



## **Focus on processes contextualised: how QM process tools and practices can support sustainable development**

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# Focus on processes contextualised: how QM process tools and practices can support sustainable development

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## Abstract

**Purpose** – Quality management (QM) can support organisations in contributing to sustainable development. As a result of an expanding focus from customers towards stakeholders within QM, the perspectives to consider multiply. Understanding how practices and tools for process management are specifically affected by this increase in perspectives is key to creating the right conditions for improvement initiatives that support sustainable development.

**Design/methodology/approach** – This paper constructs a typology wherein the use of process management practices and tools is described in nine distinguished system contexts. Inductive discrimination is used to differentiate the system contexts and different use cases for process practices and tools.

**Findings** – Using the system of systems grid (SOSG), mainstream business process management (BPM) practices are positioned in a simple unitary context, whilst sustainability challenges also involve more complex contexts. Addressing these challenges requires integrating new tools and methods from paradigms outside of traditional functionalist business process management practices.

**Research limitations/implications** – This paper highlights the necessity to consider system contexts when developing feasible practices and tools for effective process management.

**Practical implications** – Practical implications are that quality practitioners aiming to exploit the potential in process management to support sustainability get support for planning and conducting process improvement initiatives aiming to consider several stakeholder perspectives.

**Originality/value** – This paper presents a new typology for understanding the context of QM process initiatives and BPM in light of a contemporary sustainability focus.

**Keywords** Quality management, Processes, Stakeholder focus, System of systems, Sustainability, Quality, Sustainable development

**Paper type** Conceptual paper

## 1. Introduction

Quality management (QM) has been defined in many different ways and moved from a stage of hype and fashion into a mature field in practice as well as research (Sousa and Voss, 2002). A seminal definition by Dean and Bowen (1994, p. 394) describes it as “an approach to management that can be characterized by its principles, practices, and techniques. Its three

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principles are customer focus, continuous improvement, and teamwork [ . . . ] Each principle is implemented through a set of practices, which are simply activities such as collecting customer information or analyzing processes. The practices are, in turn, supported by a wide array of techniques". At the empirical level it is argued that the focus should be on practices as they are observable features of what managers do in improvement work (Sousa and Voss, 2002). One example is that the principle "continuous improvement can be supported by the practice 'process management', which in turn can resort to several techniques such as statistical process control and Pareto analysis." (Sousa and Voss, 2002, p. 92). Other frameworks like the cornerstone model in Bergman *et al.* (2022) and the International Organization for Standardization (ISO) 9000 standard include a "focus on processes" as one amongst six cornerstones and one amongst seven principles (Fredriksson and Isaksson, 2018). Examples of process management practices are business process management (BPM), business process improvement (BPI) and business process reengineering (BPR). In this paper, the "focus on processes" that permeates QM is explored through focussing on BPM practices. BPM will be used as an umbrella term for BPM, BPI and BPR following Groß *et al.* (2019). Examples of tools supportive of BPM are process mapping, statistical process control and root-cause analysis (Bergman *et al.*, 2022; Gremyr *et al.*, 2020). The envisioned benefits of BPM are to reduce cost, to reduce cycle time and to enhance quality (Lindsay *et al.*, 2003; Paper *et al.*, 2001; Shin and Jemella, 2002).

However, not all benefits are always realised, and empirical investigations reveal a high failure rate of QM initiatives in general, with BPM initiatives specifically fails to meet management expectations (see Asif *et al.*, 2009). The failure of BPM initiatives is partly attributed to neglecting the human dimension of organisations (Willcocks and Smith, 1995), stemming from a dominant view of processes as mechanistic, thereby excluding human involvement (Melão and Pidd, 2000). This perspective risk being even more critical when various improvement practices are considered for adaptations to support sustainable development (Siva *et al.*, 2016), for example by considering a broader scope of stakeholders and their needs (Conti, 2013, p. 20; Garvare and Johansson, 2010; Isaksson, 2006, 2021; Isaksson *et al.*, 2015; Zink, 2007).

Sousa and Voss (2002) predict that new streams in the QM literature will emerge and suggest these streams can be either harmful or fruitful for QM. Harmful in the sense that continuously adding to the core of QM poses the danger of dissolving its identity and threatening the soundness of the conceptual foundations. Therefore, it is fruitful if the research can maintain the integrity of the core of QM whilst exploring new promising areas that can frame the interface between QM and other fields. A big part of the envisioned future for the field of QM is based on further studies using contingency research to solve conflicts with management theory and to develop QM implementation guidelines for different contexts (Sousa and Voss, 2002).

The inclusion of more stakeholders' perspectives in QM implies a need to manage alignment, or misalignment of different interests, beliefs and values in order to realise the potential contributions to sustainable development. Within QM there are examples of methodologies that can be expanded and used to consider a wider range of stakeholders (see, e.g. Gremyr *et al.*, 2014 on robust design methodology). Thus, organisations already working with such methodologies might not be as challenged by adopting a stakeholder perspective. On the other hand, other examples show a trade-off between internal efficiency and a sustainability perspective, necessitating consideration of trade-offs between environmental and economic aspects (Figge and Hahn, 2012). Thus, the shift towards a broader stakeholder focus needs further investigation, part of such investigation has already taken place both academically and in practice in the field of systems thinking. As the scope of system stakeholders expanded and the complexity addressed in systems thinking increased, various improvement methodologies were introduced and framed as competing for the title "the core of systems thinking". Already in the 1970s, Ackoff (1974) captured a polarisation between the "machine age" and the "systems age", the two being fundamentally different ways of

conceiving systems. Jackson and Keys (1984) later built on this terminology to create a system of systems methodology to potentially de-escalate the battle of the two competing strands of systems thinkers.

The system of systems methodology introduces a two-dimensional grid capturing the complexity of the system and the alignment of perceptions amongst stakeholders with agency over decision-making in the system (Jackson and Keys, 1984). The main feature of the system of systems grid (SOSG) is to assess the applicability of problem-solving practices from various domains to specific system contexts. This will foster a recognition of the suitability of various practices, moving beyond a unilateral stance and introducing a mindset of complementary perspectives. In short, a tool that can be used to explore the interface between mainstream QM practices and other fields captured in new streams of literature connected to QM.

In this paper, the conceptual objective is to establish a connection between SOSG and BPM focussing on the conceptual goals of relating and envisioning (MacInnis, 2011). This linkage aims to explore how BPM applications can be designed to better support sustainable development by emphasising its adaptability in various systems. Moreover, practical benefits are envisioned by exploring how a changed focus from customers to stakeholders affects current BPM practices and tools; thereby enhancing its role in supporting sustainable development. Thus, the purpose is to explore how BPM practices and tools are affected by a shift from customers to stakeholders in QM initiatives, aiming to better support sustainable development in various system contexts. This purpose is addressed through two research questions (RQ):

- RQ1. In what system context of the system of systems grid is mainstream BPM applicable?
- RQ2. How can a focus on processes support sustainable development in other system contexts beyond those occupied by mainstream BPM?

The structure of conceptual papers is highlighted as an important feature for achieving conceptual clarity, parsimony, simplicity and logical coherence (Jaakkola, 2020). Following this introductory section including the objective and research questions, the paper moves to Literature review focussing on the core structure and features of BPM and SOSG. In the following section the Method describes the design of the conceptual contribution before moving into the Results where the assumptions and utility of BPM in various system contexts is explored. Finally, the contributions are discussed and insights concluded.

## 2. Literature review

Focussing on BPM practices and tools in different system contexts and how they can support sustainable development, the paper mainly draws on literature related to BPM, sustainability problems and critical systems thinking.

### 2.1 Business process management

In a review focussing on process change Kettinger *et al.* (1997) derived six stages of general BPM: (1) Envision, (2) Initiate, (3) Diagnose, (4) Redesign, (5) Reconstruct and (6) Evaluate. Typical activities for the initial stage-Envision – are the establishment of management commitment, the discovery of reengineering opportunities and the selection of process. From the Initiate stage to the Reconstruction the activities are linked to the planning and initiation of the imagined change, the analysis of the selected process performance and the intervention through redesign and reconstruction. The final stage – Evaluate-refers to the reflective activities linked to learnings and improvements.

BPM as a field is relatively old with conceptual roots from statistical process control and BPR (Klun and Trkman, 2018). A bibliometric review of 446 papers on BPM (Klun and Trkman, 2018) shows how early literature on reengineering like Hammer and Champy (1993) and Davenport and Stoddard (1994) has been highly influential in the continued development of BPM. Klun and Trkman (2018) further identified six clusters of literature on BPM. The first two clusters, *practice-oriented BPI* and *workflow management*, consist of literature with a more radical approach to business process optimisation. The third cluster focuses on introducing and exploring different BPM concepts such as *business process modelling* (Aguilar-Savén, 2004) and *business process change* (Ketinger et al., 1997). The fourth and fifth clusters also deal with business process modelling but from a *methods* and *information technology* perspective rather than conceptual. The final identified cluster deals with the *critical success factors* of BPM trying to explain the success and failures of empirical applications of BPM.

Modelling of business processes is a core feature of BPM more or less dealt with in all identified research clusters (Klun and Trkman's, 2018). Melão and Pidd (2000) highlight four different perspectives used in literature to deal with business process modelling, namely viewing business processes as deterministic machines, dynamic complex systems, interacting feedback loops or social constructs. The analysis of the different theoretical underpinnings used in business process modelling is taken further in Pidd (2004) where business process modelling is expanded into systems modelling. Here a notion of complementarity in modelling is introduced, looking at differences in context to identify which type of modelling methodology is most suitable.

Aguilar-Savén (2004) develops a framework with two key dimensions for classifying business process modelling techniques, the *purpose of the model* and *model change permissiveness*. The purpose of the model is suggested to be one-or some-of the four:

- (1) Descriptive for learning;
- (2) Descriptive and analytical models for decision support to process development and design;
- (3) Enactable or analytical models for decision support during process execution and control; and
- (4) Enactment support models to information technology.

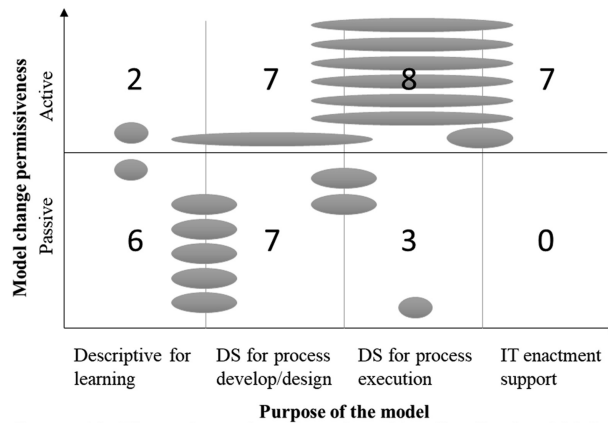
The model change permissiveness is about the capability of the modelling technique to allow the user to interact with the model once produced, resulting in two categories, active and passive models. Based on this framework 17 process modelling techniques are mapped against the two axes (Aguilar-Savén, 2004). The mapping highlights the most common purposes and change permissiveness amongst the 17 process modelling techniques, see Figure 1.

In closing, Groß et al. (2019) conclude that the vast majority of BPM approaches are not out-ward looking, but rather focus on internal processes and internal customer needs. The majority are also analytical and transactional, pursuing incremental change as compared to other approaches that are creative and transformational, pursuing radical change. Continuing, these are the features of what will be called mainstream BPM. Mainstream BPM is understood as the full set of activities used in Ketinger et al. (1997), including business process modelling as a key activity, with the features related to the majority of BPM approaches in Groß et al. (2019).

## 2.2 Problems, issues and dilemmas

Sustainable development is often traced back to the Brundtland definition summarised in the short phrase “sustainable development is development that meets the needs of present

**Figure 1.**  
Grid for mapping  
modelling techniques  
based on the purpose of  
the model and the  
change permissiveness  
of the model



**Source(s):** Figure by authors based on (Aguilar-Savén, 2004)

without compromising on the ability of future generations to meet their needs” (Brundtland *et al.*, 1987). This definition implies that sustainability is about people and our needs and an equilibrium in terms of our planets’ capacity to care for all future generation. In general terms the definition accommodates two key stakeholders; people and planet. Both in their broadest sense with a global scope. To understand how management practically can address the “sustainability challenge” a decomposition into different types of “problems” is helpful (Pidd, 2013). Such a decomposition can be based on three stereotypes for “problems”: *problems*, *issues* and *dilemmas* (Flood, 1999).

*Problems* are considered real things that can be separated out of a situation and solved, hence requiring various degrees of problem-solving abilities amongst managers. *Issues* are soluble instead of solvable, meaning that there is no need for “finding” a solution but rather seeking to dissolve disagreement. Discussing interrelated issues aims at inducing learning between people for better understanding their own and others reasoning. This as a way of approaching consensus and thereby dissolving issues. Issues are similar to what Ackoff (1979) introduced as “Messes” and what Rittel and Webber (1973) calls “Wicked problems”. *Dilemmas* on the other hand are unsolvable and insoluble (Flood, 1999). Dilemmas arise as a result of differences in perspectives and objectives of people involved in an issue where consensus cannot be reached. Dilemmas often results in that the dominant perspective imposes its authority, whilst the dilemma itself remains concealed in the background. Engaging with sustainability challenges will force managers to deal with problems, issues and dilemmas and the key is to approach each challenge with a suitable approach (Flood, 1999; Jackson, 2019; Pidd, 2013).

### 2.3 Critical systems thinking

Thinking in systems is often associated with ideas like “the whole is more than the sum of its parts” and “everything is interconnected”. This leaves the system thinker at an uncomfortable position where information about the whole system is required before any hopes of designing a successful intervention can exist. It can easily be criticised for being hopelessly idealistic and unworkable. In response to such criticism, an alternative perspective suggests viewing the comprehension and improvement of the “whole system” as a theoretical ideal. This approach encourages critical reflection on the temporary nature of our current knowledge and the inherent limitations of our system designs (Jackson, 2019). This view is referred to as “second order” or “critical” systems thinking (Jackson, 2019).

As systems thinking evolved and new approaches to systemic intervention emerged, Jackson and Keys (1984) introduced the ideal grid model for exploring the foundations of such interventions. Initially, this grid drew inspiration from sociotechnical systems thinking and Habermas' work on the socio-cultural form of life (Jackson, 2004). According to Habermas (1972), the socio-cultural form of life is underpinned by two fundamental conditions: "work" and "interaction" (read in Jackson, 2004). "Work" leads to a "technical interest" in predicting and controlling natural and social systems, whilst "interaction" leads to a "practical interest" focussed on enhancing mutual understanding amongst those involved in social life. Disagreements amongst different groups can pose a threat to the socio-cultural form of life just as much as a failure to predict and control natural and social affairs (Jackson, 2004). Complementing these interests is the "emancipatory interest," which analyses power and its exercise to understand past and present social arrangements. Jackson (2004) concludes that, as organisations form the foundation of the socio-cultural life of the human species, individuals have a technical, practical and emancipatory interest in their functioning.

Building on this framework, Jackson identifies three social paradigms: the functionalist paradigm, driven by goal-oriented agendas serving the technical interest; the interpretive paradigm, guided by the exploration of purposes serving the practical interest; and the emancipatory paradigm, dedicated to ensuring fairness and serving the emancipatory interest (see appendix in Jackson (1999) for an overview). Furthermore, social theory emphasises the importance of the social context in which methodologies are employed (Jackson, 2019). This emphasis on theoretical awareness forms an essential part of critical awareness. Critical awareness, along with pluralism and improvement, constitutes the primary tenets of critical systems thinking, which underpins critical systems practice (Jackson, 2019). Critical awareness encompasses theoretical awareness, social awareness and ecological awareness. The second commitment, pluralism, centres on embracing the complementary aspects of various system methodologies, seeking the unique benefits that diversity in methodologies can offer instead of fixating on a single universal approach. The commitment to improvement has evolved from initial ideas of universal liberation to focussing on local improvement and considering aspects such as efficiency, efficacy, effectiveness, viability, sustainability, mutual understanding, empowerment and emancipation (Jackson, 2019). With this foundational understanding of critical systems thinking, one of its primary tools for promoting pluralism and theoretical awareness is the system of systems grid.

*2.3.1 System of systems grid.* The ideal grid was constructed with two axes, one for the level of complexity in the system and one for the relationship amongst the stakeholders in the system (Jackson and Keys, 1984). Based on the three system contexts; simple, complicated and complex, and the three stakeholder contexts, namely unitary, pluralist and coercive, the ideal grid was designed with nine resulting contexts in Jackson (2019). Together with the distinction between problems, issues and dilemmas, nine types of problem contexts can be distinguished: simple problems, complicated problems, complex problems, simple issues, complicated issues, complex issues, simple dilemmas, complicated dilemmas and complex dilemmas (see Figure 2). In the following section the two dimensions-system complexity and stakeholder relations-will be elaborated on.

*2.3.1.1 Complexity of systems.* In the initial ideal grid two types of system complexity was introduced: simple and complex. Here Jackson and Keys (1984) described a simple system as having few elements which were involved in a small number of highly structured interactions. A complex system on the other side of the continuum consists of a large number of elements that are involved in several loosely structured interactions. The nuances of complexity have been explored furthered by Snowden and Boone (2007) in their Cynefin framework for decision-making. They present four key contexts: simple, complicated, complex and chaotic. The simple context is the domain of best practice. Here the cause-effect

**Figure 2.**  
System of system grid  
with two axes: system  
complexity and  
stakeholder relations

		<u>Stakeholders</u>		
		Unitary	Pluralist	Coercive
<u>System</u>	Complex	Complex Problems	Complex Issues	Complex Dilemmas
	Complicated	Complicated Problems	Complicated Issues	Complicated Dilemmas
	Simple	Simple Problems	Simple Issues	Simple Dilemmas

**Source(s):** Figure by authors based on (Jackson, 2019)

relationship is directly observable, there are repeating patterns and consistent events, a right answer exists, and fact-based managers are dealing with known knows. For the simple domain, [Snowden and Boone \(2007\)](#) suggest a strategy of sense-categorise-respond. The complicated context is the domain of good practice where several right answers exist. The cause-effect relationships are discoverable through expert analysis and not apparent to everyone. Here fact-based managers are dealing with known unknowns and the strategy is suggested as sense-analyse-respond. The complex context is the domain of emergence which is fluid and unpredictable. The cause-effect relationships are interconnected in an indistinguishable web. No right answers exist, and pattern-based managers are dealing with unknown unknowns. Here the strategy is instead probe-sense-respond. Finally, the chaotic context is the domain of rapid response and high turbulence. There are no clear cause-effect relationships and intuitive management is dealing with the unknowable, the strategy is act-sense-respond. For the purpose of identifying suitable problem-solving methodologies for various contexts, the chaotic context has been argued to be excluded due to lack of suitable known problem-solving methodology ([Snowden and Boone, 2007](#)).

In a later review of the complexity dimension of the System of Systems Model, [Jackson \(2019\)](#) acknowledges the contribution from [Snowden and Boone \(2007\)](#) and introduces a third type of system complexity, namely the complicated system which is positioned in between the simple and the complex. This domain is characterised as having a large number of highly interrelated elements, where not all attributes of the parts of the system are directly observable. Without the complicated context, the systems which are not simple but still holds several systems elements interconnected by feedback loops are found in the complex context. By introducing the complicated context, the problems that can be solved through expert analysis are given a space separate from the complex.

2.3.1.2 Stakeholder relations in systems. The set of stakeholders that are participants in a system all have certain values, beliefs and interests that guide their perception of what is right or wrong. When there is alignment of the values, beliefs and interests, the context is called unitary ([Jackson, 2019](#)). Here there is a unanimous view on what is the right and true state of things. If instead values and beliefs are varied but the interests are aligned, the context is called pluralist ([Jackson, 2019](#)). In the pluralist context it is possible to overcome the differences in values and beliefs through participative dialogue eventually reaching consensus on a way forward based on similar interests and goals. The pluralist context deals with issues rather than problems. In the third context, the coercive, neither values, beliefs, nor interests are aligned and the available power and influence of each actor (individual or group)

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will be the main determining factor for what is perceived as right and true for the system (Jackson, 2019). This is the context of dilemmas.

2.3.1.3 Using the system of systems grid. Jackson (1999) is explicit in how the intended use of system of systems model (SOSM) is not to be thought of as a rulebook for uncritically selecting system methodologies, rather its main contribution lies in critically reflecting on methodological design. It should be clear that reality is not as neatly boxed as the ideal type grid. Critics argue for abandoning the SOSM in favour of a focus on mixing methods through a model of learning as outlined in Midgley (2001). The main critiques against SOSM are two; first, the boxing of methodologies in ideal problem contexts makes different interpretations of the same methodology impossible. It is clear that the intention with a system methodology might not be what is actually perceived and applied by the practitioner. The static boxing of methodologies has no means of dealing with these potential variations in interpretations. Second, the boxing of methodologies is also so far unable to consider the development of methodologies that occur through learnings from theory and practice. Here there is an example of system dynamics which initially was only used for goal-seeking purposes, but later found a qualitative application used for exploring purposes in the pluralist context. Whilst these critiques are legitimate concerns and the use of “ideal types” indeed is limited in its application, this paper follows the intended application of the model to critically review method design and underlying assumptions (Jackson, 2006). It should be noted that the purpose of this paper is to highlight how the complexities of various organisational settings can lead to different types of problem-solving. Whilst the SOSG can contribute to a certain extent in describing nine ideal contexts, it may oversimplify and misrepresent some of the entangled situations in organisational practice. However, the alternative suggested by the critics, the model of learning by Midgley (2001, pp. 253-266), does not provide any model or method that could be used to highlight the potential differences in how processes can be a means to support sustainable development. The model of learning could potentially be used complementary to the use of SOSG here, as opposed to being an alternative.

### 3. Method

A conceptual paper seeks to link work across disciplines, provide multi-level insights, bridge existing theories and broaden the scope of our thinking (Gilson and Goldberg, 2015). There are different types of theories used for conceptual papers; domain theory and method theory (Jaakkola, 2020). Domain theory is “a particular set of knowledge on a substantive topic area situated in a field or domain” (Lukka and Vinnari, 2014, p. 1309), in this paper the domain theory is the BPM practices and tools. Method theory on the other hand, is “a meta-level conceptual system for studying the substantive issue(s) of the domain theory at hand” (Lukka and Vinnari, 2014, p. 1309), which in this paper is the SOSG. The primary purpose of the method theory is to offer fresh perspectives on the domain theory, such as extending, structuring, or presenting a novel or alternative interpretation of concepts and relationships (Jaakkola, 2020).

#### 3.1 Conceptual developments and contributions

Amongst conceptual papers there can be several distinct types of contributions, MacInnis (2011) presents a typology with eight specific conceptual contributions. These eight specific contributions are sorted into four general conceptual goals; envisioning, explicating, relating and debating, here focus is on envisioning and relating. This paper has two types of conceptual goals, connected to one research question each. RQ1 is connected to a relating conceptual contribution and RQ2 is connected to an envisioning contribution.

In specific the relating contribution is in terms of differentiating. Differentiating is described as “to see types of things and how they are different; to discriminate, parse, or see pieces or dimensions that comprise a whole” (MacInnis, 2011, p. 138). The metaphorical role of the researcher is here one of a naturalist who takes its magnifying glass and goes out into nature to classify the different species it encounters. This is what is done when reviewing the practice of BPM and locating it in the SOSG. The second conceptual contribution is envisioning, specifically through revising the idea of how BPM can contribute to sustainable development. Revising is described as “to see something that has been identified in a new way, to reconfigure, shift perspectives, or change” (MacInnis, 2011, p. 138). Here the metaphorical role of the researcher as an artist, who with its paintbrush repaints otherwise familiar canvases into something new. This contribution is done when exploring if and how “focus on processes” can support sustainable development in other ideal problem contexts. The relations between the type of theory used, the research questions posed and the conceptual contributions made are visualised in Figure 3.

3.2 Conceptual validation

Whetten (1989) suggested that conceptual papers should be judged on the basis of seven criteria: (1) What’s new? (2) So what? (3) Why so? (4) Well done? (5) Done well? (6) Why now? and (7) Who cares? This set of questions have been considered in the design and writing of this paper (as summarised in Table 1).

4. Results: business process management in the system of systems grid

Combining the three-by-three grid, nine resulting “problem types” can be distinguished: simple problems, complicated problems, complex problems, simple issues, complicated issues, complex issues, simple dilemmas, complicated dilemmas and complex dilemmas. The applicability of mainstream BPM modelling practices will be reviewed in the simple-unitary, dealing mainly with problems. Followed by an exploration of how processes can be viewed to support sustainable development in the other contexts.

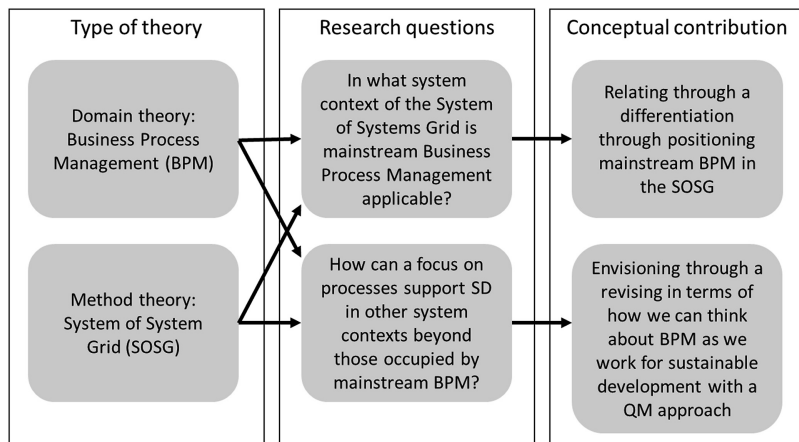


Figure 3. Schematic with linkages between type of theory, focus and conceptual contribution

Source(s): Figure by authors

Criteria	Description (Whetten, 1989, pp. 494-495)	Criteria as reflected in this paper
What is new?	Does the paper make a significant, value-added contribution to current thinking? In general, scope (how much of the field is impacted) is less important in determining the merits of a contribution than is degree (how different is this from current thinking)	The approach to review the practice of BPM through the SOSG is new and complements previous reviews using Morgan's (1998) metaphor and paradigm analysis. The key motivator is the increasing relevance of the needs of stakeholder beyond customers for organisational decision-making and process management to better support sustainable development
So what?	Will the contribution likely change the practice of the organisational science in this area? Are linkages to research evident (either explicitly laid out, or easily, reliably deduced?)	If the needs for improvement stem from more complex contexts than mainstream BPM is designed for the awareness of when and where mainstream and reimagined BPM is relevant is key for avoiding failed BPM initiatives and wasted resources
Why so?	Are the underlying logic and supporting evidence compelling? Are the author's assumptions explicit? Are the author's view believable?	Focus on processes as part of problem structuring methods is well established within critical systems thinking, see, e.g. (Flood, 1999; Jackson, 2019)
Well done?	Does the paper reflect seasoned thinking, conveying completeness and thoroughness?	The main ideas have been curated over several iterations of discussion and draft versions where the final paper tries to balance rigour in terms of high amount of references to previous writings and simplicity in keeping the format short and precise
Done well?	Is the paper well written? Does it flow logically? Are the central ideas easily accessed?	The disposition is designed to follow a classic structure with introduction, theoretical background, methodology, results and discussion. Central ideas are highlighted with complementary visual representations
Why now?	Is the paper of contemporary interest to scholars in this area? Will it likely advance current discussions, stimulate new discussions, or revitalise old discussion?	The pressure on organisations to care for their stakeholders needs and support sustainable development is ever increasing. Work with QM and BPM should be a way to improve sustainability performance and satisfy stakeholder needs. However, scrutiny of the underlying assumptions of BPM has not moved beyond the work of Melao and Pidd from 2000 exploring BPM in the positivist and interpretive paradigms. Shifting focus from customers to stakeholders clearly introduces more complexity for which the appropriateness of BPM should be scrutinised
Who cares?	What percentage of academic readers are interested in this topic? A paper may be technically adequate but inherently uninteresting to most of a broad audience. In general, even highly specialised papers should be linked to core management or organisational concepts and problems	Practitioners looking to systematically work with QM and continuous improvements for satisfied stakeholders and sustainable development should care to avoid misuse of BPM practices and tools

Source(s): Table by authors

**Table 1.**  
Criteria for evaluation  
of conceptual papers

#### 4.1 Mainstream BPM in the simple-unitary context

The unitary context is dominated by the questions of “how to”, i.e. optimisation for efficiency. The focus of activities is goal seeking since there is a unanimous agreement amongst the stakeholders with agency for decision-making about what the goal is. The four derived purposes for process modelling from [Aguilar-Savén \(2004\)](#) can serve as indicators for how much of mainstream process modelling is targeted towards goal seeking activities. In deriving the main purposes, process modelling techniques are generally said to be used either to develop software that supports processes or to analyse the processes themselves. The process is described to aid learning about the process either through data capture or as a presentation exercise. Further, models are needed to make decisions on the design or development of processes. Models can also be used for supporting decisions to ensure correct performance, i.e. as a tool for monitor and control of processes. Finally, [Aguilar-Savén \(2004\)](#) suggest that the software development process, as one way of supporting business processes, makes use of processes models for guiding programming efforts. All four suggested main purposes assume a problem context where there exists a right way, i.e. optimal way of process design, which can be derived through good process modelling. The goal is clearly about optimising process performance for certain measurable indicators of success. The mainstream of process modelling for BPM is hence applicable mainly in the unitary context of the SOSG.

When learning about, designing, developing and monitoring processes the underlying assumption is that the model is a representation of reality for which there exists one “correct” version. The business process modelling is further mainly concerned with the simple context where cause-effect relations are directly observable and known. There are several examples of complicated business process modelling techniques requiring expert skills to construct models with a high number of elements and connections ([Aguilar-Savén, 2004](#)). However, it has been derived as a critical success factors of process modelling to “use as few element as possible”, “minimize the routing paths per element” and “decompose the model if it has more than 50 elements” ([Mendling et al., 2010](#)). It is therefore concluded that the ideal problem context for mainstream process modelling in BPM is in the simple-unitary context engaging with problems of optimisation. This can be seen as the centrum of gravity for the field which is an conclusion supported by previous analysis of the field by [Melão and Pidd \(2000\)](#) as well as review of BPM as part of operations research in [Jackson \(2016\)](#).

Although the centrum of gravity lies in the unitary context, several contributions have been made to highlight the use case of process models in the pluralist context as well ([Lindsay et al., 2003](#); [Melão and Pidd, 2000](#)). In a chapter on complementarity in systems modelling [Pidd \(2004\)](#) introduces a spectrum along which system modelling approaches span from Routine use to Human interaction. Here two type of process modelling tools are named Tools for routine decision-making (closer to the Routine use of the spectrum) and Tools for thinking (closer to the human interaction on the spectrum). This expanded use of process modelling could be represented through an expansion into the simple-pluralist context where the use of process models as tools for thinking deals with issues rather than problems. Based on this understanding of process modelling for BPM, with a centre of gravity in the simple-unitary context, BPM can be seen as stretching into the complicated-unitary context as well as into the simple-pluralist. Connecting this to the distinction between problems, issues and dilemmas it is concluded that mainstream BPM deals mainly with simple problems and has the potential to deal with complicated problems as well as simple issues. This is captured by the marked area in the SOSG illustrated in [Figure 4](#). Here the wobbling line is used instead of a straight-line-boxing to remind the reader that the ideal grid is only an ideal construct and reality is not as neatly structured as models might suggest.

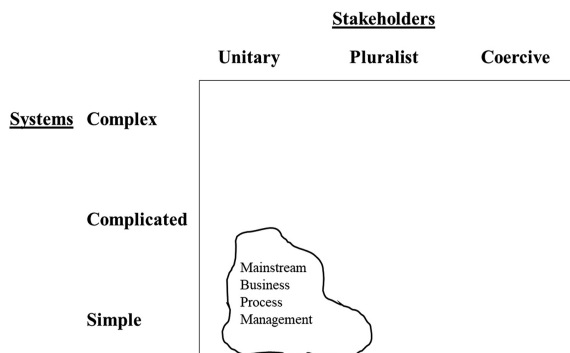
4.2 Exploring a focus on processes for sustainable development in other contexts

In placing mainstream BPM in the unitary-simple part of the SOSG and highlighting the already known applicability in the unitary-complicated and pluralist-simple context, six problem contexts remain: unitary-complex, pluralist-complicated/complex, coercive-simple/complicated/complex. These problem contexts arguably become more relevant for BPM when adding an expanded customer focus, to also include other stakeholders to enhance possibilities to contribute to sustainable development; such extension resulting in more pluralist contexts.

4.2.1 *Unitary-complex.* In the complex system the number of elements and relations is too large to model with deterministic equations. This has led to the use of a probabilistic approach in complexity theory (Jackson, 2016). Here common behaviours are modelled using averages of occurrence and a variety of density functions and distribution models for capturing emergent system behaviour. Business processes viewed as an assembly of interchangeable components, which has inputs that are transformed to outputs through transformation within some specified system boundary (Melão and Pidd, 2000). The general strategy suggested for this context, in dealing with the unknown unknowns, is probe-sense-respond. The decision-making process is too uncertain to motivate thorough system analysis and comprehensive process modelling. Hence the process modelling can only be used as an incomplete model to capture and describe patterns recognised from probing and sensing in the system without too much efforts being placed in analysing this before responding.

4.2.2 *Example.* One example of a BPM modelling approach for the unitary-complex context is a process-based system model used for deriving indicators for measuring system performance on an value chain level (Isaksson, 2015; Isaksson et al., 2007). The same model is also connected to the viable systems model (Beer, 1984) in Isaksson et al. (2010). The viable system model is recognised as one of the most influential system methodologies in the unitary-complex context in Jackson (2019). The process-based system model is suggested to be used in the highest of the five distinguished system levels where policy and key performance indicators are derived, which are used to monitor and control the system in the operational levels of the model (Isaksson et al., 2010). Here the processes in the system are described at a high level representing a set of interacting and dynamic processes, mainly used to derive aggregated performance indicators.

4.2.3 *Pluralist-complicated and complex.* In the complicated pluralist context, the underlying processes are not straight forward which mean that the dialogue amongst stakeholders will require more facilitation from experts to enable learning amongst the stakeholders. The tools from BPM could be used as heuristics with the purpose of enabling



Source(s): Figure by authors

Figure 4. Highlighted area of mainstream BPM centred in the simple-unitary context stretching into both the complicated-unitary and simple-pluralist context of the SOSG

learning and common consensus amongst the stakeholder. The same goes for the complex systems but here the experts can only know so much about the underlying system, patterns can be identified but clear cause-effect relationships are difficult to determine. Thus, the focus for BPM shifts from learning, to exploring and sense-making in the pluralist complex system.

*4.2.4 Example.* One example of how processes are understood in the pluralist context can be taken from the Soft System Methodology (Checkland and Scholes, 1999, pp. 33–53). Here the “transformation process” are essential for the “naming of relevant systems”: “A root definition expresses the core or essence of the perception to be modelled. The core purpose is always expressed as a transformation process in which some entity, the ‘input’, is changed, or transformed, into some new form of that same entity, the ‘output’” (Checkland and Scholes, 1999, p. 33).

In describing the process of “naming relevant systems” the Soft System Methodology emphasise that the core of producing a root definition for the system to be modelled is to pair the transformation process with a “Weltanschauung”, i.e. the worldview which makes the transformation process meaningful in the context. The methodology is based on the fundamental idea that “for any relevant purposeful activity there will always be a number of different transformations by means of which it can be expressed, these deriving from different interpretations of its purpose” (Checkland and Scholes, 1999, p. 35). The transformation process in this context is therefore defined and later redefined by the participants, and in this process, their worldviews get exposed and they learn about each other’s values and beliefs by negotiating the customer, actors, owners and environmental constraints related to the relevant transformation process.

*4.2.5 Coercive systems.* The coercive system is distinguished by the focus on power and agency amongst the stakeholders. Here not only values and beliefs vary, as in the pluralist context, but interest does not align either. Soft System Modelling by Checkland and Scholes (1999) and other soft modelling methods have been criticised for prevailing the status quo since only those stakeholder with agency are participants in dialogue for consensus (Jackson, 2006). In the coercive context most BPM tools are not viable for the purpose of emancipating suppressed and neglected stakeholders. Modelling methods may work as heuristics for illuminating the dilemmas of the coercive context but they offer little to provide guidance for the disadvantaged. Working as an anchor to the value-creating processes the improvement initiative is exploring dilemmas for. Simple process models could be used and updated as the exploration moves forward and dilemmas are identified. Here, system methods like Ulrich’s (1983) Critical Systems Heuristics and Beer’s (1994) Team Syntegrity have been suggested as methods for surfacing assumptions and critique the boundaries drawn by those in power (Jackson, 2019).

*4.2.6 Coercive-simple and complicated.* In the simple and complicated coercive system BPM methods may be used for mapping the context where stakeholders and power dynamics are in play. In shifting from customer focus to the stakeholder focus needed to support sustainable development, this context becomes increasingly important. The conflict between long-term prosperity for marginalised stakeholders and the short-term profits for recognised stakeholders is well known (see, e.g. Isaksson, 2021). The potential utility of BPM is therefore depending on the complementary methods for navigating coercive contexts. Here the activities of Envisioning in BPM like identifying process stakeholders and identify business context are depending on an appreciation for the differences between the unitary, pluralist and coercive context.

*4.2.7 Example.* Venter and Goede (2017) provide an empirical example of how Critical Systems Heuristics are applied in an organisation with focus on a specific business process. Here the purpose was to surface the inherently conflicting views and visions amongst key stakeholders regarding a new business intelligence system and its underlying business processes. The problem owner realised that the previous business intelligence system did not

provide reliable information upon which important investment decisions were made. The application of Critical Systems Heuristics surfaced human/cultural and organisational issues, which in turn led to a successful design and implementation of a new business intelligence system.

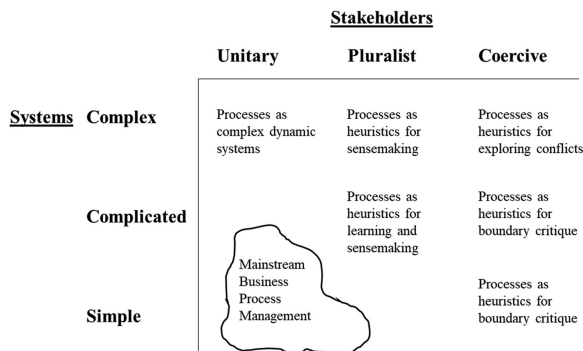
In this case the underlying business processes were understood as heuristics in the background, whereas the discussion on who should be given the privilege to decide which business processes were the most relevant to monitor was in the foreground. The stakeholders were all familiar with the old system and the organisations business processes which allowed them to reason freely about these without any specific process model or mapping. The business intelligence process of compiling the selected process data which was used for deriving the reports for decision support was considered too complicated for the key stakeholders to comprehend. Still they referred to the process, but in the terms of their own understanding of its purpose and function. The case reported by [Venter and Goede \(2017\)](#) provides an example of how an complicated process is understood as a heuristic to surface stakeholders underlying assumptions and any power dynamic taking place in the social context of the process.

**4.2.8 Coercive and complex.** The complex and coercive context is less explored and more difficult to navigate. Focus is on increasing diversity and all generalisations are contested. Improvements are localised and heavily context dependent. BPM methods or tools would not make much sense in this context due to the contestation of the basic assumptions that the majority of BPM is built on, the unitary knowable and predictable. Processes would be viewed as heuristics for exploring conflicts and contest explicit and implicit assumptions.

**4.2.9 Example.** The coercive and complex context is still underdeveloped amongst the system methodologies mapped in the SOSG ([Jackson, 2019](#), p. 512). It has therefore not been possible to provide any example for this context and this could constitute an interesting area for future research and development.

The resulting review of the process view outside the mainstream BPM is visualised in [Figure 5](#) together with the previously identified mainstream BPM.

Noteworthy is that adapting a new way of working with BPM naturally requires a change of mindset, especially amongst those already experiences in mainstream BPM. Thus, there should also be a reconsideration of whom to involve in the BPM work, e.g. including practitioner with a sound background in sustainability. Depending on current status of sustainability knowledge in the organisation, this might be a constraint and create a need to employ sustainability expertise, and in other cases, this will work well through assigning sustainability responsibility to QM experts ([Siva et al., 2018](#)).



Source(s): Figure by authors

**Figure 5.** System of system grid highlighting the possible views of processes in the various system contexts beyond mainstream BPM

## 5. Discussion

This paper focus on the transition from customer-centric to stakeholder-centric QM in general, with a focus on BPM in specific. This shift has implications for theory as well as practice, each addressed in the following.

### 5.1 Theoretical implications

Sustainable development is a research area receiving much attention in general (Kirchherr, 2022), as well by QM scholars (Siva *et al.*, 2016). The conceptual contributions of this paper points towards areas to further explore regarding the applicability of current QM practices to support sustainability, as well to potential combinations and complementarities with other improvement methodologies.

First, the literature review by Siva *et al.* (2016) on how QM can support sustainable development identifies four areas: (1) supporting sustainability through integration of management systems, (2) QM as support to the implementation of Environmental Management Systems and to the management of sustainability, (3) supporting integration of sustainability considerations in daily work and (4) supporting stakeholder management and customer focus. This review makes a differentiating contribution as it clearly links the SOSG to the expanding scope of system contexts. These are deemed beneficial to be considered when focus is directed towards sustainable development and QM is used as a means towards that end. This view on QM-as a means rather than an end-is also in line with the suggestion by Figge and Hahn (2012) to not view environmental performance as subordinate to economic outcomes. Thus, the conceptual model proposed aids in focussing sustainable development as an outcome of QM efforts rather than mainly focus QM efforts (in this case BPM) and impact on sustainability only if synergies arise, e.g. through integrated management systems (Siva *et al.*, 2016).

Second, circling back to the worry of Sousa and Voss (2002) that a continuous adding to the core of QM will disseminate its conceptual foundations: without caution, research along the four areas of QM and sustainable development (Siva *et al.*, 2016) run that risk. The original contribution of this paper lies partly in the visualisation of the various levels of complexity amongst the problems, issues and dilemmas that arise as focus of QM activities are shifted from a customer centric towards a stakeholder-centric approach. Following the advice of Sousa and Voss (2002) the interface for core QM activities, here exemplified as mainstream BPM activities, can clearly be identified and the opportunities for future research exploring the combination or complementarity with QM and other fields is highlighted.

### 5.2 Practical implications

Working with BPM practices as part of QM in organisations entails two parts, what to do and how to do (Sousa and Voss, 2002). First, the fluid business environment with high uncertainty due to increasing globalisation challenges parts of the stable foundations of organisations that QM originally was developed for (Ford, 2015). Ford (2015) highlights differences between problems, issues and dilemmas that BPM practitioners may face whilst engaging with sustainability. Appreciating the difference in the nature amongst the problems, issues and dilemmas will ensure that the “right problems” are being pursued with the mainstream BPM, increasing the chances for a successful intervention. Thus, before engaging on new BPM initiatives, practitioners need to analyse whether they try tackling a problem, issue, or dilemma.

Second, “how to do”, is well documented in the mainstream BPM literature for simple problems in the unitary-simple system context. However, if organisations using QM are looking to support sustainable development, mainstream BPM needs to be reconsidered as the increasing scope of stakeholders’ beliefs, values and interests fundamentally changes the type of challenge faced; moving from problems to issues and dilemmas. Moreover, the

consequences of moving from a customer focus towards a stakeholder focus are mainly along the perception axis of the ideal grid. Previously customer perception indexes could be used to derive a unitary understanding of customer preferences and customer segmentation could be used to maximise profits from known customers. A stakeholder focus complicates these methods and shifts the context from unitary to pluralist and coercive. Thus, in practice, new measurements are needed to capture needs and satisfaction levels, not only from what has traditionally been labelled as customers but also from a broader set of stakeholders.

Third, this entails, that new methods and tools developed in different paradigms needs to be applied as complements the structuralist methodologies. New views on processes and complementary tools and practices need to be introduced to deal with issues and explore purposes in the contexts where consensus can be reached. Similarly, there is a need of a fresh perspective on the role of processes for dealing with dilemmas to ensure fairness amongst stakeholders in the coercive contexts where powerplay and dominance is at work.

### 5.3 Future research

An area for future research could involve a deeper exploration of the role of process models in the unitary-complex context. This exploration may build upon the connection established between the viable system model and the process-based system model in [Isaksson \*et al.\* \(2010\)](#). Further potential augmentation of existing system methodologies can take [Jackson \(2019\)](#) as inspiration, here a full range of system methodologies like Soft Systems Methodology, Interactive planning and Strategic assumption surfacing and testing, Team syntegrity and Critical system heuristics are described. Exploring if and how these system methodologies can be augmented by a process perspective to unlock improvements for sustainable development could potentially yield interesting insights from future research. Finally, aligning with [Sousa and Voss \(2002\)](#), an important avenue for future research is to explore contextual characteristics as well as contingencies that can influence the practical suitability of the conceptual model proposed. Aligned with this is also the need to consider the ethical dimensions of integrating sustainability in established BPM practices, often relating to social sustainability. This can be further explored externally, e.g. through linking our work to corporate social responsibility and internally through investigating how the work on trade-off between environmental and economic impact might pose ethical challenges to the practitioners involved.

## 6. Conclusion

The research findings underscore the fundamental impact of adopting a stakeholder-oriented approach. Using the System of Systems Grid, mainstream BPM practices is positioned in the simple-unitary context whilst simple/complicated/complex problems/issues/dilemmas are highlighted as potential system contexts characterised by sustainability challenges. It necessitates the integration of new tools and methods from paradigms outside the traditional functionalist BPM framework. In addition, the study identifies that a stakeholder-centric approach expands the toolkit available for BPM, enabling practitioners to address a wider range of challenges and concerns. It encourages the adoption of new perspectives on BPM, particularly in addressing dilemmas and ensuring feasible stakeholder involvement. Further, it also points to a necessity to evaluate who to involve and how to best support BPM initiatives with sustainable development as an end goal. In summary, this paper highlights the needed transformation of BPM practices and tools as QM transitions from a customer-centric to a stakeholder-centric focus. This transformation not only enhances BPM's support for sustainability but also promotes a broader and more nuanced perspective on process management.

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QM process  
tools and  
practices

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