

Stalwartz

Shobha N.V.

Founder & CEO
Infinite Building Technologies

**SUSTAINABILITY AS A BUSINESS
APPROACH IN THE
CONSTRUCTION INDUSTRY**

Shobha's Professional Summary

A visionary force in real estate development, Shobha N.V. blends technical rigor, entrepreneurial flair and decades-long expertise to shape impactful urban projects across India. From her early conviction in civil engineering—choosing to defy the IT boom and stay true to her passion—to leading multi-million-square-foot developments, Shobha has redefined innovation, inclusivity and excellence in a traditionally male-dominated field.

In her current role as founder and CEO of infinite building technologies, she masterminds holistic services—ranging from design and contracts, feasibility studies to development management and procurement—driven by her passion for economical, sustainable solutions. Before this entrepreneurial leap, she served as Assistant Vice President – Operations at BSCPL Infrastructure Limited, where she managed end-to-end operations design, procurement, tendering, contracts, execution) across Bengaluru, Hyderabad and Chennai, successfully implementing sustainable systems for various mixed residential, commercial projects.

Shobha has executed 40.2 million sft of development under all major industry verticals commercial, residential townships, IT Parks, SEZ/ITES, retail malls, hotels etc. She has been instrumental in formulating and implementing SOP, procurement methods, EHS manuals, standard specifications and costing for buildings, tenant coordination and handing over activities.

Derive various construction methods for works that are agile and prepare the most feasible and viable techniques to keep CAPEX and OPEX on check during construction. She has also been responsible for an end-to-end delivery of complex projects with robust engineering techniques, procurement methods, Evaluation and selection of Technology for building IT Parks/campuses, Grade A corporate IT and Mixed Residential portfolio across major Indian cities. She is well versed with the process of managing internal and external Project teams and groomed teams across multiple domains with Global Clients.

Earlier, as Deputy General Manager – design and development at century group, Shobha led cross-functional teams to refine project schematics, training programmes to the marketing team, streamline SOPs and obtain statutory approvals. Her tenure at Ascendas as Senior Manager – Planning (PanIndia Projects) included Master Planning for IT parks, Nationwide Technical Due Diligence and ensuring LEED Gold standards for SEZ, R&D and office buildings. At Mantri Developers—as AGM – Planning—she executed design coordination for high-profile properties, balancing market-driven feasibilities with innovative environmental measures. Her journey began at Brigade Group as a Project Coordinator and Technical Assistant to the Vice President, developing comprehensive solutions for commercial, residential, retail and hospitality ventures.

From calculating super built-up areas to sourcing building materials from China and South Korea, Shobha's portfolio reflects meticulous technical oversight and innovative thinking. Her work embraces everything from budget controls to nurturing top-tier architectural collaborations (including HOK, RTKL and Hafeez Contractor).

A skilled strategist and ISO 9001:2008 auditor with an Executive MBA, she excels in implementing ERP systems, Fibre-to-Home solutions and Green Building standards. With a tech-savvy approach, Shobha integrates tools like BIM, Digital reports to enhance project execution. Her experience spans global import negotiations, environmental conservation and leading large, multi-city operations.

Shobha N.V.'s remarkable journey in real estate development is a testament to her unwavering commitment to excellence, sustainability and innovation. With a rich blend of technical expertise, entrepreneurial spirit and a passion for transforming urban landscapes, she continues to redefine industry standards. As a visionary leader, Shobha's ability to navigate complex challenges and foster collaborative partnerships ensures that her impact on the real estate industry will be felt for years to come.



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Digitalisation of Business: Strategic Technology Integration in Boardrooms



Emerging Digital Technologies and the Transformation of Corporate Boardrooms:

Abstract:

This paper critically evaluates how emerging digital technologies—including Artificial Intelligence (AI), Quantum Computing, Blockchain and Cybersecurity—are transforming modern corporate boardrooms. It examines the technological landscape, explores the influence on decision-making and risk management and assesses how these tools reshape governance strategies. Drawing on real-world case studies, the paper argues that while these technologies offer powerful governance enhancements, they also pose new ethical, operational and regulatory challenges.

Introduction:

Corporate Governance is undergoing a profound shift driven by digital technologies. Boardrooms today are no longer insulated spaces where traditional financial and legal expertise dominate; they are increasingly digitised environments shaped by technological tools that influence oversight, accountability and strategy (PwC, 2022). This paper explores the integration of AI, Quantum Computing, Blockchain and Cybersecurity into Corporate Governance, evaluating their impact on boardroom practices and structures.

The Technological Landscape:

1. Artificial Intelligence (AI)

AI technologies such as machine learning and predictive analytics allow boards to analyse vast data sets and make more informed decisions. For example, BlackRock's Aladdin platform uses AI to manage investment risks and compliance (BlackRock, 2023).

2. Quantum Computing

Quantum computing, though still emerging, holds the promise of solving complex optimisation problems at unprecedented speed (IBM, 2023). Volkswagen, for instance, has piloted quantum algorithms to optimise traffic flows, pointing to future boardroom applications in logistics and risk simulations (Volkswagen, 2020).

3. Blockchain

Blockchain offers decentralised, tamper-proof recordkeeping, enhancing transparency and trust. Financial institutions such as HSBC and JPMorgan have used blockchain to streamline cross-border settlements (HSBC, 2021), while companies like Siemens are piloting blockchain for supply chain transparency (Siemens, 2022).

4. Cybersecurity

Cyber risks have escalated to board-level priorities following incidents like the SolarWinds attack and the Equifax data breach (Symantec, 2021). Advanced cybersecurity strategies, such as zero-trust frameworks and threat intelligence platforms, are increasingly embedded in governance practices to safeguard sensitive data (Deloitte, 2023).

Influence on Decision-Making:

Emerging technologies are reshaping board decision-making processes by providing predictive analytics, simulations, and transparent records. For example, Unilever employs machine learning to forecast consumer trends, helping directors align product strategies with market shifts (Unilever, 2023). However, overreliance on AI can risk sidelining human judgment and ethical reasoning (Floridi & Cowls, 2019). Boards must balance data-driven insights with critical, context-sensitive decision-making.

Impact on Risk Management:

Boards face increasing pressure to oversee risks that are amplified or reshaped by digital tools:

- **AI for risk detection:** Major banks like Citibank use AI to detect fraudulent transactions and regulatory breaches, giving boards greater oversight of compliance and financial risks. (Citibank, 2022)
- **Quantum encryption:** As quantum computing evolves, it threatens existing encryption methods, but also offers new ways to secure sensitive data. Boards must prepare for a quantum-safe future by staying informed on emerging cryptographic standards.

- **Blockchain for anti-fraud:** Blockchain's immutability helps reduce the risk of tampering in industries like pharmaceuticals (e.g., IBM's Food Trust blockchain for food safety), helping boards manage supply chain risks and regulatory compliance.
- **Cybersecurity investment:** The Target data breach (Ponemon Institute, 2018) cost the company millions and led to shareholder lawsuits — a wake-up call for boards on the consequences of poor cyber risk management. Today, boards are more proactive in commissioning cybersecurity audits, crisis simulations and incident response planning.

Blockchain reduces fraud risks through immutable records (IBM, 2021), while cybersecurity investments mitigate operational and reputational threats, especially in light of incidents like the Target breach. Yet, these tools introduce new vulnerabilities, such as smart contract bugs or quantum-enabled cryptographic risks (National Institute of Standards and Technology [NIST], 2023).



Shaping Governance Strategies:

Technology is not just reshaping operational risks but also driving structural shifts in governance:

- **Digital boardrooms:** Virtual board meetings, powered by secure platforms like Diligent and Board Effect, enable more agile, global governance. Directors can access real-time dashboards, key metrics, and collaborative tools, transforming how boards interact and make decisions. (Diligent, 2023)
- **Evolving board composition:** Companies like FedEx and Walmart have added directors with expertise in technology and cybersecurity, recognising that digital literacy is now a critical boardroom competency. (Walmart, 2022)
- **Ethical oversight:** After Facebook's Cambridge Analytica scandal, boards across industries have begun setting up AI ethics committees, data privacy task forces and ESG oversight boards to ensure responsible innovation. (Zuboff, 2019)

- Regulatory compliance: Europe's GDPR and emerging AI regulations mean boards must develop compliance strategies that embed privacy and accountability into technology governance, or risk facing heavy fines and reputational damage. (European Commission, 2023).

Critical Evaluation:

While the integration of advanced technologies promises significant benefits, boards must navigate several pitfalls:

- Human judgment vs. automation: Over-automation risks sidelining the nuanced judgment, ethical reasoning and long-term vision that human directors provide. Boards must balance machine efficiency with human values.
- Boardroom skills gap: Studies show that fewer than 20% of Fortune 500 boards have directors with deep tech expertise, raising concerns that boards may adopt technologies they don't fully understand. Continuous learning, training and diversified recruitment are key. (Tirole, 2017)
- New dependencies and vulnerabilities: With greater digital integration comes greater reliance on third-party vendors and exposure to software supply chain attacks (as seen in the SolarWinds breach). Boards need robust third-party risk management and resilience planning.

- Ethical and legal grey zones: Technologies like AI and blockchain often outpace regulatory frameworks, leaving boards uncertain about liabilities, ethical boundaries and stakeholder expectations. Strong ethical governance frameworks, scenario planning and regulatory engagement become essential. (World Economic Forum, 2021).

While emerging technologies offer unprecedented opportunities, boards face pitfalls such as over-automation, skills gaps and technological dependencies. Effective governance in the digital age demands continuous learning, diversified expertise and adaptive oversight frameworks aligned with ethical and stakeholder considerations.

Conclusion

Emerging technologies are fundamentally transforming Corporate Governance by enhancing decision-making, risk management and governance strategies. Yet, boards must approach these tools with caution, integrating them thoughtfully alongside human insight, ethical reasoning and adaptive leadership to navigate the complexities of the digital era.

Sustainable Built Environment: Mixed-Use Developments Is the Answer for Urban Revitalisation



Introduction:

Global urban areas are confronted with substantial obstacles arising from swift urbanisation, increase in population, changes in the economy and disparities in society. These issues frequently show themselves as falling quality of life, crime, abandoned buildings and crumbling infrastructure. As a result, mixed-use development is becoming a more popular strategy used by developers, legislators and urban planners to revitalise metropolitan areas and create more lively, liveable communities. In order to create a vibrant and diversified urban environment, mixed-use development integrates residential, commercial and recreational functions into a single neighbourhood or district. The potential of mixed-use development to improve urban areas and people's quality of life is thoroughly examined.

Mixed-use development – The Concept

Urban areas today strive to be properly oriented to support the values of human interaction, adaptability, transparency and synergy—ideas made possible by design. Cities are facing a multitude of issues as a result of increased urbanisation. Threats include inadequate housing, basic utilities (water, power and waste disposal), residents living in subpar communities, lack of social amenities and the environment itself.

A single-use development was unable to address all of these urban issues, so suitable projects had to be built in order to rejuvenate the cityscape and enhance the social, cultural and economic well-being of its citizens.

Mixed-use development refers to a type of urban planning that combines multiple developments in close. The idea behind this type of planning is to create a liveable city

where all residents can enjoy the benefits of living in an urban area without having to sacrifice their privacy, safety or quality of life.

Mixed-use developments are becoming more popular than ever before because they allow residents and businesses alike to enjoy the benefits of being part of something larger than themselves — the community itself. These developments can be thought of as "mini towns" where people from all walks of life can come together at all hours of the day or night without disturbing one another's daily routine.

Additionally, the developments provide benefits to the environment, retailers, residents and municipalities. Because amenities are closer to home, mixed-use developments promote walking, which provides health benefits for residents (University of Delaware De). Further, it is estimated that nearly 33% of people would prefer to live in a diverse, walkable community (Slowly, 2016).

In planning terms, this can mean some combination of residential, commercial, industrial, office, institutional or other land uses. This tends to create shorter distance work, residence and recreation and goes a long way to enhance the livelihood of the inhabitants. The Mixed land use concept in today 's time is oriented towards the integration of commercial and residential land uses on a scale that is: - **Smaller, Pedestrian friendly, Linked to transit.** Mixed land use enables a range of land uses including residential, commercial, cultural, institutional and where appropriate, industrial uses, to be co-located in an integrated way that supports sustainable forms of transport such as public transport, walking and cycling and increases neighborhood amenity.

Why mixed-use as an integrated approach in urban development?

A mix of non-commercial uses, such residential and commercial uses (including retail, offices and entertainment), either vertically or horizontally, as specified in a mixed application handbook. According to the Mixed-Use Development Man book, a mixed-use development is one that promotes integration, density and compatibility of land uses while offering three or more significant revenue-producing applications. The city core is usually where one finds these kinds of developments. Locals will be able to stay close to their places of employment and recreation.

Pedestrian-friendly landscapes and vegetation; better community character; more compact construction; shorter walking and driving distances between places of residence, places of business and places of recreation the fundamental idea behind mixed-use complexes is to put

people in closer proximity to the daily necessities.

It expands the possibilities available to both employees and residents. Well-designed mixed-use developments can significantly increase people's comfort and enjoyment in their daily lives. The efficient use of land and public infrastructure can also be improved by mixed-use development. When it comes to resources like parking lots, roadways, water and even sewers, the appropriate set of applications can be incredibly effective.

Principles and Strategies for Successful Implementation of a Mixed-use development

- **Comprehensive Planning:** Comprehensive planning that takes into account the special qualities and requirements of the surrounding community is necessary for a mixed-use development to be successful. To achieve this, it is necessary to include stakeholders, carry out market studies and create adaptable land use and zoning regulations that can handle a wide range of purposes.
- **Transit-Oriented Development (TOD):** Mixed-use development and public transportation infrastructure, like bus and rail lines, are integrated through transit-oriented development. TOD lowers reliance on cars, encourages the use of other forms of transportation and improves accessibility and mobility for locals by situating housing, jobs and services close to transit hubs.
- **Adaptive Reuse and Historic Preservation:** While maintaining their architectural character and cultural legacy, urban neighbourhoods can be revitalised through the adaptive reuse of existing structures and historic preservation. Through the creative repurposing of abandoned or underutilised buildings, cities can revitalise historic neighbourhoods and encourage sustainable development methods.
- **Public-Private Partnerships (PPPs):** Through adaptive reuse of existing structures and historic preservation, urban areas can be regenerated while preserving their architectural character and cultural legacy. Cities can support sustainable development approaches and rehabilitate historic areas through the creative repurposing of unused or abandoned structures.

Benefits of Mixed-Use Development

- **Better Walkability:** By combining residential, commercial and recreational facilities close together, mixed-use complexes create surroundings that are more pedestrian-friendly. This promotes bicycling and

walking, lessens reliance on cars and improves general public health and wellbeing.

- **Access to Amenities:** Mixed-use complexes give their residents easy access to a variety of facilities, including parks, grocery stores, schools, healthcare centres and cultural institutions. This is made possible by the mix of uses inside the property. Convenience and quality of life are improved for locals of all ages and socioeconomic backgrounds by this accessibility.
- **Social contact and Community Building:** By providing chances for impromptu meetings and shared experiences between residents, employees and guests, mixed-use developments promote social contact and community cohesion. Common areas like parks, plazas and community centres provide hubs for people of all backgrounds to come together, interact and form bonds.
- **Economic Vitality:** By drawing in businesses, producing jobs and raising taxes, mixed-use development boosts regional economies. Mixed-use developments, through their revitalisation of neglected urban areas, stimulate entrepreneurship, attract investment and catalyse economic growth, all of which contribute to the overall prosperity and resilience of communities.
- **Environmental Sustainability:** By lowering car miles driven, minimising sprawl and conserving natural resources, mixed-use development helps to promote environmental sustainability. Cities may lessen the effects of climate change, enhance air quality and cut down on greenhouse gas emissions by encouraging compact, mixed-use development patterns.

- **Pedestrian-Oriented Design:** They prioritise pedestrian walkways, bike lanes and public transportation integration, encouraging walkability and connectivity.
- **Work-Life Balance:** Mixed-use developments often incorporate co-working spaces, gyms and recreational areas, addressing the growing demand for work-life integration.
- **Community Building:** These developments aim to create vibrant communities by offering a variety of amenities and activities within a single location.
- **Efficiency and Sustainability:** Mixed-use developments promote efficient use of space, reduce urban sprawl and incorporate green building practices.
- **Investment Potential:** The mixed-use segment has seen a resurgence in investment, with institutional investors showing interest in these projects.
- **Examples:** Some prominent examples include Brigade Gateway Bengaluru, Palava by Lodha Mumbai, Lykli Noida, Lodha New Cuffe Parade (NCP) Mumbai.

Conclusion: Leadership as a Daily Practice

A comprehensive strategy for urban revitalisation, mixed-use development improves people's quality of life, stimulates economic growth and supports environmental sustainability. Mixed-use development mixes residential, commercial and recreational uses into transit-accessible, walkable neighborhoods to create lively, welcoming communities where people can live, work and play. However, for implementation to be effective, all parties involved—government organisations, developers, companies and community members—must provide meticulous planning, teamwork and dedication. Cities need to put mixed-use development first going ahead because it's a critical tactic for building more livable, resilient and egalitarian urban settings.



Key aspects of mixed-use developments in India:

- **Integration of Uses:** These developments seamlessly blend residential, commercial and recreational spaces to create a cohesive environment.

Sustainability as a Business Approach in the Construction Industry

Introduction

Sustainability in construction is more than a trend—it is a fundamental shift in how the industry approaches building, operations and long-term planning. It involves integrating environmental, social and economic considerations into decision-making at all levels of a construction business. In today's world of climate change, rising resource costs and increased regulation, adopting a sustainable business approach is not only ethical—it is strategic.

Defining Sustainable Construction

A sustainable construction business is one that seeks to minimise its environmental footprint, ensure fair treatment of its workers and communities and maintain long-term economic health. This is often framed within the Triple Bottom Line approach: People, Planet and Profit.

- **People** – Ensuring worker safety, community involvement and ethical labor practices.
- **Planet** – Reducing emissions, conserving resources and minimising waste.
- **Profit** – Remaining financially viable while investing in long-term sustainability efforts.

The Importance of Sustainability in Construction

The construction sector is a major consumer of energy, raw materials and water and it accounts for nearly 40% of global carbon dioxide emissions. As urban populations grow and environmental concerns mount, both governments and clients are demanding greener, more sustainable buildings. Furthermore, regulatory pressures and building codes increasingly require compliance with sustainability standards.



Sustainable construction helps businesses:

- Lower operational costs
- -Improve building performance
- Enhance reputation and brand trust
- Meet legal and stakeholder expectations
- Access green financing opportunities

Key Pillars of Sustainable Construction

1. **Energy Efficiency:** Designing buildings that use less energy through improved insulation, lighting systems and the integration of renewable energy sources such as solar and wind.
2. **Sustainable Materials:** Using recycled, locally sourced or rapidly renewable materials to reduce the environmental impact of resource extraction and transport.
3. **Waste Reduction:** Implementing waste management plans, recycling construction debris and using modular building techniques to minimise on-site waste.
4. **Water Management:** Installing low-flow plumbing fixtures, reusing greywater and capturing rainwater for non-potable uses.
5. **Social Responsibility:** Ensuring safe and equitable working conditions, investing in workforce training and engaging with local communities affected by construction projects.



Business Benefits of Sustainability

Beyond meeting environmental goals, sustainability delivers tangible business advantages:

- **Cost Savings:** Energy and resource efficiency reduce long-term operational expenses.

- **Competitive Edge:** Sustainability credentials can distinguish a firm in tenders and bids.
- **Investor Appeal:** ESG (Environmental, Social and Governance) performance attracts conscious investors.
- **Attracting Talent:** Employees, particularly younger professionals, are drawn to companies that prioritise environmental and social responsibility.
- **Brand Reputation:** Companies recognised for their sustainability efforts earn consumer trust and loyalty.

Practical Strategies for Sustainable Construction

To transition to a more sustainable business model, construction companies can:

- **Pursue Green Building Certifications:** Standards like LEED, BREEAM and Green Star validate sustainable practices.
- **Adopt Building Information Modeling (BIM):** This improves planning efficiency, reduces material waste and enhances collaboration.
- **Conduct Life Cycle Assessments (LCAs):** Evaluate the full environmental impact of buildings—from material extraction to end-of-life.
- **Train Staff in Sustainable Methods:** Upskill teams in the use of energy-efficient equipment, material management and green compliance.
- **Source Responsibly:** Work with suppliers who meet recognised environmental standards (e.g., FSC-certified timber).

Challenges and Solutions

Implementing sustainability can come with hurdles, but they are not insurmountable:

Challenge: High initial costs **Solution:** Conduct life cycle cost analysis; seek green building grants or tax credits

Challenge: Supply chain limitations **Solution:** Partner with certified sustainable material providers

Challenge: Resistance to change **Solution:** Provide internal training and show ROI through pilot projects

Challenge: Measuring impact **Solution:** Use standardised reporting tools and set clear sustainability KPIs

The Future of Sustainable Construction

Looking ahead, the construction industry is moving toward:

- Circular Design Models: Designing buildings for disassembly and reuse
- Smart Infrastructure: Integrating buildings with smart grid and IoT technologies
- Climate-Resilient Design: Preparing structures for extreme weather and sea level rise
- Low-Carbon Materials: Innovating alternatives to concrete and steel
- ESG-Driven Investment: Increased pressure from investors to report and improve sustainability outcomes

Conclusion and Call to Action

Sustainability is not a one-time project—it is a continuous improvement journey. Construction businesses must begin integrating sustainable practices across their operations, one step at a time. Whether it's through material choices, process optimisation or community engagement, each step contributes to a more resilient, responsible and profitable future.

Action Points:

- Start with a sustainability audit or pilot project
- Set measurable goals for improvement
- Invest in technology and training
- Engage with all stakeholders to foster buy-in

Final Note

Sustainable construction is not just about reducing harm—it's about building value. Those who embrace it early will be the industry leaders of tomorrow.

Real-World Examples

Real-World Examples of Sustainable Construction in India

1. Brigade Gateway Enclave (includes World Trade Centre Bangalore)

Sustainability Highlights:

- Integrated township with residential, commercial, hospital and school zones

- Rainwater harvesting system across the complex
- Extensive landscaping and water-efficient irrigation
- Solar lighting in common areas and energy-efficient building materials used
- Waste segregation and recycling initiatives

Impact:

One of Bangalore's earliest large-scale mixed-use sustainable developments, setting a standard for integrated eco-living.

2. Infosys Campus – Electronic City, Bangalore

Sustainability Highlights:

- Infosys buildings in Bangalore have received multiple LEED and IGBC Platinum certifications
- Energy savings of over 50% through smart building design, HVAC optimisation and motion-sensitive lighting
- Green roofs, solar water heating and greywater reuse
- In-house building management system (BMS) to monitor energy and resource usage

Impact:

Demonstrates how large tech campuses can lead in sustainable corporate infrastructure with measurable results.

3. CII-Sorabji Godrej Green Business Centre – Hyderabad

Sustainability Highlights:

- India's first building to receive LEED Platinum certification
- Energy consumption reduced by 55% compared to conventional buildings
- Daylighting and passive cooling strategies
- Use of fly ash bricks and recycled building materials

Impact:

A benchmark project that demonstrates how green buildings can be cost-effective and high-performing in Indian climatic conditions.

4. Indira Paryavaran Bhawan – New Delhi (Ministry of Environment HQ)

Sustainability Highlights:

- India's first net-zero energy government building
- 930 kW solar PV system powers the building entirely
- Use of energy-efficient lighting, chilled beam technology and high-performance glazing
- Recycled construction materials and green-certified products used

Impact:

The building achieves over 70% energy savings compared to conventional office buildings, setting an example for sustainable public infrastructure.

5. TERI Southern Regional Centre – Domlur, Bangalore

Sustainability Highlights:

- Built with passive design features to optimise natural ventilation and daylight
- Solar PV and solar thermal systems in use
- Rainwater harvesting and greywater recycling
- Minimal concrete usage; emphasis on natural, locally sourced materials

Impact:

Serves as a demonstration facility and knowledge hub for sustainable building technologies in southern India.

