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Artificial Intelligence and Business Intelligence Governance for Strategic Decision Excellence in Saudi Arabia

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Abstract- ***This article investigates how AI governance and BI governance can be combined to optimize strategic decision-making in Saudi Arabia. Although Saudi Vision 2030, the National Strategy for Data and AI, and the digital government transformation initiative have catalyzed the shift towards more data-driven practices, numerous challenges persist with respect to the integration of data governance, analytics maturity, model transparency, decision responsibility, and decision rights. As such, the key research question explored is how AI governance and BI governance could be designed to ensure accuracy, reliability, transparency, and actionability of insights produced for strategic decision-making purposes in both public and private institutions. An extensive literature review approach was taken, drawing from academic literature as well as from government policies published from 2020 to 2025. Articles relevant to the topic were identified based on their focus on AI and BI governance, decision-making quality improvement, digital government transformation in Saudi Arabia, sector-specific adoption practices, and responsible AI. Results demonstrate that strategic decision excellence requires the presence of six mutually reinforcing governance pillars – policy alignment, data quality stewardship, model and dashboard governance, human involvement, compliance with regulations and ethics, and enterprise-wide capabilities development. Furthermore, it is demonstrated that while BI provides necessary descriptive and diagnostic visibility into operations, the added value provided by AI consists in predictive, automated, optimized, and scenario-based decision support, and it can only be achieved when AI decisions rest upon BI-grade data control and proper decision responsibility defined at executive forums. This review provides an integration framework for AI governance and BI governance and recommendations for its adoption in healthcare, government agencies, financial institutions, and industries in Saudi Arabia.***

Keywords: Artificial Intelligence Governance, Business Intelligence Governance, Strategic Decision-Making, Saudi Arabia, Data Governance, Vision 2030

I. INTRODUCTION

Saudi Arabia's digital transformation efforts have progressed from infrastructure enhancement to institutional overhaul, with data and AI presented as key facilitators of economic diversification, innovation, and policy effectiveness according to Vision 2030 (SDAIA, 2020; Memish et al., 2021). The establishment of the Saudi Data and Artificial Intelligence Authority became a key step toward creating a national platform for data management, AI development, and regulation, along with the National Strategy for Data and AI presenting Saudi Arabia's phased vision of addressing its challenges, gaining competitive advantage, and positioning itself among global leaders of data-based economies (SDAIA, 2020; Memish et al., 2021). Parallel to that, the establishment of the National Data Management Office introduced data governance requirements for public bodies, and the Personal Data Protection Law, the Principles for Ethical Use of Artificial Intelligence, as well as relevant digital government guidelines increased regulatory expectations regarding the use, management, protection, and responsibility for data and AI (NDMO, 2020; SDAIA, 2023a; SDAIA, 2023b; DGA, 2024).

With these initiatives, the question of governance has become a board-level issue rather than a technical problem. In today's world, more and more strategic decisions within ministries, hospitals, banks, utilities, industrial companies, universities, and logistics firms rest on dashboards, predictive analytics, optimization algorithms, and automation of decision processes. However, the success of these processes relies not only on sophisticated algorithms but also on the reliability of the data pipeline, proper design of business rules, explainable models, legal grounds for data processing, and escalation mechanisms in case

of dispute about decision results. Whereas business intelligence provides a descriptive/diagnostic level allowing understanding what has happened and why, AI introduces a prospective/adaptive level allowing estimating probabilities, detecting patterns on a massive scale, providing recommendations for action, and even automated decision-making in some cases (Alowais et al., 2023; Al Kuwaiti et al., 2023). When each of these levels is governed independently, organizations create a situation of conflicting responsibilities, redundant control systems, fragmented data governance, and inconsistent narrative at the executive level.

It is especially true for the Saudi context, which is unique due to the combination of rapid digital innovation and accelerated process of governance formalization in the country. As indicated by UNESCO's readiness assessment, Saudi Arabia has achieved considerable progress in the areas of strategy, infrastructure, and leadership, but continues to face numerous challenges in governance, ethics assurance, and implementation (UNESCO, 2024). Further sector studies in healthcare highlight the typical pattern seen in different industries: despite the significant interest in adoption, users remain concerned about data quality, transparency, professional readiness, privacy, bias, and the ethical aspects of decision-making supported by machines (Alkhatieb et al., 2024; Syed et al., 2024; Alsaedi et al., 2024). A similar pattern is observed in enterprise analytics, as organizations try to benefit from rapid and granular insights obtained through advanced AI technologies while relying on BI architecture, ERP integration, data stewards, and controls to make sure these insights are reliable enough to support strategic decision-making (Qaffas et al., 2021; Jaradat et al., 2025; Olszak et al., 2025).

At the same time, AI and BI governance tend to remain separate issues both in academia and in practice. Whereas AI governance literature usually focuses on explainability, ethics, fairness, and model accountability, BI governance studies mostly deal with data quality, architecture, ownership, consistent reporting, and decision support. In practice, however, strategic leaders do not face these problems as separate. They need an integrated approach to data sourcing, intelligent processing, interpretation, and decision-making. Poor-quality data summarized by a dashboard may result in improper capital allocation just like an unexplainable machine learning algorithm may lead to wrong classification of risk. A good example of such a mismatch is a compliant but inefficient process of governance, which may negatively affect the strategic value of analytics because decision-support needs can arise faster than approvals can be obtained.

This paper tries to fill in the gaps left by previous research in the field of AI/BI governance and Saudi digital transformation by analyzing contemporary literature on the subject for the period from 2020 to 2025. The main purpose of the paper is to analyze the theoretical and practical connection between business intelligence and artificial intelligence governance and interpret the Saudi institutional environment in terms of promoting responsible analytics practices at large-scale. More specifically, the study will attempt to achieve the following purposes: (a) explain the relationship between AI governance and BI governance as two components of one decision system; (b) determine the governance factors facilitating strategic decision excellence; (c) interpret the current state of the Saudi institutional/governance landscape in terms of promoting responsible analytics; (d) offer an analytical framework for moving from isolated analytics oversight to comprehensive decision governance in Saudi enterprises.

II. LITERATURE REVIEW

Recent literature indicates that Business Intelligence (BI) and Artificial Intelligence (AI) play distinct yet complementary roles in organizational intelligence. BI systems traditionally facilitate descriptive, diagnostic, and performance-related decisions by leveraging structured data, consistent definitions, and trend visualization through reports, scorecards, and dashboards. The core of their governance challenge has been around ownership, consistency, metadata discipline, lineage, access, and trust in a "single version of truth". Linking big-data analytics capability, BI system architecture, and firm performance in the empirical literature indicates that talent, architecture, and governance routines are pivotal in translating information assets into business

value (Qaffas et al., 2021). The relatively recent literature on ERP-BI integration also indicates that decision quality is enhanced by alignment of transaction systems and analytics environment because managers can act more decisively after moving from descriptive analysis to strategic action (Jaradat et al., 2025). In this regard, governance of BI systems can be seen not as just report quality maintenance but as the ability to ensure the reliability and timeliness of a descriptive base of strategic decision-making.

AI expands but does not substitute for BI in this sense. In terms of the governance literature, AI technologies tend to include prediction, classification, recommendation, optimization, and automation. As a result, AI introduces additional governance challenges, which go beyond those faced by BI systems, such as controlling model training, assessing biases, monitoring, drift detection, explainability, documenting results, etc. According to Papagiannidis et al. (2025), governance of responsible AI includes a number of structural, relational, and procedural practices that define the development, implementation, and oversight of AI. The former includes policies, committees, standards, and roles; the latter involves collaboration and trust; and the latter covers validation, audit trail maintenance, monitoring, and remediation. With respect to decision-making, the relevance of this framework is evident since the more important the decision, the more relevant governance process becomes.

In BI literature, this evolution can be seen in recent publications. On one hand, Olszak et al. (2025) indicate that AI enhances BI systems' abilities to accelerate decision cycles through automation of insights extraction, advanced pattern recognition, and more proactive management actions. On the other hand, some recurring barriers to decision acceleration can be identified, including low data quality, lack of skills, complexity of integration, and uncertainty about governance. These findings are also relevant for Saudi context since there is evidence that organizations often strive to be innovative and digitally advanced but face capability gaps in data stewardship, analytics literacy, and governance architecture (Al Kuwaiti et al., 2023; Alkhatieb et al., 2024; Al Ghareeb et al., 2025).

Secondly, much of the contemporary literature is focused on a link between governance and decision excellence. The concept of decision excellence is usually linked to the organization's ability to make timely, evidence-based, aligned, and accountable decisions that help improve its performance while minimizing harm. In BI contexts, decision excellence often relies on reconciliation of data sources, standardization of metrics, and awareness about underlying assumptions of BI systems. In AI context, the decision excellence is achieved if the model is fit for its purpose, its performance is regularly monitored in operational setting, the output is interpretable at a necessary level, and legal and ethical bases are sound (ISO/IEC, 2023; NIST, 2023; Papagiannidis et al., 2025). In other words, decision excellence requires multi-layer governance as technical assurance alone cannot guarantee anything.

The context of Saudi Arabia is particularly relevant in this regard. According to NSDAI, there was established a broad framework for linking AI to public-sector modernization, industry competitiveness, and country position on global stage (SDAIA, 2020). The NDMO's governance policies included data as a national asset and set a series of expectations related to its classification, quality, sharing, protection, and lifecycle management in government agencies (NDMO, 2020). Then, PDPL created legal conditions for personal data processing, rights protection, and controller accountability (SDAIA, 2023b). Finally, the AI ethics guidelines introduced principles of fairness, transparency, accountability, privacy, security, and human-oriented deployment of AI (SDAIA, 2023a). Taken together, all these instruments encourage organizations to think about governance as a precondition rather than hindrance to scaling up AI adoption. Similar approach can be observed in guidance on ethics of AI use within digital government services (DGA, 2024).

The sector evidence in Saudi Arabia also provides interesting illustration of governance challenges. According to systematic review and narrative literature on AI use in diagnostics, triage, imaging, virtual consultations, remote patient monitoring, and predictive analytics, there is a clear expansion of AI but adoption still largely depends on trust in governance arrangements (Al-Khairat et al., 2023; Al Kuwaiti et al., 2023; Aljehani et al., 2025). There are also many studies conducted among practitioners that

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reveal concern related to privacy, inability to explain models, workflow disruptions, biased recommendations, lack of proper training, and difficulty of determining accountability in case of conflicting recommendations (Alkhatieb et al., 2024; Alsaedi et al., 2024; Alhazmi et al., 2025). Similarly, surveys of patients and citizens revealed cautious optimism related to the benefits but skepticism regarding data privacy, bias, and human judgment (Syed et al., 2024). Such concerns may reflect broader governance questions about model owner, validation of the model's evidence base, explainability of its recommendation, and managerial accountability for the decision made.

Lastly, capability development emerges as a key governance challenge. Governance frameworks often fail because organizations lack necessary capabilities for implementing policies, such as skilled data stewards, model risk specialists, BI architects, domain translators, and senior managers who are able to understand AI results. Much of Saudi Arabia's literature in relation to AI emphasizes that sustainable adoption is possible only in the presence of skilled professionals (Kumar et al., 2025; Alharbi et al., 2025; Alatawi et al., 2025). In other words, decision excellence requires not only the right governance policy and process but also qualified professionals.

Finally, the emerging theme is that of convergence. Governance of BI tends to evolve from data management and report quality to integrated decision intelligence. Similarly, AI governance is evolving from ethical norms to operational controls embedded into workflows, architectures, and management practices. Consequently, there is the question of coordination of governance activities throughout the lifecycle of a decision process rather than of governance of either BI or AI systems per se. This approach can be especially beneficial for countries like Saudi Arabia where sectors undergo massive modernization supported by the national governance framework.

Table 1. Core governance dimensions and their contribution to strategic decision excellence.

Governance dimension	Key control focus	Expected decision benefit
Strategic alignment	Link analytics to enterprise objectives, risk appetite, and decision domains	Prevents technology-led drift and improves relevance
Data governance	Ownership, quality, metadata, lineage, privacy, and access	Improves trust in dashboards and model inputs
BI governance	Metric standardization, dashboard design, reporting assurance, and review cadence	Creates consistent descriptive and diagnostic visibility
AI governance	Model validation, explainability, fairness, monitoring, and override rules	Improves reliability of predictive and prescriptive outputs
Human oversight	Escalation rights, approval thresholds, and accountability mapping	Preserves judgment, legitimacy, and defensibility
Capability development	Training, stewardship culture, multidisciplinary collaboration	Sustains adoption and better use of insight

Figure 1. Integrated AI-BI governance model for strategic decision excellence in Saudi organizations.

III. METHODOLOGY

The methodology chosen for this paper is structured review, which fits the subject matter well since it

combines concepts, governance approaches, and their practical applications. Since the goal is to synthesize information and ideas rather than make meta-analysis and estimate effects, a review methodology incorporating narrative, thematic, and framework synthesis was chosen. To examine Saudi institutions in a rapidly evolving environment, the literature review included sources published between 2020 and 2025. This period coincided with the latest phase of institutionalization of AI in Saudi Arabia, along with maturing global discussions around AI governance and policy.

Sources were chosen from four main categories. These include peer-reviewed journal articles; conference papers and scholarly reviews; Saudi government policy, regulatory and other official documents; and high-quality multilateral and standard-based publications. Relevant keywords used to identify sources were artificial intelligence governance, business intelligence governance, decision-making, data governance, strategic decision excellence, Saudi Arabia, Vision 2030, data protection, ethics, dashboard governance, and decision intelligence. Sources were included in the review if they discussed any of the following: governance mechanisms of AI or BI; data governance and compliance requirements; quality of organizational decision-making; sector adoption in Saudi Arabia; or obstacles and facilitators of implementation. The excluded sources did not fit the timeframe, did not discuss governance-related topics, were purely promotional and had no value in terms of methodology and policy, or were duplicates of other database entries.

The review process proceeded in four main stages. First, titles and abstracts/executive summaries were reviewed for relevance. Second, full texts/extended abstracts were considered in search of governance themes, sector use cases, and decision quality implications. Third, relevant sources were assigned six main analytical domains, namely strategic alignment, data and metadata governance, analytics and model assurance, legal and ethical control, decision rights and human involvement, and capacity building. Finally, the results were analyzed and synthesized based on comparisons across different types of sources to produce a unified analytical framework applicable to the situation in Saudi Arabia. Comparing official documents, sector analysis, and empirical research was especially important in this regard because they present two different sides of institutionalization – normative and friction-filled.

It is important to note that the methodological approach chosen for this review is oriented at review rather than being systematic narrowly defined. Indeed, legal instruments, governance frameworks, organizational practices, and domain-level studies involved cannot be directly compared in terms of a single quantitative methodology. Structured review methodology appears to be a more adequate choice for this subject matter in its ability to promote integration, provide context, and support designing practical governance solutions. Nevertheless, the research remained rigorous, involving clearly defined criteria for inclusion of sources, thematic coding, and triangulation across various sources of evidence.

Two assumptions about the subject matter were critical to conducting the review. The first is that governance of BI and AI should be approached from the perspective of quality and improvement of decision-making processes. The second is the contextuality of the problem studied, which involves the simultaneous development of national strategy, regulation, guidelines, and sector-level practices. Given this context, the situation in Saudi Arabia appears interesting in terms of examining how analytics governance can emerge practically amid the pressure of national strategy. The outcome of the review methodology will thus be a review-based framework integrating governance control mechanisms into decision excellence concepts.

IV. RESULTS AND DISCUSSION

Six key results have been synthesized to describe how the governance of AI and BI enables strategic decision-making excellence in Saudi Arabia.

First, strategic alignment is the key anchor requirement. Consistently the most compelling sources indicate that strategic value is created by analytics initiatives when use cases are aligned with mission outcomes, policy priorities, and executive

responsibilities. In Saudi policy frameworks, data and analytics are presented as strategic assets, implying that organizations must cascade this perspective down to governance models by defining their critical decisions, metrics, and analytical approaches (SDAIA, 2020; Memish et al., 2021; UNESCO, 2024). This requires differentiating strategic decisions from optimization tasks, as well as developing governance policies that treat decision-making more explicitly. As an illustrative example, consider a policy-allocation model at the ministry level versus an automated scheduling model. The former would clearly deserve more validation, scrutiny, and governance than the latter. Strategic alignment therefore starts with establishing a comprehensive decision inventory that includes objectives, risk tolerance, and methods.

Second, data governance is irreplaceable for both BI and AI initiatives. Literature shows that poor data quality, inconsistent definitions, and fragmented ownership impede decision support regardless of how sophisticated the analytical model may be (Qaffas et al., 2021; Olszak et al., 2025). For BI, data governance failures create distortions on dashboards and result in disagreements among executives about "which number is right." On the other hand, in AI, those problems propagate to biased, inaccurate, and potentially misleading outcomes because the model learns from poor-quality data inputs. Data governance policies in Saudi Arabia pay special attention to data classification, lifecycle management, sharing, and stewardship because, from a strategic point of view, the effectiveness of analytics depends on data governance first and then model building (NDMO, 2020). Based on the insights from this review, it can be recommended to consider data ownership, metadata management, and lineage as control topics for the board level.

Third, model and dashboard assurance must be integrated rather than segregated. Typically, BI output is validated through reconciliation and management review, whereas AI output is assessed by technical performance measures such as accuracy or precision. However, this distinction may no longer hold as BI systems evolve into hybrid decision-making tools. Indeed, strategic decisions may now be made based on dashboards supplemented with model-derived metrics such as probability scores, anomaly flags, or next-best actions. This means that governance should provide assurance of the entire decision system through comprehensive monitoring of data freshness, metric definition, model performance, threshold setting, exception logic, and guidance interpretation. Both the NIST AI RMAF and ISO/IEC 42001 stress the importance of lifecycle-focused controls, documentation, and accountability in decision-making systems (NIST, 2023; ISO/IEC, 2023). Accordingly, in Saudi organizations, BI teams, data governance teams, and AI teams cannot operate independently from one another.

Fourth, legal and ethical control has an impact on the usability of the decision. Usually, compliance is discussed as something that organizations have to do because it is mandatory from outside. Yet, the literature shows that privacy, transparency, and ethical acceptance are crucial factors in relation to trust and usage of analytics outputs. It is worth mentioning that the PDPL and AI Ethics Principles have special significance in the Saudi case because they affect data collection and processing grounds, explanations of the model logic, and the legality and legitimacy of automated or semi-automated decisions (SDAIA, 2023a; SDAIA, 2023b). Studies of sectors in the Kingdom demonstrate that both experts and citizens tend to be supportive of AI in situations when they perceive that data is processed properly and human control over the process is maintained (Syed et al., 2024; Alhazmi et al., 2025). Hence, legal and ethical control are not peripherical constraints but an important part of decision value-chain. Recommendations that could not be legally or ethically justified do not represent any strategic value regardless of their statistical significance.

Fifth, human oversight plays a critical role in decision-governance, but it needs to be designed rather than romanticized. As stated in several sources, it would be incorrect to consider that there is an automatic choice between full automation and pure human-based decisions. Rather, structured human oversight with clear rules for the involvement of professionals, managers, and committees at all stages is recommended (Papagiannidis et al., 2025; Alowais et al., 2023). Studies in Saudi sectors show that

decision-makers usually welcome AI applications in general but fear those solutions that create a mess in terms of responsibility and accountability without proper justification and training of professionals (Alkhatieb et al., 2024; Alsaedi et al., 2024). In this regard, the focus should not be merely on "human in the loop," but on "human authority over the right decisions at the right time." For this reason, governance policies should clearly identify the conditions under which human decision-makers should give their approval to the use of a certain model, what types of human override actions need to be documented, and when disagreement between outputs and managerial decisions should escalate. In this way, it will be possible to establish disciplined human judgment.

Finally, capability development is responsible for translating the policy into practice. As mentioned above, barriers to AI adoption are usually associated with lack of skills of both executives and professionals. Saudi studies suggest that organizations frequently introduce governance principles but do not invest into necessary capacity development to achieve them. The former group of people requires capabilities to question assumptions, challenge the indicators and understand model uncertainty; the latter one – to interpret recommendations and dashboards based on their knowledge of operations. Governance is a matter of multidisciplinary competence and not just publication of some documents.

Based on the findings, it is possible to design a multilayered Saudi framework for AI-BI governance. There will be five operating layers of this framework: strategic intent, information integrity, intelligence production, decision control, and assurance/learning. In the first one, the company defines domains of its decision-making, risk appetite, and expected outcomes with consideration of Vision 2030 and enterprise strategy. Information integrity deals with architecture, quality, metadata, lineage, privacy, and access controls. Intelligence production involves the work of BI systems, advanced analytics, and AI modeling according to standards of design, testing, and documentation. Decision control includes human oversight, approval, exceptions handling, and escalation policies. Finally, in the layer of assurance/learning, the organization reviews model drift, dashboard relevance, compliance to policies, ethics cases, and decision outcomes.

It is important to emphasize that this framework allows seeing a relationship between BI and AI. On the one hand, the governance of BI dominates in the left part of the spectrum because it ensures reliable descriptive visibility of decision processes and outcomes. On the other hand, AI is in charge in the right part of the spectrum because it allows creating reliable and controlled predictions, prescriptions, and adaptation strategies. Strategic decision excellence happens at the point of intersection of these spheres when the visibility and prediction/prescription capabilities as well as managerial accountability are ensured in one governed process. This means that the question whether BI is more important than AI or vice versa should be changed to another one about how to govern the shift from historic visualization to future-oriented decisions.

The Saudi situation has a unique institutional advantage to implement this framework because the country possesses national strategic vision, data governance policy, data protection law, and AI principles in the same window of opportunity. If organizations manage to translate these concepts into the operational framework, it would be possible to ensure a fully-integrated governance approach. For example, a public hospital might use patient flow dashboards in combination with privacy controls, model validation, and clinical oversight; a government service platform – citizen analytics with data minimization and ethical assessment of decisions followed by managerial escalation; a bank – portfolio analysis based on dashboards supported by AI anomaly detection; and a manufacturer – ERP, BI, and predictive maintenance analytics as long as the owner of data quality, model monitoring, and business continuity is assigned.

There are three main tensions that should be carefully managed by the organization. The first one is about speed versus assurance. Executives would like to get real-time insights, but governance processes might slow down when every small change requires multiple approval steps. Therefore, it is necessary to implement tiered governance approach: while critical

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models should pass stricter tests, less risky analytical tasks could follow light controls. The second tension refers to innovation versus standardization. It seems natural for business units to conduct experiments, but decisions require some degree of standardization. In this case, a federated governance model should be applied, when standards are fixed in the enterprise while local experiments are allowed in the set borders. Finally, there is an issue of autonomy and accountability of AI that should not be overlooked. Therefore, decision ownership needs to be identified.

From the decision-excellence standpoint, the key takeaway is that governance quality is inseparable from insight quality. An intelligent AI model does not help much if there is no sound BI architecture, data lineage, or decision ownership. Conversely, a good BI environment may not deliver any strategic benefit without prediction and adaptability capabilities. To develop strategic excellence, Saudi organizations should introduce a holistic governance scorecard measuring not only model performance and dashboard popularity but data quality, policy compliance, human override actions, issue resolution speed, and decision outcomes.

To summarize, the results prove that Saudi Arabia possesses the majority of institutions required for successful AI-BI governance. Nevertheless, there is one task ahead – to integrate these aspects into a single decision-governance process.

Table 2. Governance priorities by organizational setting in Saudi Arabia.

Setting	Primary decision focus	Priority governance controls	Likely success indicator
Public sector	Service allocation, policy targeting, citizen response	Data classification, transparency, fairness review, escalation rights	Faster service decisions with auditable accountability
Healthcare	Clinical support, patient flow, prevention, remote monitoring	Consent/privacy controls, model validation, clinician oversight, drift monitoring	Safer decisions and improved care quality
Finance	Credit, fraud, liquidity, portfolio monitoring	Model risk management, PDPL compliance, explainability, audit trails	More accurate risk decisions and regulatory confidence
Industry and logistics	Maintenance, inventory, supply resilience, forecasting	ERP-BI integration, data lineage, anomaly validation, business continuity	Lower downtime and better operational timing

Figure 2. Strategic decision excellence cycle linking BI visibility, AI intelligence, and governed action.

V. PRACTICAL IMPLICATIONS

There are four practical implications for Saudi decision-makers emerging from the review. First, boards and executive committees need to focus on governance of strategic decision-making rather than tools. That means the charter needs to explicitly identify which strategic decisions are to be made on the basis of BI analysis, which – on top of BI – need AI augmentation, and which can never rely exclusively on algorithms but must obtain formal human confirmation no matter what degree of certainty the model generates. Second, organizations should create a joint AI and BI governance forum that involves strategy, data governance, legal, risk,

audit, domain, and technical functions. This will address the common problem where dashboard governance sits in one office and model governance in another. Third, priorities of investment should shift from algorithmic capabilities to more mundane stewardship, metadata management, model monitoring, and managerial literacy. These capabilities, although not as spectacular and not visible from outside, tend to have more effect on reliable strategic decision making. Fourth, implementations of sector-specific regulations should be based on cases, where the need for greater privacy is in healthcare, transparency – in government, risk management and auditability – in finance, and integration with ERP – in other industries.

VI. LIMITATIONS AND FUTURE RESEARCH

The present review has its limitations. For example, since the research synthesizes a highly dynamic field with rapid advances, some best practices of AI/BI governance may emerge faster than the scientific literature describing them in detail. Furthermore, due to heterogeneity of sources (standards, legal instruments, narrative reviews, and sector case studies), there is limited comparability of findings. Finally, Saudi evidence tends to cluster in healthcare and in public-sector digital transformations, so conclusions need to be generalized carefully. Further empirical research is needed to explore the effects of the framework proposed in sector case studies, maturity assessments, and longitudinal studies.

VII. CONCLUSION

Governance of AI and BI should always be viewed as two parts of an integrated enterprise decision system. Thanks to the development of the policy environment in Saudi Arabia, the integration is actively encouraged and even required by national strategy, data governance regulations, privacy laws, and ethical standards. From the review it became clear that strategic decision excellence depends on analytics alignment with organizational strategy, data integrity, combined assurance of dashboards and models, lawful and ethical use, human governance, and governance capabilities. Entities that will manage AI and BI in Saudi Arabia as one process will be more successful in creating value through analytics-enabled decisions.

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