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Lean and seen behavioural aspects in management of projects in developing countries: A systemic approach.

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Abstract

In the past years of turbulence, we are seeing a social-acceleration resulting in increasingly volatile, unstable, transient organisations (Rosa, 2009). In this unpredictable, ‘high-speed’ context, the project ‘format’ provides a seamless, temporal, fixed-time-boxed fast-way to ‘fit’ rapidly-changing organisation re-prioritised targets. The purpose of this paper is to understand and navigate complex aspects of projects by deploying a systemic approach based on *socio-technical* and *social acceleration (SA)* principles. We adopt systemic principles by encompassing three dimensions of analysis: *macro*, *meso* and *micro*. Here we propose and further enrich a framework by testing complexities PM face specifically in developing-economies.

Keywords: Systems Thinking; Sociotechnical-systems; social-acceleration in projects operations

Introduction

Project Management has become an essential component of the development process in both developed and developing countries. In emerging economies, the management of projects plays a pivotal role in the implementation of development projects, which are critical for the socio-economic growth of these countries. However, the implementation of projects in developing countries is often characterised by delays, cost overruns, and poor project outcomes. This paper discusses the systems approach to project management in developing countries that offer diverse operational contexts and its relevance in enhancing project implementation. The systems perspective to project management involves a holistic and integrated approach to managing projects as it considers the project as a system with diverse interconnected components that must work together to achieve the desired project outcomes. The systems thinking approach recognises that a

project is not a linear “transactional” accumulation of actions, but rather a complex and dynamic process that requires constant monitoring of emerging phenomena and adaptation and adjustments to ensure successful completion. The systems approach to project management is particularly relevant in developing countries due to the unique challenges associated with project implementation in these economies.

Developing countries often face challenges such as inadequate infrastructure, limited resources, and weak institutional frameworks, which can hinder project implementation (Lannon and Walsh, 2020). The systems approach recognises these challenges and provides a framework for addressing them.

The systems approach emphasises behavioural aspects of stakeholder participation and engagement, which is crucial in developing countries. In many developing countries, there is a lack of key capacity and expertise in project implementation, and involving stakeholders can help bridge this gap. By involving stakeholders, the systems approach can facilitate knowledge sharing and capacity building leading to improved outcomes. In many developing countries, there is a lack of monitoring and evaluation systems, which can lead to poor project outcomes.

Developing countries face numerous challenges in implementing successful project management practices. To address these challenges, a systems approach to project management is recommended. This paper examines the systems approach to the management of projects and its application in developing countries.

The paper highlights the key principles of the systems approach, its benefits, and its limitations. Additionally, the paper discusses the specific challenges that developing countries face in project management and how the systems approach can help address them. The paper concludes that the systems approach to project management is a promising framework for improving project success rates in developing countries.

Project management is essential for successful project implementation in developing countries. However, the complexity and scale of projects in developing countries can make project management challenging. The systems approach to project management provides a framework for addressing these challenges. The systems approach views a project as a system, with various components that interact with each other. These components include people, processes, resources, and technology. This approach helps to identify and manage the various interdependencies that exist within a project.

Systems Thinking approach to improve Project management operations

In order to explore how a project can be managed in a more systemic way, we use a systemic approach which enables us to tackle this complex problem. Accepting that social relationships are complex and intertwined with each other, and that these relationships are characterised by multiple contradictions, a systemic view in which different perspectives are discussed becomes useful to explore social complexity. Moreover, social relationships are characterised by a variety of meanings, beliefs, values, and attitudes, and power.

The problem we set out to tackle in this research is to move from a transactional (systematic, task oriented) project management approach to a more systemic, lean and agile project management. To achieve this, we use the principles of the socio-technical perspective, an approach originated at the Tavistock Institute that has continued to be applied worldwide. Initially developed by Emery and Trist when working at the Tavistock Institute in London in the late 50s, socio-technical systems has developed by key figures such as Harold Leavitt, Albert Churns, Ken Eason and Enid Mumford.

To explore this complex situation, we also resort to systemic thinking, that is to the use of systems ideas when facing complexity, Maani and Cavana (2000). Broadly, systemic thinking opposes reductionistic thinking. Midgley (2000) refers to reductionism as belonging to the mechanistic worldview in that it concentrates attention to linear, causal relationships between variables and invariably fails to view relationships and understand the wider system. In the words of Ackoff an eminent systems thinker:

Systems thinking has been applied extensively to many fields of knowledge, particularly in organisational settings when problematical situation or ‘messes’ are most recurrent and has yield effective results. See Flood and Carson (1988), Jackson (2019, 2003) amongst others. In particular, the importance of systemic thinking in public policy, has been acknowledged by Ackoff (2004:1):

In general, those who make public policy and engage in public decision making do not understand that improvement in the performance of parts of a system taken separately may not, and usually does not, improve performance of the system as a whole. In fact, it may make system performance worse or even destroy it. Ackoff (2004:1)

In this paper, we will firmly advocate a systemic position as opposed to a reductionist approach that sees to comprehend the nature of the whole by analysing its parts. By using a systemic view we aim to take seriously the idea that the whole is most that the sum of its parts and that considers the consequences of that; and most importantly, we expect to gain an understanding of a complex social systems as well as the human participating in the system we analyse here; (Jackson, 2019:25).

The systems approach recognizes that these components are interdependent and that changes in one component can impact other components. The key principles of the systems approach to project management include:

1-Systems thinking: The systems approach recognizes that a project is a complex system with various components that interact with each other. This approach helps project managers to consider the project as a whole, rather than individual components.

2-Interdisciplinary approach: The systems approach recognizes that a project involves various disciplines, such as engineering, finance, and management. This approach promotes collaboration between these disciplines to achieve project success.

3-Holistic approach: The systems approach recognizes that a project involves various stakeholders, such as project sponsors, project team members, and end-users taking into account the needs and perspectives of all stakeholders.

4-Continuous improvement: The systems approach recognizes that a project is a dynamic system that requires continuous improvement. This approach promotes ongoing monitoring and evaluation of the project to identify areas of improvement.

Design/Methodology/Approach

The problem we set out to tackle in this paper is to move from a transactional (systematic, task-oriented) management of projects approach to a more systemic and agile one. In the past two decades, theory and practice have considered a project as a tightly bounded closed organisational entity, dependent on formalised linear methods to manage and plan project processes and outcomes, boundary relations and time and scope changes (Kapsali, 2011). However, in the recent past few years of turbulence, we are seeing a social-acceleration resulting in increasingly volatile, unstable, transient organisations, supply chains and projects where project plans have to adapt frequently (Rosa, 2009). The growing awareness of the criticality of project management have triggered vivid calls from various scholars to reconsider project management by acknowledging the heterogeneity of project-based management in terms of organisation structures, culture,

resource availability and skills as they face social acceleration challenges (Locatelli et al, 2023; Lenfle and Söderlund, 2022; Pinto, 2023; Huemann, 2022).

Notwithstanding the boom of project management literature with amplified pleas to reconsider/overcome the narrow, rigid, goal/achievement-oriented project management scholarship (Picciotto, 2020), literature lacks studies that holistically integrate systemic thinking, sociotechnical theory and social acceleration. Three Research Questions (RQ) guided us here:

RQ1: How can systemic thinking, socio-technical systems (STS) principles inform management of projects in turbulent environments?

RQ2: Which/how socio-accelerated trends/factors create challenges in projects in developing countries?

RQ3: Which/how socio-accelerated factors solve challenges in projects in developing countries?

To investigate complex socio-technical and behavioural aspects of projects in developing countries using a systemic approach, case studies were selected as a research method as they have been consistently valuable in investigating complex phenomena within real-life context. Case studies by their nature of research inquiry facilitate analysis from multiple data sources that can be triangulated to enable a more nuanced and rich understanding of phenomena (Eisenhardt, 1989; Voss et al., 2002; Yin, 2018)

Systems Thinking approach to Management of Project operations

Underpinning this methodological strategy, we adopt a holistic/systemic approach to integrate different levels of analysis:

- (1) Macro-level -the structural dimension: The exogenous/business environment;
- (2) Meso-level-the institutional dimension: The endogenous/organisational environment; and
- (3) Micro-level- the subjective dimension: The project environment

Although each of these levels is examined separately, all levels complement each other forming a dynamic process.

Social Acceleration(SA)

The second strand of the proposed theoretical framework is influenced by ‘social-acceleration’ (introduced by Rosa, 2009) a concept which resonates with the current turbulent socio-economic environment witnessed. Rosa (2009) identified three forms of SA: technological-acceleration, as seen in communication, transport, production modes; social/change-acceleration, as seen in spikes of instability and volatility of organisations and their practices ; and the work/life-pace-acceleration, as seen by rapidly changing customer/citizen needs and expectations (Ylijoki, 2016).

Socio-technical system principles to explore project management

The proposed framework is informed by Socio-technical systems approach (Emery and Trist, 1960) underpinned by two key ideas: First, organisations are open-systems; and second as such, the technology, perceptions and sentiments of its members forming a social group and the environment are all interdependent of each other and none of them are more important than the other, (Checkland, 1981: 256).

Our framework is based on the schema by Leavitt (1965), further developed by Handy (1993); Morton (1991) [cited in Davis et al (2014: 173)]. The framework in Figure 1, depicts the interrelated nature of organizational systems, embedded within an external environment. Essentially, the framework illustrates the fact that, in any

organisation there are people with capabilities, who work towards goals, follow processes, use technology, operate within a physical infrastructure, and share certain cultural assumptions and norms.

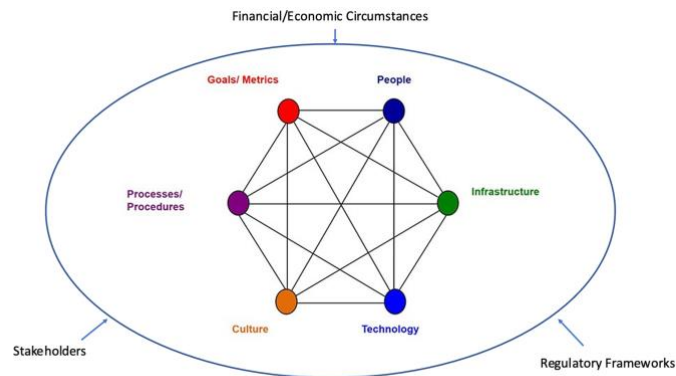


Figure 1- Socio-technical system (Adapted from Davis et al, 2014)

Conceptual Framework: Methodological Strategy

The systems framework that underpins our theoretical platform (Figure 2) is based on the interrelation of the three theoretical strands outlined in the previous sections and aim to answer the three RQ's driving this research. The framework was used to explore how projects could be managed in a more systemic way to address challenges of accelerated turbulence. Our analysis is informed by 3 specific explorative case studies looking at accelerated trends and their resulting challenges in developing countries:

- Conducted exploratory thirteen cross-industry focus groups and eight semi-structured interviews in Malaysia, Saudi Arabia and Mexico regarding project management trends and challenges, lean and agile PM maturity models, and the management of innovation and change projects in developing countries.
- One further focus group was conducted in India to specifically address psycho-social aspects of managing projects in developing countries.

Focus groups have been widely used within the social sciences as a tool to inform policy and practice, particularly in areas like strategic planning and programme evaluation (Hennink, 2007). In the interviews and focus groups, the project agents referred to institutionalised structures, such as organisations, inter-organisational networks, industries, their professions and their countries highlighting the rules/procedures, resources, infrastructure and culture for adopting project organising as they see it in developing countries. So as the participants elaborated how the structures, rules, and resources are enacted by project agents they also detailed how these fragmented actions enable and constrain project behaviours from becoming reproduced. Data collection was therefore focused on identifying social acceleration trends within developing countries to deepen our understanding of the tensions and challenges of accelerated turbulence. There were thirteen separate focus groups, from 2018-2022, with a combined total of 50 participants from different industries. The focus groups were divided based on the developing country locality. In each focus group there was a mix of project participants' role and experience. Within our qualitative research design, the interviews and the focus groups took place virtually via MS Teams and lasted on average 60-90 minutes. The recordings were transcribed verbatim and for a systematic analysis NVivo was used. Analysing qualitative data with a software program offers advantages of standardisation and reproduction of the coding, access to all members of the research

team, and easy categorization (e.g. condensing or changing categories) during the process of data analysis.

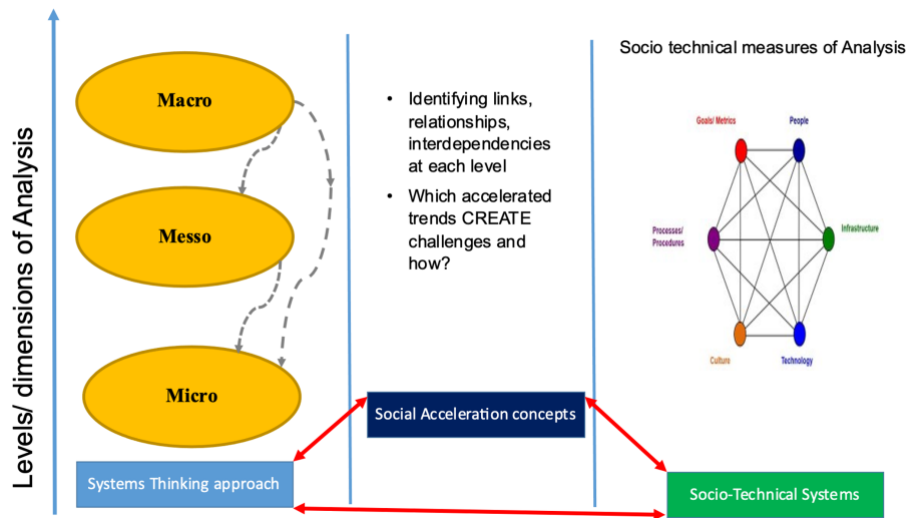


Figure 2: Framework of multi-level relationships between trends and acceleration challenges

Findings

A systems thinking theoretical lens was adopted to conduct our analysis within developing countries on: macro; meso and, micro-levels. In each of these levels we sought to understand socio-technical aspects of project tasks, technology, organisational structure, people, metrics, culture and identify the relationships between acceleration trends and the challenges they create and/or solve.

Macro-level: Understanding the external business environment

Looking into more detail, our findings show that in order to understand the external business environment in developing countries project managers must be cognizant of issues such as: logistics, distribution and transportation availability and reliability, sustainability concerns (socio-environmental), supply chain disputes, resource scarcity, economic uncertainty, increased fuel and material price, legal frameworks governing competition, globalization, data, innovation and technology. Not surprisingly, logistics and embedding consistent human rights and equality practices in certain industries such as construction appear as a heightened problem in projects in developing countries.

Predictably, navigating economic uncertainty within developing countries seems to impact project success. According to the International Monetary Fund in 2021 most emerging markets and developing countries post COVID-19 managed to return to global financial markets and were able to issue new debt to meet their needs. However this return is not happening at the same rate for all countries in the developing economies. Some have rebound quicker than others. As the IMF (2021) concludes this market volatility across the economically fragmented developing countries will require their policymakers to navigate a shifting landscape, manage their policy trade-offs, and achieve a durable recovery for projects to flourish.

As expected dealing “with more data” and innovation is a constant emergent trend across projects both regardless of industry or regionality. However on closer look, the granularity of that trend and the challenge it presents differs between developing and developed economies. For the project workers in developed economies the challenge relates more to integration of multi-structured data to existing legacy systems and

upskilling of project staff. For project workers in developing countries not only is the unstructured volume of data and lack of project technical skills problematic, it is also the geographical lack of the technology infrastructure. Compared to developed countries, many developing countries are lagging in technological infrastructure and large investments in IT infrastructure encompassing resilient broadband Internet infrastructure and a set of company-wide computing services that connect project teams and workers, suppliers, and customers into a coherent digital world is needed. Some more differences are more evident in terms of type of projects and the organisational responses to challenges in managing projects across all three socio-technical levels of analysis: project tasks, technology and people.

Figure 3 below shows the trends that create accelerated challenges related to external environment (macro) for the developing countries.

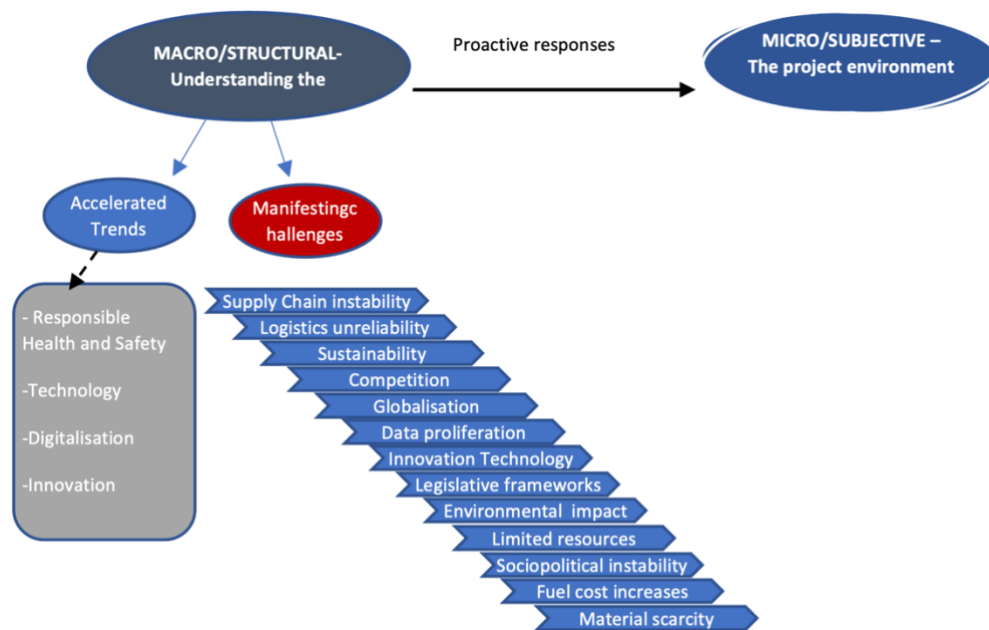


Figure 3: The key challenges and trends related to external environment for the developing countries (project tasks, technology, and people).

Meso level: Understanding the internal organizational environment

Our project managers in the developing countries face similar challenges when competing internally for resources and face organizational ambiguity on how to embed into projects key value metrics relate especially for sustainability. Organizational project conflicts prevalent in developing countries center around diversity. This is evidenced in Saudi Arabia and in Malaysia, where a large number of foreign workers participate mainly in construction projects and project coordination and team coherence is challenging. The research participants highlighted the formal and informal relationships between project team workers and stressed the institutional differences in terms of beliefs, traditions, and governance systems between project workers. Communication norms across stakeholders, managing their expectations, limiting scope inflation, navigating bureaucracy, social challenges and keeping motivation appear as challenging in most projects, specially in the public funded projects in the developing countries. Innovation initiatives, health and safety legislation and sustainability measures are seen from a macro, meso and micro perspective when managing projects. Within the developing

countries a renewed emphasis has been placed on project managers, leaders and workers skills and knowledge as well as importantly on their well-being and psycho-social aptitudes. Yet despite the emphasis on participation, ‘managerialism’ is highlighted as a key people skills development need with a few results stressing that psychological well-being is a trend we see in the findings in developed countries. Figure 4 shows key challenges and trends related to internal environment for the developing countries.

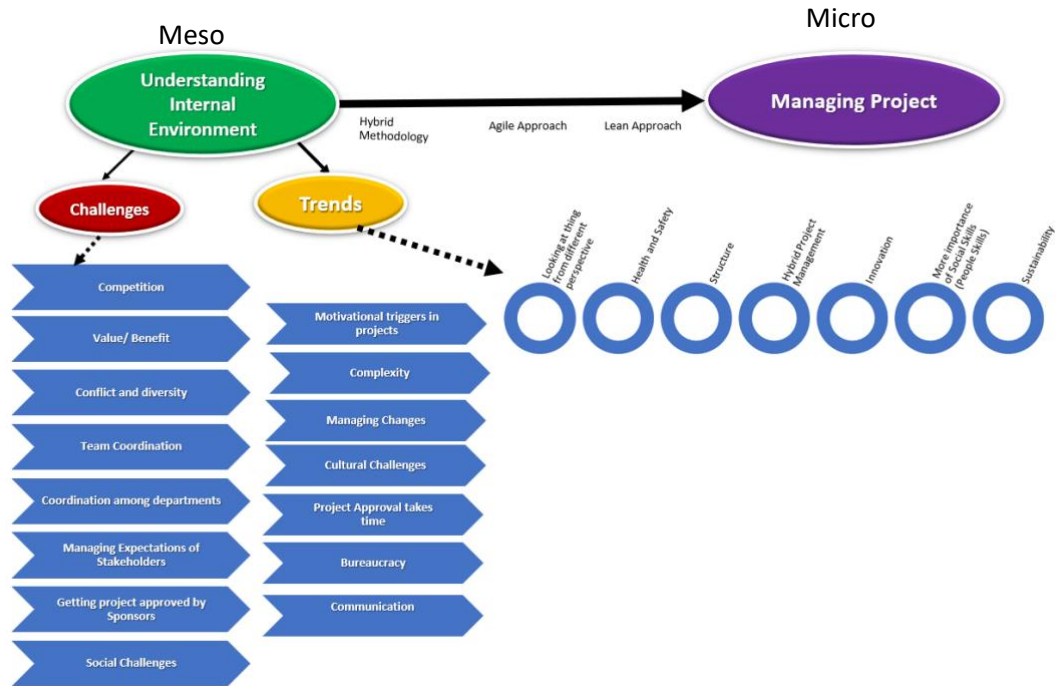


Figure 4: The key challenges and trends related to internal environment for the developing countries (project tasks, technology, and people).

Micro level: Managing the project environment

Our findings on project tasks and methods for managing projects show that most of project managers in developing countries understood the concept of agile and lean. At the forefront of adoption of agile methods are advanced technological projects and oil and gas projects. The findings also show that currently, most of the organizations are applying a hybrid approach of traditional and agile in certain stages of their projects. When selecting a project management methodology, project teams evaluate not only the type of project, the involvement of the stakeholders and the available knowledge in the team but also maturity of collaboration within their organization. When looking at specific industries, unsurprisingly, construction project workers appear resistant to adopting lean or agile methods favoring traditional waterfall methods. This finding is consistent with construction project workers from the developed countries. Resistance to adopting agile methods was also evidenced in practitioners who work on public sector projects. It seems that large, complex, multi-cultural government projects elicit a more “control and command” approach from the project managers. It seems as these large projects elicit close attention to both time and budget and thus are prone to performance measurement challenges when it comes to their transaction costs (Ika et al, 2020).

Indeed standardising project tasks in linear project execution cycles is seen as the favoured method way to overcome challenges regardless of the type of project. Hence

the development of several PMOs to further the “control and command” approach to managing projects.

Leadership and core innovation capabilities of project teams relating to exploration and exploitation were also analysed. These individual competencies were then extrapolated to organisational ambidexterity. Organisational ambidexterity appears at embryonic stages within developing countries even innovation is more prevalent and acknowledged as a future trend indicating a less mature business approach to innovation.

Thus innovation, and more accurately technological innovation, is considered as a transactional solution to a technical problem rather than a dynamic approach to learning and up-skilling. Indeed project learning and skill development is centred around attaining specific technical skills for problem solving instead of “soft” management skills such as leadership, negotiation, conflict management, ethics, organisational justice, resilience etc. The tendency for individual project actors engagement is mostly around reporting and not explorative learning, social capital and innovation contribution.

Interestingly from our analysis, the social acceleration trends identified in managing projects that create challenges appear non country specific. Regardless of country context, understanding the evolving landscape, the external and internal business environment is key to identifying the trends and responding to the challenges they create/solve. Our results suggest that project management practices adapt depending to the turbulence evidenced in developing countries. Which re-enforces the notion of projects, as temporal organisations are in essence complex-adaptive-systems.

Contribution

The advancement of knowledge regarding management of project operations and the development of project managers capabilities is crucial to the successful delivery of projects for both developed and developing countries. The theoretical model developed integrated a broad range of theoretical perspectives, with an emphasis on conservation of systems theory. The contribution of this paper is twofold: the framework proposed, is underpinned by systemic approach and contributes to the debate as to better understand the complexity of managing organisations; and by empirically testing the framework we contribute to the repository of real-world case studies both across developed and developing economies, to improve and better manage projects.

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