



RESEARCH ARTICLE

THE IMPACT OF VALUE REALIZATION MANAGEMENT ON MEGA PROJECT EFFECTIVENESS IN SUPPORTING SAUDI VISION 2030

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ABSTRACT

Mega projects have become central instruments of national economic transformation, particularly in rapidly developing economies pursuing state-led development agendas. In Saudi Arabia, the launch of Vision 2030 in 2016 catalyzed an unprecedented portfolio of giga-scale investments including NEOM, the Red Sea Global Project, Qiddiya, and Diriyah Gate collectively representing the most ambitious national development Program in the Kingdom's modern history. Despite their strategic significance, these projects continue to be evaluated primarily through traditional Iron Triangle metrics of time, cost, and scope, while the fundamental question of whether they realize their intended long-term strategic value remains systematically underexplored in academic literature. Value Realization Management (VRM), an evolution of Benefits Realization Management (BRM), offers a governance-embedded approach to ensuring projects deliver the strategic outcomes for which they are funded. It extends evaluation beyond project handover, embedding benefit identification, measurement, and accountability across the full project lifecycle. This study adopts a theoretical research approach a comprehensive critical literature review drawing on peer-reviewed journals, project management standards, academic books, and official Vision 2030 publications. No primary data are collected. The review addresses six themes: the evolution of project success frameworks; the conceptual foundations of VRM; mega project characteristics and effectiveness; the strategic role of Saudi mega projects under Vision 2030; the theoretical relationship between VRM and mega project effectiveness; and identified research gaps. Theoretically, the study synthesizes fragmented literature into an integrated conceptual framework linking VRM principles to mega project effectiveness within the Saudi context. Practically, it provides evidence-informed guidance for policymakers and project governance professionals seeking to embed value accountability in Saudi mega project governance. The paper concludes with a call for empirical research to validate the proposed theoretical propositions.

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INTRODUCTION

Mega projects are now proving to be tools essential for national economic transformation, broadly understood as investments of scale, with a long delivery time, multi-stakeholder governance, and high political and societal visibility (Nyirirangwe & Babatunde, 2019). In Saudi Arabia, this logic has taken a unique strategic expression in the form of Vision 2030, which was launched in April 2016. The Program is designed to articulate a comprehensive roadmap towards a less reliance on petroleum revenues (where about 75% of the fiscal revenue was relying as recently as 2022), diversifying the national economy by developing tourism, entertainment, technology, and logistics sectors, and repositioning Saudi Arabia as a globally competitive investment destination (Kingdom of Saudi Arabia, 2016; Vanderbilt, 2026). Vision 2030 is grounded in a new, unprecedented portfolio of giga-projects being financed

with the Public Investment Fund (PIF), such as NEOM, the Red Sea Global Project, Qiddiya, and Diriyah Gate. These projects are all part of Vision 2030's goal of establishing new industries, providing millions of non-oil jobs, encouraging foreign direct investment and showcasing Saudi Arabia's ability to transform its government. However, despite their strategic aspiration the empirical record of mega project performance, globally and more recently within Saudi Arabia, gives a salutary reminder. He et al. (2022) also revealed in their analytical study of the performance measurement methods that mega projects regularly lack value tracking mechanisms after the completion and for not verifying the delivery of strategic benefits and that some of the mega projects that were launched in Saudi Arabia like Sindalah island resort in NEOM started at three times the initial budget estimates and three years behind schedule in 2024. Root cause of this challenge includes the Iron

Triangle's dominance as the dominant evaluation framework, which focuses exclusively on project performance with time, cost, and scope criteria (Locatelli et al., 2023; Ika & Pinto, 2022). This framework is operationally useful but at its core fails to reflect if projects deliver strategic value, the economic diversification, employment creation and societal change for which they are commissioned. The strategy-to-value gap is empirically demonstrated by Serra and Kunc (2015) to be the reason why 60 to 80 percent of organizations do not get the strategy to value, where the delivery focus approach leaves it behind. Theoretically-grounded answer is Value Realisation Management (VRM) an evolution of Benefits Realisation Management (BRM). VRM introduces governance mechanisms that can be used throughout the project process and during project operation to maintain the project process and strategic outcomes (Serra & Kunc, 2015; Mossalam & Arafa, 2016). Rigorous VRM governance is not just a good thing in Saudi mega projects with investment sums of hundreds of billions of dollars and long-term potential gains of decades, it's actually essential. Even though this relevance exists, there is no literature that has specifically studied VRM in the context of Saudi mega project governance which leads to the existence of a theoretical gap in this study.

Research Objectives

- To review and critically synthesize the evolution of project success frameworks, from the Iron Triangle toward value-centric models.
- To examine the conceptual foundations, frameworks, and implementation challenges of Value Realization Management.
- To explore the defining characteristics, complexity dimensions, and effectiveness factors of mega projects.
- To investigate the strategic role of mega projects within Saudi Vision 2030 and associated governance challenges.
- To develop an integrated theoretical framework linking VRM principles to mega project effectiveness in the Saudi context.
- To identify research gaps and propose future empirical research directions.

Research Problem: The central issue that this study attempts to address is that between the strategic goals found in the mandates for mega projects and the assessment systems used when evaluating these projects. The authorization of mega projects under Vision 2030 is based on promises of strategic benefits such as GDP diversification and employment creation, and growth of tourism, but the projects are governed and evaluated largely according to the Iron Triangle, which can be no more accurate in its assessment of whether the promises will be met or not (Bronte-Stewart, 2015). Only 58% of organizations evaluate the project outcomes following project closure (Serra & Kunc, 2015), and thus, the question what strategic value delivery is fundamentally left unanswered.

A survey of UAE organizations conducted by Mossalam and Arafa (2016), a context institutionally similar to Saudi Arabia, revealed that only 40% had implemented benefit management practices compared to nearly 70% for conventional project management practices, and that only 31% had measured the realization of benefits after delivery. The fiscal recalibrations documented in 2024–2025, such as write-downs of billions in giga-project investments and Saudi Finance Minister al-

Jadaan's statement that projects would be deferred or cancelled 'without blinking' if they do not show value, highlight the need to embed VRM governance in the design process, rather than identifying value gaps when the fiscal situation becomes dire (Stahle, 2025). However, the academic literature in relation to VRM specifically in the context of the Saudi mega project is practically nonexistent, which is the first gap that this study aims to fill.

Research Value and Significance

Theoretical Contribution: This study combines the existing body of VRM and mega project literature in a coherent conceptual framework which goes beyond the traditional Program and portfolio management and includes the governance complexity of mega projects. It critically analyzes and challenges the Iron Triangle's applicability in the context of mega projects and establishes theoretical relationships between the dimensions of VRM governance and the outcomes of mega projects, laying the groundwork for an empirical study.

Practical Contribution: The study offers evidence-informed suggestions for Saudi policymakers and project governance practitioners to include benefit accountability in the governance framework of mega projects, enhance value monitoring after project completion, and promote value-oriented project cultures. The contributions are particularly timely in the context of Saudi Arabia's fiscal rebalancing of its mega project portfolio as it prioritizes delivery of strategic value and return on investment (ROI) become the focus of governance (Stahle, 2025).

Research Questions

RQ1: What is VRM and how did it develop in project management literature?

RQ2: What are the key factors that define the success of mega projects, and what distinguishes them from conventional criteria of success?

RQ3: What does the existing literature say about the effect of VRM on the effectiveness of mega projects?

RQ4: How can mega projects contribute in a strategic manner to Saudi Vision 2030 and what governance issues impact value realization?

RQ5: What are the theoretical possibilities of including VRM principles in mega project governance to improve Vision 2030 strategic outcomes?

RESEARCH METHODOLOGY

This study uses a theoretical research approach which is operationalized by critical literature review. No primary data are collected. The secondary sources which are peer-reviewed journal articles published in Scopus indexed journals, academic books, conference papers, government reports, Saudi Vision 2030 official documentation, etc. are systematically reviewed. The literature search strings used were: 'Value Realization Management' and 'Benefits Realisation Management' and 'mega projects' and 'project effectiveness' and 'project governance' and 'Saudi Vision 2030' and 'Iron Triangle' on Scopus, Web of

Science and Science Direct databases. The publications were limited to those published between 2020 and 2026, while those earlier in the time period were retained if they had a lasting impact on theory. It is a critical and not a systematic literature review: it compares, identifies contradictions between theories, synthesizes knowledge between the thematic borders and develops conceptual understanding from the analytical juxtaposition of existing works. This method is especially suitable for research issues with poorly defined literature and theory, especially in issues where there are no clear theory boundaries (Torraco, 2005).

Research Limitations: It is limited to secondary literature and no empirical data from Saudi practitioners are included. The findings are limited to published academic sources that are available and current. The findings of this study might be limited in direct generalizations to other contexts, particularly to the Saudi Vision 2030 context, but theoretical implications about the VRM and the effectiveness of mega projects are more generalizable.

LITERATURE REVIEW

Theme 1: Evolution of Project Success from the Iron Triangle to Value Creation

The Iron Triangle and Its Limitations: In the majority of the twentieth century, the success of a project was measured by the Iron Triangle's principle of meeting the three requirements of time, cost, and scope or quality (Locatelli et al., 2023; Ika & Pinto, 2022). This framework was embedded in the core project management standards, such as PMI's PMBOK, PRINCE2 and BS6079, and provided for operational simplicity and institutional reproducibility. Its basic drawback, however, is that it focuses on the timing of the project, which means that it measures delivery efficiency, not strategic value creation. Through canonical examples, Bronte-Stewart (2015) demonstrates this deficiency, with examples that are pedagogically useful and retain them. The Empire State Building was commercially empty during the Great Depression and delivered under budget and ahead of schedule; its performance at handover reveals it through the Iron Triangle lens and it was a success, but its short-term commercial results are less promising. The opposite was the case for the first-generation Ford Taurus, which had schedule slips, resulting in the loss of its project manager, but was still a commercial success. The approaches and concepts underlying the framework are exposed in these cases: They describe the management of a project rather than the extent to which it achieved its strategic purpose. This critique is supported also on an empirical level: after 20 years, 60%–80% of organizations indicated that they were not implementing their strategies in projects, partly because they were not addressing the strategy-to-outcome gap systematically in their governance. (Serra and Kunc 2015).

The Shift Toward Value-Centric Success: Insufficient levels of efficiency-only success criteria have led to a gradual shift in project management theory towards strategic value, benefit realization, and long-term outcome attainment. The Tesseract, as it was renamed by Ika and Pinto (2022), is a four-dimensional model that replaces the Iron Triangle as a complete success model. The Iron Triangle is now completely displaced by the Tesseract model, which is a 4D framework

that incorporates project plan success, business case success, green efficacy and shared stakeholder feeling into the mix. Mossalam and Arafa (2016) build on this by analyzing how these principles have developed in the work of Kerzner (Project Management 2.0) and Duggal (Parallel Balance model) where the project success is defined as the creation of business value or benefits, and the benefits outcomes are clearly incorporated with the triple constraint, forcing project managers to evaluate impact on benefits outcomes including potential dis-benefits. Mossalam and Arafa (2016) have distilled the seven key factors identified by Jenner as successful benefits management into the following: (1) Link benefits to strategy; (2) Begin with the end in mind; (3) Make use of proven methods of delivering benefits; (4) Combine benefits with performance management; (5) Manage from a portfolio perspective; (6) Apply effective governance; and (7) Foster a value culture.

There is solid empirical evidence for this change of value orientation (Serra and Kunc, 2015). In their survey of 331 project management practitioners from Brazil, the United Kingdom and the United States, they found that the practices of BRM account for 16% of the variance in the final project success perception and 44% of variance if equal weights are given to all seven success dimensions, making the adoption of BRM one of the strongest documented predictors of project success in current project management research. Critically, their findings show that while 76% of organizations define expected outcomes and 77% define strategic objectives when they start a project, only 58% monitor outcomes after closure, and only 35% have organization-wide BRM strategies, highlighting an overall governance deficit where value realization is most vulnerable.

Theme 2: Value Realization Management Foundations, Frameworks, and Challenges

Definitions and Conceptual Evolution: Value Realization Management (VRM) is the modern development of the Benefits Realization Management (BRM) practice. For Serra and Kunc (2015) BRM is a group of processes organized in a way that it will narrow the gap between the development of the strategy and the actual implementation and will enable the implementation of the most valuable initiatives and systematic verification of the delivery of their benefits. The strategic value of this is that the project is not considered as an end in itself, but as a means to change the organization: the evaluative question becomes not whether a project was delivered on time and within budget but whether a project achieved the promised strategic value. Mossalam and Arafa (2016) extend BRM to the project level and acknowledge a critical governance gap PMI's PMBOK focuses on measures of project success and outcomes/benefits are left to Program and portfolio governance. The UAE-based survey suggests that only 7% of organizations that practice benefits management do so at project level, with most organizations applying it only at Program/portfolio level, leaving project managers with primary delivery responsibilities largely on their own to manage benefit realization. In fact, according to a survey of 400 practitioners worldwide by Mancher (cited in Mossalam and Arafa 2016), 80% of organizations with highly matured benefit realization processes reported achieving the intended goals and business intent.

VRM Frameworks: Serra and Kunc (2015) list 12 empirically supported BRM practices throughout the project lifecycle. Some key practices are: BRM1, Business outcomes are clearly

Table 1. Evolution of Project Success Frameworks

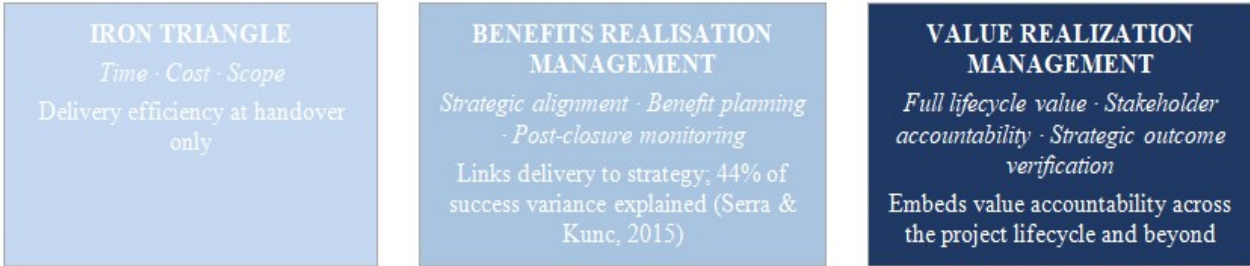
Era	Framework	Success Criteria	Key Limitation
1950s–1990s	Iron Triangle	Time, cost, scope	Ignores long-term value; evaluates efficiency, not strategic benefit delivery
1990s–2000s	Extended Criteria	+ Stakeholder satisfaction, quality	Weak linkage to organizational strategy and post-handover benefit outcomes
2000s–2010s	Benefits Realisation Management (BRM)	Strategic alignment, benefit planning, post-closure tracking	Insufficient adoption; accountability gap at project closure; 58% post-closure monitoring (Serra & Kunc, 2015)
2010s–2026	Value Realization Management (VRM)	Full lifecycle value; strategic outcome verification; sustained stakeholder value	Limited empirical testing; absent from mega project and Saudi context literature

Source: Compiled by the author from Serra & Kunc (2015); Bronte-Stewart (2015); Mossalam & Arafa (2016)

Table 2. Vision 2030 Flagship Mega Projects Strategic Purpose and VRM Governance Challenges

Project	Scale	Vision 2030 Role	VRM Governance Challenge	Current Status (2025–2026)
NEOM	\$500B+ phased	Tech city; special economic zone; sustainable urbanism	Unprecedented scope; fiscal governance failures documented; decades-long benefit horizon	Significantly scaled back; Phase 1 limited; \$370B projected to 2035
Red Sea Global	\$15–20B	Luxury sustainable tourism; environmental model	Tourism KPI tracking; environmental benefit measurement; sustainability governance	Most advanced; first hotels opened 2023
Qiddiya	\$8B+	Entertainment/sports hub; domestic spending retention	Social benefit quantification; leisure spend diversion metrics	On track; prioritised for 2034 FIFA World Cup
Diriyah Gate	\$20B+	Cultural heritage; luxury hospitality; cultural tourism	Cultural value monetisation; heritage stewardship accountability	Active; most conventionally structured delivery

Source: Compiled by the author from Vanderbilt (2026); Stahle (2025); Kingdom of Saudi Arabia (2016)



Source: Conceptual model developed by the author, based on Serra & Kunc (2015); Bronte-Stewart (2015); Mossalam & Arafa (2016)

Figure 1. Conceptual Evolution Iron Triangle to Value Realization Management



Source: Conceptual framework developed by the author, informed by Serra & Kunc (2015); Mossalam & Arafa (2016); Nyarirangwe & Babatunde (2019); Yuan et al. (2024)

Figure 2. Integrated Theoretical Framework VRM, Mega Project Effectiveness, and Vision 2030

Table 3. Research Gap Matrix

Literature Stream	State of Development	Key Gap	Future Research
VRM / BRM	Strong empirical base; Serra & Kunc (2015); Mossalam & Arafa (2016)	Limited mega project application	Apply VRM governance to mega projects
Mega Project Management	Strong on complexity, governance, performance; Nyarirangwe & Babatunde (2019); Yuan et al. (2024)	Weak long-term value and VRM integration	Integrate VRM accountability into mega project frameworks
Saudi Vision 2030	Emerging; policy analysis and grey literature; Vanderbilt (2026); Stahle (2025)	No academic VRM/BRM studies in Saudi context	Empirical VRM studies in Saudi/GCC mega projects
VRM × Mega Projects × Saudi Arabia	Virtually absent in peer-reviewed literature	Primary theoretical contribution of this study	Longitudinal empirical validation; context-specific frameworks

Source: Developed by the author based on systematic literature analysis

Table 4. VRM Implementation Across the Mega Project Lifecycle

Phase	Pre-Initiation	Planning	Execution	Closure	Post-Completion
VRM Activity	Benefit identification; strategic alignment check; business case value review	Benefit register; KPI definition; BRM strategy; stakeholder mapping	Benefit monitoring; outcome realignment; quarterly stakeholder reporting	Benefit closure report; transfer of accountability to BMO	Long-term KPI monitoring; periodic value audit; societal impact assessment
Accountability	Project Sponsor + PIF Portfolio Team	Project Manager + Benefit Owner	Project Manager + BMO	BMO + Program Director	BMO + Asset Management + Government

Source: Adapted from Mossalam & Arafa (2016); Serra & Kunc (2015)

defined; BRM3, Strategic objectives are clearly defined and relate to project outcomes; BRM4, Business case for a project is approved which provides a clear description of all outputs, outcomes and benefits; BRM5, Outputs and outcomes are reviewed and aligned frequently; BRM9, Post closure monitoring of outcomes is undertaken; and BRM11, Organization wide BRM strategy is in place. Jenner's model synthesized by Mossalam and Arafa (2016) introduces the dimensions of governance and value culture, while Testorelli et al. (2024) propose a five-component framework that includes: contextual factors, risk management processes, value creation, stakeholder perspectives, and multi-level analytical dimensions ranging from the individual to the societal level. Together, these frameworks have set VRM as an active, institutionalized discipline (not a passive outcome) that requires intentional design, buy-in, and cultural normalization.

Barriers to VRM Implementation: VRM is effective, but not widely adopted. Particular systemic barriers identified by Serra and Kunc (2015) are: organizational attention in execution to the output and outcome of the project, with focus on BRM reducing in rigor after the project closure; only 35% of organizations maintain an organization-wide BRM strategy. Moving to the next project at project closure, as is the norm with project managers, is a structural barrier, as Mossalam and Arafa (2016) point out, particularly when long-term benefit monitoring is most needed during project closure. To bridge this gap, intentional institutional design is needed: Benefits Management Offices (BMOs) that have specific post-completion responsibilities, governance protocols that endure beyond a project's closure and cultural normalization of value accountability. In the case of Saudi mega projects, where benefits can last for decades, these institutional needs are basic and not a peripheral issue. This is further reinforced by the study conducted by Alade et al. (2022) which examined the light rail transport project in Addis-Ababa, Ethiopia, in a longitudinal study finding that collaboration challenges and low level of benefit governance in pre-planning, development, and operations conditions have an immediate negative impact on the benefit realization outcomes of strategically intended infrastructure projects.

Theme 3: Mega Projects and Project Effectiveness

Definition and Characteristics: Mega projects are a uniquely distinct type of investment, with scale, complexity, governance and social impact that set them apart. Nyarirangwe and Babatunde (2019) attribute the use of the term to the Greek word 'megas' meaning great, large, and mighty and trace its use from a general description of large-scale investing to a scientifically valid one. According to the United States Federal Highway Administration (cited in Nyarirangwe & Babatunde, 2019) mega projects are defined as projects of significant cost that elicits high media attention because of its high level of

direct and indirect community, environmental and fiscal impacts. Mega project attributes that set them apart from other types of projects include: large physical size; billions of dollars in budget; long planning and implementation time horizon; high media and political visibility and scrutiny; multi-disciplinary international professional teams; complex activity interdependencies with cascading risk profiles; technically and managerially innovative approaches; diverse, often conflicting, stakeholder ecosystems; and complex contractual frameworks with multi-tiered procurement.

Mega Project Effectiveness vs. Project Success: A fundamental conceptual gap between project management success (Iron Triangle performance), project success (benefit delivery, stakeholder satisfaction at project handing over) and project effectiveness (whether a project can add value to the commissioning organizations, community and society in years and decades after the projects are completed). The theoretical correct evaluative criterion of the multi-decadal benefit period mega projects is the effectiveness of the project. The analytical review by He et al. (2022) of the performance measurement methods in 35 relevant megaproject studies confirms that the performance assessment in mega projects is still highly oriented towards the production phase, and is very limited in terms of time often only lasting through the construction phase, not the post-completion operational phase in which strategic value is realized or lost. This is supported by Nyarirangwe and Babatunde (2019) who state that from 2000 to 2011, 73% to 77% of mega projects have suffered cost and schedule deviations, 80% had cost overruns in the Channel Tunnel, 200% of the cost overruns in the New Denver International Airport and 870% in the Gautrain Rapid Rail Link. Their analysis, based on the Pareto principle, shows that more than 80% of mega project failure is due to human factors that is, to governance, leadership and the management of stakeholders casting doubt on the effectiveness of technically-focused, "Iron Triangle" based project management models for this type of project and its strategic importance. According to Yuan et al. (2024), a sustainable stakeholder engagement alongside adaptive scope management and value creation for communities in the long-term are key conditions for good mega project governance, and it is this that is referred to as 'mega infrastructure project affordance', as being 'actionable opportunities for value creation that are woven into the stakeholder relations of a mega project'. This view dovetails with VRM principles: Both methods call for the property of value orientation, adaptive governance, long-term accountability, and stakeholder integration as vital aspects of large-scale project management.

Theme 4: Mega Projects under Saudi Vision 2030

Strategic Architecture and Project Portfolio: The PIF's giga-project portfolio (Kingdom of Saudi Arabia, 2016) is how Vision 2030 is implemented through the three pillars of a

vibrant society, a thriving economy and an ambitious nation. Theoretically, this is a critical framing that has been central to the work of the team that created and developed the Vision of Saudi Arabia: the mega projects are economic diversification instruments, geared towards a new sector, new visitors, new housing, new jobs, and new dependence on Saudi oil revenue a framework that must be governed systematically and constitutionally if the Vision is to succeed (Vanderbilt 2026). Located in northwestern Saudi Arabia, NEOM covers an area of 26,500 km², including The Line (170 km long linear city), Oxagon (industrial port complex), Trojena (mountain resort) and Sindalah (luxury island resort). It is an unprecedented test of mega project governance capability with investments of over \$500 billion in phased development. The Red Sea Global Project is the most advanced flagship project, having launched its first resort hotels in 2023 and includes a 28,000 km² coastal and island environment for luxury sustainable tourism. It is located 45 km west of Riyadh, and is being built to become a world-class entertainment and sports hub that aims to keep local recreational spending within the Kingdom, aligning with the social pillar of Vision 2030. In Diriyah Gate, the city of the renowned historical site merges the efforts of UNESCO to preserve the historical heritage with the luxury hospitality sector, putting Saudi Arabia in the global map of cultural tourism.

Governance Challenges and Value Realization Risks: In spite of their strategic intent, Saudi mega projects show characteristics similar to those described in the literature on underperforming mega projects around the world. As Stahle (2025) reports, the resort has been under construction for three years and opened in 2024 at three times its original cost, and a statement from the internal audit team allegedly with backing from McKinsey & Company suggests that financial mismanagement had permeated NEOM's governance. In 2024, the PIF entered into billions of investments in giga-projects, focusing on revenue-generating projects such as mining and AI infrastructure. The construction workforce also went down by 35% from April 2025, while the committed investment only funds a 2.4km stretch of The Line's 170km vision. Where a project no longer offers economic value, it will be postponed without hesitation, as Saudi Finance Minister al-Jadaan publicly explained. This is an implicit official endorsement of the VRM logic, despite the lack of the institutional means to systematically apply it.

Theme 5: Theoretical Relationship Between VRM and Mega Project Effectiveness

Strategic Alignment: The most basic way in which VRM boosts the effectiveness of mega projects is strategic alignment the practice of keeping a clear, tracked relationship between project management activities, and the strategic results they deliver. Serra and Kunc (2015) show that BRM-mature organisations focus only on those projects that can provide the most relevant benefits, and develop governance structures that are based on strategic value instead of operational momentum. Mossalam and Arafa (2016) define how this would be achieved at the project level they suggest that integration of benefit management should be part of each PMI PMBOK process group, meaning that the creation of the benefit register and the definition of the key performance indicators, along with the review of the business case, should be part of the normal course of project work, at the project level becoming a continuous governance activity rather than a periodic review activity.

When applied to mega projects in the context of Vision 2030, it would turn national strategic goals targets for GDP diversification, employment creation and tourist arrivals into measurable project level benefits tracked over multi-decade lifecycles.

Governance Architecture and Stakeholder Integration: In the context of mega projects, Nyarirangwe and Babatunde (2019) cite governance failures, including complicated processes, role confusion, multiple, uncoordinated stakeholders, and complex contractual structures, as key factors in the underperformance of projects. VRM overcomes this by setting up institutional benefit accountability: The Benefits Management Office (BMO) as defined by Mossalam and Arafa (2016) is an institutional avenue to sustain value oversight between the project delivery and the operational management of the benefits. Building on this, Yuan et al. (2024) build on their approach of affordance and highlight that good mega project governance should provide environments that enable sustained stakeholder engagement and adaptive value management, both of which are key to the VRM frameworks. VRM driven governance architecture would significantly diminish this accountability gap that has been a concern in NEOM's financial journey, especially in the Saudi context, where mega project governance involves both sovereign and international private sector stakeholders and intricate supply chains.

Long-Term Benefit Tracking and Value Monitoring: The key theoretical value VRM made to mega project effectiveness is extending evaluation into the operational value realization. The authors of Serra and Kunc (2015) have set the record straight: Post-closure benefit monitoring (BRM9) is the most important yet most under implemented VRM practice, with only 58% of organizations implementing the practice. This governance deficit has strategic implications of a national scale for Vision 2030 mega projects with expected benefits, such as contributions to GDP diversification, tourism revenues and job creation, that are expected to be felt over decades. The financial write-downs and ministerial announcements highlighted in the Saudi portfolio as part of the fiscal crisis in 2024 prove that late identification of value delivery failures comes at a significantly higher cost than identification in a systematic way from the project's outset using structured VRM frameworks. This is supported by Testorelli et al. (2024) who build a framework of risk-to-value that establishes that a holistic management of value creation across the different analytical layers (contextual, stakeholder, multi-level) and different elements of the value chain (risks, value) is significantly beneficial to the likelihood of strategic benefit delivery.

Integrated Conceptual Framework: This study combines these theoretical fields, and suggests an integrated framework where five VRM governance dimensions (strategic alignment, governance architecture, benefit planning and measurement, stakeholder integration, long-term value monitoring) are aligned to five mega project effectiveness outcomes (strategic objective achievement, governance quality, benefit realization rate, stakeholder value creation, and sustained societal impact). The main idea of the framework is that the effectiveness of the mega project depends on the systematic implementation of VRM in a positive direction, mediated by governance quality, that is, the institutional arrangements, leadership commitment, and cultural orientations, which influence whether or not the VRM is applied rigorously or superficially. In the Saudi Vision 2030 setting, the quality of governance acts as a mediator

between VRM adoption and the achievement of national transformation results.

Theme 6: Research Gaps and Future Research Directions:

This review reveals three interrelated gaps in the research. Firstly, there are no integrated theories that make a direct connection between VRM and mega project governance; this is the greatest gap. Both VRM and project literatures are well developed independently, but not many published research studies have explored the conceptual overlap of these or how VRM could be adapted for the particular complexity and temporality of mega projects. Secondly, research specific to Saudi Arabia is almost non-existent. The mega project portfolio of Vision 2030 is an unprecedented natural experiment in national transformation driven by a state machine, and no study was found that specifically addresses VRM or benefit realisation in this context, and therefore there is a commensurate lack of research in this area that is indexed on Scopus. Third, methodological limitations in existing mega project research, which often focus on case studies and conceptual analysis rather than on empirical longitudinal tracking of benefit realization over the entire life cycle of a mega project, limit theoretical development. Future research should explore: (i) empirical research on VRM adoption and outcomes in the context of the mega project ecosystem in the Kingdom of Saudi Arabia, based on survey and interviews with practitioners; (ii) development and validation of context-specific VRM frameworks for mega project Programs in the Kingdom of Saudi Arabia led by the government of the Gulf Cooperation Council states; (iii) longitudinal case studies to track benefit realization trajectories for Vision 2030 flagship projects throughout their operational life cycles; and (iv) research into the use of digital analytics and AI tools to support real-time tracking of benefits in complex mega project settings.

CONCLUSION

This study has undertaken a detailed critical literature review on the theoretical relationship between Value Realization Management and mega project effectiveness in the strategic context of Saudi Vision 2030, and found that the governance gap which affects legacy projects today is that projects of extraordinary strategic ambition are often authorized based on transformative benefit promises economic diversification, employment creation, tourism growth, societal transformation but evaluated using the Iron Triangle framework, which, as Locatelli et al. (2023) and Ika and Pinto (2022) have shown, fails to capture whether the benefit promises are realized, particularly from the external stakeholder viewpoint, community and environment, for whom the medium- and long-term benefits are more important than efficiency of delivery. The empirical record is clear Serra and Kunc (2015) found that 80% of organizations with mature VRM processes achieve strategic goals, but only 58% monitor outcomes after closure, and only 35% have an organization-wide VRM strategy; The fiscal adjustments of Saudi Arabia's mega project portfolio in 2024-2025 such as write-downs, project deferrals and the confirmation that projects would be cancelled for lack of value by the Finance Minister in the state budget demonstrate this clearly proactively managed VRM processes and frameworks embedded from inception are far less expensive than reactive

crisis management (Stahle, 2025). The study's contribution to the governance challenge is both theoretical and practical, as it introduces a benefits management governance framework which is grounded in theory but can be applied practically in the field; by systematically embedding the benefit identification, planning, monitoring and accountability processes across the pre-initiation to post-completion phases of mega project operations, VRM creates governance structures capable of sustaining the critical link between these project activities and the national strategic outcomes of Saudi Arabia's Vision 2030 Program across multi-decade benefit horizons a contribution that this study formalizes through a detailed mapping of the interwoven relationship between five governance dimensions and five mega project effectiveness outcomes mediated by governance quality, and documented through three links to existing research: the synthesis of fragmented literature streams from the VRM and mega project fields; the identification of governance quality as the critical mediating variable; and the documentation of a significant research gap in the intersection of VRM, mega project effectiveness and the Vision 2030 Program in the GCC research that is warranted and urgently needed and which will be pursued through empirical research, including practitioner surveys, long term case studies on flagship projects, and the development of context-specific GCC VRM frameworks..

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