial Behaviour: A Qualitative Study." *Education + Training* 50 (2): 103–114. doi:10.1108/00400910810862092.
- Cools, E., H. Van den Broeck, and D. Bouckenoghe. 2009. "Cognitive Styles and Person-Environment Fit: Investigating the Consequences of Cognitive (Mis)Fit." *European Journal of Work and Organizational Psychology* 18 (2): 167–198. doi:10.1080/13594320802295540.
- Davis, F. D. 1989. "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology." *MIS Quarterly* 13 (3): 319–340. doi:10.2307/249008.
- De Bruijn, H., and G. Jan Van Helden. 2006. "A Plea for Dialogue Driven Performance-Based Management Systems: Evidence from the Dutch Public Sector." *Financial Accountability & Management* 22 (4): 405–423. doi:10.1111/j.1468-0408.2006.00432.x.
- Dong, Y., and C.-Y. J. Peng. 2013. "Principled Missing Data Methods for Researchers." *SpringerPlus* 2 (1): 1–17. doi:10.1186/2193-1801-2-222.
- Favero, N., and J. B. Bullock. 2014. "How (Not) to Solve the Problem: An Evaluation of Scholarly Responses to Common Source Bias." *Journal of Public Administration Research and Theory*. doi:10.1093/jopart/muu020.
- Ferlie, E., and E. Ongaro. 2015. *Strategic Management in Public Services Organizations: Concepts, Schools and Contemporary Issues*. Oxon: Routledge.
- Fornell, C., and D. F. Larcker. 1981. "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error." *Journal of Marketing Research* 18 (1): 39–50. doi:10.2307/3151312.
- George, B. 2016. *Unravelling the Determinants of Strategic Planning Effectiveness in Public Organizations: A Strategic Decision-Making Perspective at the Individual and Organizational Level*. Ghent: Ghent University.
- George, B., and S. Desmidt. 2014. "A State of Research on Strategic Management in the Public Sector: An Analysis of the Empirical Evidence." In *Strategic Management in Public Organizations: European Practices and Perspectives*, edited by P. Joyce and A. Drumaux, 151–172. New York: Routledge.

- George, B., and S. Desmidt. 2016. "Strategic-Decision Quality in Public Organizations: An Information Processing Perspective." *Administration & Society*. doi:10.1177/0095399716647153.
- George, B., S. Desmidt, and J. De Moyer. 2016. "Strategic Decision Quality in Flemish Municipalities." *Public Money & Management* 36 (5): 317–324. doi:10.1080/09540962.2016.1194073.
- George, B., S. Desmidt, P. A. Nielsen, and M. Baekgaard. 2016. "Rational Planning and Politicians' Preferences for Spending and Reform: Replication and Extension of a Survey Experiment." *Public Management Review* 1–21. doi:10.1080/14719037.2016.1210905.
- Goeminne, S., and C. Smolders. 2014. "Politics and Public Infrastructure Investments in Local Governments: Empirical Evidence from Flemish Municipalities (1996–2009)." *Local Government Studies* 40 (2): 182–202. doi:10.1080/03003930.2013.790813.
- Grimmelikhuijsen, S., S. Jilke, A. L. Olsen, and L. Tummers. 2016. "Behavioral Public Administration: Combining Insights from Public Administration and Psychology." *Public Administration Review*. Early view. doi:10.1111/puar.12609.
- Hair, J., W. Black, and B. Babin. 2010. *Multivariate Data Analysis (7 Ed.)*. New Jersey: Prentice Hall.
- Hodgkinson, G. P., and E. Sadler-Smith. 2003. "Complex or Unitary? A Critique and Empirical Re-Assessment of the Allinson-Hayes Cognitive Style Index." *Journal of Occupational and Organizational Psychology* 76 (2): 243–268. doi:10.1348/096317903765913722.
- Hung, S.-Y., C.-M. Chang, and T. J. Yu. 2006. "Determinants of User Acceptance of the E-Government Services: The Case of Online Tax Filing and Payment System." *Government Information Quarterly* 23 (1): 97–122. doi:10.1016/j.giq.2005.11.005.
- Kemp, E. J., R. J. Funk, and D. C. Eadie. 1993. "Change in Chewable Bites: Applying Strategic Management at EEOC." *Public Administration Review* 53 (2): 129–134. doi:10.2307/976705.
- Kenny, D. A. 2012. "Measuring model fit." <http://davidakenny.net/cm/fit.htm>
- Knockaert, M., M. Der Foo, T. Erikson, and E. Cools. 2015. "Growth Intentions among Research Scientists: A Cognitive Style Perspective." *Technovation* 38: 64–74. doi:10.1016/j.technovation.2014.12.001.
- Kroll, A. 2014. "Why Performance Information Use Varies Among Public Managers: Testing Manager-Related Explanations." *International Public Management Journal* 17 (2): 174–201. doi:10.1080/10967494.2014.905409.
- Lee, G., J. Benoit-Bryan, and T. P. Johnson. 2012. "Survey Research in Public Administration: Assessing Mainstream Journals with a Total Survey Error Framework." *Public Administration Review* 72 (1): 87–97. doi:10.1111/j.1540-6210.2011.02482.x.
- Lu, H.-P., H.-J. Yu, and S. S. K. Lu. 2001. "The Effects of Cognitive Style and Model Type on DSS Acceptance: An Empirical Study." *European Journal of Operational Research* 131 (3): 649–663. doi:10.1016/S0377-2217(00)00107-7.
- MacKenzie, S. B., and P. M. Podsakoff. 2012. "Common Method Bias in Marketing: Causes, Mechanisms, and Procedural Remedies." *Journal of Retailing* 88 (4): 542–555. doi:10.1016/j.jretai.2012.08.001.
- Mintzberg, H. 1994. "The Fall and Rise of Strategic Planning." *Harvard Business Review* 72 (1): 107–114.
- Muthén, B. O., and A. Satorra. 1995. "Complex Sample Data in Structural Equation Modeling." *Sociological Methodology* 25: 267–316.
- Norman, G. 2010. "Likert Scales, Levels of Measurement and the "Laws" of Statistics." *Advances in Health Sciences Education* 15 (5): 625–632.
- Nutt, P. C. 2006. "Comparing Public and Private Sector Decision-Making Practices." *Journal of Public Administration Research and Theory* 16 (2): 289–318.
- Olson, B. J., S. Parayitam, and Y. Bao. 2007. "Strategic Decision Making: The Effects of Cognitive Diversity, Conflict, and Trust on Decision Outcomes." *Journal of Management* 33 (2): 196–222.
- Parayitam, S., and R. S. Dooley. 2009. "The Interplay between Cognitive- and Affective Conflict and Cognition- and Affect-Based Trust in Influencing Decision Outcomes." *Journal of Business Research* 62 (8): 789–796.
- Podsakoff, P. M., S. B. MacKenzie, and N. P. Podsakoff. 2012. "Sources of Method Bias in Social Science Research and Recommendations on How to Control It." *Annual Review of Psychology* 63 (1): 539–569.

- Poister, T. H., O. Q. Pasha, and L. H. Edwards. 2013. "Does Performance Management Lead to Better Outcomes? Evidence from the U.S. Public Transit Industry." *Public Administration Review* 73 (4): 625–636.
- Pollitt, C., and G. Bouckaert. 2004. *Public Management Reform: A Comparative Analysis*. New York: Oxford University Press.
- Preacher, K., and A. Hayes. 2008. "Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models." *Behavior Research Methods* 40 (3): 879–891.
- Radin, B. A. 2006. *Challenging the Performance Movement: Accountability, Complexity and Democratic Values*. Washington, D.C.: Georgetown University Press.
- Rogers, P. R., A. Miller, and W. Q. Judge. 1999. "Using Information-Processing Theory to Understand Planning/Performance Relationships in the Context of Strategy." *Strategic Management Journal* 20 (6): 567–577.
- Sadler-Smith, E. 2009. "A Duplex Model of Cognitive Style." In *Perspectives on the Nature of Intellectual Styles*, edited by L. F. Zhang and R. J. Sternberg, 3–28. New York: Springer.
- Sadler-Smith, E., D. P. Spicer, and F. Tsang. 2000. "Validity of the Cognitive Style Index: Replication and Extension." *British Journal of Management* 11 (2): 175–181.
- Saeed, N., Y. Yun, and S. Sinnappan. 2009. "Effects of Cognitive Style on User Acceptance of Blogs and Podcasts." *Advanced Learning Technologies*, 2009. ICALT 2009. Ninth IEEE International Conference on, July 15–17. <http://ieeexplore.ieee.org/document/5194231/>
- Schumacker, R. E., and R. G. Lomax. 2004. *A Beginner's Guide to Structural Equation Modeling*. 2nd ed. Mahwah, NJ: Lawrence Erlbaum Associates.
- Simon, H. A. 1973. "Applying Information Technology to Organization Design." *Public Administration Review* 33 (3): 268–278.
- Skinner, C., D. Holt, and T. Smith. 1989. *Analysis of Complex Surveys*. New York: John Wiley & Sons.
- Walker, R. M., and R. Andrews. 2015. "Local Government Management and Performance: A Review of Evidence." *Journal of Public Administration Research and Theory* 25 (1): 101–133.
- Walker, R. M., and G. A. Boyne. 2006. "Public Management Reform and Organizational Performance: An Empirical Assessment of the U.K. Labour Government's Public Service Improvement Strategy." *Journal of Policy Analysis & Management* 25 (2): 371–393.
- Wolf, C., and S. W. Floyd. 2013. "Strategic Planning Research: Toward a Theory-Driven Agenda." *Journal of Management*. doi:10.1177/0149206313478185.