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Building with purpose

Five imperatives for shaping the cities of the future in the GCC

Contacts

Marwan Bejjani
Partner
marwan.bejjani
@strategyand.pwc.com

Jean Aboueid
Principal
jean.aboueid
@strategyand.pwc.com

Elias Karam
Partner
elias.karam
@strategyand.pwc.com

Saad Iskandarani
Manager
saad.iskandarani
@strategyand.pwc.com

About the authors

Marwan Bejjani is a partner with Strategy& Middle East and leads the firm's Mobility, Aerospace, Infrastructure, and Tourism practice. He advises leaders and boards on strategic transformations and has extensive experience supporting construction clients in the Gulf and Europe. His expertise spans national and corporate strategies, organizational restructuring, governance, operational excellence, and change management.

Elias Karam is a partner with Strategy& Middle East in the Mobility, Aerospace, Infrastructure, and Tourism practice. He has extensive experience advising clients in the construction and urban mobility sectors in the Gulf and Europe. His expertise spans strategy formulation, company establishment, governance, operating model design, and large-scale project implementation.

Jean Aboueid is a principal with Strategy& Middle East in the Mobility, Aerospace, Infrastructure, and Tourism practice. He advises leading public and private sector players across the construction ecosystem in the Middle East, Europe, and Africa on strategic transformation, operating model redesign, performance improvement, and local content development. He has played a key role in shaping national construction agendas and supporting large-scale transformation programs in the GCC countries.

Saad Iskandarani is a manager with Strategy& Middle East. He has extensive experience in the construction and building materials sectors, having been involved in the planning and execution of numerous mega-projects across the GCC countries. He advises leading public and private sector clients on advancing sustainability in the built environment by integrating green practices along the construction value chain.

EXECUTIVE SUMMARY

The Gulf Cooperation Council (GCC) countries are investing US$1 trillion in their cities. To ensure these investments deliver full and lasting value, the region's construction sector must elevate its mission. It must build with purpose by addressing five major tensions that affect cities and city builders worldwide: climate change, technological disruption, built-in obsolescence, global uncertainty, and social disconnects.

Building with purpose requires:

- **Hardwiring sustainability into cities.** The construction sector can cut emissions, conserve resources, and pursue circularity in design, materials, and methods. Governments can support and accelerate this quest by aligning incentives, policies, and permitting with environmental outcomes.

- **Embracing digital innovation and transformation** to build smarter, faster, and better. The construction sector can boost productivity, reduce costs, and produce step changes in the planning and delivery of infrastructure by adopting e-construction workflows, artificial intelligence (AI), robotics, and modular construction.

- **Designing long-lived and adaptable urban infrastructure.** The construction sector can use life-cycle planning, predictive maintenance, and modular upgrades to extend asset life, improve cost efficiency, and retrofit existing assets.

- **Becoming localization champions.** The construction sector can create in-country value and a resilient supply chain by building a stronger regional ecosystem. Governments can support this effort by setting local content targets, enabling joint ventures between international and domestic players, and helping develop the next generation of skilled workers and site managers.

- **Fostering social well-being** by making inclusion a design priority. The construction sector can deliver affordable housing, accessible public spaces, and improved services. Governments can track the societal impact of these efforts using community outcome metrics.

The future of the Gulf's cities is being shaped by choices made today. If the construction sector and governments commit to building with purpose, the region's urban skylines will stand not only as monuments of concrete and steel, but also as testaments to foresight, resilience, and inclusive prosperity.

FIVE TENSIONS DEFINE THE URBAN DEVELOPMENT CHALLENGE IN THE GCC

Saudi Arabia's giga developments, the repurposing of Qatar's World Cup infrastructure, and other ambitious projects show that the Gulf Cooperation Council (GCC) countries[1] have embarked on unprecedented visions of urban development. They are investing US$1 trillion to bring these visions to fruition.[2] The returns they reap, however, will be determined not just by the magnitude of investment or dramatic new skylines, but by the long-term resilience and prosperity of the region's cities.

To meet the urban challenge, the GCC's construction sector and government decision-makers need to consider five interrelated tensions. Each tension puts a different kind of pressure on cities.

Climate change: Cities are both major contributors to climate change and primary victims of the stresses it produces. Given that the built environment produces approximately 40 percent of global CO_2 emissions, the GCC's cities are hot spots for climate action.[3] Cities are also the primary victims of the increasingly frequent and severe weather events, such as heat waves, floods, and storms, that are spawned by climate change.

Technological disruption: Although the digital revolution is already transforming many industries and government services, operations and maintenance (O&M) and construction in the GCC countries remain primarily manual and paper-based. This is manifested in frequent project overruns: Oxford professor Bent Flyvbjerg's database of more than 16,000 infrastructure projects exceeding US$1 billion in costs revealed that 91.5 percent of such projects went over budget, past schedule, or both.[4] The relatively slow uptake of technological advances also impacts the sector's productivity. Construction has averaged only 10 percent productivity growth per year over the past two decades, versus 50 percent growth in global economic productivity.[5] Moreover, the failure to rapidly integrate technological innovation into construction practices risks additional high project costs, delays, and failures. Without a digital transformation, the region's ambitious plans for new highways, giga projects, and smart cities could stumble on old-fashioned execution.

Built-in obsolescence: The Gulf states are constructing vast amounts of urban infrastructure in a short time, but no built environment lasts forever. Eventually, much of this infrastructure will need to be adapted to changing needs, and all of it will require maintenance. Likewise, although the population of the GCC countries is young and still growing compared with that of many developed countries, the population will age. As that happens, construction priorities arising from aging populations will come to the Gulf, and new needs, such as more accessible homes and infrastructure for seniors, will come to the fore. As these two aging challenges beset GCC cities, it will create a shift in construction demand. As in Japan, which experienced its last major construction boom over 50 years ago, the focus of urban development will move from new construction to the renovation and longevity of existing assets. The degree of obsolescence that is built into the GCC's cities today will determine their useful lives and their ability to adapt to the needs that will arise in decades ahead.

Global uncertainty: Globalization, with its imported materials and migrant labor, once served as a driving force of urban development in the GCC, but more recently, geopolitical shifts and other disruptions have exposed the vulnerabilities of far-flung supply chains. In construction, those vulnerabilities can translate into expensive delays and cost hikes. A sudden shortage of steel from abroad, a spike in lumber prices, or a halt in the flow of specialized technicians can bring projects to a standstill. Urban leaders learned this the hard way in recent years: COVID-19 lockdowns caused material bottlenecks worldwide, and disruptions to key maritime trade routes—including the Suez Canal blockage and other regional shipping constraints—sent commodity prices seesawing.

Social disconnects: Construction is one of the largest employers in the GCC countries and a pillar of urban development, yet its ability to deliver positive social impact remains underutilized. The sector relies heavily on expatriate labor, while local youth are often underemployed. Moreover, large projects tend to prioritize iconic architecture over affordable housing and accessible public infrastructure, at the risk of deepening social divides instead of bridging them. Thus, even as GCC cities expand rapidly, the benefits of urban development do not necessarily translate into livelihoods or inclusion for local populations.

The five tensions—climate change, technological disruption, built-in obsolescence, global uncertainty, and social disconnects—represent a daunting challenge to urban development in the GCC countries. They define not only the new construction capabilities and performance that will be needed to make the urban visions of the GCC governments a reality, but also the outcomes that the construction sector must help produce. To meet these challenges, the GCC's construction sector will need to build with purpose.

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BUILDING WITH PURPOSE IN THE GCC'S CITIES

The construction sector can translate the GCC's urban tensions into five opportunity-driven imperatives (*see Exhibit 1*). By using these imperatives to purposely transform how cities are built, the industry can simultaneously deliver outcomes that include economic growth, sustainability, technological innovation, workforce development, local resilience, and social well-being.

EXHIBIT 1
Building with purpose in the Gulf's cities encompasses five imperatives

Source: Strategy& Middle East

The future of construction in the GCC's cities will not focus on one of the five imperatives over the others. Leaders must address the imperatives collectively and adopt solutions that cut across them. A green building, for instance, can create jobs and save energy; a localized supply chain can boost the domestic economy and reduce travel-related carbon emissions; a digital construction tool can improve both productivity and worker safety. Because the construction sector sits at the nexus of the tensions facing the GCC's cities, the sector is uniquely positioned to deliver a multiplier effect of benefits.

Further, although the construction sector as a whole will play a central role in the achievement of the five imperatives, it cannot operate in a vacuum. Governments, private-sector players, and communities will need to work together to support industry efforts.

IMPERATIVE 1: HARDWIRE SUSTAINABILITY INTO THE GCC'S CITIES

Climate change presents a dual mandate for urban construction: mitigation, as in reducing future emissions; and adaptation, as in withstanding current climate impacts. Several GCC countries are already seeking leadership positions in the quest for urban sustainability. Abu Dhabi's Masdar City mega project was conceived as a pioneering eco-city that would provide a prototype for cities globally.[6] Saudi Arabia's NEOM project, including The Line city, promises 100 percent renewable energy, no cars, and zero carbon emissions.[7] Ambitions like these require both government and industry action.

Governments can embed sustainability in their urban landscapes by adopting net-zero building codes, green standards, and circular economy principles. Amsterdam's Circular 2020–2025 Strategy road map provides a compelling example: It calls for reducing the use of new raw materials in construction by 50 percent by 2030 and achieving a waste-free city by 2050.[8]

The construction sector can play an instrumental role in meeting such targets by using energy-efficient designs, renewable energy, and low-carbon and carbon-absorbing materials for new buildings. Green technologies can also be used in the retrofitting of existing buildings. In addition, building components can be reused, demolition waste can be recycled into new projects, and infrastructure can be designed for disassembly. For instance, the use of aerogel insulation, an advanced composite, in a building's façade can cut the building's energy use by up to 50 percent in certain climates.[9]

Being green is not enough. Urban infrastructure must be adapted for climate resilience. Urban planners in GCC countries can enhance climate resilience by elevating flood defenses, designing buildings to stay cool during heat waves, and expanding green spaces to absorb stormwater. Construction firms can build seawalls, storm-resistant power grids, and cooler pavements to protect urban populations.

The GCC countries have already signaled their strong intention to break from the high-carbon urbanization models of the past. If they are to make good on that intention, net-zero and climate resilience will need to be nonnegotiable mandates in urban development. Policy levers, such as building codes, incentives, and public procurement, will need to be used to ensure that all new construction aligns with climate goals. Innovations such as circular construction and green materials will need to be scaled through pilot programs and knowledge sharing. Both infrastructure design and construction practices must change. Solar and wind power, energy storage, and smart grids will need to be deployed on a massive scale.

By building climate-resilient infrastructure and carbon-neutral buildings now, GCC cities can avoid enormous costs later. They will be able to secure a livable environment for the next generation, while sidestepping the full brunt of tomorrow's disaster damages and lowering the inevitable expense of retrofitting.

IMPERATIVE 2: EMBRACE THE DIGITAL CONSTRUCTION REVOLUTION

The GCC countries need faster, smarter ways to build and maintain their cities. Fortunately, a wave of technological innovation is poised to revolutionize urban development. Digital construction—leveraging artificial intelligence (AI), automation, building information modeling (BIM), drones, robotics, and more—can deliver higher quality at lower cost and in less time. The potential gains are enormous. One Strategy& analysis of construction sector productivity showed that a 50 percent improvement in productivity in Saudi Arabia alone could unlock nearly SAR 300 billion (US$80 billion) in value over five years.

The tech revolution spans the entire project life cycle, from planning and design to O&M. Together, these technologies and tools add up to a digital construction ecosystem that encompasses:

- **Smarter planning and design:** AI can produce optimized designs based on criteria such as cost, materials, and energy efficiency. It can identify design clashes and compliance issues early on, preventing costly changes during construction. It can also analyze large data sets of past projects to produce more accurate cost estimates and risk assessments. On large commercial projects, AI-based forecasting tools have reduced delays by as much as 30 percent and saved tens of millions of dollars by predicting schedule conflicts and reallocating resources before issues arise.[10]

- **On-site efficiency and safety:** Automation and robotics are transforming the ways and means of on-site construction. Drones can survey sites and track progress in real time, feeding data into project management platforms. Robotic arms can lay bricks or 3D-print concrete structures continuously. Wearables, such as exoskeleton suits, are reducing worker fatigue and injuries. Exoskeletons can cut work-related injuries by up to 40 percent while increasing productivity by as much as 20 percent.[11] WakeCap, a smart helmet used in mega projects in Saudi Arabia, has proven its ability to reduce safety problems by 91 percent and improve incident response times by 70 percent.[12]

- **Off-site fabrication:** New methods such as modular construction are leveraging the control and precision of the factory environment to improve quality and consistency and drastically reduce on-site labor and time. An academic analysis of 30 large projects worldwide revealed that modular construction reduced costs by 22 percent on average and shortened project time lines by 35 percent compared with traditional methods.[13] The controlled environment of a factory also results in less material waste. Studies show modular builds produce 50 percent less waste than traditional methods.[14]

- **Operations and maintenance (O&M):** Technology continues to add value as city infrastructure networks age and expand. It optimizes interventions and helps cities do more with limited budgets. Digital twins (virtual replicas of physical buildings and infrastructure) and embedded internet of things (IoT) sensors enable operators to monitor and simulate real-world performance. For example, Sydney Airport's digital twin platform allowed it to save over 12,000 work-hours per year in asset management.[15] Technologically enabled predictive maintenance tools and platforms mean problems can be fixed before they become failures, saving money and extending asset life. Technology can also enlist citizens in O&M efforts. After launching a 311 reporting app, the U.S. city of Lawrence, Kansas, slashed its average closure time for service requests from 57 days to seven days, significantly speeding up road repairs and other fixes.[16]

Once a digital technology ecosystem is fully realized, urban development can be managed with the same precision as modern manufacturing—using real-time data, automation, and AI-driven decision support at every step. The outcomes are faster delivery, lower costs, higher quality, and safer working conditions. These outcomes also translate into benefits for other imperatives: For example, efficiency gains from tech result in less waste (bolstering sustainability) and lower costs, which can translate to more affordable housing or infrastructure (enhancing social inclusion).

Mega projects across the GCC countries have already showcased some cutting-edge construction tech. Now, they need to bring it to scale across the sector. Governments can catalyze this effort by updating regulations and standards to require BIM on all large projects, funding pilot projects for new technologies (such as autonomous construction equipment), and developing the digital skills of the construction workforce.

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IMPERATIVE 3: EXTEND INFRASTRUCTURE LONGEVITY AND ADAPTABILITY

The time to plan and ensure the long-term viability of the GCC cities is now, while the built environment is expanding and urban populations are still young. Twenty years from now, today's cutting-edge infrastructure will be aging and the needs of the populace will be changing. To anticipate these inevitabilities, GCC cities need to extend the longevity and adaptability of the built environment.

Japan offers a preview of this future. Given that nearly 30 percent of its population is over 65 and population growth is slowing, demand for new housing and major new urban districts has declined. As a result, budgets have shifted toward maintaining and upgrading existing infrastructure. Japanese companies are responding to this trend by innovating in maintenance techniques, such as using robotics for bridge inspections and developing sealants to extend the life of tunnels, in order to keep the nation's aging infrastructure safe without completely rebuilding it. Urban development in the GCC nations should follow a similar path.

Fulfilling the imperative of longevity and adaptability begins with a mindset shift from "build and forget" to "build and maintain." The GCC's cities will need asset management programs for infrastructure, backed by digital twin technology and predictive maintenance, to prolong asset life cycles. They will need to allocate budgets for maintenance alongside new capital projects. They will need to encourage the retrofitting and reuse of existing structures with policy instruments, such as fast-tracked permits and grants for energy retrofits.

An age-friendly, future-ready city is one that cares for its built environment throughout its life span. Technology can help the construction sector meet this challenge. As described above, the use of digital twins, IoT sensors, and predictive analytics can revolutionize maintenance and extend asset life. So, too, can the use of self-healing materials, such as new concrete mixes that auto-seal small cracks. Bio-concrete can achieve 90 percent crack healing efficiency, extend the structural life span by 50 to 200 years, and reduce maintenance costs by 60 to 80 percent over conventional concrete structures.[17] Widespread use of such materials in new construction and in rehabilitating old structures could greatly reduce long-term costs.

As the region's population ages, GCC cities must be able to adapt buildings to meet new demands. Schools that close in response to a population with fewer children can be converted into community centers or clinics. Large homes can be remodeled into duplexes or eldercare homes. This kind of adaptive reuse is a form of construction that preserves the building shell but changes its function. It is inherently sustainable and addresses demographic needs without consuming more land.

The GCC's cities can avoid the pitfalls faced by older cities by designing longevity into development projects. This can be achieved through various means, such as using durable materials suited to harsh climates, designing buildings that can be easily modified as needs change, and immediately setting aside maintenance funds.

By valuing maintenance as much as expansion, the GCC cities can ensure that their investments continue to serve the public over the long term. The construction industry, too, can become the custodian of the old—keeping yesterday's infrastructure viable for tomorrow.

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IMPERATIVE 4: LOCALIZE SUPPLY CHAINS FOR VALUE CREATION, RESILIENCE, AND SECURITY

The need for localization in the urban development efforts of the GCC countries is clear. It supports the economic growth and sustainability needed to achieve national visions in the region. It also helps insulate the GCC cities from external events, such as geopolitical tensions and global pandemics, that could interrupt their development plans.

Localization and self-reliance in construction supply chains does not require complete autarky. Instead, the construction sector can redesign its supply chains for resilience and security by diversifying its vendor base and supporting domestic manufacturers. The goal is to reduce overreliance on any single source. For example, a construction company might enlist multiple suppliers in different countries and domestic producers for key materials such as steel and cement, or it could maintain strategic stockpiles of critical components, such as electrical transformers and tunneling machine parts, as a buffer against shocks. Companies can also use advanced manufacturing techniques such as 3D printing to produce components on-site or locally and bypass traditional supply chains altogether. For instance, a complex façade piece can be 3D-printed in the city where it will be installed, rather than shipped from across the world, saving time and transport costs.

GCC governments can support the strengthening of local construction capacity by using the power of the purse to develop local industries and workforces. They can set ambitious, yet realistic local content targets and create partnerships between foreign firms and local companies to transfer knowledge. They can also invest in construction education—from vocational schools to university engineering programs—to create the next generation of skilled workers and managers.

Many GCC governments have already instituted local content requirements for major projects. Saudi Arabia's Vision 2030, for instance, explicitly calls for increasing local content and has set up mechanisms to measure and reward it. Businesses are expected to report their local content adoption, and procurement laws have been updated to favor bidders who source and hire locally. Saudi Arabia is also leveraging its massive construction pipeline to develop domestic suppliers. Analysis shows early signs of progress: For instance, local factories for precast concrete, steel fabrication, and modular units are scaling up to meet the demand of giga projects.

Beyond materials, the construction workforce must also be localized. Many GCC cities historically relied on migrant construction labor. That model carries risks, however. Labor mobility was hit during COVID-19 travel bans, and social considerations with respect to employing and training citizens must be taken into account. Building a more local construction workforce offers the twin benefits of reducing dependency on foreign labor flows and lowering domestic unemployment.

Construction jobs are sometimes viewed as having low prestige or being too physically demanding, but the industry can begin to attract more local workers by raising standards and introducing modern construction methods. For example, as construction becomes more tech-driven, new roles like drone operator, BIM modeler, or off-site fabrication technician can raise its appeal. Employment quotas can also help. Saudi Arabia, for instance, requires contractors to hire a certain percentage of local workers who are Saudi nationals.[18] These quotas encourage companies to invest in training programs and collaborate with technical colleges to build the needed skills domestically. Over time, such policies can help create a more self-sufficient workforce.

IMPERATIVE 5: FOSTER SOCIAL WELL-BEING WITH INCLUSION, JOBS, AND LIVABILITY

The construction sector can do more than erect buildings; it can help construct the fabric of society. When done well, urban development can be leveraged as a positive force for social equilibrium. It can foster social well-being by providing livelihoods, affordable homes, and vibrant public spaces.

Construction has a direct impact on employment and the economy. Construction is typically labor-intensive, which makes it a potent job creator. One estimate suggests that the ongoing construction surge in the Middle East and North Africa (MENA) region could create around 4.3 million jobs annually through direct and indirect effects.[19] This represents a massive contribution toward reducing unemployment in the GCC countries (along with the social woes associated with unemployment).

The GCC's construction sector can leverage the number of jobs it provides by improving the quality and accessibility of those jobs. To be a greater force for good, the sector can raise wages, improve working conditions, and create new opportunities for underrepresented groups.

In particular, bringing more women into construction could be a powerful way to both diversify the workforce and empower a large segment of society. Around the world, women make up a small fraction of construction roles. But targeted initiatives are changing that, whether it's trade apprenticeships for women in the U.S. or all-female engineering cohorts in the Middle East. In the GCC countries, women's workforce participation is rising in many fields. Construction could be next, with the right encouragement and role models.

Upskilling work and establishing new career paths can also improve the societal impact of construction jobs. As we've seen, digital technologies are creating new construction career paths in which young workers can start as technicians and grow into BIM specialists, site managers, or safety officers, acquiring valuable certifications along the way. Government and industry partnerships can provide training aimed at turning construction into a stable career choice. By providing clear pathways to earn and progress, construction can help alleviate the unrest that can arise among masses of idle, frustrated youth.

Construction can become an enabler of social stability by enabling affordable housing, public transit, hospitals, schools, parks, civic spaces, and other social amenities that improve the quality of life. Addressing social needs through construction is already high on the agenda in the GCC countries. For instance, Saudi Arabia's ROSHN initiative intends to deliver 400,000 new homes by 2030, many of which target the middle class and provide modern, reasonably priced residences.[20] Similarly, large public transport projects in GCC cities will provide people of all income levels with access to opportunities across the urban landscape.

Urban development efforts in the GCC countries can maximize their societal returns by embracing design concepts like the “15-minute city,” which encapsulate the goal of inclusive, convenient living. This idea—to design neighborhoods such that residents can reach work, shops, school, and recreation within a 15-minute walk or bike ride—requires thoughtful mixed-use construction. Construction firms that can deliver these integrated projects as master developers or in partnerships are key players in realizing such human-centric urban forms. In the GCC countries, ideas like this could be incorporated in new developments and in new districts in existing cities.

Construction can foster community engagement. Too often, large urban development projects are seen as top-down dictates that are done to communities, rather than done with them. Leading cities now incorporate community input in planning by holding consultations, adjusting designs to include community facilities, and employing local community members in the project itself. The GCC’s cities can use this participatory approach to build trust. When people see urban developments that provide jobs, train local youth, and add useful amenities, they are more likely to support and feel included in a city’s progress.

A forward-looking construction sector need not restrict its measures of success to square meters built and return on investment. It can also measure success by the degree to which it uplifts people’s lives.

CONCLUSION

Now is the time to build cities with purpose in the GCC countries. Every construction project, from a single home renovation to a new megacity, presents an opportunity to pursue the five imperatives and capture their interconnected benefits.

The political will and most of the investment is already in place. What's needed now is a digitally empowered, sustainably minded, locally rooted, socially conscious construction sector. If construction is framed as a solution to the GCC's urban challenges, the region's city skylines will stand not only as monuments of concrete and steel, but also as testaments to foresight, resilience, and inclusive prosperity.

ENDNOTES

1. The GCC countries are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

2. K. Abdallah, R. Sfeir, C. Nakhoul, and F. Halim, "Managing the $1 Trillion Wave of GCC Real Estate Megaprojects," Strategy&, 2020 (https://www.strategyand.pwc.com/m1/en/reports/2020/real-estate-megaprojects.html).

3. I. Millet and N. Pouy, "Achieving Sustainability in the Built Environment, Brick by Brick," Environmental and Energy Study Institute, September 29, 2023 (https://www.eesi.org/articles/view/achieving-sustainability-in-the-built-environment-brick-by-brick).

4. D. Akst, "Why Do Large Projects Go Over Budget?" *strategy+business,* June 19, 2023 (https://www.strategy-business.com/article/Why-do-large-projects-go-over-budget?utm).

5. M. Bühler, K. Nübel, T. Jelinek, L. Köhler, and P. Hollenbach, "Bridging the Construction Productivity Gap—a Hierarchical Framework for the Age of Automation, Robotics, and AI," *Buildings,* August 15, 2025 (https://www.mdpi.com/2075-5309/15/16/2899).

6. "Welcome to the City of Tomorrow," Masdar City website (https://masdarcity.ae/).

7. "The Future of Urban Living," NEOM website (https://www.neom.com/en-us/regions/theline).

8. Amsterdam Circular 2020–2025 Strategy (https://api.amsterdamsmartcity.com/storage/media/76/c_70071_7006807c-e9b1-47c6-985c-ee1f132d0f4f.pdf).

9. O. Dupius, "Aerogel-Infused Translucent Panels," Façade Today, March 5, 2025 (https://facadetoday.com/aerogel-infused-translucent-panels/).

10. C. Daigle, "How Turner Construction Cut Project Delays by 30% Using AI," ChiefAIOfficer.com, September 21, 2025 (https://chiefaiofficer.com/blog/how-turner-construction-cut-project-delays-by-30-using-ai/).

11. "Humanoids and the Future of Exoskeletons," 3Laws.com (https://3laws.io/pages/Humanoids_and_the_Future_of_Exoskeletons.html).

12. "WakeCap Secures US$28mn to Advance Safety-First Construction Tech across Global Markets," *Health, Safety, and Environment Review* (https://hsereview.com/industry-insights/wakecap-secures-us$28mn-to-advance-safety-first-construction-tech-across-global-markets).

13. M. Gómez and R. Sánchez, "Impact of Modular Construction Techniques on Cost and Time Efficiency in Large Projects," *International Journal of Civil Engineering and Construction,* 2024 (https://www.civilengineeringjournals.com/ijcec/article/35/5-2-10-158.pdf).

14. “Global Modular Construction Growth 2025,” Talent Traction, February 28, 2025 (https://www.talenttraction.org/global-modular-construction-growth-2025/).

15. L. Johnson, “Digital Transformation in Airports Improving Efficiency and Passenger Experience,” Bentley, August 27, 2025 (https://blog.bentley.com/software/digital-transformation-in-airports-improving-efficiency-and-passenger-experience/).

16. “Turning Insight into Action: How Lawrence Leveled Up Resident Engagement and Service Delivery with SeeClickFix 311 CRM,” CivicPlus (https://www.civicplus.com/case-studies/crm/lawrence-resident-engagement-service-seeclickfix-311-crm/).

17. L. Carter, “Living Concrete: The Self-Healing Infrastructure That’s Changing Construction Forever,” *International Journal of Revolutionary Civil Engineering,* January–February 2025 (https://www.civilresearchjournals.com/uploads/archives/20250619103150_5.pdf).

18. “Procedural Guideline: Nitaqat Mutawar Program” (https://www.hrsd.gov.sa/sites/default/files/2023-06/E20210523.pdf).

19. “MENA to Pioneer Sustainable Construction with $2tn Investment, Generate 4.3m Jobs,” *Arab News,* November 16, 2023 (https://www.arabnews.com/node/2409976/amp).

20. “ROSHN Aims to Develop 400,000 Units, Awards 71% of Contracts Locally,” Argaam, June 18, 2025 (https://www.argaam.com/en/article/articledetail/id/1821777).

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