
ASU
جامعة العلوم التطبيقية
APPLIED SCIENCE UNIVERSITY

# SUSTAINABLE DEVELOPMENT GOALS

## 2025

SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

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# SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

## SDG 9 Report: Industry, Innovation and Infrastructure at ASU Bahrain (2020–2025)


*Applied Science University (ASU) has hosted international conferences on innovation and technology, engaging experts globally* [1].

### Research and Innovation Initiatives at ASU

ASU Bahrain has significantly expanded its research and development activities since 2020, reinforcing its role in fostering innovation. The university established a dedicated **Research Centre for Interdisciplinary and Futuristic Studies** to boost research output and entrepreneurship. This center serves as a hub for scholarly engagement and intellectual innovation, supporting new multidisciplinary research initiatives and facilitating research funding [2]. ASU now houses several specialized research labs and centers focusing on priority areas such as **sustainable development, artificial intelligence, business innovation, and legal studies** [1]. The university actively encourages faculty and students to pursue applied research that addresses real-world problems, regularly hosting international academic conferences and publishing journals to share findings [1].

ASU's emphasis on practical innovation is reflected in the achievements of its students and faculty. Teams from ASU have showcased inventive projects on global stages – for example, students won **gold medals at the Seoul International Invention Fair** by presenting solutions to societal challenges [3]. The university has also launched notable R&D projects in emerging technologies. In 2021, a group of ASU IT students developed an advanced cybersecurity threat

detection system using machine learning, a novel solution recognized for its potential to protect digital infrastructure [3]. Similarly, an interdisciplinary research team in 2020 worked on autonomous **robotics for healthcare and industry**, designing AI-powered robots for remote monitoring and maintenance to improve safety and productivity [3]. Such projects not only contribute to technological innovation in Bahrain but also provide hands-on research experience to students. Overall, through new research centers, active labs, and innovation-driven projects, ASU is building a strong culture of research and creativity in line with SDG 9's goal to **foster innovation**. Evidence of these efforts is seen in the university's growing research output and its collaboration across disciplines to tackle economic, environmental, and social challenges.


## Partnerships with Industry and Government


ASU Bahrain actively collaborates with industry, government bodies, and international institutions to drive innovation and ensure its programs meet the needs of modern infrastructure and industry. In December 2024, ASU entered a strategic partnership with the **National Bank of Bahrain (NBB)** to offer tailored financing solutions for students. Under this MoU, NBB provides ASU students with education loans at competitive interest rates, fee

waivers, and flexible payment terms [4] – a partnership that eases financial barriers to higher education and exemplifies cooperation between academia and the financial industry. Earlier in 2024, the **Bahrain Association of Banks (BAB)** signed an MoU with ASU to align academic programs with banking sector needs. This collaboration focuses on integrating *fintech* and digital banking skills into the curriculum, offering students practical training opportunities and joint research initiatives in financial technology [3]. Such academia-industry links ensure graduates are prepared to drive innovation in Bahrain's evolving financial sector.

ASU's College of Engineering has forged multiple partnerships with leading technology and engineering firms, providing students with direct exposure to industrial innovation. For instance, ASU partnered with **Transgulf Readymix Concrete Co.** to facilitate internships and field training for civil engineering students, while jointly undertaking R&D to improve concrete design and address challenges in Bahrain's construction industry [3]. In the energy sector, ASU signed agreements with **Hitachi Energy** and **Nokia** to offer internships and co-supervise student capstone projects on sustainable energy systems and advanced networking technologies. These collaborations give students hands-on experience in developing greener power solutions and next-generation digital communications [3]. Likewise, ASU's partnership with **Hikvision** provides engineering students access to specialized surveillance technology devices, expert workshops, and site visits, enriching their learning in cutting-edge security systems [3]. A similar agreement with **Schneider Electric** enables training and internships in energy management and automation; students benefit from resources like Schneider's Energy University and field visits to learn about smart grid and efficiency technologies [3]. Each of these partnerships embeds industry expertise into ASU's programs, ensuring that curricula remain applied and up-to-date.

In addition, ASU has focused on inclusive and future-oriented partnerships. The university teamed up with **Petrofac** to create internship opportunities in the energy industry, with female engineers from Petrofac mentoring ASU's female students in STEM fields [3]. This initiative supports gender diversity in engineering and aligns with sustainable industrial growth by nurturing local talent. In the cybersecurity realm, ASU's collaboration with **StarLink** (a regional IT security firm) offers students training in cybersecurity distribution and joint supervision of capstone projects, allowing them to work on real-world cyber defense applications [3]. Furthermore, ASU has pursued international accreditation partnerships: notably, in 2025 ASU became Bahrain's **first university to be an Authorized Training Partner of the Project Management Institute (PMI)** [5]. Through this partnership, ASU now delivers globally recognized project management certification courses to its students and the wider community, strengthening the bridge between academic learning and professional industry standards [5]. Across these examples, ASU's network of partnerships – from local banks and government associations to global tech companies and professional bodies – demonstrates a comprehensive approach to SDG 9. By working closely with industry and government, ASU ensures its research and teaching directly contribute to industrial innovation, workforce development, and the creation of resilient infrastructure in Bahrain.

## Sustainable and Digital Infrastructure Development

Applied Science University has invested in modern infrastructure and digital transformation initiatives to support sustainable industrial education and a "smart campus" environment. A major leap came in 2021 when ASU implemented a suite of **smart campus features** to enhance teaching and operations. Classrooms were upgraded with interactive digital whiteboards and high-speed campus-wide Wi-Fi, and a unified online portal was deployed to give students real-time access to academic resources and administrative services [3]. These investments have improved the efficiency of campus management and created technology-enabled learning spaces, aligning with SDG 9's aim to build resilient infrastructure and foster innovation. The smart classrooms and e-services proved especially valuable during the COVID-19 period, allowing ASU to seamlessly continue lectures and even conduct virtual thesis defenses in 2020 – an innovation that maintained academic continuity while prioritizing health and safety [3]. Today, ASU's digital infrastructure supports blended learning and ensures students and faculty can collaborate effectively using modern tools.

In parallel, ASU's physical campus infrastructure in the Sitra area has been developed with state-of-the-art facilities that encourage innovation and hands-on practice. The university offers **fully equipped engineering and computing laboratories, studios, and workshops** to its students. According to a recent profile, ASU's campus includes smart classrooms with digital teaching tools, specialized engineering labs, extensive library resources (with digital access), and even recreational spaces to foster a well-rounded educational environment [1]. The adoption of e-learning platforms and online resources further extends the reach of these facilities, enabling flexible learning for working professionals and international students [1]. An illustrative infrastructure innovation is the **Versatile Sustainable Modular Pod** that ASU introduced in 2024. This is a movable, reconfigurable educational space designed by ASU to adapt to various teaching needs [3]. Built with eco-friendly materials and energy-efficient systems, the pod exemplifies sustainable design – it can be easily expanded or relocated, supporting dynamic learning while minimizing environmental impact [3]. Such projects demonstrate ASU's commitment to integrating sustainability into its infrastructure development. Furthermore, ASU continuously upgrades its campus in line with green building practices and accessibility. The emphasis on **"smart thinking" in energy management** is also evident: ASU has hosted forums like the Smart Thinking Energy Management Forum (STEM 2024) to discuss and implement energy-saving technologies on campus. By combining cutting-edge digital infrastructure with sustainable physical facilities, ASU ensures that its campus not only provides a high-quality learning experience but also serves as a living laboratory for innovation and sustainable industrial practices.

## Entrepreneurship and Innovation Ecosystem Support

ASU Bahrain actively nurtures entrepreneurship and innovation among its students and graduates through dedicated programs, in-house incubators, and competitions. Central to

these efforts is the **ASU Business Incubation Centre (BIC)**, which was established to help students and alumni turn innovative ideas into viable startups. The BIC provides a supportive environment with education, awareness programs, one-on-one mentorship, resources, and networking events related to entrepreneurship [6]. Its mission is to instill an entrepreneurial mindset in students and guide them to become job creators, in line with ASU's vision of contributing to economic development. The incubator offers workshops on business planning, facilitates mentorship by industry entrepreneurs, and hosts startup idea contests – creating a pipeline from classroom innovation to market-ready enterprise. The slogan of the center, "Start to Continue," reflects the philosophy of continuous innovation and lifelong entrepreneurial learning. Through this incubator, several student-led projects have matured into startups or attracted interest from investors, highlighting the impact of structured support.

Beyond the incubation center, ASU Nurtures innovation through extracurricular programs and competitions that engage the broader community. The university has Nominated and coached student teams to participate in national and international innovation contests. ASU students, with support from faculty, have excelled in venues like the **Seoul International Invention Fair**, where they won top awards for projects addressing social and technological challenges [3]. On campus, annual innovation competitions and hackathons are held (often in collaboration with industry partners or government initiatives), spurring students from all disciplines to develop creative solutions in fields such as fintech, renewable energy, and smart city development. For example, ASU has reported student successes in Bahrain-wide hackathons and the **Entrepreneurship World Cup** local rounds, demonstrating the university's growing profile in the startup ecosystem. Participants benefit from training sessions on pitching, prototyping, and using emerging technologies, many of which are organized by ASU's Career Development and Alumni Affairs Office in partnership with the incubator. These programs are complemented by an "Innovation and Entrepreneurship" course embedded in some curricula, as well as frequent guest lectures by successful entrepreneurs.

ASU's efforts have also led to the creation of an **innovation hub on campus**, essentially an extension of the incubation center, where students can collaborate on projects and access tools like 3D printers, simulation software, and business model canvas kits. Notably, ASU's entrepreneurial initiatives prioritize inclusivity and sustainability – female students are actively encouraged and have access to women-in-STEM mentoring (as seen in the Petrofac mentorship program [3]), and many student startups focus on community well-being or environmental innovation. By providing incubator space, guidance, seed-funding opportunities, and linking students to accelerators (through MoUs with external incubators and the Bahrain Ministry of Industry and Commerce), ASU has built a vibrant ecosystem that supports young innovators. This comprehensive approach to entrepreneurship education and support not only contributes to SDG 9 by fostering innovation and new industries, but also equips graduates with the skills to drive sustainable economic growth in Bahrain and the region.

# Contributions to National Development and Vision 2030

Applied Science University aligns its strategies and programs with Bahrain's national development priorities – particularly the **Economic Vision 2030** and related innovation strategies – thereby contributing to industrial development and public–private collaboration at the national level. ASU's focus on entrepreneurship, technological innovation, and sustainability directly supports the pillars of Vision 2030, which aims for a diversified, knowledge-driven economy. In fact, ASU has been explicitly recognized as a key contributor to Bahrain's Vision 2030 by developing academic programs and research projects that match the country's economic diversification goals [3]. By emphasizing fields like business innovation, information technology, renewable energy, and sustainable infrastructure in its curricula, the university is producing graduates equipped to enter and transform new industry sectors prioritized by the national vision. The university's entrepreneurial incubator, for example, is not just an educational facility but a platform designed to **cultivate a startup culture and drive economic growth in Bahrain** [3]. Through this innovation hub, ASU channels student creativity into business ventures, which contributes to the emergence of SMEs and job creation in the local economy – outcomes that Bahrain's Vision 2030 highlights as critical for sustainable development.

ASU also engages in public-private partnerships that address specific national needs. The collaboration with the Bahrain Association of Banks on fintech education and research is closely aligned with Bahrain's FinTech Bay initiative and the country's drive to become a regional fintech hub [3]. Likewise, joint projects like the **Transgulf Readymix partnership** support Bahrain's infrastructure development by improving construction materials and techniques locally, feeding into national projects and capacity building in the construction sector [3]. ASU faculty and students have worked on research with direct relevance to national priorities – for instance, prior research on solar energy integration with smart grids (a 2019 pilot project) contributed knowledge towards Bahrain's renewable energy targets [3]. In recent years, ASU has organized or participated in forums on industrial innovation, such as digital transformation conferences and sustainable development seminars, often in partnership with government ministries or the Bahrain Economic Development Board. These events and collaborations ensure a continuous dialogue between the university's experts and policymakers, aligning academic inquiry with the Kingdom's strategic plans.

Furthermore, ASU's commitment to quality education and international standards indirectly bolsters national development. The university's attainment of global accreditations (e.g. the QAA quality assurance accreditation from the UK [3] and ISO certifications) has positioned it as a leading institution in Bahrain, capable of attracting international partnerships and contributing to the country's reputation as an education hub. This status has enabled ASU to bring in international expertise (through dual-degree programs with UK universities and visiting professors), which in turn benefits local students and industries. By **building bridges between academia, industry, and government**, ASU exemplifies the role of higher education in sustainable industrial development. Its graduates are not only technically skilled but also attuned to national objectives, often taking up roles in government agencies, innovation

parks, and local companies where they apply their expertise to public projects. In summary, through Vision 2030-aligned programs, targeted industry partnerships, and active participation in national initiatives, Applied Science University Bahrain significantly contributes to the Kingdom's industrial innovation ecosystem and infrastructure advancement [3]. These efforts underscore ASU's dedication to SDG 9 by ensuring that the university's growth and achievements translate into broader socio-economic impact in Bahrain and the region.

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