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CONNECT

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BUILDING THE CAPABILITY OF PROJECT PROFESSIONALS



EVOLVING WAVES OF PROJECT MANAGEMENT



INTERNATIONAL CENTRE FOR COMPLEX PROJECT MANAGEMENT

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CONSEQUENCE OF PROJECT COMPLEXITY FROM THE INCREASED PRESENCE OF FINANCIAL OWNERS OF MAJOR CAPITAL PROJECTS

Written by:

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A definite trend in infrastructure and energy is to have financial holdings take ownership over large complex capital projects. Those owners do not have the history, technical background and experience that more traditional industrial owners have developed over time. In addition to possible unrealistic expectations, additional complexity is created because of the need to contract additional owner engineers, future operator and project management support entities. Project complexity can then reach a threshold where the project outcome becomes quite unpredictable. This article explores the consequences of this trend in terms of contracting strategies and the associated complexity risk. It also provides insights as to the measures that financial owners should take to be successful.

Introduction

Following a general economical trend, pure financial players are increasingly getting involved directly as owners in large industrial and infrastructure projects with the objective to create valuable assets that will deliver substantial and regular returns over their lifecycle. Those can be held through special purpose vehicles or directly as funds, taking majority equities in smaller project or industrial operators. Often, those financial players will look to exit the project with substantial return on equity at a shorter horizon than the infrastructure lifetime through refinancing exercises (typically 5-7 years); some of those financial owners only concentrate on the project development phase.

While usually very cognisant about financial structuring, those owners are much less competent on technical or industry-specific knowledge. Beyond hiring or retaining a limited number of industry experts to help frame their investments, they generally seek the support of owner assistance or project management contractors to effectively deliver the projects. They will also often delegate asset operations and maintenance to third party companies. These additional contributors significantly increase the complexity of the capital project delivery. In terms of capital project contracting strategy, they also tend to favour a limited number of lump-sum turn-key contracts. This contracting strategy may not always be adapted to the project, in particular if the interfaces between contractors are not sufficiently managed, or if the project contains innovative or high-risk elements (e.g. soil risk).

This setup may create issues and project complexity concerns, mainly along three dimensions:

- A general context of excessive expectations regarding project and asset performance,
- Lack of competence of the owner to drive the right technical decisions during project definition and execution, in the interest of the full lifecycle value of the asset. This is also linked to poor governance including inadequate control of key project milestones,
- Lack of alignment of interests between owner and owner assistance contributors leading to poor project execution decision-making. This additional complexity may have a significant impact on project delivery.

General context of excessive expectations regarding project and asset performance

We observe that quite often pure financial owners may have unrealistic expectations regarding project and asset performance. This includes in particular:

- Unrealistic schedule expectations for the project (both for definition and execution phases)
- Unrealistic cost expectations for the capital project due to investment decision making at too low a maturity level,
- Unrealistic operating performance such as ramping-up expectations after start-up or owner operations & maintenance costs.

Excessively aggressive schedule expectations are particularly known to be a major contributor to project complexity in capital projects (ref 1). In addition to the disappointment that will come sooner or later from the overall return on investment, unrealistic expectations will lead to excessive pressure being put on teams and contractors leading to counter-productive behaviours (for example, skimping on quality, or high team turnover) which will aggravate the situation further.

The solution is to use adequate benchmarking (and clear explanations that can be substantiated if some expectations significantly deviate from the benchmark) as well as a particularly rigorous estimation process prior to the Final Investment Decision, with a high percentage of both project (Capex) and operation (Opex) costs actually backed up with contractor and supplier offers.

In addition, particular care should be given not to underestimate the actual owner project management costs, as well as the IT infrastructure setup costs for both project and operation phases. While it's only a limited percentage of the overall project, they can still represent significant sums and are often the first ones to get 'optimised' out, or even sometimes overlooked by an inexperienced owner.

Lack of industry competence of the owner

While industry competence can somewhat be provided by contractors supporting the owner, the owner still needs to internalise a sufficient level of competency. The following reasons apply:

- It is not safe to delegate to a contractor substantial work and decisions that may impact the project without a minimum level of understanding to check that the work is effectively delivered.
- The owner must maintain in-house a minimum level of control on the project to avoid the risk of being taken hostage by one of the contractors. For example, this requires investing in a document control system, sufficient contract management resources, and have minimum project control oversight (cost, schedule, risk) in particular when taking the full owner view of the asset lifecycle and all ancillary related project scopes.
- Essential project milestones such as project reviews at key decision points (end of Preliminary Feasibility, Final Investment Decision (FID), Mobilisation on Site etc) must remain under the control of the owner as well as the detailed specification of the work to be performed for each project phase,
- Essential decisions such as Capex vs Opex decisions should remain with the owner, who is the only one able to make such decisions, and they need to be taken effectively and in a timely manner during the course of the project.

Even in cases where the owner assistance may be part of the same group of companies as the prime owner, and thus can be assumed to be working in the same overall interest, we have found, through experience, that it remains essential to maintain a strong integrated owner team with a minimum level of competence. This does not require a very large team but incorporating a limited number of very experienced personnel in the specific industry with experience in similar projects is very important. At the very least an experienced project director, an experienced senior contract manager, as well as scheduling and project control resources are required to maintain sufficient oversight on the project. Most often experienced project professionals within the group, who are accustomed to move from project to project can be deployed for the duration of the project, which may span several years.



It is important for the owner to recognise the difference in interest with its owner assistance contractors, in particular when it comes to decision-making

These owner-employed resources should be included in an integrated, co-located team for maximum effectiveness: this practice is also a well-known complexity-minimisation practice. The integrated team can also be extended to include key representatives from the major contributors and contractors.

Lack of alignment between owner, future operator and owner assistance contractors

Owners often resort to specialised contractors offering owner assistance as a way to compensate for their weak project management infrastructure. Future operation is also often contracted. Contractors obviously will have a different interest than the owner and incentives are never fully adequate to bridge this difference. This situation is, in our view, is a major contributing factor to project complexity because the core of decision-making is impacted by this setup.



It is important for the owner to recognise the difference in interest with its owner assistance contractors (generally keen to sell more man-hours), in particular when it comes to decision-making. We observe often that in this kind of setup, decision making is often protracted due to unclear delegation rules to the contractor and lack of owner competence. This creates significant project performance issues to the usual delight of the main project contractors (which find substance for claims in delayed reviews and decisions) and of the owner assistance contractors (who benefit from a longer project). In general, lack of owner decisiveness is one of the major causes of poor project performance.

Some solutions include:

- a continuous investment in aligning the teams working on the project, and as a complexity minimisation approach, integration and co-location of the teams under the supervision of the experienced owner Project Director,
- a clear responsibility split and contractual setup (e.g. are contracts for the project officially passed by the owner or the owner assistance?) and associated strong contract management capabilities,
- Strong contract management by the owner of the owner assistance contract and of the support contract from the future operator.

Conclusion

It is our persistent observation that capital projects involving financial owners are often much more complex mostly due to the involvement of additional contributors, compounded by a frequent lack of understanding by the owner of the key capital project success factors. This is however not inevitable. Practices that will allow one to overcome this situation include internalising sufficient competencies and project control capabilities, setting realistic expectations aligned with industry benchmarks, being careful about adequate and timely decision-making, and setting up an integrated project team aligning all contributors towards a common goal.

About the Writer

Jeremie Averous is the founder of Project Value Delivery, a global consultancy founded in 2011 '*enabling organisations to be reliably successful in large, complex projects*'. After actual experience in delivering such projects, he now supports both owners and contractors of large and complex industrial projects worldwide across oil & gas, mining, nuclear, renewable, railroad projects. He is also the acclaimed author of several reference books on all disciplines of project control as well as a practical owner guide for large industrial projects.

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Accredited Courses

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Certificate IV in Responding to Project Complexity (10916NAT)	
Delivery Mode	Workshop Dates
Online Cohort 3 FULL	24-28 May 2021- Complexity in Project Environments 2-6 Aug 2021 - Systemic Risk and Decision Making 13-15 Sep 2021 - Complex Project Leadership
Online Cohort 4	26-30 July 2021- Complexity in Project Environments Workshops 2 and 3 are held together with Cohort 4.5
Online Cohort 4.5	23-27 Aug 2021- Complexity in Project Environments 18-22 Oct 2021 - Systemic Risk and Decision Making 1-3 Dec 2021 - Complex Project Leadership
Online Cohort 1 (2022)	7-11 Feb 2022- Complexity in Project Environments 4-8 Apr 2022 - Systemic Risk and Decision Making 1-3 Jun 2022 - Complex Project Leadership
Online Cohort 2 (2022)	28 Feb - 4 Mar 2022- Complexity in Project Environments 9-13 May 2022 - Systemic Risk and Decision Making 28-30 Jun 2022 - Complex Project Leadership

Short Courses

Course	Delivery Mode	Dates - Cohort Number
Effective Stakeholder Engagement for Improved Project Management in Complex Projects	Online	16-18 August 2021 - Cohort 4 7-9 September 2021 - Cohort 5 22-24 February 2022 - Cohort 1 (2022) 19-21 April 2022 - Cohort 2 (2022)
Essential Skills for Navigating Project Complexity (includes Computer Simulation)	Online	16-17 September 2021 - Cohort 5 8-9 November 2021 - Cohort 6 15-16 February 2022 - Cohort 1 (2022) 15-16 March 2022 - Cohort 2 (2022)
Online Complex Project Simulation	Online	On demand
Project Team Development	Online or Face-to-face	On demand
Systems Thinking for Complex Environments	Online or Face-to-face	On demand

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Accredited Courses

Certificate IV in Responding to Project Complexity (10916NAT)

The Certificate IV in Responding to Project Complexity is offered exclusively by ICCPM. This course gives project professionals the skills they need to identify and respond to complexity effectively. This includes managing risk and decision making in complex environments. This is not a course in project management methodology but rather a course in complexity for project managers.

Units of Competency:

- Identify and Respond to Complexity in Project Environments (NAT10916001)
- Apply Systemic Risk Management Principles and Tools in Complex Projects (NAT10916004)
- Apply Decision-Making Concepts and Tools in Complex Projects (NAT10916003)
- Lead through Project Complexity (NAT10916002)

Outcomes:

- Understand how to identify and classify complexity
- Understand how to respond to different types of complexity
- Manage risk effectively within complex projects
- Learn how to effectively lead complex projects

Need to Know:

- On successful completion of the training and assessment tasks, students will receive an Australian Quality Framework (AQF) qualification for 10916NAT Certificate IV in Responding to Project Complexity.
- The course is delivered either face to face or online via 3 Workshops within 6 months
- Participants have 12 months to complete all assessment tasks.
- Find out more: <https://www.iccpm.com/accredited-courses>

Identify and Respond to Complexity in Project Environments (NAT10916001)

This course is the first module in the Certificate IV in Responding to Project Complexity. It can also be taken as a stand-alone course to provide you with the knowledge and skills required to recognise the limitations of traditional project management methodologies and processes when complexity is present in project environments and to select and apply approaches for navigating the identified complexity.

Outcomes:

- Analyse the impact of project complexity
- Develop skills in Systems Thinking and Soft Systems Methodology
- Develop and implement strategies to respond to different types of project complexity

Need to Know:

- Delivered over 3 days face to face*
- Find out more: <https://www.iccpm.com/accredited-courses>

Short Courses

Effective Stakeholder Engagement for Improved Project Management in Complex Projects

This course is designed to help project professionals develop a more meaningful relationship with stakeholders in order to successfully deliver projects in complex environments. The aim of this course is to expand the traditional project management practice of interacting with stakeholders from a focus on stakeholder management – and a view of stakeholders simply as entities to be ‘communicated with’, ‘changed’ or ‘managed’ – to a focus on genuine stakeholder engagement.

Outcomes:

- Understand the characteristics of complex projects and projects in complex environments
- Understand the importance of stakeholder engagement for complex project success
- Develop stakeholder communication, conflict management, and engagement skills and strategies for complex environments

Need to Know:

- Delivered over 2 days face to face*
- Find out more: <https://iccpm.com/effective-stakeholder-engagement>

Systems Thinking for Complex Environments

This program helps managers facing complex problems to develop the skills required to diagnose issues, develop solutions and implement approaches that can incorporate multiple systems views and engage with the perspectives of multiple stakeholders. It uses real-world examples to take participants through strategic imperatives within complex systems, as well as organisational and holistic systems approaches, so that viable project systems can be designed and managed, and emerging problems can be solved.

Outcomes:

- Gain an introduction to systems and systems vocabulary
- Make sense and tackle complex situations drawing from complexity theory and systems thinking
- Identify and apply different soft systems methodologies and tools to make sense of and respond to complexity
- Understand organisational strategy and strategic alignment to improve the viability and effectiveness of organisations by achieving goals;
- Evaluate project situations through exploration and with consideration of diverse views

Need to Know:

- Delivered over 2 days face to face*
- Find out more: <https://iccpm.com/systems-thinking-for-complex-environments>



WEBINAR

PROJECT MANAGEMENT RE-IMAGINED: TAKING A PEOPLE-CENTRIC APPROACH TO IMPROVING PROJECT CONTROLLABILITY AND SUCCESS

by PAUL MYERS

12 OCTOBER 2021
12:00PM-1:00PM AEDT
Fee: **FREE**

DELIVERED ONLINE
INTERACTIVE Q&A SESSION
PARTICIPATE IN CURRENT RESEARCH

Designed to introduce participants to some of the concepts and challenges of researching projects when taking a people centric approach in a real world setting.

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WEBINAR

COMPLEX PROJECT SYSTEMS OF SYSTEMS EMERGENT BEHAVIOUR PHENOMENON

by ALEKSANDAR SEIZOVIC

30 NOVEMBER 2021
12:00PM-1:00PM AEDT
Fee: **FREE**

DELIVERED ONLINE
INTERACTIVE Q&A SESSION
PARTICIPATE IN CURRENT RESEARCH

This webinar will investigate various theories and elements that are and can be relevant to system emergent behaviour in complex systems of systems (SoS).

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The ICCPM Research Support Program connects researchers and practitioners globally. It helps researchers gather the empirical evidence they require to further the body of knowledge in complex project management and it helps practitioners access current research that will help them improve project performance. We hope you will use this platform to further your research and be an active participant for the benefit of the profession and the performance of complex projects.

Current Research

- *Development of Systems to Safely and Securely Deliver Complex Projects by Examining Emergent Behaviour Phenomena in the Systems of Systems* by Aleksandar Seizovic
- *Collaborative Project Control Systems: Taking a People-Centric Approach to Improving Project Success* by Paul Myers
- *Risk Management: The Past, Present and Future to Assessing Risk Systemicity* by Shree Babu
- *Investigating a Complex Systems Thinking Approach to Improving Project Risk Management* by Warren Black

Read more about each research project in the next pages. Visit the ICCPM Research Support Program webpage for more information including how to apply to have your own research included in this program. Take this opportunity to connect with a global network of project professionals and academics dedicated to learning more about complexity.

ICCPM RESEARCH SUPPORT PROGRAM



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