

Mega-Trends for 2022

The relevance of asset management in driving the global infrastructure agenda and addressing climate change, resilience, sustainability, and equity.

Overview

With infrastructure high on the global agenda, the Institute of Asset Management (IAM) remains committed to helping governments, investors, asset owners, operators, and managers maximize value from assets. To ensure the IAM remains on the right strategic path, the Board and Council recently cataloged the top mega-trends impacting the asset management community at a global level. This report provides an overview of the 2022 mega-trends. It sets out how asset management can contribute to the opportunities and resolve the global challenges we face. This report is for consultation, and we welcome input and comments from anyone interested in the world around us. We intend to update this on an annual basis and utilize feedback to continue to direct our technical work and improve our services to the communities we support.

Answering Today's Challenges - The role of asset management

Physical assets play a critical role in sustaining human life, supporting economic growth, and providing security. With the global challenges increasing in urgency, leaders recognize that focus should not be on just maintaining the fabric of the assets – the concrete and metal - but instead service provision. Today, service provision extends beyond manufacturing throughput and service levels of critical and social infrastructure. Resolving the challenges of 2022 requires recognition that our focus now includes economic value, societal value, and long-term value – including climate impact, resilience, and sustainability.

With this in mind, the role of the asset management professional extends beyond engineering. Now more than ever asset management requires collaboration from many professionals, including economists, financial advisors, sociologists, strategists, technologists, and environmentalists. Asset management offers a structured way to optimize costs and risks and improve the certainty of achieving desired outcomes in any human activity. Asset management encompasses the strategies and plans for extracting value from assets, delivering goals and objectives, and organizing and governing how we accomplish those goals and objectives.

Trend 1: Climate Change, Net-Zero, and Sustainability

With 70% of global greenhouse gas (GHG) emissions coming from infrastructure construction and operations¹, addressing decarbonization comes down to sustainable asset strategies.

¹ <https://blogs.worldbank.org/ppps/low-carbon-infrastructure-essential-solution-climate-change>

Asset management can ensure that today's decisions will have a lasting impact on society over the next century. Refocusing technical asset requirements can drive asset design, construction, and operation to minimize the output of gases, liquids, and solids that contribute to climate change. **The IAM's Climate Emergency Program supports members to consider climate impact in asset management decision-making.**

As we consider future investments in infrastructure, introducing circular economy thinking will maximize the reuse, repair, and remanufacturing of assets – further minimizing the built infrastructure's impact on the environment. **The IAM is mobilizing a Circular Economy working group to integrate this critical thinking into asset management decision-making.**

Trend 2: Resilience, Futureproofing and Risk Management

When managing their built environment asset portfolios, governments, asset owners, and managers realize they cannot maintain the status quo. There is an acknowledged need for resilience plans for critical and social infrastructure, to include assessing the current state of assets, modeling exposures to climate change events, determining best mitigation strategies, implementing best mitigation strategies, and monitoring mitigation results.

We are seeing leading countries like Australia, the UK, and Canada coming forward with requirements for [National Infrastructure Assessments](#). Leading countries ensure that future infrastructure spends consider building back better (ensuring assets are using the best methodologies and technologies to sustain the economy and withstand threats). **The IAM has an active group progressing how to support organizations in improving their resilience through good asset management.**

Linked to the resilience of critical infrastructure, the futureproofing of assets considers the ability to withstand growing risks of catastrophic events and the sustainability of the built asset's services. Over the last two years, we have seen education, healthcare, and employment transition to remote working enabled through technology solutions. How we will deliver social and critical services in the future will continue to evolve – and with it, the assets necessary to provide those services will also need to change. Futureproofing is building assets today, with tomorrow's service provision in mind.

Trend 3: Environmental, Social and Corporate Governance (ESG)

The significant rise in new capital sources that integrate sustainability, responsibility, and long-term thinking into the underwriting process impacts project finance and insurance capital. The US Forum for Sustainable and Responsible Investment (US | SIF) reported a 42% increase in

total assets under management over the last two years using one or more sustainable investment strategies.²

Organizations with a mature approach to asset management generally have robust long-term strategies that consider sustainability – aspects firmly considered in sustainable investment. While ESG assessment standards are developing, emerging ratings fully consider approaches to measure long-term decision making. Asset strategies and asset investment planning that demonstrates how to meet ESG metrics will be critical for government funding and accessing green bonds and private investment. Management systems and corporate governance strategy, improvement planning, and implementation will be vital to advancing ESG metrics. **The IAM's Asset Management Maturity program can play a lead role in helping more responsible capital investment. The approach has been applied to monitor agency and corporate performance and demonstrate long-term thinking.**

Trend 4: Equity and Social Justice (ESJ)

As we have seen over the last two years, there is a greater drive for organizations to be more purpose-led. An organization with well-developed asset management capabilities can adopt fairer equity practices by prioritizing capital investment in assets. This approach can improve equality of access to services or provides services that will allow equal access to opportunities, such as transit routes to support job creation. Establishing more equitable practices is not about reacting to information from public sources, as complaints are less likely to come from disadvantaged communities. But instead, a proactive approach to utilizing an ESJ index in prioritization. Both upstream strategic planning and asset management planning need to be changed to affect equity. Notably, the downstream maintenance activities to maintain quality services also need to be prioritized to promote equity. **The IAM will be launching an equity working group to guide asset owners and managers on aligning asset management activities to ESJ determinants.**

Trend 5: Societal Well-Being

Over the last two years, we have seen an increasing need to consider health and well-being. Asset management can have a positive impact on well-being in two contrasting ways. The first is the more obvious – and is related to customer services. Asset management professionals can improve the assets' safe use and resilience through a focus on risk. We can improve access to services and opportunities through good planning, whether through transit services to community facilities like schools and healthcare or by enabling improved financial well-being

²US SIF. 2020. *Report on US Sustainable, Responsible and Impact Investing Trends*. Last accessed on 28/03/2022 via <https://www.ussif.org/trends>

through access to better jobs. We can also introduce strategies to reduce the environmental impact that positively supports health – for example, the targeted deployment of electric bus fleets to network areas with poorer air quality.

The second, less obvious angle is the positive impact on employees. Asset management is about managing risks and having a planned approach to achieving objectives. Planned means we understand expectations and can improve predictability. It also means we can better do our jobs, positively impacting well-being. There is growing research that suggests a management systems approach improves workplace well-being.³ **The IAM continues to support the International Standards Organization and the development of ISO-55001:2014 Asset management – Management systems – Requirements.**

Trend 6: Sustaining Delivery Capability – Human capital, outsourcing and the supply chain

Sustaining investment in human capital management is critical to delivering the infrastructure investments needed. Workforce attrition resulting from the "baby boomer" generation approaching retirement over the next decade and the lack of investment in skills development over the last decade will have a significant impact. In addition, the recognition that the challenges we face require a different skillset further widens the skills/experience gap. Driven by the recognition that asset management requires an understanding of operations, strategy, financing, and technology to drive efficiency, most industry segments are now seeking to professionalize asset management. **The IAM is in a prime position to support this globally with the recent introduction of the Asset Management Professional designation, our qualifications and our professional development partnered training.**

Sustaining delivery also requires organizations to consider all aspects of their delivery capability. The recent supply chain disruptions associated with the pandemic highlight the importance of supply chain resilience to the entire global economy. For critical infrastructure, asset management practices can promote better performing supply chains and identify risks to service operations from disruptions.

Public-private partnerships (PPPs) have become an increasingly popular way to upgrade critical infrastructure and address climate resilience challenges. They provide an opportunity to boost project delivery efficiency and effectiveness and allow project costs to be spread over an extended timeframe. However, there have been some very public PPP failures, which often come down to misaligned performance metrics, poor risk transfer and management, and poor

³Campbell Institute. 2017. *A Systems Approach to Worker Health and Wellbeing*. Last accessed on 28/03/2022 via <https://www.thecampbellinstitute.org/wp-content/uploads/2017/09/Campbell-Institute-A-Systems-Approach-to-Worker-Health-Wellbeing.pdf>

understanding of each party's roles. **The IAM will be launching a Public-Private Partnership working group later this year and is currently seeking volunteers to support drafting guidance for consideration of asset management within PPP contracts.**

Trend 7: Digital, Data Transparency and Disruptive Technologies

Technology and data are now playing a massive role in the planning, design, construction, and operations of assets. The use of digital twins – the combination of data and technology to provide a digital representation of the physical asset – enables organizations to better inform asset decisions, control assets, and optimize performance.

Now more than ever, we can see the importance of data to help us anticipate, react and recover from infrequent but potentially devastating events. This is not just true of pandemics: data can also help us manage direct shocks to infrastructure. Having a solid understanding of data supports decisions on maintaining what we have and what we need to put in place – even more so as we think about Smart infrastructure. Several sectors of the economy are also starting to share data with their peers/competitors to understand their problems better. The data from one is a pond. However, the data from many could be an ocean. Further, these alliances now realize that by combining their data, they can accelerate the ability of machine learning technology to be effective.

Technologies of relevance include Building Information Modeling (BIM), Enterprise Asset Management (EAM), Internet of Things (IoT), machine learning (ML), artificial intelligence (AI), and several others – all of which contribute to the creation of a digital twin and support data-driven decision making and management action. **The IAM's Digitalization program, in conjunction with the *Centre for Digital Built Britain*, is setting the agenda for how technologies and data can be integrated into asset management practices.**

Trend 8: Cyber and Physical Security – Critical infrastructure is the modern battleground

Increasingly, meeting asset service objectives requires the integration of operational and information technologies. There is an urgent need to thoroughly consider cyber and physical security as part of an organization's asset management strategies, policies, and procedures. During the height of the COVID-19 pandemic cyber-crime in the USA increased 69% over the previous year.⁴ This was reinforced through recent cyber-attacks on the Colonial Pipeline and water treatment works in Oldsmar, Fl., to name just a few. Critical infrastructure is reportedly

⁴Federal Bureau of Investigation Internet Crime Complaint Center. 2020. *2020 Internet Crime* Report. Last accessed on 28/03/2022 via https://www.ic3.gov/Media/PDF/AnnualReport/2020_IC3Report.pdf

becoming the modern battleground. In the US, the federal government is pushing for cybersecurity standards for critical infrastructure.⁵ These standards are in place in the UK⁶.

Trend 9: Infrastructure Deficit, Asset Modernization and Changing Service Requirements

While many governments have established infrastructure investment bills to support recovery from the pandemic, critical infrastructure funding remains a common challenge. The infrastructure deficit is a direct result of a steady decline in infrastructure spending, resulting in a significant backlog of overdue maintenance and an urgent need for investment and modernization.

Service requirements for critical infrastructure are also rapidly changing. Urbanization trends that existed before the pandemic appear to be reversing. As remote/hybrid working continues for many, the need for investment in telecommunications and more resilient utility networks is even more apparent.

There is increasing recognition that asset management strategies should address the challenges today and be aligned to tomorrow's needs - including strategies to move forward with infrastructure innovation in electrification, connected vehicles, smart infrastructure, and the energy transition. Global spending on smart city technologies is expected to see a 22.7% increase by 2025, according to [a recent analysis](#).⁷

Similar or greater spend levels are forecast in other industry sectors. The opportunity is significant - intelligently connecting energy systems, buildings, and industries, or transportation networks with vehicles, enhances the way we live and work to significantly improve efficiency and sustainability, with safety and well-being notable benefits. However, the transition to smart infra requires significant effort. It brings together all aspects of the asset management profession. A reliance on exceptional data quality, collaborative approaches focused on singular purpose and objectives, investment in new controls and management systems and people. In addition, there is a recognition that today's infrastructure will not cope with the introduction of smart assets as an overlay. We, therefore, need to re-build infrastructure with new capabilities. **The IAMs Subject Specific Guidance provides direction on developing asset strategies and plans.**

⁵The White House. 2021. *Executive Order on Improving the Nation's Cybersecurity*. Last accessed on 28/03/2022 via <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/12/executive-order-on-improving-the-nations-cybersecurity/>

⁶UK Government Department for Digital, Culture, Media & Sport. 2018. *The Network and Information Systems Regulations 2018*. Last accessed on 28/03/2022 via <https://www.legislation.gov.uk/uksi/2018/506/made>

⁷Frost & Sullivan. 2020. Last accessed on 28/03/2022 via <https://www.frost.com/news/press-releases/smart-cities-to-create-business-opportunities-worth-2-46-trillion-by-2025-says-frost-sullivan>

Get Involved.

The IAM welcomes responses privately or publicly, from members and non-members alike. We hope that the content attracts comments from potential partners who see the need for longer-term thinking. **The IAM partnered with ITN to deliver a series of news items focused on *Planning for the Long Term* as a stimulus for engagement and discussion on this globally important topic.**

Volunteers are at the heart of everything the IAM does. Many of the products and services that we offer would not exist without the support of volunteers during the planning, development, and implementation stages. We believe we have a critical role in driving the global infrastructure agenda and addressing climate change, resilience, sustainability, and equity. And we need your help to make it happen! Volunteering with the IAM is a great way to expand your networks within the asset management community. Work with other professionals from all sectors across the discipline and develop new skills to enhance your career. Whether it's joining an IAM committee or submitting case studies and articles, we've got something for everyone.