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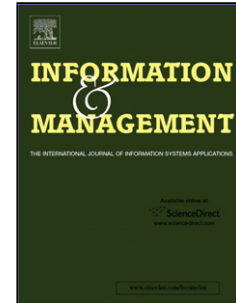
Title: OSPM: A Design Methodology for Open Strategic Planning

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OSPM: A Design Methodology for Open Strategic Planning

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Highlights

- We propose a methodology for an inclusive, transparent and IT-enabled approach to strategic planning.
- The methodology consists of a blueprint for a planning system.
- The methodology also consists of a strategy process, with guidelines for implementation.
- The proposed methodology is evaluated and enhanced from application in two empirical cases.

Abstract

This study employs a design science perspective to propose a methodology for open strategic planning (OSP). Habermas' discourse theory and Bryson's strategy change cycle are used as informing kernel theories. A methodology is proposed to satisfy the requirements retrieved from the kernel theories. The proposed methodology contains modules for a planning system and a planning process. Design principles are explained through a blueprint of the system and process. The proposed methodology is applied and evaluated in two cases. Contributions to the literature involve extending the literature on OSP to an applicable methodology with guidelines on how to implement open strategy.

Keywords: Strategic Planning, Open Strategy, Design Science Research Method, Planning Process, Planning System.

1 Introduction

The concept of *open innovation* or using both inflows and outflows of knowledge to improve internal innovation [1] is well studied in Information Technology (IT) and Information Systems (IS) areas after the 2000s [2, 3]. The application of this concept has gone beyond the technical or everyday tasks such as open source software (OSS) or crowdsourcing in organisations. Recently, the open innovation concept has been combined with a decentralisation trend in strategic planning research [4], leading to a new concept called *open strategy* [5].

The new interdisciplinary concept of open strategy calls for increasing *inclusiveness*: receiving strategy ideas from people outside of the management team; *transparency*: providing people outside the management team with access to strategy input, process and outputs and *use of IT tools* in one or several activities required to formulate the strategic plan [6, 7]. Open strategy has been documented in many case studies, and various benefits are reported, including creating a dialogue about strategy [8], leveraging customers' knowledge for strategy formation [9], increasing innovation and creativity [10, 11], better approval of strategy [12] and better firm performance [13-15].

Following reports in the literature about the usefulness of an open perspective for strategic planning, a vast body of literature has formed, and different aspects of this topic are investigated. For example, participation behaviour of stakeholders [14], strategising technologies [10, 16], associated risks [17] and outcomes of open strategy [18-20] have been widely reported in the literature on both the IS and management. Furthermore, numerous case studies of open strategy have been published [8, 21-23], which focus on potential opportunities and challenges in this topic area.

Although the body of research around the open strategy topic has been useful to investigate many aspects of the phenomena, extant studies are primarily descriptive rather than prescriptive, and for this reason, only few process models [7, 24] are proposed, which claim to implement the notion of open strategy. Further, these studies are either theoretical or applicable only to a specific context and overlook important aspects such as specifications of a planning system.

Consequently, we have little understanding of how an organisation can design and implement an Open Strategic Planning (OSP) system. This gap in our understanding is reflected in previous studies as 'micro details of strategising' using an open approach [6] and many other calls for prescriptive studies [7, 8, 12, 25]. The challenge in prescriptive OSP research is to prescribe how an OSP method can satisfy both social and technical requirements simultaneously [23, 26]. From a social perspective, an OSP methodology should focus on challenges such as commitment and disclosure in the strategy process [15], requiring a strong theoretical base. From a technical perspective, organisation of strategy resources including the stakeholder and planning system should fulfil the concept of OSP in terms of both process and artefact.

To address the gap in understanding, this research aims to develop a methodology of OSP using a Design Science Research (DSR) approach. A design science perspective aids the research to achieve its goal through theory-based development of the design methodology and an interplay between design and use of the system. This paper argues that a design paradigm is a beneficial perspective for strategic planning research [27], creating an opportunity to produce theoretically supported and empirically validated descriptive knowledge [28, 29].

Although addressing both the conceptual and theoretical background is a crucial requirement for descriptive knowledge, the main claim to validity is *usefulness*. This study employs a multi-grounded perspective to (i) produce an in-depth, theoretical informed and process-oriented methodology of OSP and (ii) investigate the usefulness of this methodology. In this study, *grounding* refers to 'justifying knowledge by claiming its validity', and a multi-grounded perspective justifies knowledge using both kernel theories and empirical data [30].

The adopted multi-grounded perspective involves *internal grounding* satisfied through considering the principles of OSP, involving inclusiveness, transparency and using IT in the strategy process. The

study also involves theoretical grounding considering relevant kernel theories from other disciplines. In particular, *Habermas' theory of discourse* [31] is considered to develop the ideal specification of an OSP system, and Bryson's *strategy change cycle* [32] is referred to as a basis for strategy process. Finally, *empirical grounding* is satisfied through the implementation of the methodology in two case studies through reporting on qualitative data collected during and after both strategy planning projects. Using a three-phased research design as illustrated in Figure 1, this research first considers internal and theoretical grounding to develop both a methodology [28, 33] and an IT artefact [34]. Second, by applying the developed methodology and artefact through practice in two case studies [35], the research evaluates and refines the methodology and IT artefact through empirical grounding. In-depth analysis of the data generated during the case studies created additional insights to further improve the developed methodology, adding to the validity and usefulness of the findings [36, 37].

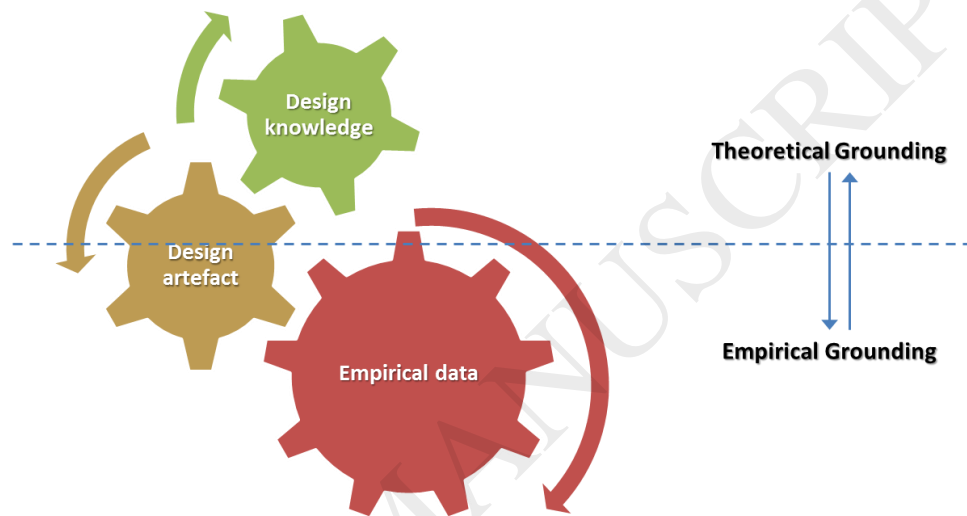


Figure 1 The reciprocal relation between different components in the research

In terms of contribution to the strategic planning literature, this paper presents the first prescriptive study in the field of open strategy applicable to a variety of contexts. In summary, the proposed methodology outlines an innovative theoretical perspective to the notion of open strategy by considering Habermas' design of discourse and Bryson's strategy change cycle. This theoretical perspective enables the proposed methodology to conceptualise aspects of open strategy that have been less studied in previous research. The designed artefact OSP Methodology (OSPM) proposed consists of two key elements: (i) a planning system and (ii) a planning process. In addition to the theoretical grounding (kernel theories), empirical data from two case studies are used to complement theory. The paper claims that these two key elements make it easier for practitioners to implement the open strategy concept.

The rest of the paper is structured as follows: background to research on strategic planning, open strategy and DSR is presented in Section 2. Section 3 provides an overview of the research approach and data collection/analysis methods. Section 4 outlines the steps followed in this study to pursue theoretical grounding: kernel theories, design requirements and components of the planning methodology. In Section 5, the empirical grounding aspect of the study is explained and results are discussed. In Section 6, we discuss our contribution to theory and practice with an agenda for future research and conclude the paper in Section 7.

2 Research Background

2.1 Evolution of Strategic Planning

Strategic planning is introduced as a tool to help managers better lead their firms by setting goals. Since the development of the strategic planning concept by Drucker [38] in the mid-1950s, several dimensions of this concept have changed over time. According to Wolf and Floyd [4], a number of publications by Mintzberg [39] initiated a new era of strategic planning research, and one of the areas particularly highlighted in this body of work was *strategy makers* suggesting a broader range of actors and the sharing the power of strategy formulation in organisations. Mintzberg's work was built on by Hamel [39], who proposed ten principles for strategic planning and suggested democratic strategic planning as one of these principles.

In this new era of strategy research, the role of *middle managers* was highlighted [40, 41]. The literature also called for participation of more stakeholders and decentralisation of the strategic planning process [42, 43]. These developments concerning participation and transparency in strategic planning led to the introduction of a new concept called *open strategy*. Open strategy is now known through the three principles of inclusiveness, transparency and the use of IT [6, 7].

Although the notion of open strategy has attracted attention in the literature in recent years, the results of our review indicate that the majority of the studies in open strategy are descriptive. A number of studies in this area, however, suggest activities and methods as initial steps of an open strategy process.

2.2 Open Strategy Methods

Open strategy was first introduced through the broad principles of *inclusiveness* and *transparency* [6]. The social web and Web 2.0 technologies played an important role in the development of the open strategy concept [44], and models and technologies such as crowdsourcing [45], Wiki [24, 25] and jamming [46] are examples. The role of IT tools has been significant in the implementation of open strategy that recent publications consider *IT-enabledness* as the third principle of open strategy [7]. Table 1 depicts the principles of open strategy including a short description for each.

Principle	Description
Inclusiveness	Receiving strategy ideas from people outside of the management team [6].
Transparency	Providing people outside the management team with access to strategy input, process and outputs [6].
IT-enabledness	Using IT tools to facilitate participation as an essential element of the strategy process [7].

Table 1 Principles of open strategy

While the term open strategy was coined in the late 2000s, certain principles had been practiced before that [46, 47]. However, among the documented research studies on open strategy, only a few have proposed a process (or set of activities) for strategy formulation. For example, Stieger, Matzler, Chatterjee and Ladstaetter-Fussenegger [8] suggested a number of activities (energising, listening and talking/supporting and embracing employees) to implement the open strategy concept according to their case study in an Austrian company. Dobusch and Kapeller's [25] research based on the case of Wikimedia's strategic plan proposed a three-step strategy process that commenced with staffing and announcing (performed by the organisation), contributing and discussion (performed by community) and task monitoring (performed collaboratively).

Both of the above-mentioned studies do not claim that their results form a comprehensive process applicable to other contexts. In fact, both studies remain silent about the specifications of the information system required to implement OSP. Aten and Thomas [22] recognised a process flow in one of the cases they studied as part of their research on technology affordance for strategising. Their study is, however, descriptive and did not explain or prescribe an explicit method applicable to other contexts.

On the basis of a synthesis of a proposed method involving a number of cases, Tavakoli, Schlagwein and Schoder [7] proposed a strategy process model covering three phases: (a) preparing strategy planning (setting up and analysing); (b) forming and evaluating strategy (generating ideas, decision-making and synthesising) and (c) implementing strategy (communicating and operationalising). Although the work of Tavakoli, Schlagwein and Schoder [7] involves more than a single case and focuses on important areas such as implementation and evaluation, their research still overlooks IT-enabledness and lacks empirical evidence regarding an evaluation of the effectiveness of their proposed process model.

From an IT perspective, Liinamaa, Nuutinen, Sutinen and Vanharanta [16] suggested an architecture for an IT-enabled strategic planning system with various tools (dialogue tool, questionnaire tool, planning tool and dialogue tool). On the basis of our review of the literature, [16] is the only research focusing on the IT dimension of a strategic planning system. However, the process to employ the IT system and considerations of interaction with stakeholders are not addressed.

In summary, among the few studies suggesting activities as initial steps of an open strategy process, most are narrow and only applicable to a specific context. Furthermore, no comprehensive method can be found, which goes beyond strategy formulation activities and considers strategic actors or the planning system. To address these shortcomings, this paper focuses on developing a methodology of OSP involving both the requirements for the information system and the strategy process.

2.3 Design Science Research and Design Theory

This paper claims that DSR is suitable for the purpose of this research as it aims to create the *know-how* knowledge for the design of a methodology for OSP in a formalised and empirical way [48]. This knowledge is created through inclusion of theory, constructs, models, methods and instantiations [29].

An important dimension of DSR is the output of a design. According to March and Smith [49], constructs, models, methods and instantiations are all possible outcomes of DSR. Walls, Widmeyer and El Sawy [50] elaborated theory building as a fifth output of DSR, covering the first three outputs (constructs, models and methods) [28]. Gregor [51] classified IS theory into five categories, and *design and action theory* being one of them dealing with *how to do something*. Information System Design Theory (ISDT) is a type of theory in this category that ‘shows the principles inherent in the design of an IS artefact that accomplishes some end, on the basis of knowledge of both IT and human behaviour’ and can focus on both products or method artefact [28].

According to Kuechler and Vaishnavi [52], DSR belongs to the design perspective of research and differs from positivist and interpretivist perspectives of research in terms of philosophical assumptions. In terms of ontology, a design perspective adopts a contextually situated multiple reality view, whereas development of the artefact (OSPM) is the main research contribution in terms of epistemology (knowing through making).

3 Research Approach

3.1 Design Process

A number of process models have been proposed to conduct DSR. This paper adopts the process model suggested by Peffers, Tuunanen, Rothenberger and Chatterjee [34] as part of their DSR methodology. The research design process starts with *problem and motive identification* and continues

with *defining objectives of a solution*. In this research, a solution will be implemented as an artefact during the *design and development* phase. The developed artefact (OSPM) is then *demonstrated* in two cases and *evaluated* as to how effective the design was in developing an open strategic plan. Figure 2 illustrates the multi-phase design of the research.

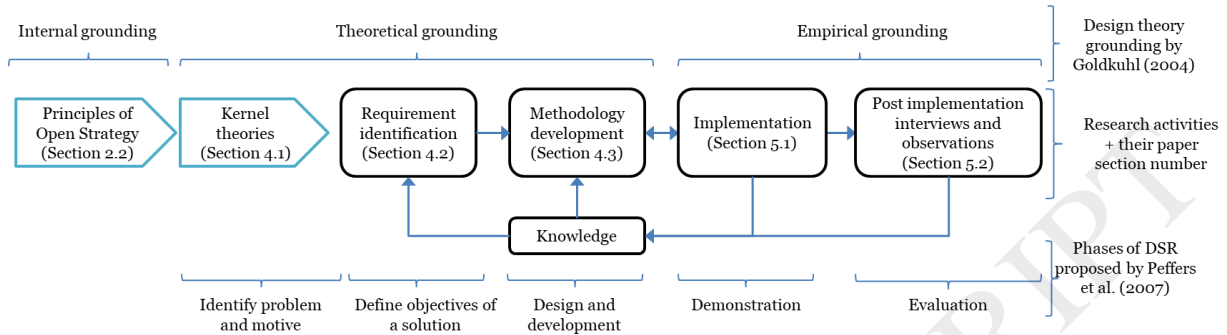


Figure 2 Research design overview

While this research seeks to develop a methodology depending on a number of theoretical assumptions, ISDT is well suited as it considers justificatory knowledge or kernel theory for the design process. Moreover, the twofold nature of OSPM (which covers both strategy process and planning system) entails the structure and function of an information system, and a process facilitating the implementation planning is similar to the principles of form and function and principles of implementation in ISDT [28]. According to the nature of the research problem and finding a solution, developing an ISDT is selected as the output for this research. This is reflected in Figure 2 as theoretical grounding.

However, the design process is incomplete without an evaluation. Much IS research involves an interplay between design and use of a system, so explanatory studies are required to explain the impact and usefulness of design decisions. These findings serve as the basis for further improvements in design research [30, 37]. For this reason, as explained in the Introduction, the results are further strengthened through empirical data gathered using two case studies. In the research design in Figure 2, this is known as empirical grounding.

To evaluate the suitability of the designed methodology, both *ex ante* and *ex post* evaluations were the subject of attention. *Ex ante* evaluation entails predictive evaluation of the design effort with regard to the future impacts, whereas *ex-post* evaluation evaluates both financial and non-financial values of a developed artefact [53, 54]. In this research, *ex ante* evaluation is performed primarily through discussions with key staff in each case, making sure that the concept of open strategy is suitable for their organisational structure and values. *Ex-post* evaluation was performed more formally through the collection of data including interviews following the implementation of the concept in both cases. Details of our approach for data collection and data analysis during the empirical grounding phase are explained in the next three sections.

3.2 Selecting the Case Studies

The research design involved implementation of the developed method in two comprehensive case studies. The multi-case approach is known as a facilitator of human knowledge generation [55] and facilitates theoretical sampling and a comparison of collected data [56, 57]. Following the techniques of theoretical sampling [58, 59], two organisations were selected for their similarities and their differences.

Considering the novelty of the methodology and the fact that the open strategy concept was less practiced at the time of conducting the study, the research team presented the concept of OSP, its potential benefits and a draft version of the methodology to a number of organisations. The main

criteria for selecting these organisations were availability of more than 10 stakeholders (e.g. members or employees), strategic importance of the stakeholders in these cases and their tendency towards a long-term relationship with the stakeholders. Two organisations accepted the invitation to apply this new concept and the related online tools for developing their strategic plan. Hence, both cases were selected depending on availability and convenience, known as theoretical sampling.

Theoretical sampling requires paying attention to relevance and purpose. With regard to relevance, both organisations chosen had a flat organisational structure, and they relied heavily on their stakeholders (members and volunteer developers) for success. Because the purpose of the research was to generate a methodology applicable to various organisational contexts, differences were sought in organisational type such as the industry the organisation belonged to and organisational type. As a result, the two cases selected differed on industry and organisational profile. These differences allowed useful contrasts to be made during data analysis.

3.3 Data Collection

Different sources of evidence were collected to evaluate the usefulness of the methodology. Referring to multiple sources helped the study to ensure veracity and dependability of the collected data [60]. Data sources in this study were categorised into two groups: research team observations and interview data. As the first author was in charge of developing the strategic planning system, his observations were referred to in several instances as a source of data. These observations included notes taken during meetings with managers in each case, system development notes, submitted ideas and the comments received through email from participating stakeholders.

However, the main source of data was 24 semi-structured interviews with various stakeholders. The first author of this paper conducted all the interviews and each interview took between 30 and 40 minutes in duration. Interviewees were purposefully selected to represent different stakeholder groups in both case studies. Selection of interviewees in each category was also based on their availability. After finalising the interviews, the process of transcribing and coding started. Almost 17 hours of interviews were recorded resulting in the identification of 300 excerpts of text. A three-character code was then given to each excerpt, which can reflect the case number (1 or 2) and the position of the stakeholder who expressed the excerpt. This code is presented in the data analysis section to clarify the origin for each quote. Details of the interview process are explained in the interview protocol in Appendix 1. Table 2 shows the number of respondents within each stakeholder group, within each case and the code for each stakeholder group.

Case #1 Open Source Software project			Case #2 Life-long learning institution		
Code	Stakeholder	Number of respondents	Code	Stakeholder	Number of respondents
C1M	Managers	7	C2M	Managers	2
C1D	Developers	6	C2V	Volunteers and Tutors	3
C1U	Users	3	C2E	Members	3
Total		16	Total		8

Table 2 Number of respondents in each case

A critical decision was to know when to stop adding interviews to the study. One approach for deciding when to stop adding interviewees is to conclude the field research when theoretical saturation is reached [61]. This approach may be the ideal situation but is difficult for researchers (such as the first author) who faced the real constraint of time schedules and funding. Hence, some researchers

must develop alternate approaches to answer the question of when to stop adding interviews. An appropriate alternative stresses the importance of representing the variety found in the population rather than reproducing the proportions of characteristics found.

In this study, the process of data collection was continued in each case until we made sure there was an acceptable level of variety in data. Two criteria were set to assure the variety: (i) at least three people from each stakeholder group in each case study were interviewed and (ii) little new evidence was being obtained during interviews. The former criterion helped the study to elicit multiple perspectives and avoid one group's bias on the topic of investigation [62]; the latter helped us to ensure sufficient categories, and associated concepts had been defined to explain what had been told across both sites, and no additional data were being collected to add to the set of concepts or categories.

As indicated in Table 2, criterion #1 was met at the end of data collection. The only exception was the managers group in the second case with only two respondents. To ensure the adequacy of data collection, data analysis was performed concurrently with data analysis; using an automated data management tool, we found almost no new codes after the 14th interview in case one and after the 7th interview in case two.

3.4 Data Analysis

To *analyse data*, a thematic analysis technique that involves five iterative steps was used. In *step one*, components of the designed methodology outlined in Section 4 are referred to as an over-arching framework for data analysis. The identified codes are further described in Appendix 2.

In *step two*, management of data was considered an important facilitator of data analysis. During this step, each of the recorded interviews were transcribed and imported into data management software (NVivo 11). This software helped the analysis process by recording the collected data in a database and importing transcribed interviews, coding against the developed framework, adding comments and reflections, sorting the interpretations by code and text retrieval of selected instances into the body of the research report.

In *step three*, content analysis was performed at the same time as data collection. The framework developed in the first step was used as a form of content analysis, and the final set of interview excerpts were systematically listed, coded and categorised according to the four generic indicators of strategic planning effectiveness. The excerpts assigned to each code were then studied closely to identify related concepts that best described the usefulness of the designed methodology in each category.

Other sources of data were added to include observations during the previous phases (as suggested by Young, Kuo and Myers [63]) to better interpret the research data. For example, during the implementation phase, a number of complaints were received about the suitability of an IT tool for the purpose of strategy formation. This was highlighted in our second case according to senior members of the community. Some interview excerpts (in the same case), however, contradicted this opinion, which helped us to further interpret the results. Table 3 presents examples of content analysis from step three.

Interview excerpt	Code	Related observation	Interpretation
<i>C1D: It covered the main important areas of development and because it has focused on minds very much or where we are going in terms of the organisation. I would say that would be most certainly the case.</i>	Strategy analysis	The interviewee has not participated in planning herself.	This excerpt supports the completeness of the strategy in the plan and shows that the outcome has not resulted in any conflict even for those who did not participate.
<i>C2V: And those who submitted the ideas I think felt very comfortable sitting at home doing it and it was assessed by certain people at certain times and if you had an idea and you wanted to submit it you could do it straight away, you didn't have to wait for a meeting.</i>	User interface	Using an IT-enabled approach resulted in some push-back due to a lack of compatibility with using such an approach.	This excerpt points to using an IT-enabled system and confirms the ease of a strategy process using this approach. Observations confirm the importance of IT literacy.
<i>C1M: You don't have any plan for implementation here yet or maybe that will come, I don't know. [To evaluate the attainability of the strategies] I need to see your implementation plan.</i>	Implementation and assessment	This interview was conducted before final amendments to the methodology, and <i>implementation</i> was considered in both strategy system and strategy process.	According to this excerpt and similar excerpts, the methodology was revised and an implementation component was added.

Table 3 Example of Content analysis

In the *fourth step* of data analysis, a triangulated approach [64] was used to improve the accuracy of data analysis. Triangulation as applied in this study relied upon another member of the research team reviewing the coding process, and in several cases, assigning different codes/concepts to some of the excerpts and/or commenting on the relevancy of the interpretations. These differences were then discussed in regular meetings, and the authors arrived at an agreement regarding the assigned codes. The discussion resulted in verification of the analysed data from different perspectives.

Finally, in the *fifth step* of data analysis, the authors worked on integrating interview accounts and developing narratives guided by the available literature on the effectiveness of strategic planning and OSP. Our intention here was not to find 'one true voice' but rather to explain stakeholders' interpretations about the effectiveness of the developed methodology and possible improvements. The results of analysis from all sources of data in the current study made the evaluation of practicing the open strategy approach possible. Section 5 describes the results of the design evaluation.

3.5 Concepts of Credibility, Reliability and Generalisability

One objective of the research design is to manage potential threats to the credibility and reliability of the results, so that the findings are to be believed and trusted. Credibility and reliability in DSR using a qualitative approach address the necessarily *subjective* nature of data collection because the researcher

is the instrument for collecting and analysing the data. This research relied on a number of primary sources for guidance when identifying and managing potential threats to credibility.

All research designs have limitations, and this study is no exception. First, the proposed methodology was kept simple to ascertain the required level of generalisability. This lack of detail in the methodology is common in design research [65, 66] and can be addressed in future research by applying the results in a different context. In the Introduction, the paper argued that knowledge about the open strategic topic could be strengthened by using in-depth and process-oriented studies to investigate open strategy. The paucity of case or process studies makes it difficult to make statements (generalise) about the dynamics in the open strategy process within organisations.

However, while the findings of this study are detailed and particularistic, a more general explanation can be produced from the results [61]. Yin [35] refers to this technique as *analytic generalisation* to distinguish it from the more typical statistical generalisation that generalises from a sample to a population. Here, the generalisation is of theoretical concepts and patterns. In this study, using two different cases with different contextual elements helped us increase the generalisability of the results.

In social science and conducting qualitative research involving interviews, there can be numerous interpretations of the same data. On the basis of this situation, the issue is whether the researcher's judgements are dependable or consistent with the available data and free from bias and errors. The advocacy bias [35] and positive bias are other limitations of case research. As the first author played numerous roles (designer, developer, trainer, consultant, data collector and data analyst) in different phases of this study, there may be conflicts between different roles, and these conflicts may impact the results of the study. For example, some interviewees (who knew the author had developed the planning system) may have softened their critical voice. In this research, the researchers sought dependability (reliability as it is known in positivist science) through the use of three tactics.

First, a case study protocol containing each of the interview guides was used. Second, reliability was further increased through the maintenance of a case study data base. The data base organised and documented the data collected for each case. Each of two cases contained the following elements, as recommended by Miles and Huberman [67]: (1) raw materials (including interview transcripts, researcher's field notes and other documents collected from the field); (2) partially processed data (including edited transcriptions and 'commented-on' versions); (3) coded data (write-ups with specific codes attached); (4) coding scheme; (5) memos and other analytical material (researcher's reflections on the conceptual meaning of data) and (6) data displays (matrices used to display retrieved information). Third, an audit trail described how the data were collected, how categories were derived and how decisions were made.

The main criterion, generalisability or external validity, deals with the problem of knowing whether a study's findings are generalisable beyond the immediate two cases. Although no two social contexts are identical, a phenomenon manifest in one context may also be a manifest in a second context. Therefore, transferability of a particular interpretation can be assessed by comparing it with interpretations constructed in another context. Second, transferability can be viewed as something different. Merriam and Simpson [68] suggest that we should think in terms of propositions that reflect situation-specific conditions in a particular context. The most common conception is reader or user generalisability, where the extent to which findings can be applied to another situation is determined by the people in these situations. Consequently, it is not up to the researcher to specify how findings can be applied, it is up to the consumer of the research.

In this research, the techniques to improve transferability or external validity were to provide the procedures, data and analyses in rich, thick detail, so that readers are able to apply their own standards. Second, the research described how typical the cases were compared to others in the same industry, so that readers can make comparisons with their own situations [69].

4 Theoretical Grounding

As outlined in Figure 2, this study employs a three-phased framework of *internal, theoretical and empirical grounding* to propose a theory-informed methodology and its usefulness. Theoretical grounding in this research is achieved by reference to kernel theories (for planning system and strategy process), identification of a number of requirements according to each theory and the formation of a methodology to satisfy the requirements. This section now explains the process of methodology development in detail.

4.1 Kernel Theories

Requirements in ISDT are governed by core theories from natural and social science areas known as kernel theories [33]. Using the term kernel theory from ISDT research implies that its scope has been extended to design research beyond its original scope [52].

Two different kernel theories have been adopted in this study. First, *Habermas' theory of discourse* is selected as a *product kernel theory* to consider strategy discourse within OSPM. Second, *Bryson's strategy change cycle* is set as the *process kernel theory* to prescribe a process view for OSPM. Each of these kernel theories and how they inform OSPM requirements are explained in the following sections.

4.1.1 Habermas' Theory of Discourse

Strategic planning is known as an instance of discourse [70, 71], and communication has been introduced as a key purpose of strategic planning [72, 73]. Previous research also studied the strategy process as a set of iterative and recursive relationships of talk and text, and a communicative process model has been developed [70]. This process of text and talk explains the way organisational communication becomes more valid and depicts the power relationships between organisational actors through time. The concept of strategic discourse is also highlighted in studies about participation and inclusion in strategic planning [74]. Alternatively, using an IT-enabled tool for developing a strategic plan through the inclusion of stakeholders can be considered as an instantiation of the *online discourse* concept. The concept of online discourse is formed through a set of requirements including 'exchange and critique of reasoned moral-practical validity claims', 'discursive inclusion and equality' and 'autonomy from state and economic power' [75]. On the basis of these claims, OSP has been called as a practice of 'transparent discourse' by Tavakoli, Schlagwein and Schoder [12].

Hence, the authors decided to use a set of assumptions derived from the work of the influential German philosopher Jürgen Habermas in his seminal theory of discourse. This theory has its roots in *the theory of communicative action* [76] stating that an action towards a goal takes place on the basis of a (freely) shared understanding among actors about the reasonability of the goal. While this could be applied to any *social co-operation*, strategic planning in an organisation is no exception.

According to Habermas, discourse is 'a processes of argumentation and dialogue in which the claims implicit in the speech act are tested for their rational justifiability as true, correct or authentic' and can coordinate human actions [77]. This research also uses Aier, Fischer and Winter's [78] interpretation of discourse theory using *four pragmatic presuppositions of an ideal discourse* as a basis for understanding the requirements. These presuppositions have been adopted from Habermas [31] and specify that during an ideal discourse:

- No one capable of making a relevant contribution has been excluded.
- Participants have equal voice.
- Participants are internally free to speak their honest opinion without deception or self-deception.
- There is no source of coercion built into the process and procedures of discourse.

Discourse theory is prominent in the IS discipline [79-81], and similar concepts have been used in the strategic planning area [70]. Moreover, the aforementioned presuppositions were found to be similar to the principles of open strategy, and for this reason, they were selected to theoretically ground the design as a kernel theory. OSPM assumes that OSP in its ideal format is an instantiation of Habermasian discourse during which stakeholders initiate free discussion about their strategy ideas, arrive at an agreement leading to future organisational actions.

Although discourse theory can help OSPM with the identification of the macro-level requirements for an online strategic discourse, it remains silent about micro-level requirements (activities, models and sequences) to create such a system. For this reason, *Bryson's strategy change cycle* was adopted to identify the requirements for principles of implementation.

4.1.2 Bryson's strategy change cycle

A process kernel theory provides the basis for the activities in design theory. To find a sequential process for strategic planning, the literature focusing on formal processes for strategic planning was studied and compared. In particular, we focused on the following criteria: comprehensiveness of the study (from beginning to implementation), attention to tools and techniques for each phase, application in public organisations and frequent use in other academic studies. Appendix 3 illustrates the activities in each process and compares them according to the above-mentioned criteria.

On the basis of the comparison of process models in the literature, the strategy change cycle of Bryson [32] was selected as the second kernel theory because

- It is primarily developed for public organisations, where power is shared between several insider and outsider stakeholders, and this environment is similar to the context of OSPM.
- It covers all aspects of the strategic planning process.
- It is comprehensive in terms of providing tools, techniques and models for each phase.
- It is frequently used by practitioners and highly recommended by academics [82-84].

However, to satisfy *artefact mutability* (encompassing the changes in the environment), we opted to convert it to a more generalised version. Table 4 introduces the activities in Bryson's strategy change cycle and their abstraction in four phases.

Planning process phases	Bryson's strategy change cycle	Specification [32]
1. Pre-planning	Initial agreement	Initiate and agree on a strategic planning process
	Mandates	Identify organisational mandates
	Mission and vision	Clarify organisational mission and values
2. Strategic analysis	Internal and external environment	Assess the external and internal environments to identify strengths, weaknesses, opportunities and threats
	Strategic issues	Identify the strategic issues facing the organisation
3. Plan development	Strategy formulation	Formulate strategies to manage the issues
	Strategy and plan review and adoption	Review and adopt the strategies or strategic plan
	Description of the organisation in the future	Establish an effective organisational vision
4. Strategy and process reassessment	Implementation	Develop an effective implementation process
	Strategy and process reassessment	Reassess the strategies and the strategic planning process

Table 4 Bryson's strategy change cycle

The abstract version of Bryson's kernel theory shown in Table 4 is used to specify the requirements as to how a process should be formulated. These activities also cover a range of requirements from pre-planning to post-planning activities.

4.2 Requirement Identification

The identification of artefact requirements has been recognised in ISDT with titles such as meta-requirements [50] and purpose and scope [28]. However, theoretical work on ISDT lacks an explicit guideline on how to determine meta-requirements, but it is generally accepted that kernel theories are the main source for capturing requirements in a design theory [33]. Recent studies, also suggest 'informal experience based insights into a technological issue' and 'other mid-range theories such as design relevant theories' as sources for identification of design requirements [29].

To retrieve the requirements, the above-mentioned four presuppositions of an ideal discourse [79] and the summarised version of Bryson's strategy change cycle (see Table 4) were considered. Each component of these kernel theories was then interpreted in the context of OSP resulting in the identification of the following seven requirements:

Req1. To give an equal opportunity of contribution: According to Habermas' theory of discourse [31], anyone who can potentially contribute should be included with an equal voice. While OSP is considered as an example of discourse, an ideal OSPM requirement is to develop a platform for all stakeholders capable of contributing to the strategic plan, to participate and submit their strategy idea and not discriminate among various stakeholders.

Req2. To create strategy transparency: According to the presuppositions of an ideal discourse [31, 76], potential participants are to have an equal voice and access to the related process within an

organisation. Hence, OSPM needs to create a platform that provides a level of transparency to strategy process and output.

Req3. To avoid coercion: Considering Habermas' theory of discourse [31], in an ideal OSP system, it is of absolute importance to give participants an opportunity to freely express their strategy ideas without coercion.

Req4. To consider activities prior to strategic planning: The strategy change cycle [32] identifies a set of initial activities that can be extended to OSPM. This includes initial agreements, organisational requirements and long-term goals before initiation of the planning project.

Req5. To consider analysis: On the basis of strategy change cycle [32] analysis of internal and external environments and the identification of strategic issues should be considered as a requirement in OSPM.

Req6. To consider plan development: A critical phase of the strategy change cycle [32] involves the activities required to develop the strategic plan. OSPM needs to follow a process considering the formulation and adoption of strategy and a description of the organisation based on stakeholders' strategy ideas.

Req7. To consider strategy implementation and evaluation: The principles of OSP (inclusiveness, transparency and the use of IT) should go beyond the plan development phase and include the implementation and evaluation of the strategy.

4.3 Methodology Development

After identification of the requirements, the next phase in the research process was to design an approach to implement these theoretically informed requirements. Similar to most of the DSR and ISDT studies, this study proposes the artefact (methodology) in the form of function and process. The first component of OSPM is a planning system. This component describes a set of modules of an information system dedicated to OSP. The second component of OSPM is the strategy process (involving agents and actions) that brings the first component into action. The two components are described below.

4.3.1 Planning System

Following the identification of requirements, a set of principles should be set to describe a class of artefacts designed to meet the requirements [50] in form of an abstract blueprint or architecture of an information system [28]. The planning system in this example is described as a set of modules in three layers required for implementing the principles of open strategy that can be adopted by different technologies in different forms to design a planning system.

A modular structure was selected to enable the artefact to evolve through time [85] and satisfy mutability in different environments. The proposed architecture of the planning system consists of three different layers. Each layer corresponds with one of the seven requirements identified in Section 4.2 according to the presuppositions of an ideal discourse.

Layer 1: User Interface Layer

To satisfy Req1 to give an equal opportunity of contribution, an interface layer between the participants and the planning system is designed. This layer facilitates an ideal discourse in which everybody has the opportunity to participate. This layer consists of two modules.

The *stakeholder attraction module* satisfies the equal opportunity requirement through communicating with potential stakeholders making sure everybody with a potential to contribute to the final plan is contacted and informed about the plan. This module forms a crucial part of the planning system, as it provides a means to involve stakeholders. After identification of users, this module contacts and invites stakeholders to participate in strategy discourse.

The *idea capturing module* facilitates idea submission from designated stakeholders according to their analysis of the internal and external environment. *Idea submission* helps participants to align their ideas with the identified high-level aims of the organisation. This module satisfies Req1 by creating a means for stakeholders to anonymously participate in an online discourse.

Layer 2: Formulation and Presentation Layer

This layer of the planning system creates transparency for both strategy process and outcome (Req2). Four different modules in this layer together satisfy the transparency of the process to make sure all potential users have equal access to both the planning system and the strategic plan.

As explained in Req2, participating stakeholders should have access to the process of strategy formulation. To achieve this, each submitted idea is exposed to comments from potential participants and a number of reviewers through the *idea refinement module*. This module creates a transparent discourse among stakeholders, where they can read the submitted ideas, post their comments about each idea and refine them to help decision makers comprehend ideas from stakeholders.

The *reporting module* is a tool for all stakeholders (including system administrators) to monitor performance during the planning project. At the end of idea submission and refinement phases, this module creates a report of submitted ideas for the plan development team to use as a basis for the development of a strategic plan. These reports satisfy the transparency requirement through monitoring the process.

According to Req2, strategy transparency is not only limited to the planning process but also involves the final output of the process (strategic plan). To satisfy this requirement, the *plan publication module* is considered in Layer 2 to provide access for all stakeholders to keep them informed about the planning project.

Finally, the *implementation module* in Layer 2 helps to identify actions according to the developed strategies and to assign actions. This module also satisfies the second requirement of informing stakeholders about the way strategies are put into practice and about implementation progress. Stakeholders can also recommend solutions with regard to each action.

Layer 3: Processing Layer

This layer of the proposed architecture for the information system deals with the required processing of data to make sure no coercion was exerted on participants. Two modules are considered in this layer to assure freedom of participation.

User management module identifies participating stakeholders and manages their interactions within the planning system. This module assures that users are managed and communicated in a way that gives them freedom to express their opinion and to help users to manage their own profile and activities.

The *workflow engine module* is also designed to manage the flow of ideas from submission to the final strategic plan and identifies how an idea progresses through various stages before being considered in the plan. This module satisfies the coercion avoidance requirement (Req3) by assuring anonymity of ideas and efficient flow of each strategy idea. Figure 3 illustrates the suggested three-layered structure of the planning system.

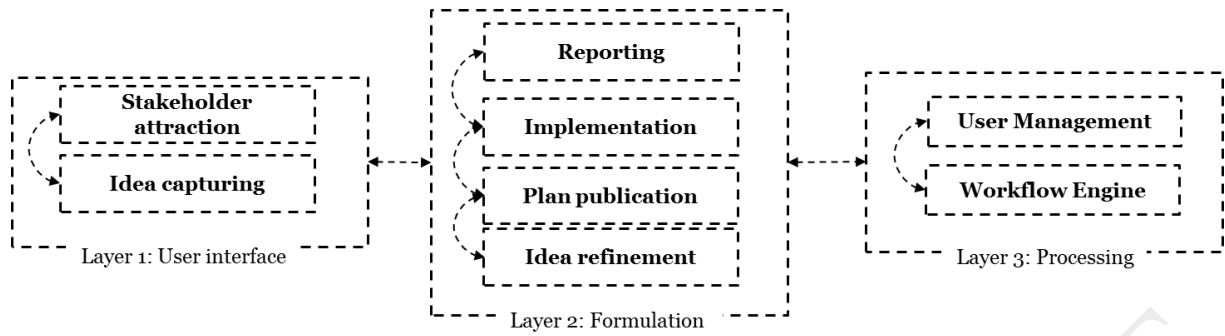


Figure 3 Required modules in the planning system

4.3.2 The Strategy Process

This research also proposes a process for implementation of the open strategy concept. This component of OSPM is an equivalent to the design method [50] or the principles of implementation [28] in the ISDT literature.

As previously described in Section 4.1.2, an abstraction of Bryson's strategy change cycle was used as kernel theory and four requirements (Req 4-7) are proposed. The strategy process includes four phases, and each phase is required to satisfy the requirements specified in Section 4.2.

Pre-planning

As stated in Req4, the planning process in OSPM should consider a number of activities required before initiation of the planning project. The pre-planning phase in the OSP process entails all activities required before the official start of the planning project, including agreement on mandates and developing the rules governing the planning process. The following topics are recommended during this phase:

- Initial agreement on items such as the structure of the plan, participating stakeholders and communication approaches.
- Formal mandates (laws, regulations, ordinances and articles of incorporation) and informal mandates (norms and the expectations of key stakeholders).
- A set of preliminary organisational goals as a draft version of the organisation's vision and mission to lead strategic analysis. These goals will be revised in future phases.

During the pre-planning phase, the required inputs for developing the strategic planning system are produced and then the strategic analysis phase commences. Pre-planning will inform all participants about the project and create an initial agreement about the approach.

Strategic analysis

Req5 refers to conducting an analysis of strategic issues. During this phase, designated stakeholders will be asked to enter their ideas using the planning platform. This phase starts invitations being sent to all designated stakeholders aiming to increase their awareness and motives for participation. Stakeholders are then asked to submit their ideas about two main topics:

- Analysis of internal and external environment: review of strengths, weaknesses, opportunities and challenges (SWOC) with regard to each of the identified goals.
- Identification of strategic issues: fundamental policy questions or critical challenges affecting the organisation's mandates, mission and values [32].

During this strategic analysis phase, stakeholders can also comment on others stakeholder's ideas. A number of reviewers will later comment on or score each idea before the final submission of ideas to the plan development phase.

Plan development

This phase of strategy process focuses on the transformation of strategy ideas into a strategic plan. This requirement as stated in Req6 is of high importance in OSP because of the increased number of strategy ideas. This phase involves the following activities:

- Formulation of strategies based on the results of a SWOC analysis and strategic issues developed based on stakeholder submissions.
- Describing the future organisation in the form of an organisational vision.

The first activity towards development of the strategic plan in OSPM is the identification of a set of themes based on submitted strategy ideas. Each theme is then presented to managers for their approval forming a set of strategic objectives for the organisation. Submitted comments about approved ideas inform the development of strategies to achieve each objective. Strategic ideas and draft goals (developed during pre-planning phase) are being used to create an organisational vision to form the future of the organisation. These steps will result in a plan developed based on openly submitted strategy ideas. Approval of the strategic objectives and the plan by managers ensures management's support and endorsement. Figure 4 illustrates the activities in the plan development phase.

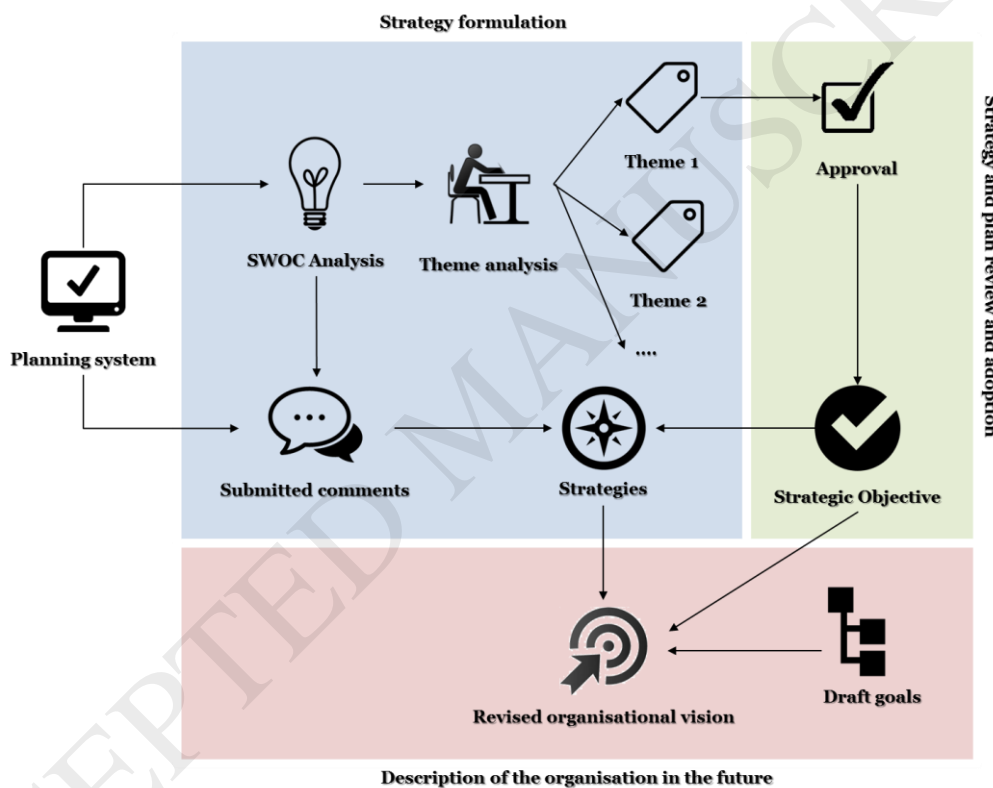


Figure 4 Plan development activities

Implementation and assessment

To consider the principles of OSP beyond the formulation of a strategic plan (Req7), this phase of the strategy process considers the following activities:

- Developing an action plan to implement the strategies.
- Evaluating the progress of performed actions and review the strategy.

The action plan should cover required tasks and milestones to achieve each strategy. After identification of these tasks by the strategy team, tasks can be assigned to stakeholders, and others can monitor their progress or submit suggestions for improvement. The proposed strategy process is compared with Bryson's strategy change cycle in Figure 5.

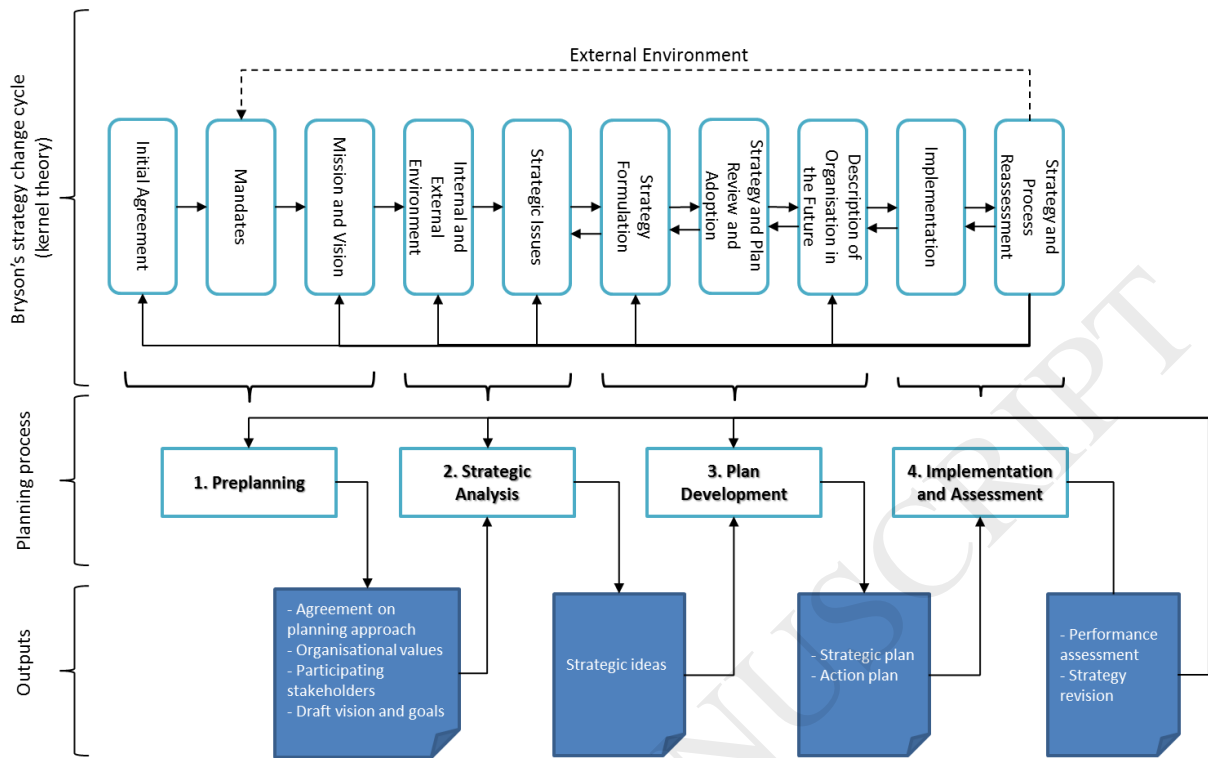


Figure 5 Bryson's strategy change cycle compared to the OSPM planning process

In sum, the proposed planning process is designed to be integrated with the planning system. For example, the output of the *pre-planning* phase would be an agreement from participating stakeholders, which is an input to the *user interface* and *formulation* layers of the planning system. A draft version of organisational vision and goals is another output of the *pre-planning* phase that works as an input to the *user interface* layer of the planning system. These draft goals lead to idea capturing online forms in the planning system where users are asked to submit their ideas regarding to these goals. Figure 6 illustrates the relationships between the planning process and the planning system.

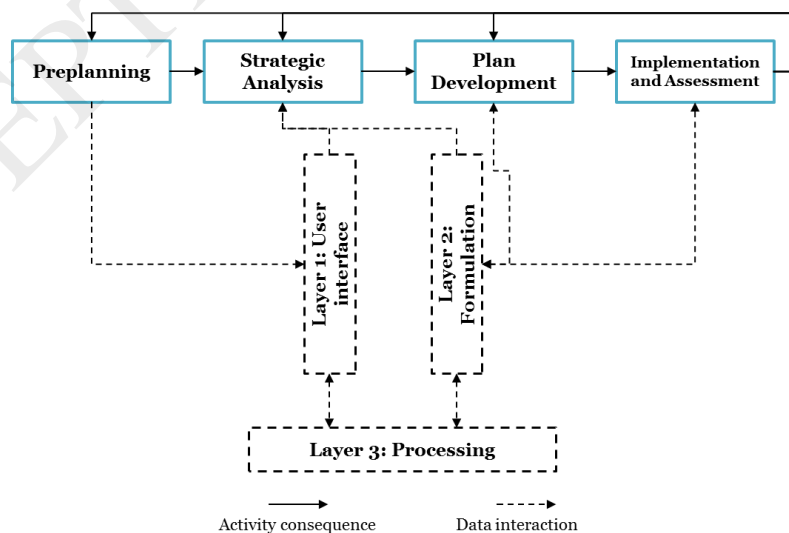


Figure 6 Integration of the planning process and the planning system

Appendix 2 shows the mapping of various modules of the planning system and phases of the planning process with the relevant design requirements and explains how each component of OPSAM satisfies the relevant requirement. As explained in Appendix 2, each requirement has been satisfied by at least one component of the planning system or one component of the planning process. This paper argues that the integration of planning and process successfully satisfies the design requirements.

5 Empirical Grounding

To reinforce and expand the findings of the theoretical grounding phase (see Figure 2), this study refers to empirical grounding as a means for justifying knowledge and its validity by using observations during a practical application of OSPM [37]. To do this, the proposed methodology (OSPM) was applied and implemented in two cases in different contexts. This section reports on the viability and fit of the method in these cases, and how the design requirements were addressed. The effectiveness of the strategic plan and the planning process was also evaluated through a number of interviews with stakeholders.

The empirical grounding phase was used to improve and revise the methodology. For example, the initial methodology (developed solely through theoretical grounding in phase 2) lacked explicit advice on how to implement the strategy. A number of stakeholders in the first case raised this as a shortcoming of the methodology (see Section 5.2.3), resulting in *implementation and assessment* being incorporated as a phase of strategy process and a module of the OSP system.

5.1 Implementation in Two Cases

The first case was an OSS project with almost 100 potential stakeholders comprising three groups of managers, software and service developers and users. The growing attention to OSS projects and frequent changes in the software industry increased the attention to long-range planning. However, the central role of developers and other volunteers created an environment in which traditional top-down approaches to planning can be inefficient. For example, the role of building trust among developers is highlighted as a key factor for the success of OSS [86], and this trust cannot be built without involving stakeholders in key decisions within the project. The OpenOffice project is a celebrated case where ignoring the role of stakeholders in strategic decision-making resulted in the turnover of many volunteer contributors who later formed a new project called LibreOffice [87].

On the basis of the characteristics of an OSS project, an OSP approach was considered to be suitable for the purpose of strategic planning in this case. After initial agreements about using the concept of open strategy for strategic planning, the design of the planning system commenced in this case. All of the designated stakeholders were then invited to participate in developing the strategic plan. After 2 months, a total number of 78 ideas and comments were submitted in the planning system. According to the design method, the next phase of the project was an analysis of themes as submitted ideas. This strategy process resulted in the identification of 34 themes, which were then submitted to project managers for scrutiny to approve or reject each theme considered in the strategic plan. Approved ideas formed the final strategic plan in this case. Figure 7 shows the idea submission form for internal environment analysis.

The screenshot shows a web form titled 'Create Idea submission' for the 'Strategic Planning for Xamin Open Source Project'. The form includes the following fields and elements:

- Header:** A logo on the left and 'Strategic Planning for Xamin Open Source Project' on the right, with 'My account' and 'Log out' links.
- Breadcrumbs:** 'Home » Add content'.
- Title:** 'Create Idea submission'.
- Form Fields:**
 - 'Your name (optional)': A text input field.
 - 'Your email address (optional)': A text input field.
 - 'To which group of stakeholders do you belong?': A dropdown menu with '- None -' selected.
 - 'Your idea is related to which area of improvement *': A dropdown menu with 'Human Resources' selected.
 - 'Which opportunities / risks do you anticipate for the project in this area in next two years? *': A large text area.
 - 'What code is in the image? *': A CAPTCHA image showing 'W Y 8 m 4' and a text input field below it.
- Buttons:** 'Save' and 'Preview' buttons at the bottom.

Figure 7 Idea submission form in the first case study

The second case was conducted in an Australian not-for-profit provider of life-long educational services. This organisation was found in 1991 with 19 members and reached 540 members in 2015. Strategic planning has been introduced as a crucial process in not-for-profit organisations to help them 'meet complex missions while facing severe resource and personnel constraints' [88] and to increase their public value [32]. As most of the not-for-profit organisations (including the case in this study) are reliant on members and volunteers, their role is seen as crucial for future survival and hence ought to be involved in any form of long-range planning.

The above circumstances justified the application of an OSP approach for this case. Four groups of managers, volunteers, tutors and members were invited to participate in strategic planning in this organisation. During the idea submission phase, almost 100 ideas were submitted. Each idea was then sent to two reviewers (who knew the organisation and its limitations well), and they commented on the appropriateness of each idea to be included in the final strategic plan. These ideas and comments were then sent to the organisation's President for final approval, and on the basis of these ideas, a strategic plan with 4 goals, 10 objectives and 27 strategies were formulated.

5.2 Results

After the implementation of the methodology, and the strategy planning process, different stakeholder groups in both cases were interviewed to seek their perceptions about the elements of the methodology. Individual perspectives are known to impact interpretation of facts in organisational contexts [89]. For this reason, a qualitative approach was used to capture stakeholders' interpretation of strategy formulation. As explained in Sections 3.2 and 3.3, data analysis was performed using a five-step thematic analysis technique referring to different components of the methodology. The results of data analysis are discussed below.

5.2.1 User interface layer

On the basis of the demographics of participants and their knowledge of IT systems, we received different (and sometimes contradictory) responses about the user interface in both cases. In the second case, a higher level of acceptance about the user interface indicated better acceptance of a dynamic and IT-enabled user interface:

C2V: I found it very easy to use. It was quite simple. I was able to access easily and type in my answer and I used it in a number of occasions. So I had no problem.

In the first case, however, details of the required user interface were highlighted during the interviews. One of the developers mentioned:

C1D: The initial version of the system was not user-friendly at all and we were expecting a better flow of forms and information in a system like this.

As the case was an IT project and stakeholders were more informed about technical aspects of a computer-based information system, more attention to this component was not a surprise. Respondents in this case mainly focused on the efficiency and user-friendliness of the developed system:

CIU: There was no plan or method to attract users in the user interface layer. The second challenge is also to retain the user who has entered the system. Having a dynamic interface could significantly improve this.

Although different and sometimes contradictory statements were recorded for the user interface implemented in both cases, many interviewees expressed that the user interface is a crucial component of an OSP system:

C1M: For a new user, the user interface is of absolute importance and that's what motivates him to continue browsing the website and learn more even if this is a topic he is not familiar with.

Excerpts such as the above indicate the importance of considering the user interface layer as a component of OSPM, as the user interface can be an important component to increase participation and improve the effectiveness of the system.

5.2.2 Formulation layer

According to the requirements developed as part of theoretical grounding, a formulation layer was required for creating transparency in OSPM and for assuring free access to idea submission for all designated stakeholders. During the empirical grounding phase, a number of respondents mentioned the importance of a component in the system, which helped them to have their voice heard about strategic directions of the organisation. One of the developers in case one mentioned that being listened to was a motivator for them to increase their involvement and improve their contribution:

C1D: When I understand that my ideas are being considered in the future of the project, it gives me a positive feeling to continue my job. Perhaps any other approach of strategic planning is unsuccessful in this context.

The formulation layer component is also responsible for creating *equal opportunity of contribution* as a precursor for engendering a sense of *ownership* in the organisation. According to interviewees, involvement is seen as a crucial success factor for public organisations as they are reliant on their member base for service continuation. Sense of ownership is explained by one of the interviewees in the second study:

C2V: *I think [involvement] is a quite important thing. It's a community and membership based organisation and it is really here for the benefits of members.*

This component in OSP is meant to create an involvement among stakeholders and was considered a *social side of strategy* by one of the interviewees:

C2V: *So I think that [features of the planning system] would help the social side of it but I also think the flexibility is very important.*

The topic of *flexibility* in OSPM is addressed through the components of design process (see Sections 5.2.4 to 5.2.7). However, the level of involvement was not equal according to some interviewees. For example, although OSP can impact individuals in an organisation, there are a number of preconditions that need to be considered in the context of each organisation and sometimes each individual stakeholder. For instance, in the second case, respondents admitted that different people reacted differently to the OSP project:

C2M: *There is obviously a percentage of membership in any organisation who are not interested in that kind of practice, but I think it gave the people who are interested the opportunity to participate.... I can say members of committee have been much more involved.*

One of the respondents also criticised the *diversity of participating stakeholders* in the first case:

C1U: *I cannot find anything here pointing out a need or problem from the user base... all I can see is general topics and cultural issues.*

This response during the evaluation phase in the first case resulted in revising the second requirement (transparency) and placing more emphasis on diversity. In general, our data suggest the importance of gaining representative participation regarding the quality and integrity of strategies. The formulation layer was revised and strengthened based on these findings.

5.2.3 Processing layer

To assure transparency and freedom of expression, the processing layer of OSP is a means to avoid coercion. In both cases, a concern was recognised among participants that they might be identified on the basis of the content of the ideas they submitted. One interviewee mentioned that:

C1D: *There was a concern for those who participated in the planning project; if through the infrastructure of the system or the content of their comment, they could be identified. Because sometimes submits an idea which is related to a specific organisational position and for those who know the context and background it would be easy to guess who has said this... This concern will prevent the system from being as open as possible.*

In both cases, researchers' observations also confirmed the concern of anonymity was legitimate. There were a number of instances where managers made guesses as to the respondent after reading an anonymous idea during the planning process. As anonymity is suggested as an approach to avoid coercion [90], situations similar to this affirm the importance of *avoiding coercion*.

The flow of data among participants, reviewers and managers was another feature of the processing layer that was mentioned during interviews. A number of challenges about reviewing the data were highlighted:

C2V: *From a reviewer point of view, once I got used to the format and with the steps I needed to go through, it was OK.*

However, according to one respondent in the second case, this component of the system helped the organisation to control the project and finalised it in a timely manner:

C2V: Doing it online I found it quite controlled and I liked that idea. It allowed [the steering committee] and people who reviewed to make certain deadline. I just found it a really good way to go.

Excerpts like these reflect the importance of considering various perspectives in the OSP system, and the importance of efficient management of the process of data flow among different stakeholders in the system.

5.2.4 Pre-planning phase

This component of the methodology was developed to create initial agreement among stakeholders about the planning project. A number of respondents mentioned pre-planning as an important phase of the strategy process but criticised the approach used for communication with stakeholders and inform them about the project:

C2E: The project was well communicated on social media; however, this communication should be extended to face to face communication. Sometimes we need to really persuade people to do this...

Another interviewee also mentioned that face-to-face communication channels were needed:

C2V: I know that in initial stages you had a number of information sessions... And I assume almost 20-25% of our member base was covered on those sessions. So, do you think it's good to physically communicate with only 25% of members?

Another interviewee, however, suggested that using other communication methods (such as face-to-face) was not easy:

C2M: How to do this [communication] is a challenge. Maybe the only way to do that was to devote a lot more time going to talk to individual classes and become much more one on one experience but again that takes a lot of time and manpower and right kind of manpower.

According to interviewees, a number of challenges were reported that hindered participation and the involvement of stakeholders. One of the main concerns was the *newness* of approach in the organisations, as one interviewee explained:

C2M: It's the first time we have done anything like that. It's new to members and the committee as well.

In summary, the pre-planning phase was mentioned in interviews as a phase to increase involvement among stakeholders and to motivate them to participate in strategic planning. Our analysis suggests that highlighting the benefits of the project and informing people about the practice of collaborative strategic planning can help progress the pre-planning phase.

5.2.5 Strategy analysis phase

The quality of strategy analysis was evaluated by asking interviewees' expectations about the objectives (the integrity of objectives) and if those expected objectives had been stated in the plan. We also evaluated the integrity of strategies by asking interviewees if the objectives were decomposed into a set of strategies. We also asked stakeholders about the attainability of strategies.

To study *the integrity of objectives*, respondents were asked to express the most important goal of the project depending on their own point of view and their position in the project. Then, they were asked to check if those objectives were reflected in the plan (or not). The *integrity of strategies* was studied by asking the respondents to identify one objective (from a list in the plan) they believed to be the most critical for the project. They were then asked to read and consider the strategies for this specific objective and to inform the interviewer if the strategies were complete enough to achieve the objective or whether something else should be added.

In evaluating integrity of objectives, stakeholders had differing opinions of organisational objectives and mentioned several different goals for the organisation, which were not originally considered in the plan. In general, the respondents in the second case had negative ideas about the integrity of strategies.

Others, however, confirmed the integrity of the developed strategies. On several occasions, interviewees particularly mentioned that the way the strategy was formulated was similar to the current endeavours within the organisation. Part of the disagreement about their interpretation of organisational strategy and the content of the plan related to differing perspectives of stakeholders. For example, in the first case, project managers were looking for strategies concerning '*commercialisation and long-term profitability*', while developers focused on the importance of '*recruiting skilled developers and further technical development of the product*'. However, many interviewees in both cases admitted that the developed plan did provide an acceptable coverage of the main strategies required for the future of the organisation. One of the developers in the first case mentioned that

CID: [The strategic plan] covered the main important areas of development and because it has focused on minds very much or where we are going in terms of the organisation. I would say that would be most certainly the case.... I think if the members have said that it should be an objective, that's fine. I wouldn't be part of it but it should be there.

To study the *attainability of strategies*, respondents were asked to express if they believed the strategies were attainable in the next 2 years' planning horizon, or not? In both cases, most of the respondents agreed that the submitted strategies were attainable. Some of the interviewees, however, mentioned prerequisites for attaining the strategy. Surprisingly, most of the prerequisites were other strategies already mentioned in the plan:

CIM: Some of the strategies are required to attain some others... Without some of them, it is less possible that we can achieve other strategies.

Further to the effectiveness of the techniques used in these cases for strategy analysis, the data collected during empirical grounding highlighted the importance of an open strategy approach for strategy analysis. The open approach was mainly highlighted in the first study where one of the users highlighted that approaches other than OSP could be 'inefficient' for OSS projects.

5.2.6 Plan development phase

The plan development phase highlights the importance of refining strategy ideas and for creating a plan from them. A number of excerpts were related to this component of the methodology. For example, there were questions about *possible savings in time and costs* compared to conventional approaches. Moreover, many interviewees refrained from answering this question, as they believed they could not evaluate the process depending on their position in the project. However, there was a consensus among those who did answer the question that this approach significantly decreased the costs of planning. Some interviewees did, however, mention risks including the timeliness of strategies:

C1D: There is a risk to this kind of projects and that's when the planning process gets too long and some of the developed strategies could become irrelevant to the new project's context.

As a result, an element of *agility* should be considered in the planning project to avoid this risk. Others, however, mentioned that the effect of time depends on other factors such as the team, implementation efforts, management and some environmental factors. The impact of time is now discussed.

The ultimate aim of strategic planning is to impact the organisation. Not surprisingly, impact has been cited often in the literature. However, the scope and time limitations made it impossible for this research to assess the impact of the plan through organisational factors such as financial performance or customer satisfaction. In both cases, there were a number of affirmative reasons potentially impacting the *effect of planning on the success of the organisation*. Increasing a sense of *involvement* by participating stakeholders was mentioned as an important organisational outcome of the planning methodology. A manager in case one stated:

C1M: This project helped us to align our organisation and its stakeholders. Using this model they are now involved with the organisation and it is important for them to see what is going on and what will be the output [of the organisation]... This involvement is however related to the degree they participated in the planning project.

There were also considerations about the content of the plan in case two. One of the volunteers in the second case, for example, mentioned that:

C2V: You know: people do this voluntarily and the biggest threat here is if we put the bar too high, we won't have any classes because we won't get the tutors. And I am not too sure where we are going to go if we put the bars too high.

Although the quality of plan and the importance of plan development were frequently mentioned in the interview excerpts, other factors should be considered. For example, considering different perspectives in the strategic plan is the result of both the *formulation layer* and plan development.

5.2.7 Implementation and assessment phase

As explained previously in Section 3.4, the implementation phase was not part of the initial methodology executed in the first case study. However, during the evaluation phase, many stakeholders highlighted the importance of implementation. One manager mentioned:

C1M: My understanding of strategic plan was beyond what you did in this project. I was expecting to see some advice on how to implement these strategies or prioritisation of them...

On the basis of the similar comments, the methodology was revised at the end of case one, and a new requirement of implementation and the related component of assessment were added. This improvement was reflected in the interview data in the second case resulting in fewer comments relating to the implementation phase. Many interviewees mentioned managers' final actions and the subsequent implementation of their ideas as a factor that gave meaning to their participation. For example, one of the interviewees mentioned that:

C1D: Our participation can be effective only if we see managers are using the submitted ideas in practice.

Comments such as these suggest the importance of considering the creation of *strategy transparency* as a requirement in the planning system and a principle of OSP. In fact, without transparency in

formulation and implementation of strategy ideas, stakeholders may feel that their ideas have not been incorporated at all. There was also a belief by respondents that implementation of the strategies will create more involvement over time. One of the developers in the first case agreed:

CID: Projects like this will eventually result in more involvement over time when people know more about this approach.

6 Discussion of Findings

Strategic planning is identified in the literature as an example of communicative discourse [70, 71]. Therefore, this paper considers OSP as an instant of online discourse, which is consistent with the literature identifying *strategy process* as a discursive dialogue among various stakeholder groups in an organisation [71, 91]. In this paper, strategy discourse was conceptualised in the form of components of an OSP system where the *inclusion* principle was put into practice through inviting stakeholders to contribute to strategy formulation. The study did so by presenting a comprehensive, detailed, theory-based and empirically tested architecture of strategic planning compared to previous work [16].

This research focused on a gap in the literature relating to theory-based prescriptive work in the area of OSP. In summary, the research design involving three inter-related phases (internal grounding, theoretical grounding and empirical grounding) were followed to consider the principles of design science and to evaluate the produced methodology. Table 5 summarises these phases, the actions undertaken and research outcomes.

Phase	Actions undertaken	Research outcomes
Internal Grounding	The validity of the concept was studied by referring to the literature.	The OSP concept is identified and justified for future phases of the study.
Theoretical Grounding	By considering discourse theory and the strategy change cycle as kernel theories, a number of requirements are proposed for the methodology.	A methodology for open strategic planning was presented according to the notion of open strategy comprising an online planning system (design product); a process for the implementation of the system (design process).
Empirical Grounding	The proposed methodology was implemented in two case studies, and a variety of data (including 24 interviews) were collected to evaluate impact.	Stakeholders' interpretation about the impact and utility of the methodology was documented, and the methodology was revised depending on feedback received.

Table 5 Three phases of the study

OSP was recognised through the three principles of transparency, inclusiveness and the use of IT. The proposed methodology was successful in ensuring *transparency* of strategy input (strategy ideas) and strategy output (the plan) according to a process definition of transparency [7]. The methodology also provided a means of *inclusiveness* and a blueprint for *using IT* in strategic planning.

In addition to prescribing a method for OSP, the study gave consideration to stakeholders' interpretations of the planning system and its usefulness. In a set of interviews with a cross-section of stakeholder groups in both cases, their interpretation of the success of the OSP approach was evaluated. The results of this evaluation improved and supported the developed methodology. A review of the developed methodology within two instantiations indicates that some aspects were well fulfilled in OSPM. For example, anonymous idea submission through an online system provided equal voice for participating stakeholders enabling them to submit their strategy ideas, comment on other

ideas and gave them freedom to do so. Effective communication with all possible stakeholders and their motivation for contribution in the planning system is a challenge requiring further study.

However, a pure hierarchy-free discourse is less attainable in a hierarchical organisational situation as a result of diverse goals for different stakeholders [78]. For this reason, some aspects of the proposed methodology and its implementation in practice could deviate from the kernel theories. The main difference could be granting more power to managers to make the final decision or approve the submitted idea. This power play may be criticised as a type of coercion in this process. Nevertheless, it should be considered that the right to make strategic decisions strategy was excluded from the concept of open strategy [6] and included in strategic planning [74]. The same concept could be applied to other areas that managers have power over other stakeholders in OSPM such as selecting stakeholders and developing a format for strategy ideas.

6.1 Intra-case and Cross-case Analysis

This section now provides a discussion of the findings in each case study (intra-case analysis) and contrasts the differences between the case studies (cross-case analysis). Many excerpts were in agreement among both cases. For example, interviewees confirmed the need for considering various strategic perspectives regarding the *formulation layer* in Section 5.2.2. There was also general acceptance about the rigour of *strategic analysis* and the quality of the developed plan (see Sections 5.2.5 and 5.2.6).

However, as already explained in Section 3.2 (selecting the cases), to ensure the relevance of the methodology among various contexts, attempts were made to consider differences among the cases such as industry type, organisation structure and the age of stakeholders. Hence, it was not surprising for the research team to see both similarities and differences during the empirical grounding phase. Table 6 presents a summary of findings from each case in terms of the components of OSPM and some of the differences across both cases.

Component(s) of OSPM	Case #1 Open Source Software project	Case #2 Life-long learning institution
User interface layer	Details about user-friendliness and its ability to attract users were criticised.	Higher level of acceptance was witnessed about an IT-enabled solution.
Formulation layer	The flexibility of strategy formulation was highlighted.	A high proportion of stakeholders were reluctant to participate.
Processing layer	Concerns were raised about the ability of managers to track ideas.	Facilitating the process of ideas between different levels of the organisation and ease of control was highlighted.
Pre-planning phase	The activities were mainly through social media, and more face-to-face interaction was required.	Almost 25% of stakeholders were present in face-to-face meetings, and more interaction was required.
Strategy analysis phase	Diverse stakeholder groups pointed to different components of the plan.	A high level of integrity and attainability was confirmed by the majority of interviewees.
Plan development phase	An agile method was emphasised to avoid the risk of out-of-date strategies in a technology intensive project.	The wording of the plan and its potential impact on attracting new volunteers was a concern.
Implementation and assessment phase	The lack of this phase was highlighted in interview data.	Implementation and future experience can determine the success of the project.

Table 6 Summary of the findings in each case study

As summarised in Table 6, differences in characteristics of both cases impacted stakeholders' perspective about the planning system. In particular, better IT-literacy in the first case resulted in placing more emphasis on the architecture of the planning system. Similarly, a more homogenous population of stakeholders in the second case resulted in focusing on the wording of the plan and its comprehension.

6.2 Contributions

Developing a methodology for OSP according to the two kernel theories and empirically evaluating the methodology are the main contribution of this study. There is already a vast literature on strategic planning decentralisation and strategic planning *actors* in general. However, the existing literature is predominantly descriptive (for example: [72, 92]) rather than prescription or focused on the impact of participation (for example: [93-95]). This research took a different approach by (i) proposing a prescriptive methodology informed by kernel theories and (ii) by evaluating the proposed methodology empirically in two case studies.

In this study, *presuppositions of an ideal discourse* provided a meta-level basis for the requirements of the planning system as an essential component of OSPM. Habermas' four pragmatic presuppositions of an ideal discourse [31, 79] and Bryson's [32] strategy change cycle were used as theoretical lens to conceptualise and understand the requirements of a methodology for OSP. The methodology covers the required modules for a planning system and a planning process.

However, although the principles of open strategy are well studied in the strategic planning literature, the extent of openness remains unknown. This research offers the concept of online discourse as a benchmark for openness. Although online systems of strategic planning [16] and open strategy processes [7, 8, 24] have been suggested in previous studies, no studies have combined these two aspects in one single research design.

Table 7 compares OSPM with previous studies of OSP. As depicted in Table 7, the level of comprehensiveness in OSPM dealing with both of aspects of planning system and a planning process cannot be found in other references, as indicated by the number of blank cells. Another contribution of the research is to provide a level of abstraction in the methodology permitting its application in different contexts and with different technologies.

OSPM		Liinamaa, Nuutinen, Sutinen and Vanharanta [16]	Stieger, Matzler, Chatterjee and Ladstaetter-Fussenegger [8]	Dobusch [24]	Tavakoli, Schlagwein and Schoder [7]
Modules of planning system	User interface layer	Questionnaire tool	-	Communicating	-
	Formulation layer	Planning tool	-	-	-
	Processing layer	Dialogue tool	-	-	-
Components of planning process	Pre-planning	-	Energising	Setting-up/Analysing	Setting-up/Analysing
	Strategic analysis	-	Listening and talking/Supporting	Generating ideas	Generating ideas
	Plan development	-	Embracing employees	Decision-making and synthesising	Decision-making and synthesising
	Implementation and assessment	-	-	-	Communicating/Operationalising

Table 7 OSPM vs previous approaches of open strategic planning

In terms of process, no study has referred to a formal process of strategic planning as a basis for OSP. Furthermore, according to Tavakoli, Schlagwein and Schoder [12], there is inconsistency among studies in the literature about what constitutes phases to be *open*. For these reasons using Bryson's strategy change cycle [32], this research forms a sound basis for the implementation of the concept of open strategy in the form of a set of inter-related activities. The proposed methodology provides evidence that it is capable of implementing conceptual dimensions of OSP, including new features that have either been ignored or not identified in previous studies. For example, although sharing power in strategy process is suggested by Mintzberg [96] as a main goal of strategic planning, and open strategy is meant to consider power-sharing (or participants' equal voice) through the inclusion principle [6, 26, 97, 98], giving equal voice to stakeholders has not (to best of our knowledge) been prescribed or conceptualised in previous work on OSP.

Regarding pre-planning activities, previous studies have mentioned energising [8] and setting-up [7, 24] stages. This study goes further by explaining the required activities in the pre-planning phase by referring to Bryson's strategy change cycle [32] and implements three important elements during this phase: (i) the scope and structure of the strategic planning and resultant plan; (ii) formal and informal mandates of strategic planning and (iii) high-level organisational goals to lead the strategy. Moreover, by referring to pragmatic presuppositions of an ideal discourse [78] as kernel theory, findings contribute to the literature by explaining the details about how stakeholders should be invited and communicated with in an OSP project.

A further contribution relates to the internal and external environment. Strategic analysis of the environment has been cited as an essential element of strategic planning [72, 99, 100] and has been considered as a main point of open strategy formulation when stakeholders are asked to participate and submit ideas [7, 8, 24]. Details on how to perform these activities in the context of OSP, however, have been not addressed in previous studies. Consequently, this study contains details of a framework to develop a strategic plan depending on submitted ideas and analysis.

This study also highlighted implementation and assessment issues of strategy in the proposed OSP methodology. Implementation and assessment have been essentially ignored in studies in the literature with the noted exception of Tavakoli, Schlagwein and Schoder [7] who suggest implementation as part of the OSP process. Considering the implementation and assessment phase in the strategy process, the proposed OSPM methodology goes beyond a simple strategy idea submission and proposes a flexible method that considers openness throughout the strategy lifecycle.

The theoretical grounding phase also addressed a call for 'micro details of strategising' through an open approach [6] by describing a detailed methodology involving the relations between different components.

Rather than just prescribing a methodology, this study also contributes to post-implementation conditions of the proposed OSP methodology through an empirical grounding phase. This phase addressed a call in the literature to investigate OSP from a social perspective [23] and to research the impact of openness on strategy outcomes [26, 101].

Previous studies in the OSP literature also stated that using an inclusive approach to strategising indirectly leads to better strategies, improved understanding, better implementation of the strategies and improved organisational performance [14, 26]. This research extends previous work by focusing on the impact of the components of OSPM at a micro level. For example, the study found anonymity an important concern for participants in the processing layer of OSPM. This finding is also reflected in the literature as a central dilemma of open strategy referring to the fact that although an OSP approach can potentially grant more power to stakeholders, it subjects them to the burdens of strategising [15].

Another factor – diversity – has been mentioned as a potential risk in OSP where internal stakeholders are reluctant to implement the strategies and ideas submitted by external stakeholders [17]. Our study contradicts this finding. We suggest diversity of participating stakeholders is a factor increasing the OSP effectiveness by providing the organisation with a more diverse range of ideas.

Finally, while previous studies on the open strategy concept ignored ‘the negative consequences of openness’ in strategy formulation [102], this study highlighted a number of potential risks and drawbacks of open strategy such as bias towards a certain stakeholder group, lack of agility in plan development, lack of face-to-face interaction and over-emphasising planning. These consequences we argue need to be addressed rather than ignored.

6.3 Agenda for future research

In terms of theoretical implications, the study implemented discourse theory in the context of strategic planning in general and open strategy in particular. Although discourse theory has been frequently used in IS research [103-105] and similar concepts (such as communicational process) have been the subject of attention in strategic management research [106, 107], to the best of our knowledge, this is the first study focusing on implications of Habermasian theory in strategic planning. This study recognises similarities between Habermas’ discourse and the open strategy concept and calls for future theoretical and empirical studies of the open strategy concept and similar theories such as the theory of communicative action [76].

Although the open strategy concept has its roots in the IS domain, only limited studies addressing this topic have been published in IS outlets [7]. Application of a DSR perspective and specially employing elements of ISDT revealed the relevancy of IS research and related methods to the topic of open strategy. As the main focus of the study is on the development of an information system and implementation of it, future IS researchers (especially those interested in open innovation) should consider open strategy as a new and significant field of research.

As mentioned before, previous studies on open strategy have paid less attention to evaluating their work. This research paves the way for future evaluations of OSPM in particular and the open strategy paradigm in general, through the development of a theoretical framework. While the evaluation section showed a general fit between the collected data and the theory-based methodology, future studies should address the evaluation of open strategy at a micro level through qualitative studies representing stakeholders’ point of view and interpretations and at a macro level through quantitative studies comparing the adoption and success rate of the open approach.

6.4 Implications for practitioners

This research has several implications for practitioners. First and foremost, the most important practical implication is the creation of a comprehensive methodology for implementing the concept of open strategy through an IT system. The methodology covers both the structure of a system and a process for implementation that can benefit practitioners working in a variety of contexts to facilitate the development of a strategic plan within an organisation involving a broad range of ideas.

The proposed planning system is proposed as a set of modules involving three layers required to implement OSPM. The proposed structure will help systems developers in different organisations with different technologies to adopt and benefit from the prescribed planning architecture. The proposed blueprint of OSPM also covers various aspects of a planning system including front-office (user interface layer), back-office (formulation layer) and background processes (processing layer).

The methodology also includes a strategy process covering four general phases. These phases were developed to correspond to a number of theory-driven requirements guided by kernel theories (of Bryson and Habermas), and for this reason, the proposed phases can be extended to a variety of contexts. Practitioners in strategy departments can use the proposed processes to manage and harmonise a planning project and the required offline activities required for OSP. While the integration of an IS with offline organisational processes has been a challenge for IS developers [108], this study recommends the integration of strategy process (offline) with planning system (online). Combining these components of the methodology can potentially increase the effectiveness of the OSP system and facilitate strategic planning for practitioners.

As the ideas in OSPM originated from stakeholders who were in charge of implementing the final strategic plan, plans developed from this methodology are expected to be implemented more efficiently. Instantiations of OSPM in two cases also helped this study to go beyond developing a theoretical methodology, by reporting some of the possible implementation challenges. These challenges may occur in future applications of the methodology; therefore, the study contains advice on how to avoid them.

Finally, this approach may lead to a decrease in the required budget for strategic planning through assigning sensitive activities (such as internal and external analysis, usually performed by strategy consultants) to stakeholders who have first-hand understanding of these topics. This reduced cost may provide an opportunity for small and medium businesses and non-profit organisations to develop strategic plans with limited budgets.

6.5 Limitations

A number of limitations to the research design have already been mentioned in Section 3.5 when explaining the concepts of credibility, reliability and generalisability. These limitations included the lack of detail in designed methodology (to ascertain generalisability) and the advocacy bias during the empirical grounding phase of the study.

In addition to the above-mentioned research design limitations regarding the case sites, both case studies were selected depending on convenience and access. Although the selected cases differ in many aspects, there are other contextual factors that do not differ. In particular, both cases can be categorised as medium-sized organisations, whereas employing the methodology in small or large businesses in highly competitive environments may (or may not) have the same impact.

Finally, some of the primarily organisational impacts of a strategic plan can be only be viewed at the end of the time horizon for the plan. However, as a result of time limitations for this study, it was impractical for completion reasons to postpone the evaluation until after the plan had been completely implemented. For this reason, interviews in the both cases were conducted relatively early after the publication of the strategic plan, and stakeholders were questioned about their interpretation of the plan effectiveness within a short timeframe after implementation.

7 Conclusion

The lack of prescriptive research in the area of OSP was addressed as a shortcoming. To address this shortcoming, this research proposed an applicable and theory-informed methodology for implementing the concept of open strategy in organisations. The study then turned to the evaluation of the methodology and provided insights into the possible benefits and challenges of using the open strategy approach.

As suggested by Goldkuhl and Lind [30], the prescriptive knowledge in this study emerged through the interplay between building and evaluating an IS artefact. In terms of theoretical contribution, this research can be categorised as ‘theory as narrative’ to describe a ‘social process, with emphasis on empirical tests of the plausibility of the narrative’ [109]. The prescriptive research also addressed a call for ‘micro details of strategising’ through an open approach [6] by describing a detailed methodology and the relationships between different components of this methodology. It also addressed a call in the literature to consider a social perspective for OSP [23] and research the impact of openness on strategy outcome [26, 110].

The study was successful in evaluating the feasibility and effectiveness of the methodology (often described as the aim of the empirical phase in design research [111]). It further achieved its goal in proposing a theory-based methodology of OSP in organisations. The results of empirical grounding indicate that the proposed methodology can improve the effectiveness of strategic planning.

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Appendix 1. Interview Protocol

All of the interviews were guided by the following protocol. Participants were selected regardless of their participation in the idea submission. However, to have a correct understanding about their evaluation, we made sure all the interviewees had already read the developed strategic plan. To do this, a printed version of the strategic plan was made available to participants during the interview process. Each interview took between 30 to 40 minutes in duration. Interviews were taped and transcribed. A set of leading questions asked during the interviews are listed below.

1. How long have been involved in this organisation?
2. What are your roles in the organisation?
3. Were you informed about the planning project?
4. Did you participate in the planning project? Why?
5. Are you agreeing with this statement: 'this approach has helped people to be more involved in the organisation'? Why and How?
6. Did you find the planning system efficient and easy to use?
7. Do you think this approach decreased the planning cost?
8. Do you think this approach improved the required time for strategic planning?
9. From your perspective, what is the most important business goal for this organisation? (examples: customer service, productivity, increase market share, customer satisfaction, customer retention, better competitive position and shareholders satisfaction) Do you think this goal is highlighted enough in the developed plan?
10. Which strategy in the final plan you think is the most important? From your perspective, is this strategy explained completely? From your perspective, is this strategy achievable in the mentioned time frame?
11. Do you think: 'this project was generally successful'? Why?
12. Do you think this plan will improve the performance of the organisation? Why?

Appendix 2. Mapping design requirements with components of the planning system

Design requirements	Component(s) of OSPM addressing the requirement	How the OSPM component deals with each design requirement?
Req1	Layer 1: user interface layer	This layer consists of an interface layer between the participants and the planning system creating an ideal discourse in which everybody has an opportunity to participate. Through the two modules in this layer, all stakeholders potentially capable of participating in the strategy process were contacted and informed about the strategy project, and stakeholders submitted their ideas anonymously.
Req2	Layer 2: formulation layer	This layer creates transparency for both strategy process and outcome by four modules in which stakeholders can freely access and discuss each strategy idea; read the final strategic plan; monitor the progress of the planning process and identify, monitor and manage a set of actions to achieve the identified strategies.
Req3	Layer 3: processing layer	Two modules are considered in this layer to make sure no coercion was exerted on participants in the OSP project. In these modules, stakeholders capable of participating in the strategy process were identified, and the flow of data and tasks between them was facilitated, so that participants submitted their strategy ideas anonymously.
Req4	Pre-planning phase	Initial agreements on requirements are achieved, and organisational requirements and goals are defined during this phase before the initiation of the planning project.
Req5	Strategy analysis phase	This phase makes it possible for stakeholders to identify their analysis of the internal and external environment and to clarify strategic issues through discussion.
Req6	Plan development phase	This phase covers all the required activities to transform submitted strategy ideas, refinements to organisational strategy and a description of the organisation in the future.
Req7	Implementation and assessment phase	This phase focuses on creating an action plan to achieve developed strategies and reassessing the developed strategies depending on progress of these actions.

Appendix 3. Process models of strategic planning in the literature

Literature Source	Stages of the planning process	Comprehensiveness	Tools and techniques	Attention to public organisations	Number of citations ¹
McConnell [112]	Determination of corporate objectives, assembling information, development of planning actions and preparation of the provisional plan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	19
Camillus [113]	Analytical dimension, interactive dimension and temporal dimension	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	103
Ghosh and Nee [114]	Perception stage, internal appraisal, external appraisal, decision on strategy and search and evaluation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7
Nutt [115]	Techniques linked to the stages (and the within-stage phases) of a strategic planning process and decision rules to make a selection from various techniques for particular applications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	74
Brauers and Weber [116]	Determination of compatible scenarios, determination of scenario probabilities and determination of main scenarios	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	104
León-Soriano, Muñoz-Torres and Chalmeta-Rosalen [117]	Planning of the project, definition of enterprise mission statement, stakeholder analysis, strategy definition, strategy implementation and execution, design of indicators and targets, validation, implementation and monitoring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	61

¹ Based on Google Scholar

Literature Source	Stages of the planning process	Comprehensiveness	Tools and techniques	Attention to public organisations	Number of citations ¹
Bryson [32]	Initial agreement, mandates, mission and values, internal/external environment, strategic issues, strategy formulation, strategy and plan review and adoption, description of the organisation in the future, implementation, strategy and planning process re-assessment.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3767
Cervone [118]	The kick-off, sprint planning meeting, sprint, daily Scrum, sprint review meeting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10