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Principle-based decision-making: realising benefits in a scaled agile environment

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Abstract

Purpose – This paper examines the conflict between rule-based and principle-based approaches to benefits realisation in agile projects. It proposes a principle-based framework as a more effective alternative, aligned with the iterative and adaptive nature of agile methodologies.

Design/methodology/approach – The research utilises semi-structured interviews to gather qualitative data from professionals experienced in agile projects. Causal loop diagrams are employed to illustrate the relationships between identified principles. The study identifies 12 key principles essential for agile benefits realisation, with a particular focus on visibility and consequence management.

Findings – The study finds that a principle-based approach to benefits realisation is more compatible with agile methodologies compared to a rule-based approach. The flexibility of principle-based decision-making allows for continuous adaptation and improvement, aligning with the dynamic and iterative nature of agile projects. The principles of visibility and consequence management emerge as critical factors in successfully realising benefits in an agile environment.

Research limitations/implications – The findings are based on qualitative data from a limited number of interviews, which may not be generalisable across all agile projects. Further research with a larger sample size and diverse project types is recommended to validate and refine the proposed principles.

Practical implications – Agile teams and project managers can leverage the identified principles to enhance their decision-making processes and improve benefits realisation outcomes. Adopting a principle-based approach can lead to more flexible, responsive and effective project management practices.

Social implications – By promoting more adaptive and responsive project management practices, the adoption of a principle-based approach can contribute to greater satisfaction and collaboration among project stakeholders, leading to more successful project outcomes.

Originality/value – This research contributes to the existing body of knowledge by highlighting the limitations of rule-based approaches in agile contexts and proposing a principle-based framework for benefits realisation. The identification of specific principles and their interrelationships provides a novel perspective and practical guidance for agile practitioners.

Keywords Agile, Benefits realisation, Deontology, Utilitarianism, Decision-making, Principles, Virtue ethics

Paper type Research paper

1. Introduction

Project management and benefits realisation specifically are focused on processes, rules and procedures. Adhering to processes and rules eliminates decision-making since the benefits owner should just follow the processes and rules and tick that everything was done according to the book (standards and/or best practices) (Project Management Institute, 2016; Zwikael *et al*., 2019). When ethics, philosophy and moral reasoning become the foundation upon which

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benefits realisation is built, then processes and rules no longer make sense. A principle-based approach to benefits realisation then makes more sense (Marnewick and Marnewick, 2022). Unfortunately, all literature on benefits realisation focuses on processes and rules, irrespective of the industry and type of project.

Although benefits are identified within the business case at the start of the project, they are only realised after the completion of the project (Einhorn *et al*., 2019). However, this is not practical when it comes to iterative (agile) projects within a scaled agile environment. When agile is the preferred project management approach, then frequent solutions or minimum viable products are delivered, which makes process-driven benefits realisation irrelevant. Due to the success and popularity of agile, scaled agile was introduced. Agile principles and practices are extended across multiple teams or an entire organisation to improve collaboration, alignment and delivery of value at scale. There are different frameworks for scaling agile including Rage, Spotify, Nexus, Scrum@Scale, Scaled Agile Framework (SAFe), Large-Scale Scrum (LeSS) and Disciplined Agile Delivery (DAD) (Alqudah and Razali, 2016; Turetken *et al*., 2017). The most adopted frameworks are SAFe and Scrum@Scale (Khoza and Marnewick, 2021; VersionOne Inc., 2020).

Benefits realisation has been a topic of research for a long time, with the first articles appearing as early as 1996 (Kransdorff, 1996). Since then, research has focused on the processes (Ashurst, 2011; Bradley, 2010), who is responsible for benefits realisation (Romero-Torres, 2021; Zwikael *et al*., 2019), as well as benefits realisation and project success (Doherty *et al*., 2012; Serra and Kunc, 2015; ul Musawir *et al*., 2017). This research was built on the premise that a predictive or waterfall approach is followed. A predictive approach is very much process or rules driven, with limited focus on guiding principles. Also, limited or no research has been conducted on how benefits realisation should be done when the project management approach is either agile (for instance scrum) or scaled agile (for instance SAFe).

This paper addresses two identified gaps. The first is the misalignment between agile, which is principle driven (Dingsøyr *et al*., 2012), and benefits realisation, which is process driven. Processes or rules are important but do not improve the success of benefits realisation. The argument is that a different approach (principle-based) is required to manage benefits in a scaled agile environment. Ethical reasoning and decision theory are used to motivate this transition. This is in line with the Project Management Institute's latest release of the PMBoK® Guide (Project Management Institute, 2021), in which the focus is on principles and not processes. The second gap that this article addresses is the identification of certain principles that can form the foundation of benefits realisation in a scaled environment.

Based on the identified gaps, the following research questions were formulated:

(1) How does decision-making influence a principle-based approach to agile benefits realisation?

(2) What principles drive decision-making regarding benefits realisation in a scaled agile environment?

The first section of this article consists of the literature review. The literature review focuses on ethical and decision theories to motivate principle-based agile benefits realisation. This is followed by the research methodology section in which the rationale for using interviews and causal loops is explained. The analysis of the interviews forms the fourth section. The article concludes with a discussion section.

2. Literature review

To understand the way we make decisions and how these decisions influence benefits realisation, we must understand the philosophies around decision-making and what influences these decisions. The foundation of decision-making is based on ethical theories such as deontology and utilitarianism. These two theories suggest that responses to moral dilemmas

are guided by two moral principles. The principle of deontology states that the morality of an action depends on the intrinsic nature of the action (e.g. harming others is wrong, regardless of its consequences). Within deontological ethics, obligations are of prime importance (i.e. the outcome may not justify the means). The principle of utilitarianism implies that the morality of an action is determined by its consequences (e.g. harming others is acceptable if it increases the well-being of a greater number of people). In utilitarian ethics, outcomes justify the means.

2.1 Ethical theories

Deontology and utilitarianism are two distinct ethical theories that guide decision-making in various fields, including project management. These ethical theories offer different approaches to assess the moral implications of actions and to make ethical choices. In the context of project management, understanding the differences between deontology and utilitarianism is crucial for project managers to navigate complex ethical dilemmas.

The first ethical theory that underpins decision-making is deontology, also referred to as Kantian ethics (White, 2009). It focuses on which choices are morally required, forbidden or permitted. In other words, deontology guides and assesses choices of what can be done. It measures intention and internal logic (Waters, 2020). This contrasts with those choices that guide and assess what kind of person we are and should be. Decisions must be made that are always applicable within all situations. In essence, deontology is a duty-based ethical theory that emphasises the inherent rightness or wrongness of decisions, irrespective of their consequences.

In utilitarianism, decisions are made based on the greatest amount of benefit obtained for the greatest number of individuals. Measurement is based on pleasure and pain (Waters, 2020). This is also known as consequentialism, since the outcomes determine the morality of the intervention. Decisions are made based on the greatest happiness principle, i.e. the greatest pleasure for the greatest number of people. Utilitarianism asserts that the moral worth of a decision is determined by its positive or negative impact on the well-being of all affected parties.

In answering the question of how many consequences matter based on a specific action or decision, deontology focuses on making the right decisions all the time, irrespective of the outcome or consequences. Utilitarianism focuses on the consequences of the decision. The consequences therefore influence the decision. In utilitarianism, outcomes justify the means and as such the focus is on the consequences of an action, whereas in deontology, the obligation to duty is what matters, irrespective of the outcome.

Bose (2012) maintains that ethical theories guide our ethical decision-making at a personal as well as professional level. Deontology and utilitarianism shape decision-making by providing distinct ethical frameworks. Deontology emphasises adherence to principles and duties, leading to principled and consistent decisions. Utilitarianism emphasises evaluating outcomes to maximise overall good, leading to decisions aimed at achieving the best possible consequences.

2.2 Decision-making

Project managers make decisions with the intent that this might lead to success (Harrison and Pelletier, 2000). However, decision-making is complex and dynamic, and the result is not always positive. Harrison and Pelletier (2000) define a decision as "*a moment in an ongoing process of evaluating alternatives for meeting an objective, at which expectations about a particular course of action impel the decision maker to select that course of action most likely to result in attaining the objective*". A decision is typically a choice between at least two alternatives (Peterson, 2017). The aim of a decision is to maximise the desired consequences and at the same time, minimise the consequences that are deemed undesirable. Making a decision is an either/or situation (Idler and Spang, 2019), as the decision-maker must choose between two options.

Decision-making and its subsequent consequences have been with us for centuries. Keren and Wagenaar (1985) trace the roots of modern decision theory to the 17th century when French mathematicians explored optimal gambling behaviour. Since then, various decision theories have seen the light. When it comes to individual decision-making, two theories are applicable: normative and descriptive (Małecka, 2020; Peterson, 2017). Bell *et al*. (1988) add a third theory called prescriptive decision-making theory, which is a combination of normative and descriptive decision-making theories.

(1) *Normative decision theory:* The focus of this theory is to provide advice on how to make the best decisions. Decisions are made within a set of uncertain beliefs and a set of values. The focus is on what project members should do in theory. Decisions are evaluated based on the degree to which the decisions provide acceptable rational choice (Bell *et al*., 1988).

(2) *Descriptive decision theory:* This theory focuses on characterising and explaining regularities in the choices that people are making. The focus is on understanding real human decision-making behaviour (Idler and Spang, 2019) and on what project members do or did. Decisions are evaluated based on the extent to which they correspond with observed choices (Bell *et al*., 1988).

(3) *Prescriptive decision theory:* This theory provides procedures on how or what should be done to make the best decisions in line with normative theory. The focus is on what project members should and can do from a practical perspective and not from a theoretical perspective (normative decision theory). Evaluation is based on the ability of the decisions to assist project members in making better decisions (Bell *et al*., 1988).

For this article, the focus is on normative decision theory, which is associated with principles, and descriptive decision theory, which is associated with rules and processes.

Normative decision theory is built on rational decision-making. Human beings by nature are by and large rational (Keren and Wagenaar, 1985). Normative decision theory prescribes how people should behave and make choices (Małecka, 2020). A decision is perceived as a rational selection issue through deducing the logically best alternative (Peterson, 2017). Choosing the logically best alternative is dependent on consistent preferences and making decisions in accordance with these preferences (Thoma, 2021). This relates to deontology where decisions must be made that are always applicable within all situations.

Descriptive decision theory provides procedures or processes for what should be done to make the best decision when a decision should be made. The underlying concept of descriptive decision theory is expected utility theory (Cohen, 1996). The premise is to start with axioms that are basic rules that any rational individual would adhere to when they need to make a decision. Rules should be rational and determine what conduct is permissible (Ford, 2008). The decision-maker is left to determine factual issues. This contrasts with principles where the decision-maker must consider permissible conduct as well as factual issues. Rule-based or descriptive decision-making enforces strict sanctions for violating the rules or for non-compliance (Sama and Shoaf, 2005).

Decision-making features within project management literature with various authors investigating this phenomenon. The literature can be divided into two viewpoints. One viewpoint focuses on decision-making in general and the other explores decision-making through a theoretical lens. The theoretical viewpoint is then further subdivided into naturalistic and behavioural decision-making.

From a naturalistic decision-making perspective, Turner (2020) investigated the impact of governance on decision-making. He concluded that governance does not influence decision-making, but identified six organisational behaviours that influence decision-making. Ferrer *et al*. (2021) highlighted the importance of project governance mechanisms in decision-making. They stressed the importance of rationality in the decision-making process, which is

underpinned by agency theory. Decisions can also be based on past experiences. Rational decision-making theory was used by Zarghami and Zwikael (2022) to measure project resilience. They made the case that decision-makers such as project managers should rely on quantitative information (past) to make informed decisions (future).

From a behavioural decision-making perspective, Stingl and Geraldi (2017) conducted an extensive systematic review. They provided an overview of how behaviours impact decisions and the associated coping mechanisms. They classified decisions into three groups, i.e. reductionist, pluralist and conceptualist. Decision-making complexity was investigated by Shi *et al*. (2020). They developed a comprehensive framework of decision-making complexity based on behavioural decision-making. In the same vain, Turner (2021) investigated how emotions impact the behaviour of project managers' decisions. Hackman (2021) focused on the individual's influence on project decision-making where perceptions were measured in behavioural decision-making. Cognitive challenges regarding decision-making when social media were involved were investigated by Ram and Titarenko (2022) through a social cognitive theory lens. They discovered that decision-making is impaired as not all information is always available in these situations. Literature focusing on decision-making from a theoretical perspective did not focus on benefits realisation or agile. This emphasises the first research gap.

From a more generic perspective, Okonedo (2018) investigated decision-making from an African viewpoint. He concluded that decisions are made based on communal thinking and consensus. Silvius *et al*. (2017) determined that when sustainability needs to be considered as part of decision-making, it does not play a huge role in the mind of project managers. Sustainability decisions are typically done at stage-gates. Distributed project teams are also phenomena that were investigated from a decision-making perspective. The success in managing distributed project teams is linked to team autonomy in conducting project activities and to formal decision-making processes (Bourgault *et al*., 2008). This was also investigated by McAvoy and Butler (2009) where the focus was on teams as decision-makers. This was based on the agile principles and they concluded that decisions are inter-related, with each decision leading to further decisions. Process theory was applied by Baker and Niederman (2023) in their quest to determine how project managers think when dealing with issues that have ethical considerations. They specifically favoured a more pragmatic approach than a decision model-based approach. Amin *et al*. (2023) applied principle-agent theory to determine how decisions are made within international development projects.

From an agile project management perspective, literature is emerging on how decisions are made. Thesing *et al*. (2021) introduced a decision model to decide which approach is more suitable to manage a project. Drury *et al*. (2012) identified five principles related to descriptive decision-making and mapped obstacles to these principles. This was done from the perspective of agile software development teams. The challenges of shared decision-making were highlighted by Moe *et al*. (2012). They also investigated agile software development teams and highlighted three challenges, i.e. the alignment of strategy with iterations, the allocation of resources and performing routine DevOPS activities in teams. Research highlighting the relationship between decision-making and principles focused on agile teams and not from a scaled agile perspective.

Although the project management literature is rich in decision-making, little or no attention is given to (1) decision-making and benefits realisation and (2) decision-making and agile. This highlights the need to investigate benefits realisation decision-making in a scaled agile environment.

2.3 Benefits realisation

The focus of benefits realisation is to harvest value from the product or service that is created by a project. Benefits realisation is associated with value creation and not necessarily how project management performance is measured (Serra and Kunc, 2015). It is typically done

after the closure of the project in an environment where a predictive (waterfall) approach is used. Benefits realisation typically follows a process- or rule-based approach. A process-based approach prescribes the steps or rules that must be followed to achieve an outcome. In the case of benefits realisation, the outcome is to harvest benefits from the product or service delivered by a project. Figure 1 highlights various authors' perceptions of how benefits realisation should be managed from a process-based perspective. It is evident that there are various perspectives of how to apply rules to harvest benefits and that there is no single perspective. These perspectives focus on the processes, i.e. a process-based view (Bose, 2012).

Two problems are associated with process-based benefits realisation. The first is that organisations are not good at performing benefits realisation *per se*. The study of Holgeid and Jørgensen (2020) found that 75% of organisations adopt benefits realisation versus an average of 38% across seven other similar studies (Jørgensen, 2016; Lin and Pervan, 2003; Smith *et al.*, 2008). The reasons for this low adoption rate include no formula to measure target benefits (Chih and Zwikael, 2015; Zwikael and Meredith, 2019), the failure to identify who is responsible for benefits realisation (Romero-Torres, 2021; Zwikael *et al.*, 2019) and the failure to adhere to the processes (Marnewick, 2016; Smith *et al.*, 2008), to name but a few.

The second problem is that organisations are not getting the benefits or values of their IT investments. Organisations are not good at realising benefits when they follow a process-based approach to benefits realisation (Svejvig and Schlichter, 2020). The Project Management Institute (2019) estimates the percentage of organisations that realise benefits at between 56 and 78%. In a South African study, Khoza and Marnewick (2020) determined that only two-thirds of identified benefits were realised, irrespective of whether a predictive (waterfall) or iterative (agile) approach was followed. These results highlight that there is a potential problem in the way that benefits are realised when a process-based approach is followed.

Little or no research is available on benefits realisation management in an agile environment. Research focuses exclusively on the value or benefits of agile implementations (Gustavsson, 2016; Kamei *et al.*, 2017) rather than the process of benefits realisation within an agile environment. In their article focusing on benefits realisation in an agile environment, Marnewick and Marnewick (2022) identify principles for managing benefits realisation. Although this study highlights some principles, it fails to identify whether benefits are realised more than in non-agile environments. Reich and Peppard (2022) caution that "*incremental delivery does not translate into immediate delivery of benefits*".

There is a clear difference between how benefits realisation should be managed from a principle-based perspective versus a process-based perspective. The principle-based perspective enables project leaders to focus on what is necessary to create value or benefits. When a process-based perspective is followed, the focus is on the processes, and the end goal

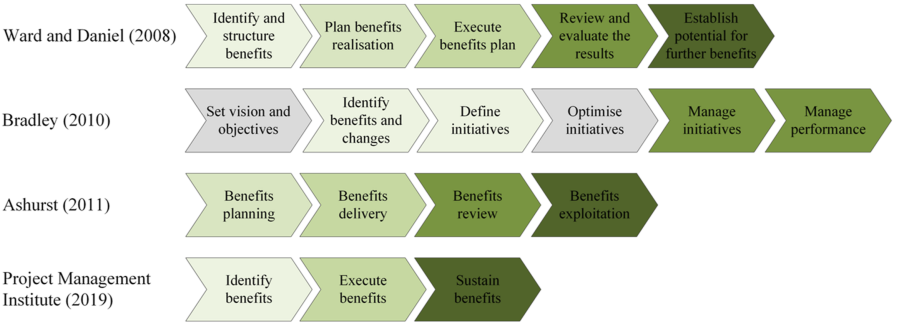

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Figure 1. Process-based benefits realisation perspectives

of creating value is lost. Empirical data shows that irrespective of whether process-based (utilitarianism) or principle-based (deontology), benefits are not realised and organisations are not getting the promised value from their IT investments.

The literature review confirms the first research gap, i.e. the misalignment between agile (principle-based) and benefits realisation (process-driven). Benefits realisation is based on processes as illustrated in Figure 1 which in turn is informed by descriptive decision theory. Agile *per se* is based on principles which is informed by normative decision theory. There is a direct clash between these decision theories and therefor a direct clash how benefits are realised in an agile environment.

The research methodology that was used to answer the stated research questions is elaborated on in the next section.

3. Research methodology

3.1 Data collection

A qualitative approach was applied to answer the research questions. Because the research was exploratory, this approach was applicable (Yin, 2014). A semi-structured interview guide was developed based on previous studies on benefits realisation management (Marnewick, 2016), as well as constructs from agile and scaled agile. The semi-structured interview consisted of 24 questions divided into four sections, but only one section is applicable to this article. This section focused on the agile benefits realisation process. Cunningham (2008) and Kwok and Ku (2008) suggest semi-structured interviews as an appropriate method to gather information. During an interview, interviewees are given the opportunity to elaborate in a way that is not possible with other methods such as questionnaires, but they are able to share information in their own words and from their own perspectives. Interviews were conducted virtually using Microsoft Teams. Purposive sampling was used to identify the interviewees based on their participation within an agile project management office (PMO) community of practice, as well as their roles within their respective organisations' agile transition. Table 1 provides a summary of the interviewees. In some instances, multiple views were collected from the same organisation.

Table 1. Summary of interviewees

Case	Role[a]	Identifier	Scaled agile framework implemented	Agile experience (years)	Duration	Pages
Financial institution (1)	Head of PMO	PMO-1	SAFe	11	00:53:30	14
	Head of transformation	TRAN-1	SAFe	8	00:45:38	11
Consulting	Partner	PART-1	SAFe	11	01:23:49	18
Financial institution (2)	Business IT executive	IT-1	SAFe	10	00:57:45	16
Entertainment company	Change manager	CHANGE-1	SAFe	2	01:03:29	17
	Business transformation	TRAN-2		2		
	Consultant	CONS-1		10		
Financial institution (3)	Chief value officer	CVO-1	SAFe	7	00:39:18	11
IT outsourcing	Agile coach	COACH-1	SAFe	10	0033:06	10

Note(s): [a]The interviewees' role does not necessarily match the roles as prescribed by SAFe. This is due to each organisation's unique adoption and implementation of SAFe. Realising benefits is typically associated with managerial roles and not technical roles

Source(s): Authors' own work

3.2 Data analysis

The recorded Microsoft Teams video files were transcribed verbatim using Microsoft Teams' built-in transcription functionality. After this, the original transcription was edited by listening to the recordings. The transcriptions went through an iterative process of open coding which summarised the data into smaller meaningful units called codes and themes (Saldana, 2013; Williams and Moser, 2019). ATLAS.ti was used to facilitate the coding process. The purpose of the coding process was to identify potential principles.

An inductive approach was applied in the data analysis to identify first-order concepts and second-order themes, which were mapped against the scaled agile levels (Gioia *et al.*, 2013). The first-order concepts and second-order themes were inductively derived based on the following three-step process (Lewins and Silver, 2008; Von Seggern and Young, 2003):

(1) Perform open coding: Small segments of data are considered in detail and compared with one another. This step generates large volumes of codes, which encapsulate the notion of "what is going on".

(2) Perform axial coding: All the codes generated are analysed. Codes are rethought in terms of similarity and difference and consolidated where appropriate.

(3) Perform selective coding: The researchers revisit the codes once more. The instances in the data which pertinently illustrate themes and concepts are identified. Conclusions are validated by illustrating instances represented by and grounded in the data.

Twelve principles were identified through the coding process and 118 associated verbatim quotations were highlighted. ATLAS.ti's coding and co-occurrence matrices were used to identify relationships between codes (principles) (Saldana, 2013). This is highlighted in Figure 2.

Based on the co-occurrence matrices, causal loop diagrams were used in this study to indicate an understanding of and relationship between the identified principles. McLucas (2003) defines these diagrams as "*a convenient way of representing the principle feedback loops and related causal relationships relevant to a particular problem situation, without distinguishing between the nature of the interconnected variables*". A causal loop diagram provides an understanding of the presence of reinforcing (positive) and balancing (negative) causal relationships. A positive relationship implies that when variable A increases or decreases, variable B should increase or decrease. Negative relationships mean that when variable A increases, variable B should decrease, or when variable A decreases, variable B should increase. Various symbols are used to explain the relationship between the variables. An arrow with a positive sign (→ +) explains a positive relationship, and an arrow with a negative sign (→ -) explains a negative relationship. In addition, a continuous increase/decrease (growth/decline) of both variables is indicated by the "R" symbol in a closed or partially curved arrow (( )) indicating a reinforcing feedback loop. A balancing feedback loop is indicated by the "B" symbol in a closed or partially curved arrow (( )). Within a balancing feedback loop, the decrease of one variable forces the other variable to increase (Dhirasasna and Sahin, 2019; Schaffernicht, 2010).

The use of causal loop diagrams has been cited in different studies, including those on project management (Toole, 2005), stakeholder management (Dhirasasna and Sahin, 2019) and information systems (Odiit *et al.*, 2014).

4. Results

The results are discussed based on the levels of scaled agile, i.e. portfolio, planning and prioritisation (programme) and team or implementation.

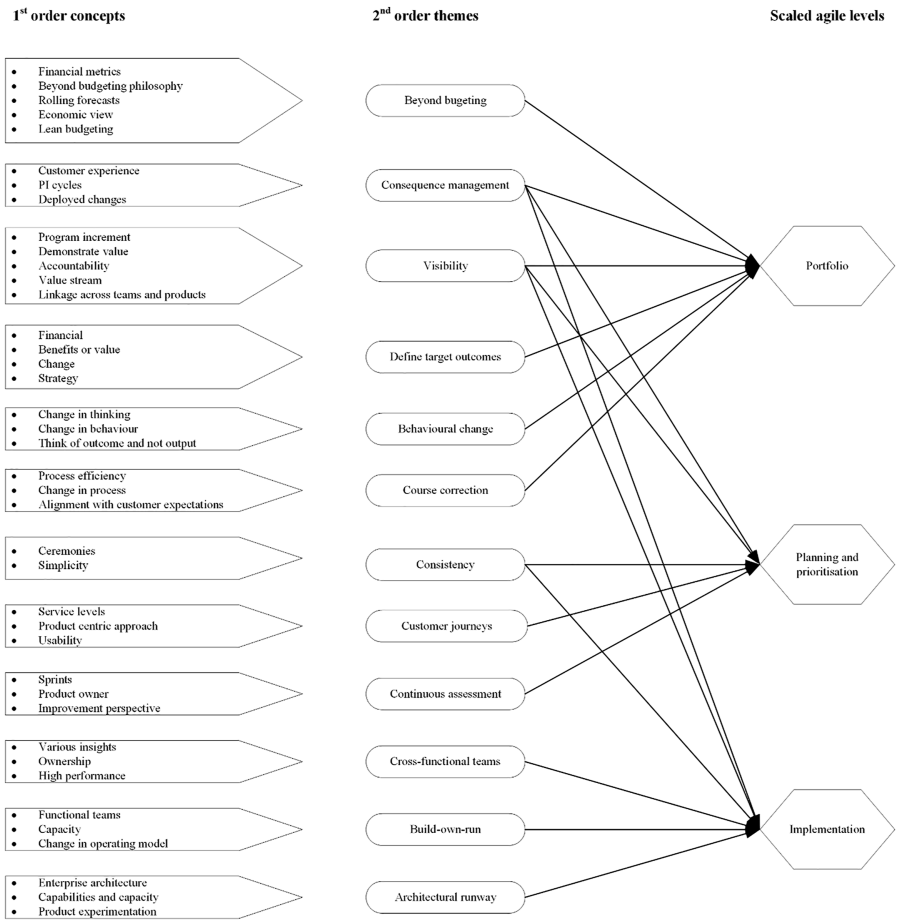

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Figure 2. Data structure

4.1 Portfolio level

The principle that defines the other principles in agile benefits realisation management is *beyond budgeting*. Beyond budgeting is a management control system that seeks to improve performance using flexible sense-and-respond mechanisms (Hope and Fraser, 2003; Nguyen *et al.*, 2018). Respondent CVO-1 had the following to say about beyond budgeting: "*And in the principle of beyond budgeting, you focus more on metrics measures and progress associated with it*", and added, "*So the principle of beyond budgeting is that as an organization you've identified a set of measures that would reflect whether the organization is being successful or not*". Based on this statement, two other principles are influenced, i.e. *behavioural change* and *define target outcomes*.

(1) "*Ah, what you would have is that people will adopt Uhm, behaviours that are aligned to the organisational culture*" [PART-1]. If the organisational culture changes from traditional budgeting to beyond budgeting and fixed capacity, then it will positively change behaviour. This behavioural change was supported by CVO-1: "*But what I*

have started to see is through this cadence we've actually started to see a change in behaviours with people are starting to think differently around." Changing behaviours is not an easy feat, as attested to by IT-1: "*The behaviour around those kinds of things is something we haven't cracked and I'm not sure if we have the will to kind of crack it, but that drives certain things, right?*"

(2) When it comes to defining the target outcomes, IT-1 commented that "*those kinds of levers are that we're trying to ascertain and because they bake it into their forecasts in terms of their budget them achieving or not achieving is then directly linked to actually achieving those outcomes and you kind of both vested into the same outcome in kind of in that game*". This view was supported by PART-1: "*Owners and responsibilities have been assigned to realise and verify key business benefits and project outcomes.*"

There is a two-way relationship between *define target outcomes* and *course correction*. The target outcomes should enforce a course correction; in other words, if the targets change, then corrections should be made to accommodate and facilitate these target changes. "*If you starting to see if you started to see the uptake in customers but it's not correlating in a financial outcome, you should be able to course correct quite rapidly to say, well, why did I go wrong and how do I correct the process*" [CVO-1]. But if the organisation is not correcting the course, then it will imply that the defined target outcomes will not be realised. *Behavioural change* has a positive impact on the principle of *consequence management*.

The principle of *consequence management* relies on the fact that decisions do have consequences: "*. . . and then the second challenge is consequence management and by consequence management, it doesn't have to be punitive and but if there's non valued, what are the consequences on non-value?*" [CVO-1]. Consequence management is also influenced by the *visibility* principle. "*So through bringing visibility you've increased accountability of the people that are asking for the value to be delivered because they potentially know, or they will likely be asked to demonstrate what this is meant for the organisation, etc*." [CONS-1]. Apart from accountability, visibility also enables product owners and the organisation at large to view progress: "*they could then like right there every day see what the teams doing get feedback, give direction to that you know. So I think that created a lot more visibility of how we're actually progressing*" [PMO-1]. Decisions and the results (positive or negative) are made visible. This visibility should then positively influence behaviour, as people do not want to be viewed as making the wrong decisions. Visibility should then enforce a culture of "comply or explain", which is in line with normative decision theory (Bell *et al.*, 1988). Visibility is typically ensured through an enterprise visibility room (EVR). An EVR focuses on a single, prioritised, enterprise backlog of strategic outcomes. It visualises the active strategic work and which teams are engaged in delivering that value. The principles *course correction* and *visibility* also have a positive influence on each other. When course correction is done due to the changes in the defined target outcomes, then these changes should be reflected in the EVR for all to observe.

Figure 3 presents the principles applicable to the portfolio level. There are two feedback loops. The first feedback loop is a reinforcing loop between *visibility* and *consequence management*. The more visibility, the more people will take accountability for their actions and decisions. This relates to the notion of "comply or explain" governance. The second feedback loop is a balancing loop between *define target outcomes* and *course correction*. Corrective action needs to occur based on the defined target outcomes. But when the desired outcomes are not achieved, then course correction needs to take place, which will have a negative impact on the defined target outcomes.

The next level is the level where planning and prioritisation of work are done.

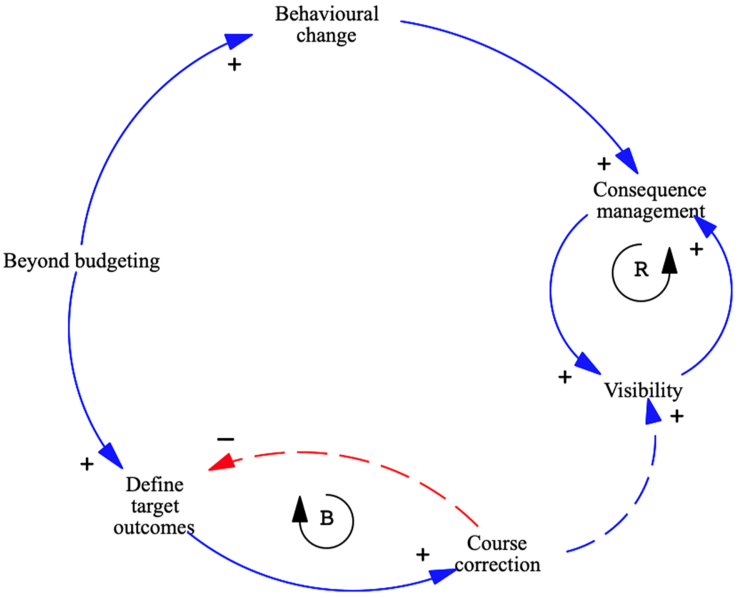

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Figure 3. Causal loop – portfolio level

4.2 Planning and prioritisation level

The second level focuses on the planning and prioritisation of work and/or projects. This is typically done at a program increment (PI).

The first principle at this level focuses on *customer journeys*. Customer journeys entail the holistic experience of the organisation's customers. They involve a visual depiction of the sequence of events through which customers interact with the organisation (Rosenbaum *et al*., 2017). Benefits need to be mapped to customer journeys to maximise the value of the investments, but also to create value for the customer (Marnewick and Marnewick, 2022). PART-1 summarised customer journeys as follows: "*In the past you would have a client centric sort or product centric approach to business. Now it's moved into a client centric approach servicing the client, but then making sure that the customer journey is less painful and those would be there's some qualitative and quantitative benefits in that so flexibility around revenue*." Customer journeys also need to be visible: "*but I think the conversation is much more kind of starting to get more data driven and figure out how do we get those metrics in to say did we get the customer appetite and are we on the right direction? So we are busy doing a lot more things like running spikes and proof of concepts and kind of testing the market a little bit and then kind of deciding where they're so*" [IT-1]. Through the visibility of the metrics, the value creation for the customer can be visually tracked. As with the portfolio level, there is a two-way positive causality between the principles of *consequence management* and *visibility.*

Benefits and value associated with projects need to be continuously monitored to determine whether the projects are still on track to deliver the intended benefits. "*So these values session if I can call it, it's a validation session between the principle BA and then the product owner or the business owner to kind of confirm that the whether it's a short term or whether it's a long term that gets dictated based on the user story, but that's being delivered or there is a refinement discussion to identify maybe there's a bit of extra OK*" [CHANGE-1]. TRAN-1 felt that "*if you look at it from a continuous improvement perspective with success stories telling*

what made us successful in such a way that other people can do it as well, because that's what we want to do with all of this is we want to make everybody successful or not".

Continuous monitoring as a principle has a two-way positive relationship with the principle of *consequence management*. Although the interviewees did not explicitly highlight this causality, it can be inferred that when continuous monitoring highlights that value or benefits will not be realised, it will have consequences, and based on the results of consequence management, efforts to improve continuous monitoring will be put in place.

The last principle at this level is *consistency*. "*Consistency you've got to have those ceremonies right? So once a quarter, what is the process, what's happened? What's being delivered?*" [CVO-1]. This principle has a positive causality on *continuous monitoring*. The implementation of consistent ceremonies like PIs or retrospectives creates a platform where benefits realisation is consistently monitored. The purpose of the ceremonies is to measure performance.

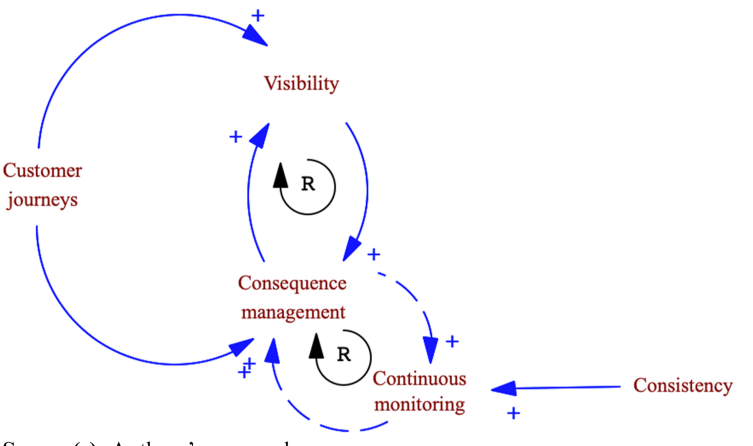
Figure 4 presents the principles applicable to the planning and prioritisation level. There are two reinforcement feedback loops. As with the portfolio level, there is a reinforcement feedback loop between *visibility* and *consequence management*. The reinforcement loop between *consequence management* and *continuous monitoring* emphasises the importance of continuous monitoring.

The next level is the level where the team itself is responsible for the creation of the artefact.

4.3 Implementation level

This level focuses on the creation of the product that should create value for the customer. The first principle that governs this level is *cross-functional teams*. Cross-functional teams consist of members from different functional areas. They are thought to facilitate the product development process because they bring together people from different disciplines and functions that have pertinent expertise about the proposed innovation problems (Chen, 2007). The importance of cross-functional teams is highlighted in the following quotes:

(1) "*I would say the teams that do well are all the high performing teams. Uh, maybe they've got the right culture. They've got the right mindsets, they trust each other to do what needs to be done, and if problems happen, they don't hold an individual accountable. They hold the team accountable so it's that trust it's that respect.*" [COACH-1]



Source(s): Authors' own work

Figure 4. Causal loop – planning and prioritisation level

(2) "*because that's also quite important with agile is that because you've got cross-functional teams it helps you to define your business benefits in a lot more detail. Uhm, I mean if you if you think about all of these, that is organisational wide. And if you've got a cross-functional team, it helps you with that and then also with the benefit map and then with putting measurement criteria in place.*" [PART-1]

The fact that team members trust one another implies that the team is accountable for any failures. This speaks directly to the team taking ownership of the consequences (positive or negative) of their actions.

Within an agile environment, cross-functional teams are collocated. Green *et al*. (2010) explain that collocation involves face-to-face communication, quick feedback and informal interaction. Visibility is improved due to collocation as teams typically make use of Kanban boards to indicate the progress of their work and the project (Laanti and Kangas, 2015). This is usually enforced through ceremonies such as retrospectives. The ceremonies at implementation level are required to be performed consistently. As with the other two levels, there is a positive causality between *consequence management* and *visibility.*

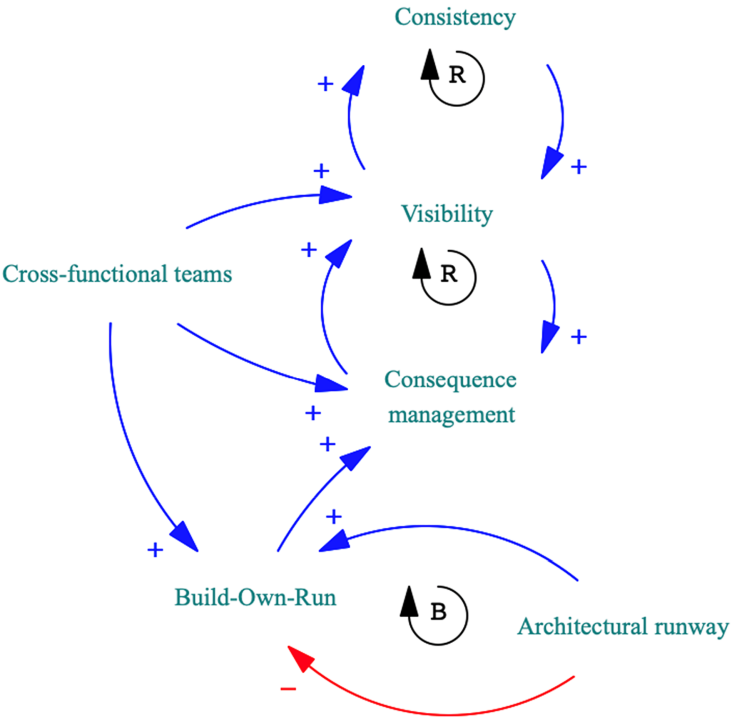
A principle that was also highlighted is the notion of *build-own-run*. In essence, it implies that the team is responsible for the entire product, i.e. from conception into production. This also relates to the *consequence management* principle where the team then takes ownership if the product "breaks" the operational functioning of the organisation. Adopting the principle of *build-own-run* involves changing processes and people mindsets (Marnewick and Langerman, 2021). This was supported by PART-1, who stated, "*Where in this case what would happen with agile is that you would embed your team so you would have cross-functional teams that would be operating within the business uhm, affecting that change, so that is quite a big operating model change because you are now building and running at the same time"*. There are benefits associated with this principle: "*but we also are teams on our doing you build it you run it you own it. So there's a lot of benefits that we measure in terms of your ability to repair and kind of respond to changes and those kind of things too. So it's not just around whether your team is getting the internal investments. Also, the sustainability of the team and the health of the team and also the health and stability of the system*" [IT-1].

The *architectural runway* principle can have either a positive or a negative influence on the *build-own-run* principle. "*And the moment you try to just apply agile in a narrow sense and you say well I'm going to just deliver product but not look at my architecture runway at the back and my capabilities at the back. Then what's gonna happen? You're gonna run out of runway, meaning the system can't do it anymore*" [PART-1]. PMO-1 extended this even further and applied this principle to the team itself and not just the technology: "*What I would love to see is much more what Agile is truly about, where it's proper product experimentation where business owners are given time and teams are capacity and say you know, you know we want to do something in the gym space try come up with something cool that drives engagement and then they experiment with their team but they know they've got a capacity in a budget and that runway of work that they can try experiment with.*"

Figure 5 presents the principles applicable to the implementation level. There are three feedback loops. As with the other two levels, there is a reinforcement feedback loop between *visibility* and *consequence management*, and also between *visibility* and *consistency.* Visibility of work and progress ensures consistency of the work, and because artefacts delivered are consistently of a high quality, this is reflected in the progress of the project. There is a balancing feedback loop between *Build-Own-Run* and the *architectural runway.* If the enterprise architecture is not well planned and implemented, then solutions cannot be delivered.

5. Discussion

The first research question focused on the influence of decision-making on the adoption of a principle-based approach to agile benefits realisation. Decision-making is founded on ethical



Source(s): Authors' own work

Figure 5. Causal loop – implementation level

and decision theories. Deontology as an ethical theory facilitates principle-based benefits realisation. People accountable for benefits realisation should evaluate all decisions related to benefits realisation to the degree to which the decisions provide acceptable rational choice. In other words, decisions must be made that are always applicable within all situations. A rule-based approach to benefits realisation might lead to different interpretations and create inconsistencies.

It is evident that the interviewees followed a normative or rational decision-making process. This is in line with the research of Małecka (2020) who concluded that project managers should behave or operate in a certain way and manner and make choices based on this behaviour. Ceremonies such as programme increments and sprints allow for rational decision-making. These ceremonies are not process- or rule-based and therefore allow team members to apply certain principles and logical thinking in making decisions regarding benefits realisation. The results are also in line with McAvoy and Butler (2009) who found that decisions are interrelated. The interviewees made it clear that decisions do influence or impact other decisions or behaviour later in the project. Decisions are not made in isolation and therefore a process-based approach is not the preferred way of making decisions. Decisions should be made by being based on principles that guide decision-making.

The second research question focused on the principles that drive benefits realisation in a scaled agile environment. Seventeen principles were identified. Realising benefits in an environment in which a predictive project management approach such as waterfall is used is challenging as not all benefits are realised. Benefits realisation in an iterative approach such as agile is even more complicated, as agile is built upon principles and not processes and rules.

Historically, project management has been based on processes and rules. The reason might be that project management originated from the engineering and construction industries. These industries are typically process or rules driven. As stated by Bose (2012), different thinking is needed. The alternative is principles that are founded in deontology. Various principles and their relationships with other principles were identified in this study. The two principles that are applicable to all three levels of scaled agile are *consequence management* and *visibility*. Visibility is achieved through the implementation of EVRs and the use of Kanban boards (Laanti and Kangas, 2015). Since everything is visible, the natural outflow is consequence management. Failures or lack of progress cannot be hidden, as everything is visible to everyone. Sama and Shoaf (2005) mention that "*clans rely on social controls, executed through some set of common beliefs or concordant interests, to reduce the incidence of opportunistic behaviour. The application of rules is substituted by an application of principles, norms and traditions that are commonly understood and respected in society"*. This statement supports the notion of self-governance of "comply or explain" within a scaled agile environment.

Another principle at the *planning and prioritisation* as well as the *implementation* levels is *consistency*. Ceremonies like PIs, daily stand-ups and retrospectives need to be performed in a consistent way. These form the backbone of the agile mindset and are therefore important in the realisation of benefits, especially where PIs are concerned.

The remaining identified principles play a role in the realisation of benefits, but it is up to the organisation to decide which principles are applicable. Applicable principles need to be applied based on "comply or explain" and not on the basis of "comply or else". "Comply or explain" also relates to the 12 principles of the Agile Manifesto.

Deontology and utilitarianism are two distinct ethical frameworks that guide decision-making in various fields, including project management. These philosophical perspectives offer different approaches to assessing the moral implications of actions and making ethical choices. In the context of project management, understanding the differences between deontology and utilitarianism is crucial for project managers to navigate complex ethical dilemmas.

Decision-making in an agile environment is between a choice of two opposing facts or values which typically excludes one in favour of the other. Choosing the "right" outcome or the best possible solution is deeply rooted in ethics (Van Staveren, 2007). Ethics *per se* can be defined as the moral principles that govern an individual's behaviour, guiding them in distinguishing between right and wrong actions and shaping their decisions and conduct in various contexts. Ethics is thus practical knowledge rooted in experience rather than just theoretical knowledge. Practical wisdom, being both an ethical virtue and an intellectual one, must be acquired through practice and is not just about applying general understanding to specific situations.

6. Conclusions

This article focused on the introduction of an alternative view for realising benefits in a scaled agile environment. Historically, benefits realisation has been process or rule driven, and little or no research has been done on how benefits should be realised in a scaled agile environment. The Agile Manifesto is based on 12 principles and the Project Management Institute has introduced principles in the latest edition of the PMBoK® Guide. This has opened the door for an alternative approach to benefits realisation that is based on principles.

6.1 Practical contribution

Twelve principles were identified with two principles, *visibility* and *consequence management*, featuring in all three levels of scaled agile. These two principles are non-negotiable and should be the foundation upon which agile benefits realisation is built.

Consistency is important in the planning and prioritisation as well as the implementation levels. The focus is on the consistency of performing ceremonies. Consistency is key in a principle-based environment as behaviour should always be the same, irrespective of the environment. This is applicable to decision-making and performing of ceremonies. The implementation of the remainder of the principles is left to the discretion of the organisation. One such principle is *beyond budgeting*. Not all organisations are ready to go this route and thus it can be excluded until required.

6.2 Theoretical contribution

This article contributes in various ways to the current body of knowledge on benefits realisation. Firstly, a novel approach to agile benefits realisation is introduced. Principle-based instead of rule-based agile benefits realisation is proposed. Principle-based agile benefits realisation opens the door for consequent decisions, irrespective of the business environment or political agendas. Each organisation will apply the principles, taking into consideration their own specific context. Secondly, this article also contributes to the current thinking around principles versus processes or rules. From an IT or agile perspective, principles were introduced more than 20 years ago with the creation of the Agile Manifesto. Twelve principles were introduced to manage the development of software and increase the success rates of software development projects and ultimately IT projects. In line with this, the Project Management Institute has also introduced principles in the 7th edition of the PMBoK® Guide. "*Principle statements provide broad parameters within which project teams can operate and offer many ways to remain aligned with the intent of the principles*" (Project Management Institute, 2021, p. xi). Another contribution is to the field of benefits realisation. As highlighted earlier, no research has been done regarding decision-making and benefits realisation. This article contributes to closing this gap through the introduction of normative decision-making in the realisation of benefits.

6.3 Future research

By no means were all principles identified. Future research will focus on engaging other interviewees and trying to uncover additional principles that were not identified during this round of interviews. The focus of these interviews was on benefits realisation in a scaled agile environment. Future research might also investigate the role of principles in a more traditional project management environment. Although SAFe is the most popular scaled agile framework, future research can also focus on how benefits are realised in other scaled agile frameworks such as DAD and Scrum@Scale.

Arjoon (2006) has the last word. He warns that an optimal balance should be struck between rule-based and principle-based approaches. Although principles should be used to realise benefits in a scaled agile environment, organisations should also have a rule-based focus when it comes to the adherence of methodologies such as Scrum. A fine balance is needed to decide between principles and rules.

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