

Human Capital Development and Asset Optimization: A Conceptual Framework for Reducing Asset Mismanagement

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Abstract

Asset mismanagement has been identified as a critical governance challenge across both public and private institutions worldwide, resulting in significant financial losses, inefficiencies, and reputational damage. This conceptual paper explores the role of human capital development in mitigating asset mismanagement through a framework that integrates capacity building, ethical leadership, and optimization strategies. Drawing upon global evidence, the paper argues that asset mismanagement is not merely a technical issue of systems and procedures but fundamentally a human issue linked to skill gaps, weak accountability, and organisational culture. The proposed conceptual framework emphasizes the integration of human capital strategies, including training, talent management, and governance awareness, with asset optimization approaches such as lifecycle management, digitalization, and performance measurement. By linking these elements, the paper offers a pathway to reducing mismanagement risks and enhancing sustainable institutional performance.

Keywords: Human Capital, Asset Optimization, Framework, Mismanagement, Governance

Introduction

Asset management is critical to the sustainability of organizations, yet mismanagement of assets remains widespread. The World Bank (2020) estimates that developing countries lose between USD 20–40 billion annually due to corruption and weak asset management practices. In the United States, federal agencies reported over USD 1.6 billion in improper payments linked to property and asset mismanagement in 2021 (Government Accountability Office [GAO], 2022). Similarly, Transparency International (2022) highlighted asset mismanagement as a recurrent issue in emerging economies, often intertwined with procurement fraud, underutilization of resources, and inadequate maintenance.

Asset mismanagement not only results in financial losses but also erodes public trust and organizational credibility. High-profile cases such as the 1Malaysia Development Berhad (1MDB) scandal, where misappropriation of assets exceeded USD 4.5 billion, reveal the devastating consequences of governance failure (Shah, 2021). Similar issues were evident in Malawi's "Cashgate" scandal, where fraudulent claims led to significant public asset leakage (Chinsinga & Chasukwa, 2019).

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Asset mismanagement not only results in financial losses but also erodes public trust and organizational credibility. High-profile cases such as the 1Malaysia Development Berhad (1MDB) scandal, where misappropriation of assets exceeded USD 4.5 billion, reveal the devastating consequences of governance failure (Shah, 2021). Similar issues were evident in Malawi's "Cashgate" scandal, where fraudulent claims led to significant public asset leakage (Chinsinga & Chasukwa, 2019). Comparable trends are also found in the European Union, where the European Court of Auditors (2020) reported that weak oversight in infrastructure projects contributed to billions of euros in wasteful spending. These examples demonstrate that mismanagement is not geographically limited but a global concern.

Beyond financial losses, the effects of asset mismanagement extend to social and developmental outcomes. Poor maintenance of public hospitals and schools reduces the quality of services delivered to citizens, directly affecting health outcomes, educational attainment, and social welfare. In the private sector, weak intellectual property protection and underutilized technological assets constrain competitiveness and innovation. Thus, mismanagement acts as both a financial and developmental bottleneck, slowing progress toward achieving the Sustainable Development Goals, particularly SDG 9 on infrastructure and SDG 16 on strong institutions.

While technical controls and digital monitoring are essential, sustainable solutions require strengthening human capital. Asset management is shaped by people: their skills, knowledge,

ethical standards, and commitment. Weak governance structures and limited investment in human capital exacerbate mismanagement risks. A workforce that is inadequately trained or insufficiently guided by ethical leadership is more likely to misuse or underutilize institutional assets. Therefore, the human factor represents both the greatest vulnerability and the most powerful opportunity for reform.

At the same time, the growing adoption of digital tools, such as enterprise resource planning systems, predictive analytics, and artificial intelligence in asset management, further underscores the importance of human capacity. Technology can improve efficiency, but without the competencies to interpret and apply insights, investments in digital infrastructure often fail to produce intended results. Bridging this gap requires a dual strategy: technical innovation must be matched by targeted investments in training, leadership development, and governance awareness.

Thus, there is a pressing need to reframe asset optimization through the lens of human capital development. This approach emphasizes not only technical proficiency but also ethical responsibility, leadership, and accountability. By combining these elements, organizations can move toward systems that are both efficient and sustainable, capable of protecting and maximizing institutional assets while fostering public trust and organizational credibility.

This paper argues that while technical controls and digital monitoring are essential, sustainable solutions require strengthening human capital. Asset management is shaped by people: their skills, knowledge, ethical standards, and commitment. Weak governance structures and limited investment in human capital exacerbate mismanagement risks. Thus, there is a pressing need to reframe asset optimization through the lens of human capital development.

Problem Statement

Despite substantial investments in asset management systems, many organizations continue to suffer from losses due to mismanagement. The International Monetary Fund (IMF, 2019) reported that approximately 30 percent of public infrastructure projects globally fail to meet expected outcomes, often due to poor planning and asset oversight. In sub-Saharan Africa, studies reveal that nearly 40 percent of public infrastructure assets are either non-operational or underutilized due to poor maintenance and lack of skilled personnel (African Development Bank, 2021).

In developed economies, asset mismanagement persists albeit in different forms. In the United Kingdom, the National Audit Office (2020) estimated that poor asset utilization in the health sector alone led to avoidable costs of GBP 3 billion annually. In the private sector, KPMG (2021) reported that companies worldwide lose up to 5 percent of annual revenues to fraud and mismanagement of physical and intangible assets.

These issues highlight a critical gap: the human factor. While digital solutions such as enterprise resource planning (ERP) systems and artificial intelligence-based asset tracking have improved oversight, their effectiveness is limited without well-trained personnel, strong leadership, and accountability mechanisms. Human capital development remains

underemphasized in asset governance, despite its centrality in preventing misuse and ensuring optimization.

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These issues highlight a critical gap: the human factor. While digital solutions such as enterprise resource planning (ERP) systems, blockchain, and artificial intelligence-based asset tracking have improved oversight, their effectiveness is limited without well-trained personnel, strong leadership, and accountability mechanisms. Human capital development remains underemphasized in asset governance, despite its centrality in preventing misuse and ensuring optimization. Employees who lack technical proficiency or ethical grounding often undermine the very systems meant to enhance efficiency, either through negligence, misuse, or deliberate manipulation.

The persistence of these problems also reflects cultural and institutional weaknesses. In many contexts, weak enforcement of regulations, tolerance of corruption, and organizational cultures resistant to transparency contribute to systemic inefficiencies. Even in organizations with advanced technologies, if leadership fails to promote accountability and integrity, asset optimization goals are unlikely to be met. This disconnect between system sophistication and human readiness has become a defining feature of global asset governance failures.

The stakes are particularly high given the connection between asset management and broader development outcomes. Mismanaged assets reduce resources available for public service delivery, hinder competitiveness in private firms, and weaken institutional trust. They also delay progress toward international commitments such as the Sustainable Development Goals, particularly those related to responsible consumption and production (SDG 12) and building strong institutions (SDG 16). Thus, the problem is not only technical or financial but deeply embedded in governance, culture, and human capacity.

In sum, while much attention has been given to the design of systems, technologies, and financial mechanisms for asset management, there remains a profound gap in recognizing and addressing the human dimension. Without parallel investments in skills, ethical

leadership, and governance awareness, organizations will continue to face asset leakages, underutilization, and reputational crises. This gap forms the central problem that this paper seeks to address through the integration of human capital development with asset optimization in a conceptual framework.

Literature Review

Asset Mismanagement and Its Global Impact

Asset mismanagement encompasses a range of practices, including embezzlement, procurement fraud, underutilization, lack of maintenance, and poor record keeping (OECD, 2020). Empirical studies confirm that weak asset governance undermines organizational performance and erodes trust in public institutions (Andrews, 2019).

Mismanagement of assets emerged as a significant challenge in the 21st century, leading to profound repercussions for economies, companies and societies worldwide. One of the main causes of asset mismanagement is the lack of transparency and responsibility in financial institutions, which can lead to systemic failures. Ajewole (2015) illustrates this phenomenon in the context of Nigeria's banking sector, where ineffective solutions, such as asset management companies, were employed in response to bank seizures. This mismanagement not only destabilizes local economies but also instills a broader sense of distrust in financial systems.

The consequences of asset mismanagement extend far beyond immediate financial losses. Akyüz (2014) notes that crises in the United States and Europe have instigated long-term repercussions for developing countries, highlighting the interconnectivity of global economies. This interconnectivity means that mismanagement in a region can propagate instability and economic difficulties around the world, creating a domino effect that affects employment, investment and social services in vulnerable populations.

In addition, misinterpretation of assets usually leads to wasted resources, particularly in sectors such as waste management, where inefficiencies can exacerbate environmental degradation. Ferranato and Torratà (2019) argue that mismanagement of waste in developing countries illustrates the urgent need for effective active management strategies. Incorporation of resources not only makes economic growth difficult but also undermines efforts to achieve sustainable development goals, creating a vicious cycle of poverty and degradation.

Although the challenges posed by the misinterpretation of assets are significant, potential solutions can be identified through innovative technologies and enhanced governance. Tönnissen and Teuteberg (2020) discuss how blockchain technology implementation can improve supply chain operations and management by providing a promising avenue for transparency and asset management responsibility. By promoting real-time screening and improving data integrity, these technologies can mitigate the risks associated with asset management, ensuring that resources are efficiently and ethically allocated.

In conclusion, the dynamics of asset mismanagement reveal a complex interaction of causes, consequences and potential solutions that require urgent attention. As the global scenario continues to evolve, mismanagement repercussions will probably remain a pressing issue for

economies, companies and societies. By addressing the main causes and implementing innovative solutions, stakeholders at all levels can work to promote a more resilient and equitable global economy.

Human Capital Development and Governance

Human capital refers to the skills, knowledge, and competencies possessed by individuals within an organization (Becker, 1993). Research consistently shows that well-developed human capital contributes to efficiency, innovation, and accountability (Barney, 2021). In governance contexts, investments in training, leadership development, and ethics education are critical for reducing corruption and improving oversight (Northouse, 2019).

The relationship between human capital development and governance is critically anchored in the dynamics of leadership and effective policies, which play a key role in increasing labor force skills and the general progress of society. Such advances are increasingly recognized as essential for economic growth, particularly in emerging economies, where the interaction between human capital and governance becomes even more pronounced. Sarwar et al. (2021) elucidate this relationship demonstrating how financial development and human capital affect economic growth, noting that strategic investments in labor force skills can lead to significant improvements in productivity.

Leadership is a crucial factor in this development triad, as effective governance can create an environment conducive to the improvement of human capital. Barua (2021) emphasizes that the link between human capital and economic growth is fundamental to achieve sustainable development goals. In this context, solid governance policies should prioritize education and vocational training, facilitating the development of skills necessary for a competitive workforce. Without such policies, the potential of human capital remains underused and of economic advancement and social advances.

Bhattacharya (2017) postulates that strategic development of human capital is an integral part of talent management in emerging economies. This leadership-oriented approach seeks to align organizational objectives with the workforce's abilities, promoting a culture of continuous learning and adaptation. As a result, organizations can better respond to market demands and technological changes, thus increasing productivity. This adaptive capacity is particularly vital in the face of emerging trends such as Industry 4.0, where Singh, Agrawal and Modgil (2022) argue that a qualified workforce is critical to taking advantage of innovations and boosting economic transformation into developing regions.

Institutional effectiveness, as discussed by Uddin, Ali and Masih (2021), also significantly influences human capital and its contribution to economic growth. Roor governance structures can facilitate the development of human capital, implementing policies that encourage education, skill development and innovation. On the other hand, weak governance can prevent progress from not properly investing in human capital initiatives, thus restricting economic opportunities.

The interaction between human capital development and governance is a multifaceted relationship strengthened by effective leadership and strategic policies. As evidenced by several studies, including those of Sarwar et al. (2021), Barua (2021), Bhattacharya (2017),

Singh et al. (2022) and Uddin et al. (2021), it is clear that the improvement of labor force skills through good governance not only increases productivity, but also drives general social progress. By prioritizing human capital development, societies can cultivate a qualified labor force capable of navigating economic challenges and achieving sustainable growth.

Asset Optimization Approaches

Asset optimization involves maximizing the value derived from assets throughout their lifecycle. This includes planning, acquisition, utilization, maintenance, and disposal (ISO 55000, 2014). Emerging approaches highlight the importance of digitalization, predictive maintenance, and sustainability considerations (PwC, 2021). Yet optimization efforts often fail when human capacity and governance awareness are inadequate.

Asset optimization approaches have become critical strategies in various sectors, aimed at maximizing value and efficiency while browsing complex challenges. In the oil and gas industry, for example, Nwulu et al. (2022) highlight the importance of integrative project management and asset strategies that improve gas production. Their examination underlines the best practices which increase not only the yield, but also ensure sustainable operations, illustrating the need for the sector of tailor -made optimization techniques which meet specific requests for the industry.

In wider industrial contexts, asset management has been conceptualized through integrated solutions that promote collaboration between industry. Dosumu et al. (2024) offer a model emphasizing the need for communication and synergy between different sectors to optimize the performance of assets. Such collaboration can lead to shared learning experiences and increased efficiency, presenting the multiple facets of the adoption of an integrative approach in the management of assets.

Public sector institutions are also faced with the optimization of assets, as evidenced by the work of Nanang et al. (2023). Their study on Indonesia describes an asset optimization strategy specifically adapted to public assets, indicating that public entities are faced with unique challenges such as bureaucratic inertia and resource constraints. The implementation of a personalized strategy can considerably improve the efficiency and the provision of services, demonstrating that sectoral challenges must be taken into account centrally in asset optimization discussions.

The integration of methodologies like Lean Six Sigma in asset management practices still illustrates trends towards operational excellence. Gomaa (2025) describes a roadmap to merge these methodologies with ISO 55001 standards, stressing that such integrations can cultivate continuous improvement and value creation. However, the effectiveness of these approaches is sometimes hampered by organizational resistance to change, emphasizing the need for cultural alignment to fully take advantage of optimization.

Advanced asset management and liabilities strategies play a crucial role in financial stability, as Abiola-Adams et al stresses. (2021). Their research examines the balance of sheet performance, presenting executives which guarantee that financial institutions can effectively manage their assets while attenuating the risks associated with economic volatility. This

illustrates that beyond operational efficiency, financial considerations are essential for strategies for optimizing holistic assets.

Although various approaches to optimizing assets exist between sectors, their effectiveness depends largely on the context and the specific challenges faced. The advantages of these strategies are clear, but achieving maximum efficiency requires careful examination of the dynamics specific to industry and potential resistance to new methodologies.

Linking Human Capital and Asset Optimization

There is growing recognition that human capital is a missing link in asset governance. Effective asset optimization requires not only systems but also people who are skilled, motivated, and accountable (Al-Jarallah & Al-Khaled, 2020). Recent conceptual work suggests that integrating human capital strategies with asset management processes reduces risks of misuse and enhances institutional resilience (Arora & Lodhia, 2019).

The relationship between human capital development and asset optimization is essential for organizations that seek to improve efficiency and support growth in a competitive market. The development of human capital, referring to investments made in employee skills, knowledge and skills, directly influences organizational performance. As established by Valmohammadi and Shahrashoob (2022), organizations that focus on the development of human capital programs align their strategic goals with functional resources, thus optimizing their use of assets. These programs not only improve employee skills, but also promote a culture of continuous vital improvement for operational efficiency.

In this context, qualified employees serve as a critical resource that can boost organizational performance. The study by Kiran et al. (2022) points out that effective human capital management, facilitated by data oriented analysis, has a significant positive impact on organizational results. By leveraging the ideas of human resources analysis, companies can optimize their workforce resources and make informed decisions that increase efficiency and productivity. This optimization not only maximizes the potential of human resources, but also translates into superior asset management strategies that create sustainable competitive advantages.

The notion of value creation through strategic alignment is supported by Weller et al. (2019), which argue that the correspondence of human capital resources with organizational needs is similar to gears in a wheel - each element must effectively interact to promote overall performance. This alignment highlights the importance of ensuring that investments in human capital correlate directly with the strategic objectives of the organization, thus boosting significant asset optimization.

In addition to aligning human capital with organizational strategies, talent optimization plays a crucial role in maximizing employee contributions. Schiemann (2014) emphasizes that talent optimization transcends traditional talent management approaches, focusing on promoting an environment in which employees can fully leverage their skills. This holistic approach allows organizations not only to gain short-term efficiency gains, but also cultivate long-term growth potential.

Finally, Chatterjee (2017) reiterates the importance of human capital -directed investments in the context of business skills. In industries such as global software services, alignment of human capital development with strategic initiatives is essential to improve performance and boost innovation. As organizations continue to navigate competitive landscapes, prioritizing human capital development will remain a fundamental strategy for optimizing assets and achieving sustainable growth.

In conclusion, interaction between human capital development and asset optimization can significantly increase organizational efficiency and facilitate long-term competitiveness. By investing in qualified employees and leveraging analysis, organizations can create a dynamic environment that promotes sustainable growth.

Conceptual Framework

This paper proposes a conceptual framework that integrates human capital development with asset optimization to reduce mismanagement. The framework has three dimensions:

- i. **Human Capital Development:** This includes capacity building through training, continuous professional development, ethical leadership, and governance awareness. By equipping employees with technical and ethical skills, organizations strengthen their ability to manage assets responsibly.
- ii. **Asset Optimization:** This involves adopting lifecycle management practices, digital monitoring tools, and performance measurement systems to maximize asset value and minimize losses.
- iii. **Governance Integration:** Human capital and asset optimization must be embedded within governance frameworks that ensure accountability, transparency, and alignment with organizational goals. Policies, audits, and compliance mechanisms provide the structural support to sustain improvements.

The interaction of these dimensions creates a system where human capability and asset strategies reinforce each other, reducing mismanagement risks and improving institutional outcomes.

Conceptual Framework: Human Capital Development and Asset Optimization

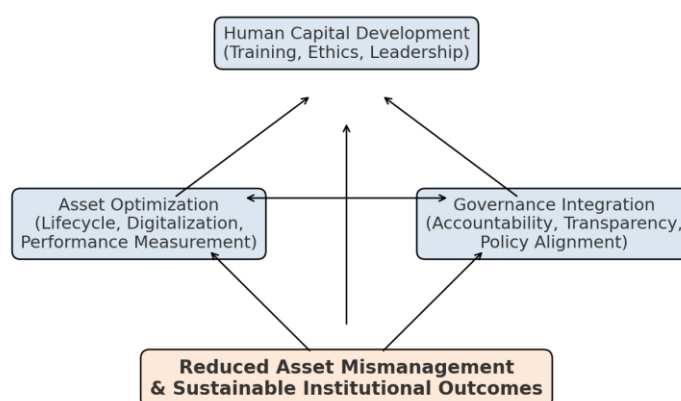


Illustration 1: The Conceptual Framework

Illustration 1 presents a conceptual framework that connects human capital development, asset optimization, and governance integration towards reducing asset mismanagement and ensuring sustainable institutional outcomes.

At the top of the framework, human capital development is emphasized through training, ethics, and leadership. These components strengthen individual competencies, instil integrity, and equip leaders with the ability to make strategic decisions. Skilled and ethical human capital serves as the foundation that enables effective asset use and governance practices.

On the left, asset optimization covers lifecycle management, digitalization, and performance measurement. These strategies ensure that assets, whether physical, financial, or intellectual, are efficiently utilized, monitored, and upgraded. When institutions adopt digital tools and performance indicators, they can maximize asset value and minimize wastage or redundancy. On the right, governance integration highlights accountability, transparency, and policy alignment. These elements strengthen institutional control and ensure compliance with rules, laws, and organizational policies. Strong governance frameworks prevent misuse of resources and foster trust among stakeholders.

The arrows from human capital, asset optimization, and governance integration converge toward the central goal of reduced asset mismanagement and sustainable institutional outcomes. This indicates that only when people are trained and ethical, assets are efficiently managed, and governance systems are transparent and accountable, institutions can safeguard their resources and achieve long-term sustainability.

Discussion

The integration of human capital and asset optimization offers several advantages. First, it addresses the root causes of mismanagement by strengthening skills and ethical standards. Second, it ensures that technological investments in asset management are effectively utilized. For example, predictive maintenance systems fail without personnel trained to interpret data and act on insights. Third, it promotes a culture of accountability, where employees see themselves as custodians of institutional resources rather than passive operators.

Furthermore, the framework has policy implications. Governments and organizations must allocate resources not only for digital asset management systems but also for human capital development programs. Universities and professional bodies can play a key role in designing curricula that integrate governance, finance, and asset optimization. International donors and financial institutions can also support capacity-building initiatives in low- and middle-income countries, where the risks of asset mismanagement are particularly acute.

The integration of human capital and asset optimization provides not only a governance tool but also a multidimensional approach that addresses financial, ethical, and sustainability challenges facing organizations today. This section extends the earlier arguments by examining theoretical linkages, practical implications, and comparative evidence across sectors and countries.

One of the persistent problems in asset management is the tendency to treat mismanagement as a purely technical challenge. However, evidence consistently demonstrates that even the most advanced monitoring systems fail when individuals are either untrained, unmotivated, or complicit in unethical practices. By framing mismanagement as a human capital problem, the proposed framework shifts attention to the root causes of failure: inadequate training, lack of ethical grounding, weak leadership, and insufficient accountability mechanisms. For instance, the World Bank's (2020) Stolen Asset Recovery Initiative reveals that billions of dollars are siphoned off annually not because of missing systems, but because actors within organizations manipulate or bypass controls. Thus, developing a workforce that combines technical proficiency with ethical resilience is essential.

Organizations worldwide are investing heavily in digitalization, predictive analytics, and artificial intelligence for asset management. Yet, these technologies are only as effective as the people who use them. Predictive maintenance systems in manufacturing plants, for example, generate large datasets on equipment wear and tear. Without engineers trained to interpret this data and translate it into timely interventions, the systems remain underutilized. This is a pattern observed across multiple sectors, from healthcare equipment in national hospitals to large infrastructure projects in developing economies. The framework therefore emphasizes that human capital development must evolve in parallel with technological adoption to ensure that investments in digital systems deliver their intended value.

The dynamics of asset mismanagement differ significantly between developed and developing contexts. In high-income countries, the challenge often lies in optimizing vast portfolios of assets and ensuring efficient utilization. For example, the UK's National Audit Office (2020) reported billions lost annually due to underused hospital facilities and public buildings. In contrast, developing economies struggle with outright leakage, corruption, and skills shortages. In sub-Saharan Africa, the African Development Bank (2021) estimates that nearly 40 percent of infrastructure assets are either non-operational or grossly underutilized. By situating the framework within these diverse contexts, it becomes clear that while the principles of human capital and optimization are universal, their application must be tailored to local realities.

The utility of this framework cuts across multiple sectors. In the public sector, ministries of health, education, and infrastructure face recurring challenges in maintaining assets due to bureaucratic inefficiencies and lack of technical staff. Embedding human capital training within governance structures can help create accountability lines, ensuring that resources are not only procured but also maintained and used efficiently. In the private sector, corporations risk losses from intellectual property mismanagement, underutilized machinery, or ineffective financial oversight. Here, the framework highlights the need for strategic talent management and organizational learning as enablers of competitive advantage. Non-governmental organizations (NGOs), often entrusted with donor-funded assets, can also benefit from this framework by demonstrating accountability and strengthening donor confidence.

Beyond individual skills, the framework also emphasizes organizational culture. A culture of accountability ensures that employees view themselves as custodians of assets rather than passive operators. This requires embedding ethics training, whistleblowing mechanisms, and transparent reporting within institutions. Research in behavioral governance suggests that when employees see clear consequences for misuse and recognition for responsible stewardship, they are more likely to act as accountable agents. This cultural dimension is often more difficult to build than technical capacity but is equally critical for reducing mismanagement risks.

The framework also carries implications for sustainability. Effective asset management underpins several Sustainable Development Goals (SDGs), particularly SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 16 (Peace, Justice and Strong Institutions). By linking human capital development with optimization strategies, organizations contribute not only to financial sustainability but also to environmental and social sustainability. For instance, optimizing waste management assets reduces environmental degradation, while training staff in sustainable procurement practices aligns institutional behavior with broader development goals.

Despite its advantages, implementing the proposed framework is not without challenges. One barrier is resource constraints. Many organizations, particularly in low- and middle-income countries, struggle to allocate funds for training and development, as these are often viewed as discretionary expenses rather than strategic investments. Another barrier is resistance to change. Employees and managers accustomed to existing practices may be reluctant to adopt new governance mechanisms or digital tools. Additionally, weak policy environments can undermine organizational efforts if broader governance systems lack transparency and enforcement. These barriers highlight the need for strong leadership, policy coherence, and external support from international partners.

To overcome barriers, several enablers can be identified. First, policy coherence is critical: governments must integrate asset management into broader governance reforms and link it to public financial management frameworks. Second, leadership development programs can serve as catalysts for cultural change, equipping leaders with the skills to champion accountability and transparency. Third, international cooperation and donor support can provide the financial and technical assistance necessary to strengthen human capital in resource-constrained contexts. Finally, embedding asset management curricula in higher education and professional training programs can ensure a pipeline of skilled personnel equipped to manage assets responsibly.

From a theoretical standpoint, the framework advances governance scholarship by bridging human capital theory (Becker, 1993) with asset management models (ISO, 2014). It suggests that sustainable asset management cannot be fully understood through technical or economic lenses alone but requires a socio-technical perspective that accounts for people, systems, and institutional culture. This multidimensional perspective also resonates with institutional theory, which emphasizes that organizations operate within broader norms and rules that shape behavior. By highlighting human capital as a central variable, the framework challenges existing literature that has often prioritized technological and structural factors.

Future research can build on this conceptual framework in several ways. Empirical studies are needed to test the framework across different sectors and contexts, using both qualitative and quantitative approaches. Comparative case studies could examine how variations in human capital investments affect asset outcomes in healthcare, education, or infrastructure sectors. Surveys and econometric analyses could further quantify the relationship between training investments and reductions in asset losses. Another promising area is the exploration of digital tools such as blockchain and artificial intelligence in strengthening asset accountability when combined with human capital development. By advancing these research agendas, scholars can contribute to refining the framework and enhancing its practical applicability.

Overall, the integration of human capital development with asset optimization offers a holistic pathway for reducing asset mismanagement. It addresses the immediate technical gaps, reinforces ethical conduct, and builds resilient institutions capable of sustaining long-term outcomes. While challenges of funding, resistance, and policy coherence remain, the framework provides a robust foundation for organizations seeking to safeguard their resources and enhance their contribution to sustainable development.

The proposed framework carries implications for theory, policy, and practice. Theoretically, it advances governance literature by linking human capital development with asset optimization. For policymakers, it highlights the need to design integrated strategies that invest in both systems and people. For practitioners, it offers a roadmap for reducing losses and strengthening institutional sustainability.

Conclusion

Asset mismanagement remains a global challenge that undermines financial sustainability and institutional credibility. While technical solutions are important, they are insufficient without investments in human capital. By integrating human capital development with asset optimization strategies, organizations can address the root causes of mismanagement and build systems that are resilient, accountable, and sustainable. The conceptual framework presented in this paper offers a pathway for future research and practice, emphasizing that people, processes, and governance must work together to protect and maximize institutional assets.

Asset mismanagement continues to pose one of the most pressing governance challenges across both developed and developing economies. The evidence presented in this paper shows that the problem is not confined to a particular region, sector, or income level, but rather represents a systemic weakness that undermines efficiency, financial sustainability, and public trust in institutions. From the billions lost annually to procurement fraud and underutilized infrastructure in Africa, to the reputational damage arising from scandals such as 1MDB in Malaysia and improper asset oversight in high-income countries, the message is clear: asset mismanagement erodes value at both the micro and macro levels. This universality underscores the urgency of identifying integrated solutions that address both technical and human dimensions.

The conceptual framework proposed in this study responds directly to this global challenge. By linking human capital development with asset optimization underpinned by governance

integration, the framework shifts the focus from fragmented interventions toward a holistic strategy. Investments in digital systems, performance measurement tools, and lifecycle management practices are undeniably important, but they remain insufficient when not supported by competent, ethical, and accountable human resources. Human capital development emerges as the foundational enabler that allows organizations to unlock the potential of optimization strategies. The interplay of training, ethics, leadership development, and governance awareness ensures that technology is not misused or left idle but becomes an active contributor to institutional resilience.

For policymakers, this research highlights the importance of designing reforms that integrate capacity building with technical innovation. Too often, policy frameworks emphasize capital expenditure on new assets or technologies while neglecting the parallel need to invest in people. A balanced approach requires allocating resources not only for infrastructure and systems but also for leadership training, vocational programs, and institutional culture change initiatives. Governments and regulatory agencies have a critical role in setting standards, mandating compliance, and ensuring that accountability frameworks reward responsible stewardship of assets. In this sense, the framework provides a roadmap for embedding asset governance within broader strategies of public financial management, anti-corruption, and sustainable development.

For practitioners and organizational leaders, the framework serves as a guide to aligning day-to-day management practices with long-term sustainability goals. By viewing employees as custodians of institutional resources rather than passive operators, organizations can cultivate a culture of ownership and responsibility. Embedding ethics training, transparent reporting, and whistleblower protection mechanisms reinforces this culture and creates a feedback loop of accountability. Moreover, the alignment of human capital with asset strategies ensures that optimization efforts, whether through predictive maintenance, digital monitoring, or lifecycle planning, yield tangible returns. This integration reduces wastage, strengthens efficiency, and enhances stakeholder confidence.

From a theoretical perspective, this paper contributes to governance and management literature by offering a socio-technical lens through which asset management can be understood. While traditional studies often emphasize structural or technological reforms, this framework demonstrates that the human element is equally decisive. It bridges insights from human capital theory, institutional theory, and asset management standards, showing that sustainable solutions require convergence across disciplines. The argument advanced here is that resilience in asset governance cannot be engineered solely through systems but must be cultivated through people and culture.

Looking ahead, future research should build empirical evidence to validate and refine this framework. Comparative studies across sectors such as healthcare, education, and infrastructure could test how variations in human capital investment influence asset performance. Quantitative studies might measure the correlation between training budgets and reductions in asset leakages, while qualitative research could explore the cultural and behavioral dimensions of accountability. Additionally, emerging technologies such as blockchain and artificial intelligence warrant further exploration, particularly in how they interact with human capital to strengthen transparency and efficiency. Such research would

not only enrich academic debates but also provide actionable insights for policymakers and practitioners navigating complex governance environments.

Finally, the implications for sustainability must be emphasized. Effective asset management directly supports several Sustainable Development Goals, particularly those linked to responsible resource use, infrastructure resilience, and strong institutions. By reducing mismanagement, organizations free up resources that can be redirected to social services, innovation, and community development. By training staff in sustainable practices, organizations contribute to reducing environmental footprints and promoting intergenerational equity. And by embedding governance integration, they enhance institutional credibility, thereby fostering trust among citizens, investors, and international partners.

In conclusion, asset mismanagement is not an inevitable outcome but a challenge that can be systematically addressed through integrated strategies. The framework presented in this paper offers a pathway to resilience by recognizing that people, processes, and governance must function as interdependent components of institutional success. Strengthening human capital ensures that optimization strategies achieve their intended results, while governance integration provides the accountability and transparency necessary to sustain improvements. By adopting this approach, organizations and governments can move toward systems that are not only efficient but also ethical, sustainable, and trusted. The journey requires commitment, investment, and cultural change, but the potential rewards of financial stability, institutional credibility, and societal well-being are immense.

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