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Impact on Humanity

UNLOCKING SUSTAINABILITY:
HOW ESG DRIVES CARBON REDUCTION IN THE DIGITAL ERA

Strategic Partners' Perspectives

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UNLOCKING SUSTAINABILITY: HOW
ESG DRIVES CARBON REDUCTION IN THE DIGITAL ERA

DIGITAL TECHNOLOGIES ARE RESHAPING OUR WORLD at an unprecedented pace, offering undeniable benefits while raising concerns about their environmental impact. Did you know that data centers consume approximately 3% to 5% of the world's electricity, with projections suggesting this could reach 8% by 2030? Meanwhile, global e-waste has nearly doubled since 2010, reaching 62 million metric tons in 2022. These striking statistics highlight the urgency of addressing the environmental footprint of our digital transformation.

THE IMPACT OF GROWING CARBON FOOTPRINT AND E-WASTE CRISIS IN DIGITAL TRANSFORMATION

Can we harness the power of digital technologies to create a more sustainable future? This white paper explores the role of Environmental, Social, and Governance (ESG) practices within the digital transformation landscape. Our key challenge lies in identifying how ESG principles can be strategically integrated into digital strategies to minimize the environmental footprint of technological advancements, particularly focusing on carbon reduction. The impact of the digital transformation on the environment is multifaceted. While digital solutions can foster innovation in clean energy production and resource management, the sector itself has a growing carbon footprint. Here's a closer look:

The rapid obsolescence of electronic devices and the lack of efficient recycling systems have led to a growing problem with electronic waste (e-waste). In the MENA region, recycling rates are typically lower than the global average. Efforts are being made to improve this, but as of recent reports, only a small fraction of e-waste is effectively recycled. In 2022, just 22.3% of e-waste was documented as collected and recycled. This e-waste often contains toxic materials, posing significant environmental and health risks. According to the "Global e-waste: Statistics & Facts Report" published in April 2024, e-waste has become one of the fastest-growing waste streams in the world. With 62 million metric tons generated across the world in 2022, the volume of discarded electronic material has nearly doubled since 2010.

Additionally, the exponential growth of data generation necessitates vast data centers, which consume significant amounts of energy to operate and cool down. The MENA region's data centers are growing rapidly. According to a 2024 report by the International Energy Agency, data centers in the MENA region are estimated to consume around 4% of the region's total electricity, which aligns with global averages but is expected to increase with the rise in digital infrastructure. According to Visarj, a renowned immersion cooling solutions developer, up to 40% of a data center's energy goes towards cooling the ever-heating servers. Manufacturing, powering and using digital devices require resource extraction and energy consumption. According to the Circular Tech APC organization, the constant churn of new devices →

ABOUT THE AUTHOR

AYMAN ALFALLAJ, CEO of THIQAH, is a visionary leader known for driving transformational growth across industries like investment, technology and retail. With over 17 years of experience, he has a deep expertise in private equity, guiding strategic insights and innovative leadership.

Under his leadership, THIQAH expanded from one government partner to over 80, formed numerous strategic partnerships, and created over 60 SPVs. He pioneered public-private partnerships through digital platforms like Etimad, Almwathiq, and Saber, and led the 127 strategy, achieving triple-digit growth in five years, making THIQAH a market leader in RegTech.

Ayman cofounded the InsurTech venture RASAN Co and led its successful IPO. He also serves as a board member for companies like Bayan Credit Bureau, SVC and Diriyah Club. His career includes significant achievements in petrochemical project management with SABIC and ExxonMobil, and managing investments across Asia, Europe and the GCC, adding a global perspective to his leadership.

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→ creates a cycle of resource depletion and e-waste generation that exceeds what a device will use in its entire lifespan.

A study by the International Telecommunication Union (ITU) found that the Information and Communication Technology (ICT) sector contributes some 4.5% of global greenhouse gas emissions. The ICT sector in the MENA region contributes about 5% of regional greenhouse gas emissions. This number is projected to rise if sustainable practices are not prioritized (ITU, 2023).

THE GROWING IMPORTANCE OF ESG

ESG principles provide a framework for companies to integrate sustainability considerations into their core business strategies. Here's how ESG can address the environmental challenges posed by digital transformation:

- **Environment (E):** Focusing on energy efficiency in data centers, utilizing renewable energy sources, and extending the lifespan of electronic devices can significantly reduce the carbon footprint of the digital sector.
- **Social (S):** Promoting responsible sourcing of materials, fostering a circular economy for e-waste management and creating decent work conditions in the ICT sector are crucial for sustainable digitalization.
- **Governance (G):** Transparent reporting on ESG metrics, robust data governance practices and holding stakeholders accountable for sustainability goals are essential for ensuring long-term success.

DRIVING DIGITAL TRANSFORMATION FOR A GREENER TOMORROW

Digital transformation spending in the Middle East, Turkey, and Africa is projected to reach $74 billion by 2026, predominantly driven by Saudi Arabia's ambitious Vision 2030 smart city projects, which represent $500 billion of this investment.

The Kingdom's ICT Strategic objectives, released by the MCIT, aim to grow the ICT sector by 50% and increase its contribution to GDP by SAR 50 billion. The objectives also include supporting efforts to localize technology in the Kingdom by raising the workforce localization percentage to 50%, contributing to women's empowerment and participation, and attracting foreign investment.[1]

The kingdom's efforts in the sector have already started to see traction – Saudi climbed to the 31st position on the UN E-Government Development Index (EGDI) in 2022, up from 43rd in 2020.[2] A multipronged approach is needed to harness the power of digital transformation for a sustainable future. This includes:

Investing in Green Technologies: Companies should prioritize renewable energy sources, energy-efficient hardware and software solutions with a lower environmental impact. Saudi Arabia is aggressively transitioning to a greener economy by supporting green technologies through various initiatives like Aramco's sustainability fund, green bond issuances,[3] green loans and investments in renewable energy projects like those in Vision 2030 and Neom.[4]

Promoting Circular Economy Practices: Strategies like designing for longevity, extending product →

→lifespans, and implementing robust e-waste recycling systems are crucial.

In 2019, Saudi Arabia significantly reduced CO_2 emissions from 17.4 metric tons per capita in 2015 to 14.6 metric tons per capita by embracing digital transformation and smart solutions, which decreased the number of trips needed to access government services. By further integrating advanced sustainability practices and leveraging cutting-edge artificial intelligence technologies, it is projected that we will achieve 5% to 10% of Saudi Arabia's ambitious goal of reaching carbon neutrality by 2030.

Collaboration and Innovation: Open dialogue among governments, tech companies, and civil society can foster innovation in sustainable digital solutions.

Saudi Arabia in the Group of Twenty ranked second of the top 3 Digital Risers with a 24.2% contribution to the local content from ICT and 9 billion SAR local investment in technology contributing to raising non-oil revenues for the public sector from 6.78% to 11.18% from the period of 2015 to 2019 through monetizing public services and PPP module.

Through partnerships between RegTech companies and ministries, Saudi Arabia has enhanced public services and enhanced their ranking in the global e-government development index from 36 to 31 and their public sector E-Participation index ranking from 51 to 43 for the period of 2014 to 2022

Consumer Awareness: Educating consumers about the environmental impact of their digital footprint and encouraging responsible e-waste disposal practices.

From the eight factors influencing the happiness index, perceptions surrounding ethical conduct address two questions: "Is unethical behavior widespread throughout the government in this country or not?" and "Is unethical behavior widespread within businesses in this country or not?" Where there is a void in both business and government engagement.

RegTech companies' participation in digitalizing services and increasing transparency in the government and business data in general through smart solutions such as SABER, SDR, CR and others helped in fighting corruption, therefore increasing Saudi Arabia's happiness ranking from 33 in 2013 to 25 in 2022.

HOW BUSINESSES, GOVERNMENTS, AND INDIVIDUALS CAN LEAD THE CHANGE

The digital transformation journey towards a sustainable future requires collective action. Here's what you can do:

- **Businesses:** Businesses should actively integrate ESG principles into their digital strategies by investing in green technologies, promoting circular economy practices, and ensuring transparency in their sustainability efforts to foster a more sustainable digital environment.
- **Governments:** Implement policies that incentivize sustainable digital practices and promote collaboration between stakeholders.
- **Individuals:** Be mindful of your digital footprint. Choose energy-efficient devices, extend the lifespan of your electronics and recycle responsibly.

By working together, we can leverage the power of technology to build a greener future for all. ■

SOURCES

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ABOUT FII INSTITUTE

FUTURE INVESTMENT INITIATIVE (FII) INSTITUTE IS a global non-profit foundation with an investment arm and one agenda: Impact on Humanity. Global, inclusive, and driven by data, we foster great minds from around the world and turn ideas into tangible solutions and actions in four critical areas: Artificial Intelligence (AI) and Robotics, Education, Healthcare and Sustainability. We are in the right place at the right time, when decision-makers, investors and an engaged generation of youth come together in aspiration, energized and ready for change.

We harness that energy into three pillars: THINK, XCHANGE, ACT. Our THINK pillar empowers the world's brightest minds to identify technological solutions to the most pressing issues facing humanity. Our XCHANGE pillar builds inclusive platforms for international dialogue, knowledge-sharing and partnership. Our ACT pillar curates and invests directly in the technologies of the future to secure sustainable real-world solutions. Join us to own, cocreate and actualize a brighter, more sustainable future for humanity. ←

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