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Project leaders in transition: Manifestations of cognitive and emotional capacity

Maurizio Floris *, Suresh Cuganesan

University of Sydney, John Grill Centre for Project Leadership, Sydney, Australia

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Abstract

This research contributes to a dearth of research into leadership that focuses explicitly on senior leaders of complex projects. It identifies five transitions that were seen as essential as these project leaders developed their capacity to lead, including transitions towards: orchestrating dialogue between the right people, at the right time, about the right issues; guiding collaborative meaning-making to align key stakeholders; drawing on practical wisdom and judgment to progress complex project challenges; developing a range of power sources, and sensing a pathway through power dynamics; and negotiating project success for key stakeholders based on a broad concept of value. Instead of merely seeing this as the development of new skills, we argue that these transitions are manifestations of an increase of a more deeply rooted capacity to deal with cognitive and emotional complexity. This difference matters as learning a new skill requires a very different approach to stepping up an order of constructive development. A constructive developmental perspective appears particularly helpful for understanding how senior project leaders of complex projects learn to deal with the relentless onslaught of challenges that their projects can bring.

1. Introduction

Projects are becoming increasingly important as a means of organizing, reflected in the percentage of work that is carried out in the form of projects (Schoper et al., 2018). Many of these projects are becoming increasingly complex, potentially due to unstable contexts, lack of stakeholder cohesion, dependencies on many disciplines or interconnected projects, or the number of interfaces a project needs to manage. Such complexity makes projects more difficult to deliver and project failure rates have not improved as might be expected with an increase of experience (Cooke-Davies, 2002; Flyvbjerg and Molloy, 2011; Budzier and Flyvbjerg, 2012; Ahiaga-Dagbui et al., 2016).

This research focuses on leadership of complex projects. The critical role of leadership of projects is widely acknowledged across a body of research into, for example, leader traits (Goldberg, 1990; Strang and Kuhnert, 2009), competencies (Crawford, 2005, Geoghegan and Dulewicz, 2008, Müller and Turner, 2010a), transformational leadership (Keegan and Den Hartog, 2004; Turner and Müller, 2005; Gehring, 2007), and shared and balanced leadership (Müller et al., 2018; Pilkienė et al., 2018). However, our review of the literature suggests that, while there is an emerging and significant body of research on project leadership, there is relatively little research that is specific to highly experienced project practitioners who lead complex projects.

This research identifies key transitions for 37 experienced leaders of complex projects who participated across three cohorts of a 12 month intensive project leadership development program. These included transitions towards orchestrating dialogue between the right people, at the right time, about the right issues; guiding collaborative meaning-making to align key stakeholders; drawing on practical wisdom and judgment to progress complex project challenges; developing a range of power sources, and sensing a pathway through power dynamics; and negotiating project success for key stakeholders based on a broad concept of value. There is no claim that all project leaders in the program demonstrated all these transitions

* Corresponding author.
E-mail address: Maurizio.Floris@sydney.edu.au (M. Floris).

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or that the list is comprehensive. However, this research makes a contribution to project leadership by arguing that these transitions are manifestations of an increase in a more deeply rooted capacity to deal with cognitive and emotional complexity, rather than simply the acquisition of new knowledge or skills. We argue that this difference matters, particularly for senior leaders of complex projects who believe that their past ways of experiencing projects (both cognitively and emotionally) no longer suffices for the complexity they now must deal with. It also matters because expanding one's capacity to deal with cognitive and emotional complexity requires a very different approach than the acquisition of new knowledge or skills.

First, we will identify previous research and some of the key concepts that framed our own research. We will then describe the methods we used to conduct the research, including our use of 'iconic moments', which provide insights into how project leaders develop. The findings contain examples of iconic moments of insight identified in this study and grouped as transitions in perspective or practice, and we discuss what these transitions tell us about leadership of complex projects and the experienced leaders who run these projects.

2. Leadership of complex projects

Recent project research has seen a rise of studies into project leadership. Some of these studies have made contributions to, for example, our understanding of the traits, leadership styles, or competencies that may impact project outcomes. Others have shown how these may be contingent upon the type of project or the context in which it is executed. This review of the literature will discuss some of these contributions below.

Most of the research that has been conducted to date does not differentiate between new project leaders or those with many years of experience. Nor does it typically differentiate between project leaders who run fairly straightforward projects compared to those who successfully run highly complex projects. Specifically, in spite of the contributions of previous research, we know very little about the influence of someone's capacity for cognitive and emotional complexity (Kegan, 1995; Cook-Greuter, 2004) on their ability to lead complex projects. This research therefore aims to make a contribution to the study of the cognitive and emotional capacity of highly experienced leaders of complex projects.

2.1. Project leader traits

Trait theories of leadership focus on identifying essential personality characteristics of leaders. These theories have been systematically researched at least since the 1930s, in part for military purposes where there was a significant need for identifying potential leaders (Page, 1935). Some research explored how particular traits may support or hinder project leadership, like Myers-Briggs type personality indicators (Gehring, 2007) or ambiguity acceptance (Hagen and Park, 2013). The most common taxonomy of personality traits is the Big Five (Goldberg, 1990): openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. While these traits do not focus on leadership per se, there is some research to suggest that extraversion and openness to new experience correlate with leadership performance (Strang and Kuhnert, 2009). However, no list of traits has been broadly accepted as a reliable predictor of leadership potential. The contribution of traits research lies more in helping project leaders better understand how their own traits may or may not support particular projects activities, or how to lead others with different traits.

2.2. Project leadership competencies

The popularity of competency perspectives may stem in part from the fact that while traits are largely seen as something we are born with, competencies can be learned, therefore offering more pathways for development. Crawford (2005) proposed an integrated model for competencies that includes personality characteristics, as well as input competencies (knowledge, skills), and output competencies (or performance standards). The latter are defined as the "use of practices in the workplace in accordance with occupational, professional or organizational competency standard" (Crawford, 2005, p. 9).

Competency theory has been one of the dominant leadership theories that has shaped research into project management and project leadership across change projects (Wren and Dulewicz, 2005; Battilana et al., 2010), construction (Dainty et al., 2004), information systems (Skulmoski and Hartman, 2010), or across a variation of industries (Müller and Turner, 2010a, Loufrani-Fedida and Missonier, 2015). These studies emphasize the importance of soft skills in general and suggest particular skills that contribute to project success (Geoghegan and Dulewicz, 2008, Müller and Turner, 2010a, Gruden and Stare, 2018). While competency theory often forms the foundation for project management or leadership education, the lack of prioritization of project manager competencies (as opposed to project team competencies) can restrict its usefulness (Nijhuis et al., 2018). Further, like research into traits, there is no widely accepted taxonomy of competencies, which hinders the ability to connect learnings from such research. Nijhuis et al. (2018) identified 721 competencies across project competency research. They go on to show that the difficulty of connecting research is particularly problematic for terms like 'leadership', which can be seen as a cluster that is made up of a number of competencies (Turner and Müller, 2006), and they offer an integrative taxonomy to facilitate such connections. Another consequence of this is that it can be ambiguous to differentiate between project management and project leadership as some competencies (e.g. stakeholder engagement, communication, conflict management etc.) are categorized differently in different studies.

2.3. Project leadership styles

A different combination of competencies may lead to a different leadership style (Turner and Müller, 2005), and project leadership research has in recent years most often

drawn from leadership style theories, in particular transformational leadership. The popularity of the Multifactor Leadership Questionnaire (Bass and Avolio, 1990; Avolio et al., 1999) amongst project leadership studies has led to a fair amount of coherence. Transformational leadership equates effective leadership with the ability to get the best out of one's followers by transforming and motivating them (Thite, 2000; Kissi et al., 2013; Tyssen et al., 2014). These studies suggest that there is a positive relationship between a transformational leadership style and project success (see e.g. Kissi et al., 2013; Aga et al., 2016; Lai et al., 2017). This relationship seems stronger for more complex projects (Müller and Turner, 2007) but might be weaker than for line managers (Keegan and Den Hartog, 2004). Transformational leadership requires emotional intelligence (Goleman, 1995) of the project leader in order to motivate, influence, stimulate and engender collaboration between teams and with stakeholders (Müller and Turner, 2010b, Maqbool et al., 2017, Zhang et al., 2017), and is contrasted with transactional leadership. The latter was found to be preferable on simple, engineering projects (Müller and Turner, 2007).

2.4. Contingency theory

The preferred leadership style or set of competencies may be contingent upon a broad range of factors. This consideration of contingencies marks a shift away from a narrow focus on the leader to a broader consideration of internal project and contextual factors and is also reflected in increased attention by others to the complexity of the project or environment in which the leader operates. Research of contingencies suggest more transactional styles in relatively simple projects and more transformational leadership styles in complex projects (Müller and Turner, 2010a); a task-oriented (or transactional) style is preferable to transformational leadership for a project that is over budget, over time, or nearing completion (Thite, 2000); different project phases emphasize different competencies (Skulmoski and Hartman, 2010); ethical leadership differs for virtual teams (Lee, 2009); and the initial stages of a global project require more trust-building than a traditional, co-located project (Anantatmula, 2010);

2.5. Narrative & sensemaking

More recently, a number of theories have found their way into project studies that connect back to the linguistic turn in philosophy and subsequently the humanities and social studies. From this perspective, project management is a discursive activity (Crawford, 2006) that is enacted in the conversations of project practitioners. Accordingly, organizational change involves changing the (multimodal) discourse that constitutes an organization (Marshak et al., 2015). Fellows and Liu (2016) argue that particularly projects that are increasingly complex and cut across different cultures need to consider individual and collective sense-making (Weick, 1995) to avoid reduced performance and conflict. Others have analysed the storylines that leaders construct in regards to stakeholder groups (their importance, tensions, impact) and conflict resolution (Havermans et al., 2015). Taken together these studies provide a theoretical frame that shows that language matters and that project leaders must be able to influence conversations and sensemaking, particularly in complex, emergent projects.

2.6. Shared and balanced leadership

In recent years, a number of studies have emerged that emphasize balanced leadership in projects. Balanced leadership marks a move away from an exclusive hierarchical (i.e. vertical) perspective on leadership to one where leadership is shared (horizontally) with team members. A critical part of this is how team members are evaluated before given leadership tasks (Müller et al., 2018), or how this is governed once they have taken on these leadership tasks (Pilkienė et al., 2018). These studies into balanced project leadership are likely to become increasingly important as projects are becoming increasingly complex or are expected to be executed more quickly, neither of which is conducive to traditional approaches that rely on hierarchical command and control.

2.7. Constructive developmental theory

Constructive developmental theories originate from developmental psychology and are making significant inroads in advancing our understanding of leadership (McCauley et al., 2006). This body of research builds on Piaget (1964) but shows how adults develop through different stages (Kegan, 1995, Cook-Greuter, 2010) during which their capacity for 'emotional, cognitive, interpersonal and intrapersonal experiencing' evolves (Kegan, 1995, p.7). Such maturation impacts amongst others identity, confidence, self-reflection, resilience, quality of relationships, and ability to hold multiple perspectives and contradictions.

We are not aware of the application of constructive developmental theory in project studies, though Thomas and Mengel (2008) explore a stage model for project managers and their ability to deal with complexity. While different developmental stage models break down and label stages differently, there is significant coherence in the described trajectory of development. McCauley, Drath, Palus, O'Connor and Baker map some of these models against this trajectory through stages (also called 'orders', which is used here as a synonym) of dependent, independent, and inter-independent development. In the *dependent order* people focus on social norms and expectations of others, and often look for the right answer or objective information about knowable 'things' that constitute the world. In the *independent order*, they transition to a more autonomous self, and are pragmatic and focused on achieving outcomes. In this stage the self is seen as independent but in relation to others and the world in which someone is involved is understood as a system that can be managed or influenced. In the *inter-independent order* 'post conventional thinking' prevails, which sees the world (including the self) as fluid and continuously (re)constructed and transformed in social meaning-making processes. While this fluidity allows for understanding self and the world from many more positions

simultaneously, it requires a higher capacity for cognitive and emotional complexity. While further and more rigorous research is required (McCauley et al., 2006), constructive developmental stage leadership scholars propose that a leader's order of development is a good predictor of their ability to be effective in an increasingly complex world (Cook-Greuter, 2010; Eigel and Kuhnert, 2005.

Growth of someone's capacity for cognitive and emotional complexity becomes salient when their current order is no longer experienced as adequate for making sense of how someone experiences self, others and the system in which they are engaged. This can occur as a result of a major life challenge, moving into another culture, promotion, or taking on a significant professional challenge, like leading highly complex projects. These considerations point to the need to differentiate between horizontal development, i.e. new skills, abilities and behaviors, and vertical development, or "*the 'stages' that people progress through in how they 'make sense' of their world*" (Petrie, 2011, p.11). Common metaphors for this difference describe the latter as an upgrade of someone's operating system instead of merely an additional piece of software, or as increasing the size of the vessel instead of merely adding more liquid to the same vessel (Whyte, 2011). This differentiation suggests that leading increasingly more complex projects is about increaseing one's capacity for cognitive and emotional complexity to a level that is commensurate with the maturity of perspectives and judgment required by these complex projects. As part of better understanding how project managers develop, it is important to understand how this may vary between relatively new and experienced professionals (Savelsbergh et al., 2016).

As part of this review of recent literature on project leadership, 83 papers published in the last 15 years were identified and reviewed, particularly from the International Journal of Project Management (30) and the Project Management Journal (25), but also other journals (28). The majority of these were discussed above. Of these 83 papers, 30 looked at leadership style, mostly at transformational or transactional leadership (20). While there were countless papers that took a competency perspective to project *management*, ten papers took such a perspective explicitly to project *leadership*. Nine of the 83 looked at contingent factors for project leadership. No paper was identified that looked at project leadership from the perspective of constructive developmental theories.

Only four studies explicitly reported findings on project managers with more that 10–15 years of experience. While a number of other studies collected respondent data on experience, they did not report on differences between experience levels. Similarly, only four studies (Prabhakar, 2005; Havermans et al., 2015; Davies et al., 2017; Wu et al., 2017) explicitly reported results on projects that would likely be classified as complex projects. Other studies typically included a mix of project types, size or complexity of projects, or did not explicitly identify whether the research was based on first time project managers or seasoned practitioners who ran complex projects.

This study looks specifically at experienced project professionals and aims to identify how they develop as they lead increasingly complex projects. Improving our understanding of this is important because it may help assess whether someone is ready to step up, help provide formal and informal experiences that support this process (Savelsbergh et al., 2016), or accelerate their development to a stage where they may feel they are no longer 'in over their heads' (Kegan, 1995). Hence, the question that guides this study is:

> How do experienced project leaders develop their capacity to lead increasingly complex projects?

3. Methods

3.1. Description of program

This study is based on working closely with 37 experienced project professionals across three cohorts in the context of a 12 month project leadership development program. The program was non-accredited and included up to six residential weeks, 10–15 individual coaching sessions, typically 3–7 mentoring sessions, and the application of insights to a major leadership or adaptive (Heifetz and Laurie, 1997) challenge. The program required 10–15 years of project experience, and worked with cohorts of about 12 participants from some 10 different organisations. Participants were typically selected by their organisations from a pool of high performers. The activities over the year focused more on developing reflexive capabilities (Crawford et al., 2006) and addressing individual and current project leadership challenges (Heifetz and Linsky, 2002), than on developing generic skills through a prescriptive curriculum. The program was designed to craft a safe and supportive environment conducive to the development of individual participants, as well as to obtain a better understanding of the development needs of highly experienced project professionals, in a spirit of mutual learning (Mintzberg, 2011; Shotter and Tsoukas, 2014).

While it was a development program, it was designed with the explicit intent to enable project leadership research. The advantage of such a research setting was that it established a safe environment in which participants were willing to reflect on and share deeply personal experiences relevant to leadership that could not easily be identified or captured by one-off interviews, surveys or observations (Antonacopoulou, 2010). This was further enhanced by the deliberate intensity and deep trust building of the residential weeks and the coaching process that extended throughout the program (de Vries et al., 2015).

3.2. Description of participants

Table 1 provides an overview of the participant industry, sector and years of experience. While their titles ranged widely, all participants held senior project-related roles. For simplicity we therefore refer to them in this study as 'project leaders'. The table shows that participants had between 15 and over 35 years of experience, with on average about 24 years professional experience. With the exception of 3 participants, this experience had predominantly been acquired in project-related roles.

Table 1
Project leader profile.

Industry		Experience (# years)	
Resources	22%	15–19	32%
Construction	14%	20–24	32%
Finance	14%	25–29	19%
Roads	11%	30–34	14%
Telecommunications	11%	35+	3%
Education Infrastructure	8%		
Rail	8%		
Urban planning	5%	Sector	
Health Infrastructure	5%	Industry	54%
Social & health policy	3%	Government	46%

The complexity of roles due to the project(s) under their leadership was rated using CIFTER (Aitken and Crawford, 2007b), which rates project-related roles from low complexity to very high complexity across seven complexity factors (related to stability of context; disciplines involved; legal, social, environmental implications; financial impact; strategic importance; stakeholder cohesion; and interfaces between entities). All participant role ratings fell between high and very high complexity.

While budgets of their current projects were not recorded systematically, they ranged from several million to billions of dollars. All but five project leaders were Australia-based, coming from Singapore, Canada and the US, though 18 had at least a few years of international professional experience.

3.3. Units of analysis: iconic moments

The research captured iconic moments that the project leaders identified as seminal and were described by participants as 'lightbulb' or 'aha' moments. The concept of iconic moment draws from existing theory on trigger events that accelerate leader development. For leadership development scholars, trigger events "facilitate personal growth and development … [and] serve as catalysts for heightened levels of leader self-awareness" (Gardner et al., 2005). Trigger events can involve negative events (e.g. health, loss of a loved one, hardship) as well as positive events (e.g. promotion, studies, sporting win) (Gardner et al., 2005) that result in an increase of cognitive or emotional capacity that underpins leadership practice (Cook-Greuter, 2004). Trigger events have some clear characteristics: they are typically new and unique, are accompanied by a significant emotional response, result in disequilibrium, and force the recipient to reconsider their perspective of self or their world (Gardner et al., 2005; Avolio and Vogelgesang, 2011).

While trigger events refer to the moment that cause an opportunity for learning, iconic moments (as defined in this research), refer to the moment when new insights arise. They are therefore part of the same learning cycle but may occur separated in time. Drawing on theory of trigger events, a phenomenon can be identified as an iconic moment if it is preceded by (or coincides with) a significant emotional response and disequilibrium, if it offers a new insight to the recipient, and if this insight changes their construct of self, their context, or their role as a leader. In leadership development the importance of enabling reinterpretation of previous experiences and reflection on new experiences is well recognised (Schön, 1983; Kolb, 1984). Such 'moments matter' in accelerating leadership development (Avolio et al., 2006) as they can dramatically transform a leader's effectiveness (Avolio and Gardner, 2005).

Lastly, iconic moments can be seen as mini-case studies that can be evaluated and interpreted in a number of different ways and are highly context specific (Schwandt, 1994). Some of that context was explicitly enunciated by the project leader when discussing the iconic moment. In other cases it drew on the deep understanding that the researchers had developed of the organizational and project context of the individual as a result of the close collaboration.

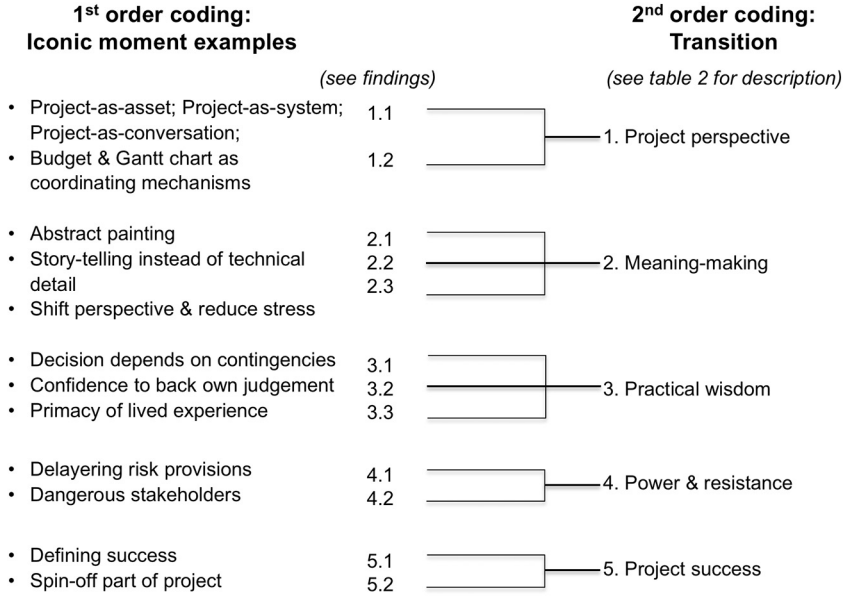

Fig. 1. Categorizations.

Table 2
Iconic moments.

Transition	Iconic moments	Interpretation
1. Perspective on projects	1.1 Intake and close-out meetings demonstrate enriched underlying perspectives of projects-as-(complex) system and project-as-conversation	Project leaders operate simultaneously in multiple contexts that are interwoven, and lack simple linear causality. It is critical to understand context & dependencies, and how to act on it as a project leader
	1.2 Budgets and Gantt charts characterised as coordinating mechanisms across boundaries of different groups, instead of as objective measures of cost & time.	This interpretation of these as such suggests a shift beyond using these tools to identify and control objectively calculated budgets and timelines. Instead, they are used as vehicles for negotiation between different social groups
2. Sense-making/meaning making	2.1 Standing in front of abstract painting	Project leaders must author their own experiencing and help others make sense of ambiguous and confusing input
	2.2 Rewrite a report by substituting technical detail with clear and simple narrative	Project leaders need to be able to guide meaning-making, particularly when dealing with a non-technical audience.
	2.3 Making sense of a highly stressful community consultation and reduce stress	Project leaders can be constrained by their cognitive developmental level, for example when stress triggers habituated responses they feel they cannot escape
3. Practical wisdom	3.1 Decision depends on specific contingencies of a situation	Decisions are contingent upon the full richness of an actual situation. Generalized rules (and best practice) presume predictability and depend on similarity of context.
	3.2 Presenting to Board is in part about confidence to back own judgment	Identity work, confidence and courage is part and parcel of effectiveness as a leader
	3.3 Primacy of lived experience	Experienced project leaders connect with richness of 'lived experience', not with generalized (i.e. impoverished) theoretical frames
4. Power & resistance	4.1 Delayering risk provisions by aligning 28 stakeholders in a pilot to reduce excessive provision	Build power and trust through collaborative engagement to reduce resistance
	4.2 Realization of potentially dangerous stakeholder in the shadows	Understand who might resist: not just who 'will' lose (economic-rational response) but who fear they may lose (emotional response)
5. Project success	5.1 Defining project success	Success or failure is a collective noun for many different outcomes, and its interpretation is socially negotiated. Project leaders can deploy tactics to achieve project success.
	5.2 Spin-off project scope elements as a separate project	

3.4. Data collection

Data was collected throughout the 12-month cycle. Prior to commencement, each project leader submitted a detailed resume and was interviewed by the first named author and one other senior academic staff member from the University. Interviews were semi-structured around a specific set of questions to elicit experiences that showed how they thought about projects, and to assess their willingness and capacity to reflect on their own development and their project leadership challenges. While we did not try to measure the development level of applicants, our interview protocol and assessment closely resembled constructive developmental interview protocols (Harris and Kuhnert, 2008).

At the start of each residential week we conducted a 'check in' and asked what some of the key iconic moments had been since or from the previous residential week. The same occurred on completion of the 12-month program, when we had a semi-structured close-out interview with each project leader and, typically, their direct manager. As before, interviews were held by the first named author with one other academic staff member. These meetings explicitly asked each project leader to describe a key iconic moment. Source, description, and context were noted for these iconic moments. The capture of critical moments for leader development through storytelling is well established (George et al., 2007; Mumford et al., 2007; Ligon et al., 2008).

We also asked questions related to the leadership challenge to which they had applied their insights and learnings, specifically: 1) What did you do differently as a result of the program that you would not have done prior to the program? 2) What has been the impact of doing things differently? 3) Can you quantify this impact? The close-out meeting was followed up by a close-out survey that, amongst other things, explored the impact of the program in further detail. Some of this impact is included in the descriptions below (a full analysis of this impact will be the subject of a separate paper).

3.5. Data analysis

Iconic moments were subsequently categorized, grouped and refined using a grounded method approach of analysis, interpretation and consideration of the literature (see Fig. 1) (Suddaby, 2006; Glaser and Strauss, 2017). This process led us to initially group iconic moments into six key transitions that appeared common across the projects leaders who participated in this study. This was later reduced to five transitions when it became clear that these five are better described as manifestations of the capacity to deal with cognitive and emotional complexity. The findings describe a selection of 12 examples of

iconic moments to illustrate these transitions (See Fig. 1: numbered from 1.1 to 5.2).

3.6. Validity of data

While activities over the year were orchestrated, we argue that this did not diminish the relevance of iconic moments as identifiers of transitions in leadership practice. First, all project leaders were highly experienced and evaluated program activities on their relevance to their professional context. They were not novices who might take the word of a perceived expert at face value. Also, the focus on reflective capabilities, sharing of experiences, one-on-one coaching and mentoring ensured that iconic moments were derived from the individual experiences and priorities of the project leaders. While the orchestration of activities would have seeded ideas, there were over 50 contributors (incl. Facilitators, coaches, guest speakers, mentors, panel members) to each instance of the program, all of whom brought their own theoretical or practical frameworks. Therefore the program provided a collection of ideas that the project leaders sampled, and using their critical perspective and experience, before they decided what might make them more effective leaders of their complex projects. There is no claim that the transitions identified here are comprehensive. However, we do assert that the transitions that emerged from the research provide a useful lens on their capacity to deal with cognitive and emotional complexity.

4. Key transitions and iconic moments

The findings are structured in accordance with the transitions that emerged as a result of the process described in the methods. For each transition the findings will first describe selected examples that were identified as iconic moments (including context, description, and interpretation), and then briefly discuss how they connect to the proposed transitions (see Table 2: Iconic moments). In some cases iconic moments were shared or were very similar across leaders in the research and their descriptions may be combined below.

4.1. Perspective on projects

4.1.1. Project-as-conversation between stakeholders (1.1)

Intake and close-out meetings were conducted with each project leader. During the intake meetings project leaders were asked to describe some key projects they led recently. These descriptions provided a sense of how these experienced professionals described projects and their role within them. Initial project management experiences were typically described as a transition from a technical perspective of asset construction (physical, digital, policy) to a system perspective for coordinating and managing many different moving parts. During the close-out meetings, they were asked to describe the project they had applied some of their insights from the program to. When asked how they had changed their practice during the year, most commented on how they noticed and collaborated differently with stakeholders. They identified a higher sensitivity of stakeholder dynamics and more focus on and sophistication in orchestrating engagement and collaboration as some of the most important changes.

4.1.2. Budgets and Gantt charts as coordinating mechanisms (1.2)

During one of the reflections on the activity, a discussion emerged on the status of Gantt charts and budgets as coordinating mechanisms between stakeholders that created a socially negotiated perspective across the different groups involved in a project. This shifted the perception of the primary role of devices like budgets and Gantt charts from artefacts that aim to reflect an elusive reality to one of aids that help negotiate collaboration across different groups.

Both the descriptions of projects and the perspective on devices like budgets and Gantt charts denoted a shift in how project leaders looked at how to lead projects. Instead of projects being primarily about controlling depersonalized 'things' (resources, time, budget, risks etc.), the emphasis shifted to orchestrating interactions and conversations that help influence others who co-create the system that delivered the asset.

4.2. Meaning-making

4.2.1. Abstract art (2.1)

A perspective on projects-as-conversation coincided with an increase of appreciation of the role of meaning-making when leading projects. In one particular example, one of the project leaders reflected back on a gallery visit to explore meaning-making in art early on in the year when kicking off a new project. He was confronted by a bewildering amount of information, stakeholders, interconnected initiatives, political sensitivities, ambiguity and conflicting opinions: '*it was just like being back in the gallery, standing in front of an abstract painting, and trying to make sense of it all*'. Similar insights occurred for others, and a number of project leaders took their own teams subsequently to the gallery.

4.2.2. Story-telling (2.2)

A number of project leaders recalled how, after being exposed to story-telling early on in the year, they had deliberately started to craft narratives as part of their communications. One example came from a project leader who ran a controversial urban renewal project. About one week before a major public report was due, he reviewed a full draft prepared by his team. To his horror, he found that the report contained the usual technical detail but lacked a clear narrative that the affected community could connect to. As a result, he removed substantial technical detail and helped his team craft a narrative that offered an interpretation of technical detail and talk to people's fears like impact of the project on traffic, pollution levels and house prices.

4.2.3. Shift perspective and reduce stress (2.3)

Other iconic moments included realisations that much project-related stress was self-imposed by the meaning a

project leader gave to a situation. One instance of this occurred when the person realised that their stressed response to one of the program activities was identical to her responses at work. As a result, what was initially a tense situation became a '*tremendously valuable learning*' and an opportunity for growth, according the project leader. In subsequent conversations he confirmed that he had become much better able to rise above particular situations leading to a reduction of stress and an improved ability to respond effectively. Similarly, another project leader in the research shared that he had become much better at maintaining equanimity in the face of outrage during community consultation events. A third one attributed a 50% reduction of blood pressure medication to insights from the program.

Abstract art, story-telling and shifting perspective under stress were different situations that highlighted the importance of meaning-making to project leaders. While art and story-telling were explored in their original context (with artists and authors), the project leaders reflected on the relevance of these practices for their own work. As a consequence, numerous examples emerged of how they consciously shifted meaning-making for others and for themselves

4.3. Practical wisdom

4.3.1. Decision depends on the specifics (3.1)

The limitations of 'best practice' became clear during one particular discussion on how to get a complex project back on track. With a few hundred years of experience in the room, a number of potential options were identified and the group concluded that a decision would have to consider the richness of specific issues of the situation, including the project's goals (e.g. expected value, schedule pressure, cost pressure), the sponsor (skill, commitment, political clout), the project director (track record, organizational support, perceived skill, support from critical team members), the team (size, skills, morale, current work pressure), context (political cycle, visibility of the project, political support, community support, strategic importance of the project, executive support, shareholder support), as well as specifics related to contracting arrangements and the client. A synthesis of salient contingencies would have to be at the basis of the judgment call. Generic 'best-practice' should not supplant judgment that is based on extensive relevant experience.

4.3.2. Confidence to back own judgment (3.2)

As part of the activities, the project leaders had to present a growth strategy to a panel of seasoned Board directors. However, the panel stated they 'did not accept the right to grow' for this company and it should instead focus urgently on fixing its existing business. Some had considered this but stuck to the original instructions from the facilitators to come up with a growth strategy nonetheless. This triggered rich insights about the importance of trusting their own judgment, and having the confidence and courage to back that up.

4.3.3. Primacy of lived experience (3.3)

Over 50 people contributed to each year the program ran. However, what became clear was that many (career) consultants struggled to make an impact on the project leaders despite having excellent relevant consulting experience. As one of the participants put it: '*They were there* [during a project]*, but they weren't there'*. They were watching, advising, assisting, but ultimately not 'in deep' like those in the line of actual accountability, and their stories of projects often appeared sanitised and depersonalized for consumption. This was in contrast with the executives who shared gritty personal anecdotes. Participants could connect deeply with their multilayered experiences of challenges, complexities, hopes and anxieties. While other contributors (e.g. jazz musician, philosopher, judo champion) had no project experience at all, they still succeeded to connect with project leaders as they drew on the richness of their *own* lived experience, leaving the project leaders to reflect on and discuss what could be applied to their own project context.

Both the struggle of consultants and the multitude of contingencies pointed to the rich and complex environment of project leaders and the importance of having the courage to back up practical wisdom honed in lived experience. Leadership of complex projects was seen to be about delivering challenging projects in spite of the ambiguity, complexity and emotional roller-coaster that came with it. Oversimplifying this in favor of a reductionist model with simple, transparent causalities was considered naïve by the project leaders as models and theories need to complement, not supplant, practical wisdom.

4.4. Power and resistance

4.4.1. Delayering risk provisions (4.1)

As part of the program, project leaders applied some of the insights they felt they had gained to key challenges they faced. One project leader in the program aimed to change the way that risk for significant capital projects was provided for in his organization as this led to layer upon organizational layer adding provisions 'to cover their backsides'. This meant that excess capital was locked up and no longer available for other initiatives. The project leader intended to centralize provisions, which required sensitive negotiations with some 28 stakeholders who needed to trust that they would have access to these provisions if such need arose. The idea for the pilot had emerged from an iconic moment earlier in the year that had triggered the insight that through deep stakeholder engagement, he could build the affiliative power and trust that a pilot would depend on. Even though the executive sponsor for the pilot expressed upfront that it would be exceedingly difficult to achieve, the project leader proceeded with the pilot and successfully reduced capital provisions by some $200 M.

4.4.2. Dangerous stakeholders (4.2)

One of the other challenges addressed by a participant involved exploiting a market opportunity in an area of infrastructure service. The project leader had made good

progress, including building support from selected local government councils. When encouraged by his coach to identify which stakeholders might fear they had something to lose from his initiative, he realised that he had ignored a company contracted to the federal government to build and run this sort of infrastructure. While that company might not be able to build this infrastructure for these councils for a number of years, it was possible – even likely - that the company would draw on the federal government to block the project leader's initiative, and therefore provide a risk to the initiative and the project leader personally. As a consequence, he proceeded to build the support he needed to protect himself, the initiative, and his own organization if resistance were to materialize.

These examples show how the project leaders saw power and resistance play out in their projects. Careful sensing of complex dynamics, genuine engagement and alignment of stakeholders, and building trust were key to achieving success. While complete alignment between stakeholders was unlikely to be achieved in their complex projects, both project lesders undertook extensive efforts to limit resistance and achieved tangible outcomes.

4.5. Project success

4.5.1. Defining project success (5.1)

There appeared to be a broad agreement that projects failed too often. Nevertheless, the terms failure or success seemed to be used as a collective noun for a broad range of project outcomes, which obscured at least as much as it clarified. For example, participants identified that a project might be called a 'failure' if it was not delivered on time, on budget, or to specification. However, the organization may well have proceeded with the project had it known that it would cost more, take longer, or not quite meet specifications. This came up in a number of examples during the program. One project leader mentioned a project that had to be rescoped due to the emergence of mobile technology and ended up much more expensive and delivered later than initially estimated. Whether this constituted a project *failure* or simply a reflection of the difficulty of defining scope, costs and timelines of complex projects would be a question of social negotiation.

4.5.2. Spin-off part of project scope as separate project (5.2)

Other examples identified creative tactics deployed by project leaders to influence whether a project was seen as success or failure. One such case was that of a roads project, which included both the construction of a road and a revitalization of the road corridor. The revitalization had continued to grow in scope as stakeholder resistance was bought off with additions for local communities and councils. By spinning off the revitalization as a separate project that would get its own (and additional) budget, the project leader could avoid embarrassment for a Minister who had prematurely announced an unrealistically low budget.

For some project leaders these examples from peers triggered the realization that project failure or success was not a singular, objectively assessable measure but a socially negotiated outcome.

The findings above can only include a subset of iconic moments that led to the formulation of a framework for transitioning towards project leadership of complex projects. However, they provide a fair representation of new insights and changes in leadership practice across five major transitions. The discussion will connect these transitions back to the literature and offer an integrative perspective on the major transitions described in the findings.

5. Discussion

This paper set out to identify key transitions for experienced leaders of complex projects and makes a contribution to project leadership by building an argument that these transitions can be seen as manifestations of an increase in capacity to deal with cognitive and emotional complexity, rather than as simply the development of competencies or skills. These transitions are, in project-speak, on the critical path towards effective project leadership of complex projects. First, these transitions will be discussed separately before the discussion provides an integrated perspective and will argue that they can be seen as manifestations of underlying growth of capacity to deal with cognitive and emotional complexity.

5.1. Key transitions

5.1.1. Project perspective

The findings showed that someone's perspective on projects mattered to how they saw their role as a leader of complex projects. This played out in at least three different ways that, if brought into the awareness of project leaders, can support their effectiveness. First, there are particular characteristics that derive from projects, like the distinct stages, absence of routine, the transformative nature that may impact the status quo, and the complexity of organizational loyalties across the work force. These characteristics influence the role of and demands on project leaders. Further, a perspective on projects can be deepened by looking below these surface level characteristics and identify what underlying model of projects shapes the enactment of project leadership (Kolltveit et al., 2007) and ask 'what do we do when we call something "a project" and "What is a project?"' (Bredillet et al., 2013; p.432). Developing awareness of how project perspectives may shape one's leadership practices enables deliberate perspective taking and increases the possibility of choice, instead of acting out of habit ensconced in a single perspective on projects. While such perspectives on projects can draw on a broad range of images, three overarching perspectives appear most relevant to the constructive developmental framework for complex projects proposed here.

The first perspective is that of a 'project-as-asset'. This perspective coincides with technical specialists who are focused on delivering an asset, which might be a chemical plant, hospital, IT system, government policy roll-out, new business model or other. This perspective is still largely

constrained by seeing the project as a knowable and specified 'thing'.

Project leaders in the research had grown beyond this perspective as they had moved into project management roles earlier in their careers and added a second perspective, which is one of the 'project-as-system'. The research showed that experienced project leaders had a good appreciation of the many interconnections, dependencies and feedback loops within a project and between a project and its context. This perspective connects with complexity sciences and complex system perspectives (Stacey, 2003; Lichtenstein and Plowman, 2009). It has been shown to be fruitful in, for example, the case of innovation projects (Kapsali, 2011), public service (Lundy and Morin, 2013), or the systemic management of complex projects more generally (Heaslip, 2014). According to Thomas and Mengel (2008), who connect this perspective to skills needed, projects tend to unfold as complex adaptive systems, and effective project managers need to act and react in a timely manner without being dependent on time-consuming analysis.

A third perspective is that of 'project-as-conversation', and our work with experienced leaders of complex projects demonstrated that at the outset of the 12 month collaboration this perspective was less well understood by most. It draws on linguistic and discursive perspectives that have emerged from the linguistic turn in social science and organization, for example when exploring narratives constructed by project managers studies (Havermans et al., 2015; Rolfe et al., 2017) (2015). Others approach this by looking at the inquiry process by which actors grasp project situations (Lalonde et al., 2012). The role of language does not merely commence once faced by a particular project but is already embedded in the language of project management approach (e.g. PMBOK, Agile). For example, Hodgson and Cicmil (2007) show that existing standards shape a technical and instrumental approach to projects and in doing so restrict alternative project leadership discourses and practices.

Each perspective foregrounds something different and is therefore best suited to different tasks. A project-as-asset perspective foregrounds the asset itself, and lends itself to immediately deal with the technical characteristics of the asset. A project-as-system perspective can foreground both the asset in its context as well as the delivery system that is put together to build the asset. This focuses on, for example, the project team, suppliers, (sub)contractors, community, resources, and project specifications that constitute the system that must deliver the asset. It is therefore particularly suited to managing the delivery system in its broader system context. Lastly, a project-as-conversation perspective foregrounds sense-making and relational interactions between stakeholders and is best suited to orchestration of conversations: who needs to talk to whom, when, about what – without necessarily getting in the detail of all of those conversations or trying to control its outcomes. Such orchestration requires leadership practices that can purposefully change conversations, including having coaching conversations with team members or changing reactive debate with critical stakeholders into generative dialogue. Critically, these conversations are less about the tangible aspects of the asset or delivery system, but more about the meaning stakeholders adhere to those and therefore require project leaders to operate on a relational and symbolic level.

The different perspectives need each other. We need experts who design the asset, others who project manage the delivery system, and different still, we need those who lead shaping the context and negotiating what sense stakeholders make of it all. At the most senior levels of complex project leadership the role increasingly deals with the latter. However, without the other two perspectives, a project-as-conversation perspective may constitute no more than 'just talk'.

5.1.2. Meaning-making

When adopting a project-as-conversation perspective, project leaders can reach beyond entitative thinking (that is, of seeing the project predominantly as a 'thing' that is built), and perceive projects as temporary bracketing of contextual and relational dynamics (Weick, 1995) in which the project is socially negotiated and constructed. It shifts the focus from the tangible aspects of the project to the meaning that stakeholders adhere to it (e.g. when people protest a traffic tunnel, they do not protest a hole in the ground (physical) but what they think it means for their health, house value, amenity etc.). The findings suggest that meaning-making is an important leadership practice for complex project leaders, and support the proposition that developing a critical perspective on how meaning is created is an essential transition for project professionals who want to succeed as leaders of complex projects. The role moves them beyond effectively communicating the 'facts' towards helping a broad range of stakeholders give meaning to the context, purpose, vision, rearrangement of social relationships and activities that make up the project.

This transition in project leadership is affirmed by some emerging research in the project literature. This research has shown that the construction of meaning is not merely the addition of a thin communicative layer (or spin) on top of an unproblematic and concrete project but can be seen to be constitutive of the project (Gauthier and Ika, 2012). For example, project management standards play a role in creating and reifying 'organizational objects', in this case the project itself (Hodgson and Cicmil, 2007). Also, project managers construct narratives of complex emergent problem resolution in projects (Havermans et al., 2015). As the use of language goes beyond ethereal concepts and constructs the project reality, it has an impact on how teams function and respond to complex problems (Havermans et al., 2015). It is therefore important for project leaders to understand their role in meaning-making, and how to draw on language as part of that process.

The importance of meaning-making cuts across a broad range of leadership practices: the stories the project leaders tell that reflect how they see themselves; how it can help build connections with teams and stakeholders; the meaning that is attributed to the project; how it facilitates to describe and translate a strategic vision; or when explaining whether a project is ready to move forward to implementation. It is therefore an important element for the proposed transition of complex projects.

5.1.3. Practical wisdom

Throughout the research period the experienced practitioners increasingly rejected generalized tools and techniques that appeared deterministic as too simplistic or naïve. As the findings showed, the complexity of context, the need for interpretation, and the role of negotiation and alignment of different groups of actors created a richness that cannot be fully captured in prescriptive decision-making tools and techniques that – at best – can only consider a handful of project contingencies.

We therefore argue that the transitions include knowing when to privilege practical wisdom (Lalonde et al., 2010). The richness of practice and the lived experience of practitioners is reflected in the recent 'practice turn' (Cetina et al., 2005; Chia and MacKay, 2007), and can also be found in leadership research (Carroll et al., 2008; Hall et al., 2015), as well as mega project research (Flyvbjerg, 2004). A practice approach highlights what it is that practitioners do (e.g. Golsorkhi et al., 2010), and practical wisdom or phronesis highlights 'how to address and act on social problems in a particular context' (Flyvbjerg et al., 2012; p.1). This definition points directly at the challenges faced by complex projects. From a complex adaptive system perspective this can be described as the impossibility of relying on generalized rules due to unique characteristics, causalities, interdependencies and feedback loops that shape the dynamic patterns of practices (Heifetz and Linsky, 2002; Burnes, 2005). From a project-as-conversation perspective, the orchestration of participants, timing, content etc. of conversations cannot be fully determined in advance, but must be guided by practical judgment as the discourse and practices evolve over time (Bushe and Marshak, 2015). These perspectives share that practical judgment is necessary to 'feel' their way through decisions and dynamically guide the discourses and practices that constitute the organization as these morph over time.

This is also one of the key differences between experienced practitioners and more junior project professionals. To appreciate this difference, it is important to understand that lived experiences are not particular instances of generalized rules. Rather, generalized rules are lived experiences stripped bare to a small subset of characteristics (Lalonde et al., 2010). While generalized rules may help extrapolate decisions to similar contexts, practical judgment is critical in assessing whether a particular unique instance is sufficiently similar or whether the generalized rule does not apply. However, a project leader may lack experience in sufficiently similar situations to have developed a sense of what 'good' looks like to make a judgment call and is better off playing by generalized rules (e.g. 'best practice'). Consequently, this transition also poses a risk to those whose confidence exceeds their experience ('hubris') in situations sufficiently similar to the current instance.

5.1.4. Power and resistance

Observations and reflections during the research also offered insights into the importance of power in the execution of complex projects. The research suggested a few important distinctions and connections that this element of executive project leadership can emphasize to help improve complex project leadership. These include a distinction between different forms of change and a distinction between different forms of power.

The concept of resistance to change (Ford and Ford, 2009; Lundy and Morin, 2013) offers a useful path to understanding different forms of power in complex projects. While complex projects may have the potential to generate significant additional value, some stakeholders will fear they may be disadvantaged and resist the project. The complexity can make it more difficult to see each other's interests as fully aligned. In such circumstances, reducing resistance is possible and desirable and leaders of complex projects must carefully 'feel' their way through the concerns of stakeholders to negotiate a pathway for the project. This may involve using the momentum and propensity (Jullien, 1995) that is already present in the system, or making small 'incisions' (Chia, 2014) and influencing stakeholders to change the conversation (Marshak et al., 2015). The use of force may not altogether be avoidable to progress the project, and may require subtlety and access to different sources of power by project leaders. There may be an over-reliance on a narrow range of sources of power (e.g. contracts) and a lack of ability to effectively draw on others. Lawrence et al. (2001) provide an integrated categorization of power, differentiating between influence, discipline, domination and force. Following his categorization, resistance is most likely reduced by using influence, that is, treat project stakeholders as subjects by genuinely listening to their concerns and being empathetic to their interests. However, effective project leaders must recognize when, for example, the use of force may be accepted as necessary and appropriate by the broader stakeholder population (e.g. forced sale of farm land for a road project).

The ambition of this manuscript is not to contribute to the theoretical debate on different forms of power. Our more modest aim is to characterize how leaders of complex projects become more attuned to power and resistance as an important transition. Complex projects will without fail transect many power dynamics, some of which can be harnessed while others may hinder the project and leadership of complex projects requires acute attention to both.

5.1.5. Project success

Delivering project success is notoriously hard (Flyvbjerg and Budzier, 2011). However, what became clear from the findings was that the concept of project success must be unpacked in order to better understand key dynamics that influence what is seen as project success or project failure. This understanding can then be used to shape projects and their outcomes from the early stages onwards.

At its most simplistic level project success was measured as delivering on time, within budget and in line with specifications (Jugdev and Muller, 2005; Ika et al., 2012). However, the research showed that on occasion parts of projects were spun off or time lines extended, enabling the project to still declare success. This manipulation of time, budget or specifications to

declare success is of less importance than whether a project was able to deliver value.

The concept of value was much more ambiguous and difficult to capture. First, it is well understood that project success must consider both the short and long term value that a project delivers (Howsawi et al., 2014). Second, whether a project delivered value should not just be asked of the project in isolation but requires consideration of context and alternatives (Howsawi et al., 2014). This means that project leaders must ask '*is this the right project*?' or even '*should we do a project at all or are their better ways to achieve the desired outcome?*'. For example, Bowditch (2016), suggests that in some cases modest customer centric transport service initiatives may be preferable to ambitious new road projects. Third, the concept of value must also consider for whom the project may have delivered value. Transformative projects are likely to trigger resistance, particularly from those who fear they may have most to lose (Piderit, 2000; Ford and Ford, 2009; Lundy and Morin, 2013), and are consequently dangerous for those who lead them (Heifetz and Linsky, 2002). Stakeholders who oppose a project may do so by trying to shape the project-related discourse and frame it as a failure. This connects back to the earlier discussion on the need for project leaders to understand and have the capability to influence meaning-making processes.

The issues mentioned above show why leaders of complex projects cannot simply rely on meeting project deadlines, costs and specifications in order to deliver project success. At a minimum, they must develop an understanding and capability in how to question a project's reason for existence, and how to influence whether a project is framed as a success or failure.

5.2. Transitions as manifestations of constructive development

The discussion so far treated the transitions as separate and distinct. In this final section the argument will be made that these transitions can all be seen as manifestations of an underlying increase in capacity for cognitive and emotional complexity by these project leaders.

Commonly a project manager's capability is described in terms of competencies and knowledge (Crawford, 2006). While we accept the merit of this approach, our research suggests that the changes in leadership practice for experienced leaders of complex projects were better described as vertical development (Petrie, 2011). Consequently, we offer a complementary perspective that draws on constructive developmental theory (Kegan, 1995; Cook-Greuter, 2010). This perspective appears particularly helpful for understanding senior project leadership of complex projects as it shows how emotional, cognitive, interpersonal and intrapersonal experiencing must evolve (Kegan, 1995) to deal with the relentless onslaught of challenges these projects can bring.

Such development is also critical to interrupting routinisation (Antonacopoulou, 2010), that is, doing things differently than before, and is associated with an increase in reflective capacity. Our work with experienced project leaders showed that reflection can, with appropriate coaching support, help explore from what developmental stage they try and enact project leadership, how this is affected by circumstance, and why this may cause miscommunication and conflict between people operating from different stages. While identify seven stages, three stages appear most relevant to the findings and our purpose here (i.e. Expert, Achiever, Individualist). Also, their naming of stages or orders of development connect well with the experience of project leaders. Many engineers, architects, software developers and others moved into project management from a position of technical expertise. People operating from an 'Expert' stage gain their security from being certain of their expertise, which drives perfection. This coincides with a project-as-asset perspective discussed earlier. In order to become effective project managers, they need to move beyond technical perfection, become more comfortable with ambiguity, understand what project success looks like and how to achieve it by managing part of a system. This means that - instead of thinking about their expertise, procedures and efficiency - they now need to focus on results, effectiveness and goals from a projects-as-system perspective. This coincides with next development stage of 'Achiever' and may suffice for most projects. However, projects can be highly stressful environments (Aitken and Crawford, 2007a). This is particularly true for complex projects with potentially less stability, bigger financial, legal, social, and environmental implications, more stakeholders, and more interfaces with other departments or organisations (Aitken and Crawford, 2007b). Being effective in leading such projects requires being able to think about self and others in relation to and interaction with the system. This may call for the next 'Individualist' stage, and requires a deep appreciation that how the project and its context appear depends on the perspective taken. In order to be effective and not overwhelmed in such an environment replete of power dynamics, ambiguity, and multi-modal communications, it is critical to interpret this cacophony from multiple positions and hold these interpretations simultaneously without dogmatic attachment to any particular perspective (including one's own) but in favor of a pragmatic shaping of the project and its context to create a way forward. These stages are additive, that is, an accomplished project leader who can operate on an Individualist level can revert to an Expert or Achiever mindset. However, someone who has only operated from an Expert level will struggle to operate from subsequent stages, even though he or she may have an intellectual appreciation of these stages (Cook-Greuter, 2004).

Drawing on the five key transitions above, we can now describe manifestations of constructive development of leaders of complex projects (see Table 3).

Experienced project leaders increase their capacity to lead increasingly complex projects by developing their capacity for cognitive and emotional complexity to a level that is commensurate with the complexity of the projects they lead. This growth manifests itself in what they actually do: they orchestrate genuine dialogue in highly sensitive project situations while drawing on practical judgment and sensing their way through complex power dynamics. This allows them to guide collaborative meaning-making, adaptation of the system, and is ultimately essential to the negotiation of project

Table 3
Key Transitions as Manifestations of Constructive Development.

Transition	From project management	…. to leadership of complex projects
1. Perspective on projects	Manage resources to deliver the project ('project-as-system')	Orchestrate dialogue between right people, at right time, about right issues ('project-as-conversation')
2. Meaning-making	Manage and communicate with stakeholders	Guide collaborative meaning-making to align key stakeholders
3. Practical wisdom	Analyse and resolve project issues using best practice	Draw on practical wisdom and judgment to progress complex project challenges
4. Power & resistance	Manage resistance to project	Develop a range of power sources, and sense a pathway through power dynamics
5. Project success	Deliver project on time, on budget, to specification	Negotiate project success for key stakeholders based on a broad concept of value

success, as seen from the perspective of key stakeholders. While constructive development theory has been confirmed across many different contexts (Piaget, 1976; Kegan, 1995; Magolda et al., 2012), for each project leader its manifestations are likely to vary based on individual characteristics and context. Also, even if someone's underlying constructive development has demonstrated an upward trajectory, this may not immediately translate into sustained leadership effectiveness. For example, high stress can lead to regressive and reactive 'old habits' and hinder a tangible positive impact on the project. However, as they consolidate their capacity to deal with cognitive and emotional complexity, their effectiveness as leaders of complex projects is likely to increase.

The implication of the above for senior executives and human resource functions of organisations is that it is important to consider how to trigger and support reflective processes as a means to cognitive and emotional development of their project leaders. Purposeful work assignments that not only match project context and requirements with existing capacity of project leaders but also build in "stretch experiences" may be useful in this regard, and have been shown to enable leadership development in other contexts (Van Velsor et al., 2010; Reichard et al., 2015). In addition, enabling and supporting project leaders as they experiment with new leadership practices in safe spaces may also enable iconic moments and growth, provided these experiments are accompanied by appropriate and structured reflective practices. As others also note: "Both positive and negative triggers will continue to shape the leader's development to the extent they are reflected upon, and interpreted in terms of the self" (Gardner et al., 2005, p.349). Accordingly, an important opportunity for organisations is to consider how they support both individual and groups of project leaders in their constructive development. In addition to stretch experiences mentioned above, we suggest formal development programs integrated with intentionally crafted workplace experiences and supported by developmental coaching (as a means of structuring reflective processes, and different to performance or skills coaching) as a productive way forward. In order to have impact, such interventions must be led by human development professionals who can match or exceed the cognitive and emotional capacity of the leaders in the program as they reflect on and integrate these experiences.

6. Conclusion

In working closely for 12 months with 37 senior project leaders across three cohorts, this research identified five critical transitions as they seek to step up to or consolidate their ability to lead complex projects. We do not claim that these are the only or the most important transitions, or that that the transitions are the same for all project leaders. However, we do argue that these transitions can be seen as manifestations of constructive development of these project leaders. Such a perspective offers coherence and a path forward to experienced project leaders who may feel they are 'in over their heads' (Kegan, 1995).

This study also has limitations. For example, as the usefulness of a constructive development perspective only emerged from the research, we did not use existing and tested protocols (e.g. Washington University Sentence Completion Test) to systematically measure the constructive development of the project leaders. In that sense this study was an exploratory study of constructive development of project leaders, and the aim is to include proven methods for measuring this construct for future cohorts. Further, all project leaders in the survey had an Anglo-Saxon background, and the research therefore does not address whether transitions would be similar in other cultural contexts. Similarly, while we did have people from many different project types, we did not feel the sample size was sufficient to differentiate the transitions we identified between project type. While we expect that this is unlikely to influence the value of a constructive development perspective, we would expect that the actual transitions may vary across culture or project types.

Future research may consider how to match a definition of project complexity with constructive developmental stages, verify the impact of project leader development on project outcomes, and deepen our understanding of the project-as-asset, project-as-system, and project-as-conversation perspectives. Further, and drawing on general leadership development research, it will be important to explore how we can accelerate project leader development, not just through skills and knowledge acquisition but also through supporting constructive development. We see both as essential to help promising project leaders grow to lead complex projects, instead of merely

trying to survive their initial attempts of doing so, as often appears to be the case.

Declarations of interest

None.

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