

Local Content and Supplier Qualification Strategies for Road and Bridge Infrastructure under Saudi Vision 2030

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Abstract: Road and bridge infrastructure occupies a strategic position in Saudi Arabia's Vision 2030 because it links industrial zones, ports, pilgrimage corridors, logistics platforms, urban expansion and regional development. The policy question is no longer whether public infrastructure should be delivered quickly, but how delivery can build national capability without weakening safety, durability, competition or value for money. This review examines local content and supplier qualification strategies for Saudi road and bridge projects, with emphasis on how procurement rules, contractor classification, material sourcing, technical assurance and supplier development can be aligned. A structured narrative review was conducted using scholarly and institutional sources from 2020 to 2025. The analysis synthesizes evidence on local content policy, construction procurement, public project performance, digital procurement, contractor prequalification, quality systems, sustainability and transport-sector modernization. The paper proposes an integrated framework in which local content is treated as a performance dimension across planning, design, tendering, award, delivery and closeout, rather than as a late scoring preference. The findings show that effective localization depends on credible demand aggregation, transparent qualification gates, evidence-based supplier segmentation, enforceable contract metrics and targeted capability upgrading for Saudi firms. The review also warns that poorly designed localization may create cost inflation, schedule risk or nominal compliance. A publishable agenda is therefore advanced for road agencies, clients, consultants and contractors: local content must be linked to technical competence, certified production capacity, workforce development, maintenance performance and auditable data. The study contributes a practical and research-informed model for improving infrastructure delivery while expanding domestic value creation.

Keywords: Local Content, Supplier Qualification, Road Infrastructure, Bridge Projects, Saudi Arabia, Vision 2030, Public Procurement, Contractor Prequalification, Infrastructure Governance.

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1. INTRODUCTION

Saudi Arabia is pursuing one of the world's most ambitious infrastructure transformations, and roads and bridges form the connective layer of that transformation. National transport policy links

infrastructure to logistics competitiveness, regional development, tourism, industrial growth and quality of life [1, 2]. Within this context, local content has become a strategic procurement objective rather than a peripheral industrial slogan. For road and

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bridge programmes, local content includes Saudi-made materials, locally delivered engineering and construction services, national workforce participation, domestic equipment maintenance, digital capability, and the retention of value inside the Kingdom's construction supply chain [3-7]. Yet local content cannot be pursued by percentage targets alone. It must be embedded in supplier qualification systems that protect safety, structural integrity, lifecycle durability and fair competition.

Roads and bridges are high-consequence assets. Failures in pavement quality, bridge bearings, expansion joints, drainage, geotechnical works, concrete production, steel fabrication, traffic control or maintenance may impose long-term economic and safety losses. Therefore, supplier qualification for these projects must evaluate capability before award and verify performance after award. Saudi construction research has repeatedly shown that lowest-price practices, fragmented subcontracting and uneven technical capability can weaken project outcomes if prequalification is superficial [8-12]. At the same time, national platforms and agencies are moving toward digital procurement, contractor classification and performance monitoring, creating an opportunity to integrate localization with evidence-based supplier governance [4-13].

The central argument of this review is that local content and supplier qualification should be treated as mutually reinforcing systems. Local content identifies the national value that infrastructure spending should generate; supplier qualification determines whether firms can deliver that value safely, reliably and competitively. If the two systems are separated, local content may become a compliance label and qualification may remain a narrow financial or historical filter. If they are integrated, procurement can encourage Saudi manufacturers, contractors, consultancies and service providers to invest in certified capacity, workforce skills, quality systems and innovation. This integrated approach is especially important for road and bridge packages, where local quarries, asphalt plants, precast yards, rebar suppliers, steel fabricators, traffic-safety producers, survey firms and maintenance contractors all influence final performance.

The aim of this paper is to develop a review-based model for aligning local content with supplier qualification in Saudi road and bridge infrastructure under Vision 2030. The study has five objectives. First, it clarifies the meaning of local content for road and bridge projects. Second, it evaluates the supplier qualification dimensions required for technically reliable delivery. Third, it synthesizes recent Saudi and international literature on procurement,

construction capability and public project governance. Fourth, it proposes a lifecycle framework connecting policy intent to tender design, award decisions and contract monitoring. Fifth, it identifies risks, implementation requirements and research gaps for agencies and project owners. The paper is written as a review article, not as a case study, and its contribution is conceptual, methodological and managerial.

2. METHODOLOGY

A structured narrative review methodology was selected because the topic combines public policy, construction management, procurement law, supplier development and infrastructure governance. A narrow evidence-mapping approach would not capture the institutional links among local content policy, road-sector strategy and contractor qualification. The review focused on publications and institutional documents issued between 2020 and 2025. Sources were identified from academic databases, government portals, professional bodies and credible development institutions. Search terms combined "Saudi Arabia", "local content", "government procurement", "contractor prequalification", "supplier qualification", "road infrastructure", "bridge projects", "construction performance", "Vision 2030", "digital procurement", "BIM", "sustainable procurement" and "supply chain resilience".

Inclusion criteria were defined as follows: sources had to be published in English or available through official English summaries; they had to address Saudi infrastructure policy, construction procurement, contractor selection, public project performance, digital procurement, sustainability, or supplier capability; and they had to contain arguments or evidence relevant to road and bridge delivery. Institutional sources were included when they described mandatory policy instruments, public strategies or procurement platforms. Academic studies were included when they offered empirical or conceptual insight into contractor selection, construction digitalization, project performance, procurement systems, or supply chain capability. Sources outside 2020-2025 were excluded from the reference list, except where their concepts were treated as background and not cited.

The review process involved four analytical stages. The first stage extracted policy drivers, including Vision 2030, transport-sector strategy, local content mechanisms and contractor classification. The second stage coded supplier qualification criteria into technical, financial, governance, quality, safety, sustainability, workforce and local-content categories. The third stage compared these criteria with road and bridge asset

requirements, including material conformity, engineering assurance, construction methods, testing, inspection and maintenance readiness. The fourth stage synthesized the findings into a framework and maturity grid. The quality of evidence was judged by relevance, institutional authority, transparency of method, and transferability to Saudi road and bridge programmes.

This method is appropriate for a review paper because the evidence base is distributed across regulations, professional guidance and empirical

studies rather than concentrated in a single dataset. It also reflects the attached paper's useful lesson that Saudi infrastructure claims should distinguish policy ambition from observable implementation and should use explicit indicators instead of generic transformation language. In the present review, this logic is adapted to local content: the key question is not only whether suppliers are Saudi or locally registered, but whether procurement can verify domestic value, capability depth, project performance and long-term competitiveness.

Table 1: Review protocol and methodological design

Component	Review decision	Rationale	Output for synthesis
Time window	2020-2025	Matches the required evidence horizon and captures current Saudi reforms.	Recent policy, procurement and construction-management evidence.
Source types	Peer-reviewed studies, official Saudi sources and development guidance	The topic combines policy, infrastructure and supplier capability.	Balanced evidence base for a review paper.
Search logic	Local content, supplier qualification, road and bridge infrastructure, Vision 2030, contractor selection and digital procurement	Captures direct and adjacent evidence rather than a narrow keyword set.	Conceptual categories and implementation criteria.
Analytical lens	Lifecycle procurement and capability development	Local content is created through design, tendering, delivery and maintenance.	Integrated framework and maturity grid.
Quality judgement	Relevance, authority, transparency and transferability	Not all useful evidence is journal-based; official policy is necessary.	Evidence-informed but practice-oriented synthesis.

3. Conceptual Foundations

Local content is often described as the proportion of goods, services, labour and knowledge produced or retained within a national economy. In Saudi Arabia, the concept is tied to economic diversification, private-sector growth, employment, manufacturing depth and procurement reform [1-6]. In road and bridge projects, however, local content should be interpreted more precisely. It includes domestic material inputs such as aggregates, asphalt, concrete, cement, reinforcement, precast elements, lighting, signage, drainage components and safety barriers. It also includes local professional services, testing laboratories, equipment maintenance, site supervision, logistics, specialist subcontracting and asset management. A robust local content system should distinguish between simple local purchasing and deeper capability creation.

Supplier qualification is the structured process by which a client evaluates whether a firm is competent to perform a defined scope. In Saudi construction, contractor prequalification research indicates that price-based selection can be insufficient where projects are complex and risk intensive [8]. For roads and bridges, qualification

should test technical experience, equipment availability, staffing, financial stability, quality management, health and safety performance, environmental control, material testing capability, digital reporting, and past delivery results. Contractor classification services already provide a basis for evaluating establishments by capability, workforce and specialization, but project owners still need package-specific criteria for bridges, pavements, interchanges, tunnels, drainage, traffic systems and maintenance [7].

The relationship between local content and qualification is sometimes misunderstood. Local content does not justify lowering technical standards, and qualification does not justify excluding capable local firms through unnecessarily restrictive requirements. The appropriate balance is developmental but disciplined: qualification criteria should protect asset quality while procurement design should create realistic pathways for local suppliers to participate. Such pathways may include package unbundling, approved vendor lists, joint ventures, framework agreements, supplier development plans, milestone-based localization, and technical mentoring by tier-one contractors.

These mechanisms align with broader public investment policies that encourage local capability across design, specifications, procurement, contract management and monitoring [6].

Road and bridge assets also differ from building projects in ways that matter for supplier qualification. Their performance is exposed to heavy traffic, high temperatures, flooding events, soil variability, corrosion risk, and long maintenance periods. Asphalt suppliers must demonstrate mix design control and plant calibration. Concrete producers must demonstrate batching consistency, durability testing and curing control. Bridge fabricators must meet welding, coating and inspection requirements. Traffic safety suppliers must comply with standards for reflectivity, crashworthiness and durability. Therefore, local content strategies should not be limited to counting national expenditure; they should strengthen the domestic ecosystem able to meet these technical requirements repeatedly.

Vision 2030 creates a policy environment in which transport infrastructure is expected to enable economic diversification rather than merely respond to traffic growth [1, 2]. This changes the procurement challenge. Roads and bridges should be planned as industrial policy instruments as well as engineering assets. If procurement forecasts demand for materials and services over multiple years, local firms can justify investment in plants, laboratories, training and digital systems. Conversely, if demand is fragmented into short-term packages with uncertain standards, local suppliers may remain dependent on imported inputs or temporary subcontracting. The review therefore treats demand visibility and supplier confidence as essential elements of qualification strategy.

4. Local Content in Saudi Road and Bridge Infrastructure

The Saudi road sector has moved toward clearer governance through road-sector strategy, engineering codes and institutional coordination. Transport policy emphasizes logistics hub status, urban livability, fiscal sustainability and public entity performance [2]. These priorities matter for local content because road and bridge spending is not only a construction expenditure; it is a demand signal to industries such as cement, steel, asphalt, precast products, geosynthetics, signage, lighting, intelligent transport systems and maintenance services. When these industries are qualified and monitored well, infrastructure projects can increase domestic value while improving delivery reliability.

Local content requirements are strongest when they are introduced early in project planning.

During design, clients can review whether specifications unintentionally exclude available local products or require imported systems without lifecycle justification. During packaging, clients can identify scopes suitable for Saudi SMEs, regional contractors or specialist manufacturers. During tendering, they can use weighted evaluation criteria that recognize verified local inputs without ignoring technical quality or cost. During contract management, they can monitor actual local content against the tender commitment. PIF's policy direction illustrates this lifecycle logic by referring to local content in design, procurement, contract management and monitoring [6].

For road and bridge projects, the most practical localization opportunities occur in materials, construction services, maintenance, quality testing and digital reporting. Aggregates, asphalt, ready-mix concrete and earthworks are naturally local due to transport cost and weight. More strategic opportunities include precast bridge components, bearings, expansion joints, road safety systems, traffic control cabinets, sensors, maintenance management software and specialist inspection services. These categories require stronger qualification because failures have direct safety implications. The mandatory list of national products and government procurement mechanisms can support local firms where supply exists, but asset owners must still verify conformity, production capacity and traceability [3, 4].

The review also identifies three tensions. The first is the tension between localization and competition. If criteria are too narrow, public clients may reduce competition and increase prices. If criteria are too weak, suppliers may claim local content without investing in capability. The second tension is between short-term delivery speed and long-term supplier development. Major road programmes often need fast mobilization, while local capability building takes time. The third tension is between formal compliance and real value creation. A supplier may meet a registration requirement but lack robust quality systems, laboratory control or post-completion support. These tensions require qualification systems that are both developmental and evidence-driven.

Saudi construction studies add an important warning: project success depends on managerial capability, coordination, project management competence and reliable contractor performance [11-14]. Local content strategies will not improve infrastructure outcomes unless they are linked to these project-delivery factors. A Saudi supplier that invests in technical staff, scheduling systems, inspection capacity, risk management and training

should receive stronger qualification recognition than a supplier with only nominal local registration. Therefore, local content should be evaluated by depth of contribution: local ownership, local labour, local materials, local intellectual property, local maintenance capability, and local improvement over repeated projects.

5. Supplier Qualification Strategy

An effective supplier qualification strategy for road and bridge infrastructure should start with segmentation. Not all suppliers carry the same risk or development potential. Commodity suppliers provide standard inputs, strategic suppliers provide high-risk or scarce capability, and developmental suppliers may be local SMEs with potential but limited project history. Each segment requires different controls. Commodity suppliers need price, capacity and conformity checks. Strategic suppliers need technical audits, factory visits, method statements and contingency plans. Developmental suppliers need mentoring, phased scopes and performance feedback. Segmentation prevents one-size-fits-all qualification and allows localization to proceed without compromising asset quality.

The second element is a multi-gate qualification model. The first gate should confirm legal registration, classification, financial standing and absence of major compliance failures. The second gate should test technical suitability for the specific road or bridge scope. The third gate should evaluate management systems: quality assurance, safety, environmental control, information management and subcontractor governance. The fourth gate should examine local content contribution, including Saudi workforce plans, domestic material sourcing, local subcontracting, training, technology transfer and aftercare capability. The final gate should assess past performance and learning, using delivery data, non-conformance closure, claims history, safety statistics and maintenance defects.

The third element is evidence. Supplier statements should not be accepted without supporting data. Materials suppliers should provide

product certificates, test histories, calibration records and production capacity. Contractors should provide project completion records, equipment lists, staff qualifications, safety statistics, audited accounts and digital reporting procedures. Consultants should show relevant design review, supervision and asset management experience. For bridge specialists, evidence should include welding certification, coating inspection, temporary works competence and installation procedures. For pavement suppliers, evidence should include mix design approval, rutting resistance, density control and plant performance. Evidence protects both the client and serious local firms from unfair competition by nominal suppliers.

The fourth element is alignment with digital procurement. Saudi eProcurement and digital project-management systems can reduce opacity and improve the auditability of local content [13]. However, digital tools are useful only when they collect the right data. Tender platforms should capture local-content commitments in standardized fields, while contract platforms should track actual purchase orders, Saudi labour hours, subcontract awards, material certificates and performance milestones. This allows clients to compare promised and delivered local content. It also supports supplier requalification by creating a performance memory across projects.

The fifth element is supplier development. Qualification should not be only a pass-fail barrier. For many road and bridge categories, the market may need structured upgrading. Clients can use framework agreements with improvement milestones, require tier-one contractors to mentor local subcontractors, establish approved supplier academies, and reserve suitable packages for qualified SMEs. Training should be connected to real scopes, such as asphalt quality control, bridge inspection, traffic management installation, digital site reporting and maintenance planning. Project management education research in Saudi Arabia reinforces the need for professional capability development to meet the scale of national projects [12].

Table 2: Integrated supplier qualification criteria for Saudi road and bridge programmes

Criterion group	Road/bridge evidence required	Local content link	Main risk if weak	Recommended control
Technical capability	Relevant scope history, plant, methods and certified people	Builds Saudi specialist delivery capacity	Defects or unsafe methods	Scope-specific audit
Material conformity	Certificates, test records, traceability and laboratory control	Creates demand for compliant domestic materials	Premature deterioration	Independent testing
Quality and HSE	Inspection plans, safety records and corrective actions	Rewards disciplined local suppliers	Accidents and rework	Thresholds and remedies

Criterion group	Road/bridge evidence required	Local content link	Main risk if weak	Recommended control
Financial capacity	Audited accounts, bonding, cash-flow plan and insurance	Protects SMEs from overextension	Insolvency and claims	Package sizing
Workforce and training	Saudi labour plan, mentoring and certifications	Converts spending into national skills	Short-term labour substitution	Training KPIs
Digital and sustainability	Structured records, eProcurement data, waste and lifecycle evidence	Makes local content auditable and responsible	Unverified claims	Data fields and green criteria

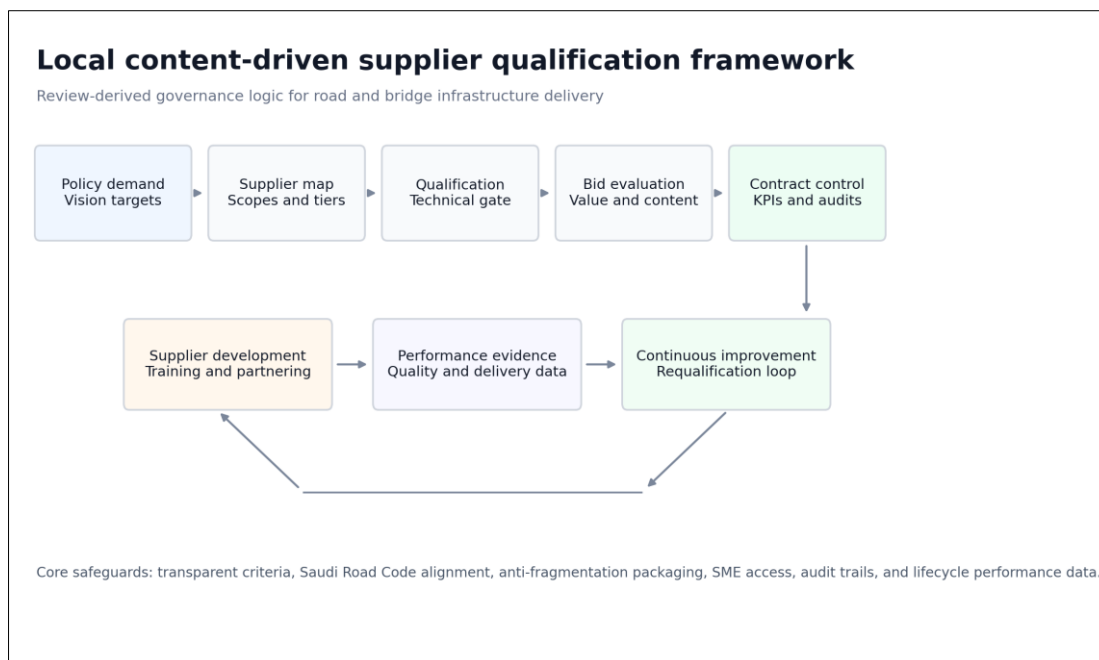


Figure 1: Local content-driven supplier qualification framework

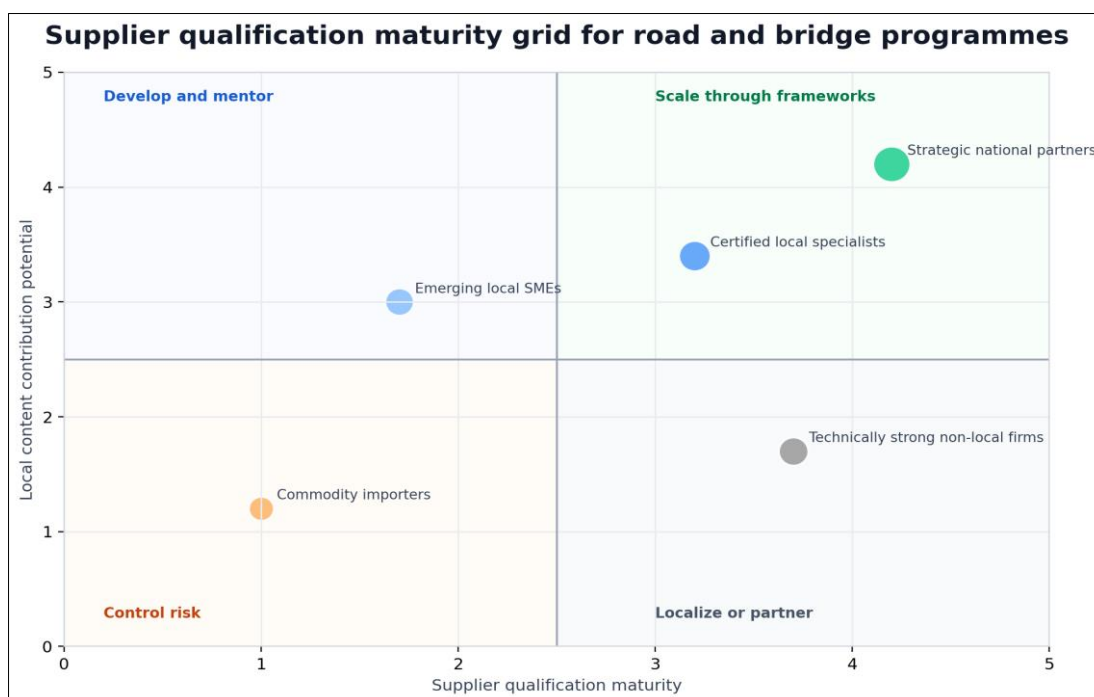


Figure 2: Supplier qualification maturity grid for road and bridge programmes

6. Integrated Framework and Maturity Logic

Figure 1 translates the review into a lifecycle framework. The framework starts with policy demand because local content must be anchored in Vision 2030 and transport-sector goals. It then moves to supplier mapping, which identifies where domestic suppliers exist and where capability gaps remain. The qualification gate tests whether suppliers can meet technical, financial, quality and safety requirements. Bid evaluation then combines technical merit, price and verified local content. Contract control closes the loop by monitoring commitments, collecting evidence and feeding results into requalification. This structure treats local content as a governance cycle rather than a tender appendix.

Figure 2 complements the framework by segmenting suppliers according to qualification maturity and local content contribution potential. The lower-left quadrant contains suppliers with low maturity and low local contribution; these should be controlled through limited scopes, strict supervision or market exit. The upper-left quadrant contains emerging local SMEs with high contribution potential but limited maturity; these require development, mentoring and staged responsibility. The lower-right quadrant contains technically strong non-local firms with low domestic value; these should be encouraged to localize, partner or transfer knowledge. The upper-right quadrant contains strategic national partners; these can support framework contracts, innovation pilots and long-term maintenance.

The maturity logic is particularly useful for road and bridge infrastructure because many scopes are repetitive across regions. A supplier that demonstrates reliable performance in one package can be moved gradually toward larger or more complex scopes. Conversely, a supplier that fails to close non-conformities should not be rewarded simply because it claims local content. A maturity model therefore encourages learning and discipline. It also provides a defensible basis for procurement decisions, reducing the risk of arbitrary preference.

An integrated framework should also include lifecycle performance indicators. During procurement, indicators may include local content percentage, Saudi workforce share, number of qualified local suppliers, local material value, and SME participation. During delivery, indicators should include defect rates, on-time delivery, safety performance, non-conformance closure, testing compliance and approved substitution requests. During operation, indicators should include pavement deterioration, bridge maintenance defects, response times and warranty performance. These

indicators ensure that local content is not separated from asset performance.

The framework is consistent with the wider movement toward evidence-based public infrastructure governance. International procurement guidance increasingly emphasizes value for money, sustainability, transparency and performance-based contracting [20-24]. For Saudi Arabia, the added dimension is national capability creation. This does not mean replacing global expertise; it means using global and local participation to strengthen domestic capacity. For bridge engineering, international firms may still be essential for complex design and specialist technology, but contracts can require Saudi design-office participation, local inspection training, and domestic maintenance capability.

7. DISCUSSION

The review suggests that the success of local content in road and bridge infrastructure depends on institutional consistency. If local content is measured differently by every client, suppliers face uncertainty and compliance costs. If qualification requirements change unpredictably, local firms cannot plan investment. If performance data are not shared across agencies, poor suppliers may move between projects without accountability. A national supplier qualification logic, aligned with road-sector standards and digital procurement, would improve consistency while allowing project-specific adaptation.

A second discussion point concerns the role of lead contractors. In large infrastructure projects, tier-one contractors often control subcontracting, material purchasing and site methods. Local content commitments made at the bidding stage may therefore depend on how lead contractors manage their supply chains. Contracts should require supply-chain plans, named critical suppliers, minimum local development actions and reporting obligations. Tier-one firms should be evaluated not only on direct execution but also on how they qualify, develop and monitor local subcontractors. This approach transforms local content from a compliance burden into a supply-chain management competence.

A third point concerns SMEs. Vision 2030 emphasizes private-sector growth, but infrastructure procurement can unintentionally favour large firms because of bonding, insurance, experience and equipment requirements [1]. Some requirements are necessary for safety, but others can be adjusted through packaging and risk allocation. Small road maintenance contracts, drainage works, traffic signage, material testing, surveying, landscaping, digital inspection and minor bridge repairs may

create entry points for qualified SMEs. However, SME participation should be linked to capability building, not merely reserved quotas. The objective is to grow reliable local firms that can compete over time.

A fourth point is sustainability. Road and bridge projects consume large quantities of materials and energy. Local content can reduce transport emissions where domestic supply is technically compliant, but localization alone is not the same as sustainability. Supplier qualification should therefore include environmental management, waste reduction, recycled asphalt capability, low-carbon concrete options, efficient logistics and responsible quarrying. Green supply chain studies in Saudi Arabia indicate that sustainability is becoming more relevant to firm performance and reputation [17, 18]. Infrastructure clients can translate this trend into qualification criteria that reward measurable environmental practices.

A fifth point is digital transformation. BIM, eProcurement and data sharing can improve coordination, transparency and supplier performance, but digital maturity remains uneven [13-15]. Road and bridge clients should not impose complex digital requirements without supplier support. Instead, digital qualification can progress in levels: basic electronic documentation, structured quality records, geotagged inspection, model-based quantities, digital material traceability and predictive maintenance data. This staged approach prevents digital exclusion while moving the market toward modern infrastructure delivery.

8. Implications for Practice

For public clients, the most immediate implication is to define local content early. Feasibility studies and design briefs should identify which materials, services and skills can be sourced locally without lowering standards. Tender documents should state how local content will be evaluated, how evidence will be verified, and what penalties or remedies apply if commitments are not delivered. Clients should also maintain approved supplier databases that record technical scope, performance history and local content outcomes.

For consultants, the implication is to avoid specification practices that unintentionally import unnecessary products. Designers should specify performance requirements rather than brand-specific solutions where possible, while still protecting safety and durability. They should also identify local alternatives, assess compliance evidence and support value engineering that increases domestic participation. In bridges, this may include modular precast elements, locally fabricated accessories and domestic inspection services where

certified capability exists. In roads, it may include asphalt mix optimization, local aggregates, traffic safety devices and maintenance service providers.

For contractors, the implication is to treat local content as a strategic capability. Contractors that build strong local supplier networks, train Saudi staff, invest in quality systems and document performance will be better positioned for future programmes. They should map their supply chains, classify suppliers by risk, establish corrective-action procedures and develop local subcontractors. Contractors should also use digital tools to track purchase orders, certificates and labour data so that local content reporting is accurate and auditable.

For suppliers and manufacturers, the implication is that qualification must be evidence rich. Local firms should prepare technical files, product approvals, production capacity evidence, quality certificates, laboratory records, financial statements and project references. They should also invest in workforce certification and after-sales support. The market will increasingly reward firms that can prove performance, not only firms that can quote low prices.

For policymakers, the implication is to integrate local content with competition and project performance. A balanced policy should encourage domestic capability, avoid artificial scarcity, and maintain transparency. Mandatory lists and preference mechanisms should be reviewed against market capacity, price behaviour and project outcomes. Where local capability is insufficient, procurement should include localization roadmaps rather than unrealistic immediate requirements.

9. Limitations and Future Research

This review has limitations. It synthesizes available literature and institutional sources rather than collecting new field data from road agencies, contractors or suppliers. Some local content mechanisms are also evolving, and public reporting may not reveal detailed procurement outcomes. The paper therefore proposes a framework and agenda rather than measuring the exact local content performance of Saudi road and bridge projects. Future research should test the framework through case studies of highways, bridges, interchanges and maintenance contracts. Interviews with clients, contractors, consultants, manufacturers and SMEs would improve understanding of implementation barriers.

Quantitative research is also needed. Researchers could model the relationship between supplier qualification scores and project outcomes such as schedule adherence, defects, safety

performance and lifecycle cost. Another promising direction is the development of a local content maturity index for infrastructure suppliers. Such an index could measure domestic value creation, technical capability, workforce development, digital maturity, sustainability and innovation. A third direction is comparative research across Gulf infrastructure programmes, identifying which procurement mechanisms generate the strongest supplier development without harming competition.

Further research should also examine how qualification evidence is transferred between project phases. A supplier may perform well during construction yet create hidden maintenance liabilities if handover records, material traceability or warranty response are weak. Longitudinal datasets linking tender commitments, site inspections, defect records and maintenance costs would allow researchers to test whether local content improves asset performance over time. Such evidence would be especially valuable for bridges, where bearings, joints, coatings and drainage details influence lifecycle risk. It would also support benchmarking across regions and clients, helping policymakers distinguish between suppliers that merely satisfy administrative requirements and suppliers that generate durable local capability through repeatable quality, safety, innovation and delivery discipline nationally at scale within demanding Saudi road and bridge programmes.

10. CONCLUSION

Local content and supplier qualification are central to the next phase of Saudi road and bridge infrastructure delivery. Vision 2030 creates a policy rationale for using infrastructure investment to build domestic industrial and professional capability, while road-sector modernization creates the technical need for safe, durable and efficient assets. The review demonstrates that these goals can be reconciled only when local content is integrated with rigorous qualification, transparent evidence and lifecycle performance monitoring.

The proposed framework shows that localization must begin in planning and design, continue through supplier mapping and tender evaluation, and be enforced through contract controls and requalification. The maturity grid further shows that suppliers require differentiated strategies: some need risk control, some need development, some need localization partnerships, and some can become strategic national partners. The practical message is clear. Local content should not be reduced to a percentage in a bid; it should be a disciplined system for creating domestic value through capable suppliers.

For Saudi road and bridge projects, the strongest strategy is one that combines national policy, technical assurance, digital procurement and supplier development. Such a strategy can expand Saudi participation, improve supply-chain resilience, support SMEs, strengthen maintenance capability and protect asset quality. If implemented consistently, it will help transform infrastructure spending into long-term national capability while preserving the engineering standards required for safe and reliable mobility.

Implementation should begin with a small number of high value pilots rather than a single national mandate applied uniformly across every package. A bridge maintenance pilot, an asphalt supply pilot and a traffic safety equipment pilot would allow agencies to test evidence rules, supplier development actions and contract reporting before wider adoption. Each pilot should define a baseline, a local content target, a qualification threshold, a delivery metric and a maintenance metric. Results should then be reviewed jointly by clients, consultants, contractors and suppliers. This staged approach reduces the risk of policy overreach while creating practical learning. It also gives capable Saudi firms clearer signals about future demand, enabling investment in laboratories, fabrication lines, skilled labour and digital systems. Over time, the same evidence base can support framework agreements, approved product families and performance-based requalification. The outcome would be a procurement culture in which localization, technical assurance and lifecycle stewardship are judged together, not treated as separate administrative tasks. This is particularly relevant where road assets reliably connect logistics corridors, ports, industrial zones and rapidly expanding urban communities nationally under Vision 2030.

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