

# **FUTURE-PROOFING ASSETS AMID UNCERTAINTY**



# Aging assets

## How to prepare for an uncertain future

There is no turning back the clock. As the global COVID-19 health crisis transitions into an economic crisis, governments and businesses around the world face many fundamental challenges in the coming months and years. Many organizations will find themselves struggling for survival in the post-pandemic economic downturn as global supply chains fracture and break, and liquidity dries up – despite the anticipated upturn in government investments in infrastructure which will be needed to stimulate the economy and overturn significant unemployment trends.

With a predicted decline in global trade of between 13% and 32% in 2020 (source: WTO), leaders of business and government will have to readjust to this ‘new normal’ of business volatility and market uncertainty. Many of them will be doing so while also working within the very real constraints of aging assets across industrial and public sectors.



## THE PERILS OF AGE

Even before the pandemic began, clients across the world had been telling us candidly that aging assets were a significant cause for concern. After the financial crisis of 2008, investment in critical areas such as industrial treatment plants, production lines and manufacturing real estate had been held back because corporations and supply chains were being squeezed in order to hit financial targets. At the time, this too was described as a 'new normal', and for the last ten years, many industrial leaders have had to make do with very little.

Public sector clients had been facing a similar challenge – of doing more with less – and struggling with the lack of knowledge around the condition of their existing aging assets, and how to then prioritize their repair or renewal with fewer resources.

These challenges have not gone away and will need to be confronted in the new era ahead. They can be characterized as:

- **Knowledge gaps** – knowing the critical assets and the scale of the problem of aging assets, both within your organization and your supply chain. The situation is made worse in both the private and public sectors by institutional knowledge leaving the door as baby boomers retire in large numbers.
- **Resource management** – financial, manpower, technical, supply chain – to ensure the reliability and availability of those assets. Affordability is also a major concern in the public sector.
- **Optimization** – from process management, to the balance between operational expenditure vs capital expenditure – and an often-challenged capital planning process, in order to repair, refurbish, remediate or renew assets.
- **Future proofing** – preparing for an age of uncertainty, managing the increasing complexity that comes with intelligent assets, and embracing digital tools and services for greater optimization, including the explicit involvement of the end-user or customer. Within the public sector, the investment gap is growing and is placing greater pressure on future refurbishment regimes.
- **Sustainability and resiliency** – incorporating these principles within a business environment where their adoption is challenged by short-term issues around liquidity and a client's ability to operate profitably – or ability to operate at all. For public sector organizations, this also means embracing decarbonization, moving towards clean energy sources, progressing the circular economy, and mitigating the effects of climate change.



In the short term, the easing of the pandemic will most-obviously place immediate pressure on aging assets as public and private sector organizations will be competing concurrently for the financial and technical resources needed to re-start production lines or re-start maintenance programs. In the medium- to long-term, the challenge remains of understanding the scale and condition of assets, how to optimize them, and how to future proof them.

## DIGITAL ADOPTION

The challenge is not insurmountable. Almost perversely, the COVID-19 pandemic has created the conditions within which organizations can legitimately take-stock of their current business structure and working practices, and ask if they are likely to best-fit the post-pandemic world that's unfolding in front of us.

Organizations will also need to turn to digital tools to help them on that journey. One of the few positive outcomes of COVID-19 has been the widespread adoption of digital ways of working to help people in organizations to do their work safely and remotely – leading to greater collaboration across many enterprises. A similar approach needs to be taken towards digital asset management and optimization, which will be critical in the optimization and management of aging critical national infrastructure.

Digital asset management still has several barriers to overcome – perceptions of cost, the challenge of change-management and cultural issues, and finding the right advisory and delivery organizations to help – but it's clear that the coming months and years will be unprecedented in the changes that they will bring.



**Don Hardy**  
Global Leader  
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## The common challenges of dealing with aging assets

Organizations face a common set of challenges when it comes to asset management and optimization. Although the level of complexity may have increased because of the COVID-19 pandemic, the challenges still remain of knowing what condition and state of repair assets are in, along with the associated risks and demands that this places on resources and capital-planning processes. Asset types may differ across industry sectors and across public and private sector organisations, but there are significant common challenges.



## KNOWLEDGE GAPS

“My concern is always getting hit by surprises, and trying to react without resources or plans in places to deal with that.” (US Department of Transport Senior Engineer)

Organizations continue to wrestle with understanding the scale of the problem relating to aging assets. First and foremost, this relates to assets under their own control, but it also extends to knowing the problems being faced by interconnected supply chains in the light of global events. One continual fear of organizations around the world is of not being in control – or not being able to manage their assets properly – and many organizations are struggling to close knowledge gaps due to the impact of an aging workforce.

## RESOURCE MANAGEMENT

“You need flexibility in the way you deal with assets, with cost, risks, budgets and time – and on contracts too.” (Dutch National Transport Agency, Asset Manager)

A common thread between public and private sector organizations is that both are looking for flexibility, for more cost-efficiency, ensuring that budgets are spent in the right way, and with improved reliability, greater levels of safety, and lower levels of embedded carbon. And both have challenges in balancing the capital planning processes with ongoing operational expenditure. Life-cycle costs need increased attention.

## OPTIMIZATION

“Projects get launched with someone just putting in a budget, with no up-front definition, no program, no sites, and so you’re constantly behind. It creates real challenges for asset optimization.” (Multinational Industrial Manufacturer)

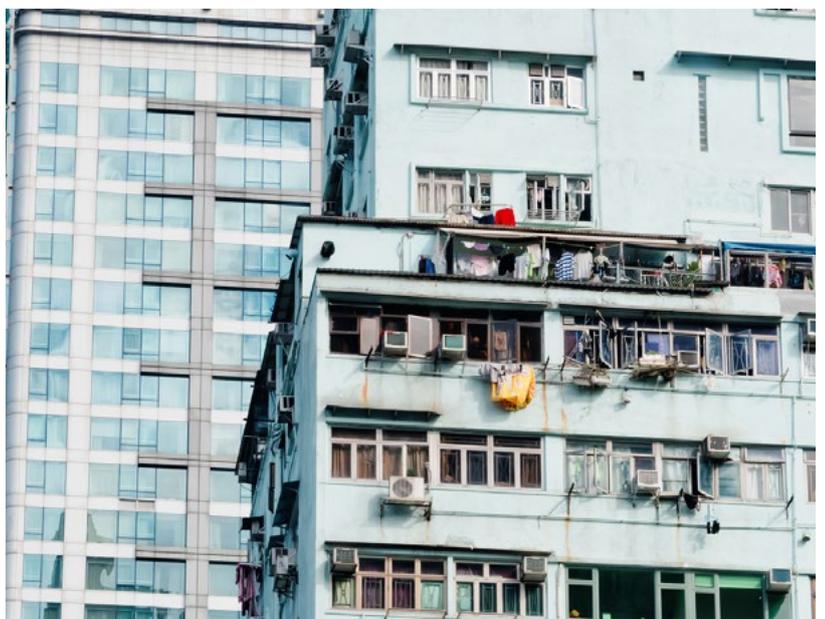
Organizations are wrestling with the challenge of trying to get the balance right between capital and operating expenditure. This often requires culture-change, a re-examination of corporate governance, and putting the right systems and processes in place to ensure optimization occurs, leading to true lifecycle asset management. The opportunity now presented by COVID-19 is to rethink how asset optimization decisions are framed. Clients have already been telling us privately that they would like to introduce values- or systems-based decision-making frameworks, which would help assets to be prioritized based upon their impact on a system – a road, rail or drinking water system, as opposed to just a pump or a road or a tunnel. This requires a more portfolio and program management-based approach.



## FUTURE PROOFING

“We are data rich and information poor. Many assets give us information now, but we don’t know what to do with that data, as we haven’t yet unlocked the value from those smart assets.” (Digital Asset Management, UK Transport Operator)

Organizations are facing increased pressure to pick the ‘right’ digital solutions in an increasingly fragmented and diverse technological landscape. Investments in internet of things (IoT) platforms, supervisory control and data acquisition (SCADA), operations and enterprise management platforms and Digital Twins and AIP platforms have very different payback periods to more traditional capital investments. Additionally, this new era of market volatility reinforces the urgent need for organizations to prepare for a prolonged period of uncertainty. Doing nothing is not a viable option, and although the future is difficult to predict and will depend upon the scale and timeliness of government interventions around the world, it’s clear that the future will involve trying to manage the increasing complexity that comes with intelligent assets, and embracing digital tools and services for greater optimization. Future proofing also means being better-prepared to accommodate societal changes and changing demands from stakeholders.



*“If we can do a good job in maintaining assets and ensuring that we are taking care of them from a life-cycle perspective, that will do a better job in addressing the climate change issue too.”*

*US Transport Infrastructure Owner/Operator*

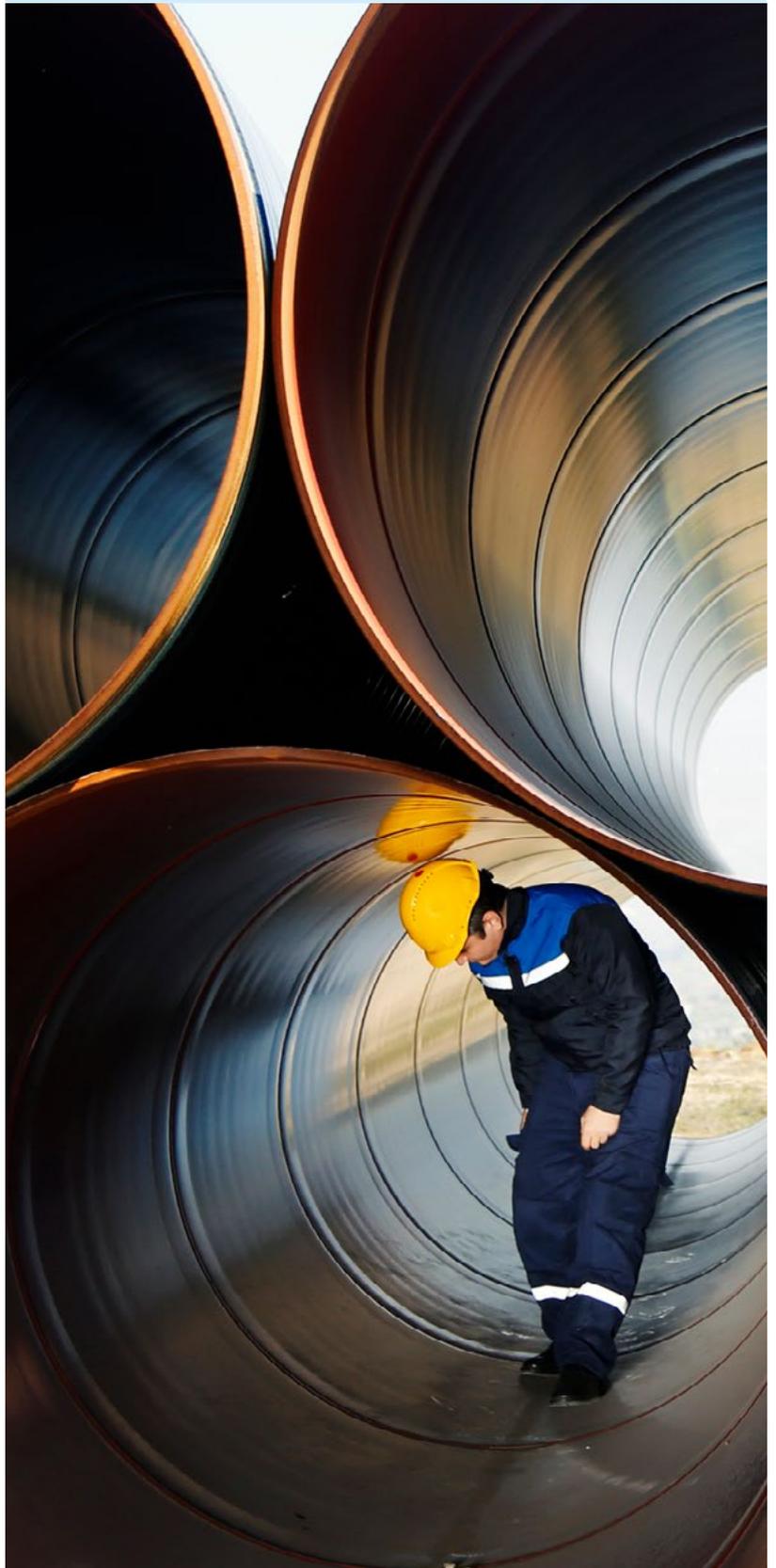
### **SUSTAINABILITY AND RESILIENCY**

“If we can do a good job in maintaining assets and ensuring that we are taking care of them from a life-cycle perspective, that will do a better job in addressing the climate change issue too.”  
(US Transport Infrastructure Owner/Operator)

Although short term issues around liquidity – and business viability – are creating challenges for the sustainability agenda, there is enough momentum behind sustainability principles for this agenda to continue in the coming years. The pandemic has also highlighted the need for continued focus on resiliency, namely the ability to understand and respond effectively to hazards and stresses, as the consequences of chronic underinvestment ripple through aging assets with increasing speed.

In the coming months and years, organizations will come to be defined by how they deal with the market uncertainty and volatility. Some, for example, have been able to quickly retool production lines in order to produce vital PPE equipment for those on the medical front lines. For many, the enforced shutdown now provides an opportunity to rethink and to reset business processes, particularly around aging assets – within their own organization and within the supply chains upon which they rely.

We may be about to enter a new period of openness in the global supply chain, and cooperation between asset owners, operators and service providers.





## The challenge of aging assets in the private sector

If necessity is the mother of invention, the next few years will need to be very inventive for industrial and manufacturing organizations around the world. Many industrial organizations have shown that it's possible to implement change quickly, as production lines are reconfigured around the world to make essential parts for ventilators, personal protective equipment (PPE) or sanitizer products.



However, large-scale re-tooling of manufacturing facilities in the short term will remain a challenge for most, made worse by the fragility of the global supply chain. Many are finding that they have unintentionally relied on a small number of critical component or chemical manufacturers, which will lead to a greater level of supply chain scrutiny and assurance as the pandemic eases. And many of those suppliers are themselves struggling with aging assets.

Another accelerated trend will be the use of additive manufacturing processes into existing industrial work-flows. The technology is proven and is already in large-scale use by a number of early adopters, and the renewed focus on corporate resiliency plans will lead many to explore how additive manufacturing can enable greater flexibility in the future.

More immediately, however, many organizations will find they can only continue operating efficiently and profitably if they look afresh at how they manage and optimize their aging assets. In addition to the general challenges of knowledge gaps, resource management, optimization, future proofing and sustainability and resiliency, organizations specifically need to address and overcome:

- the legacy of under-investment in assets;
- lack of optimization in the capital planning process, and inefficiency in the allocation of capital within organizations which results in an over-reliance on operating expenditure to ‘band aid’ aging assets – a “make do with what you have” approach;
- the challenge of repurposing aging assets that are no-longer fit for purpose, including the cost of remediating impaired assets.



### **Auto manufacturer wastewater infrastructure solutions**

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Following a three-month program to assess the condition, probability of failure and consequence of failure of wastewater management assets at key plants in North America (13), Mexico (4) and Canada (3), Arcadis helped the manufacturer to plan and budget for the most critical needs at each plant. The digital solution helped to identify the risks and replacement costs, and optimization items for each site, and the collective data was used to help the client enhance overall performance in compliance, technology, operation and maintenance, production, safety and financial performance.

### **UNDER-INVESTMENT IN ASSETS**

Since the financial crash of 2008/09 – and under the watchful glare of shareholders, regulators and consumers – companies have had to prioritize extending the technical life-time of existing assets rather than renewing or rebuilding them. This has largely meant only investing in assets which are critical to supporting a business or manufacturing process, and it has also meant deferring non-essential investment decisions until the next budget cycle.

As a result, many companies have had to manage an increasing number of age-related issues, including unexpected downtimes, safety issues, compliance issues, lack of transparency on capital investment decisions, and poor visibility on overall spend. Post-pandemic, organizations can also throw into the mix a lack of resources – manpower and financial – and a fragile global supply chain that is only as strong as its weakest link. Much work will need to be done in identifying where that weakest link actually is.

Companies have done the best that they can within the constraints they face, but the ‘new normal’ of business volatility and market uncertainty makes it imperative that aging assets are assessed – in your own organization and in that of your essential suppliers – and plans are put in place to optimize or renew.





## PROBLEMS COMING HOME TO ROOST

The very best organizations are addressing the challenge of aging assets by using a system-engineering approach to align capital replacement programs, the design of new assets, and manage future operations. BIM tools and Digital Twins are used to ensure that operations have a clear view of the asset they are inheriting, and there is active engagement with their supply chains. Conversely, organizations that don't line up every stage of the asset lifecycle and who lack a comprehensive technology plan to address the mounting challenge of aging assets, will be left even further behind.

For many, this situation will reveal a significant organizational tension between capital expenditure and operating expenditure, especially as it relates to the capital planning process. The best-designed facilities increase productivity efficiencies, but the capital planning process in most companies doesn't match the workflow – or the factory-floor optimization – to the facility architecture. The approach is often: get the building up and running and then work out the process flow.

Anecdotally, many large industrial companies confide that they have an annual capital expenditure budgeting process in which projects are submitted with a pre-determined budget, behind which there is little-to-no up-front definition and a minimal schedule of works to achieve it. As a result, those responsible for managing the assets often find themselves behind the curve from the beginning of the capital expenditure program.

This situation arises because capital expenditure on new projects and new investments tends to be where the power and the political influence lies within an organization. Assets are also most-often viewed through the lens of the balance sheet – financial drivers – and in the months ahead, organizations need to try to close the gap that exists between capital expenditure and the operate-and-maintain part of the asset life cycle. Additionally, failure to consider the lifetime-costs of assets can lead to costly delays in decisions to repair, renew or rebuild, and masks what often turns out to be significant life-time asset costs.



## Using facility optimization to improve worker safety

An aerospace parts manufacturer engaged Arcadis to conduct a comprehensive multidisciplinary condition assessment of its manufacturing facility, creating a digital model that ranked hazards, priorities, and proposed remedies – with their costs – together with options for facility optimization. Work packages could then be developed to prioritize near-term improvements to maximize the return on investment against those metrics of concern.

## RE-PURPOSE, RENEW OR MOVE OUT?

For many large industrial companies, they will be facing additional challenges around the re-purposing of older assets, many of which are no longer fit-for-purpose for today's production lines, or have a minimal residual value after they've been fully-exhausted from an older industrial or production process.

Clients tell us privately that some of their biggest pain-points revolve around how to reconfigure an asset to make it viable, or to sell it. Most manufacturing and processing companies have significantly impaired assets which require major environmental health and safety interventions in order to avoid liability risks in the future. Often, it's considerably more expensive to retrofit to fit today's production processes, than to buy a new asset and move.

Unfortunately, the driving force behind the decision to re-purpose, renew or dispose of the most challenging assets is the cost to carry them, and this is where the annualized capital planning process has a significant impact too.

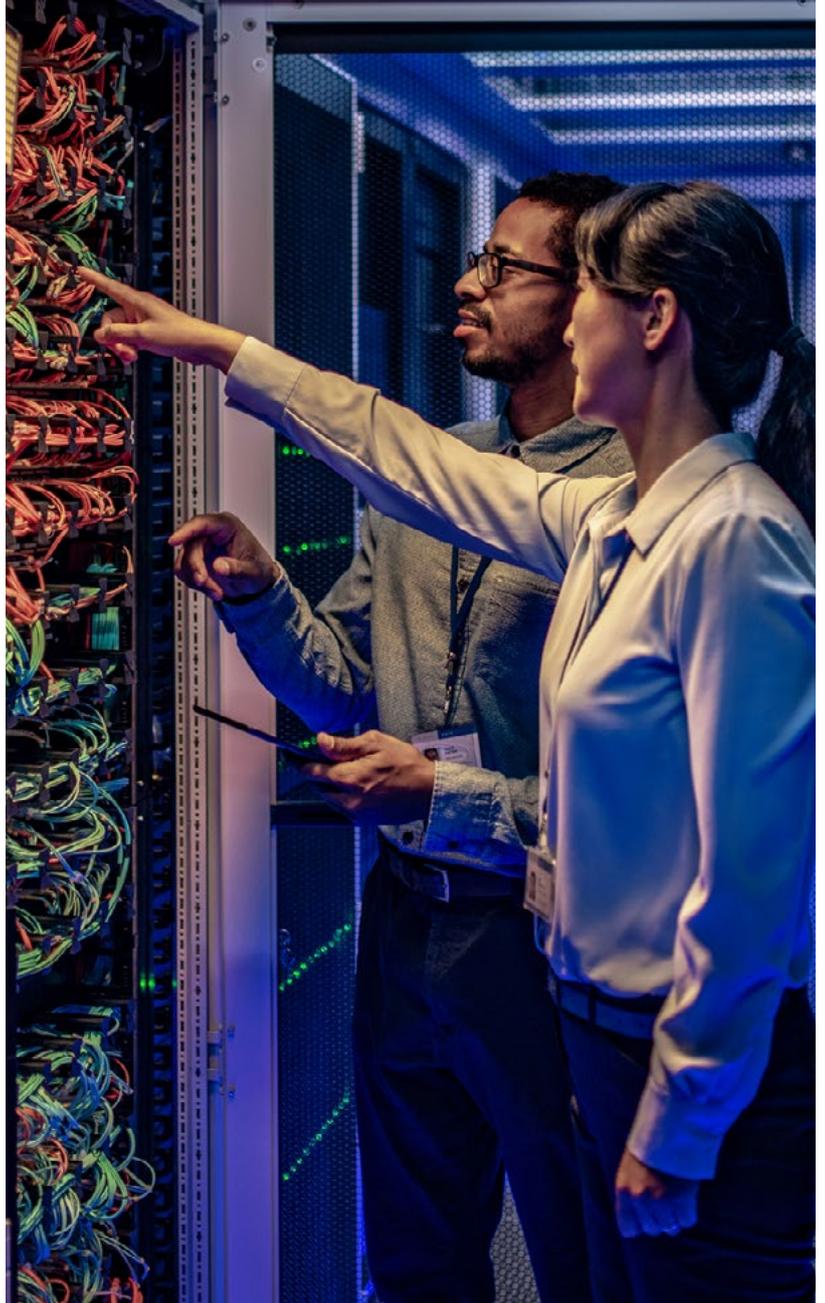
On an annual basis, the cost of holding on to challenging or aging assets may look manageable, but a life-time cost approach would lead to a very different decision-making process. By avoiding a cumulative view of the true cost of an asset, many companies are holding on to assets about which they don't know what to do.





## Brownfield site optimization

Arcadis has worked closely with a major global industrial conglomerate for more than a decade to manage an average of 20 sites each year within the client's brownfields portfolio. With the goal of re-purposing assets or preparing them for sale, services include general building and grounds condition assessments, facility decommissioning, equipment assessment, and/or facility deconstruction.



*Common data environments – available anywhere at any time – provide a single source of ‘truth’ which can greatly improve optimization and decision-making.*



## DIGITAL TOOLS

This is where digital tools can help to prioritize what to do, and help understand what it will take to refurbish, retrofit or demolish. Common data environments – available anywhere at any time – provide a single source of ‘truth’ which can greatly improve optimization and decision-making. Digital tools also help drive standardization, automation and productization.

The coronavirus pandemic has created a period of time within which it is necessary for organizations to look long and hard at their business processes and optimize their assets. Can a facility be cleansed of its chemical and physical impairments? Can the structure be saved, or does it need to be demolished? Can we program in a prescriptive maintenance approach, rather than repairing when something breaks – an approach which experience shows can be up to four times more costly. Data-driven decision-making helps to create safer, more efficient work environments, making sense of the complex issues of cost, safety, risks, performance, sustainability, time and capacity.



## How the public sector can keep societies flourishing

The challenges facing public sector organizations who own and operate aging infrastructure are becoming ever-more complex in the light of the global pandemic. As well as the common challenges that they share with the private sector – knowledge gaps in the state and condition of aging assets, resource constraints, optimization challenges, future-proofing and sustainability and resilience – public bodies have also had to do this against a backdrop of changing demographics, consumption patterns and climate volatility.



*Without making good use of data and information, many organizations default to an age-based replacement program.*



## DIGITAL DECISION-MAKING

As can be seen in the private sector, digital tools are helping to make sense of the complexity organizations face, and digital analytics can help to prepare for some of the future challenges. But many public sector clients are playing catch-up when it comes to collecting data, particularly on older assets. In the US, for example, the water sector is last only to the agriculture and hunting sectors for the adoption of digital technology, according to Bluefield Research.

In part this is because the age of those assets makes it difficult – or prohibitively expensive – to capture data. But where data does exist, it’s often not of good quality. Furthermore, many organizations don’t have the resources or the organizational desire to consolidate information into a central digital asset management system.

This challenge is leading to even greater problems when it comes to prioritizing the repair, renewal and rebuilding of assets within the public sector. Without making good use of data and information, many organizations default to an age-based replacement program. For the water industry, 20% of failure modes are ascribed to age, with the remaining 80% due to random failure. This means that a significant amount of infrastructure will be replaced that simply doesn’t need to be updated. Making sense of asset data is therefore crucial in an era of major constraints on resources.

Organizations are now under increasing strain, with many infrastructure and water assets performing beyond the limitations of their original design, with major resource constraints ahead. Bluefield Research, for example, estimates that underinvestment is leading to between 25-50% of assets operating beyond their design life, which will give rise to hotspots of failure and reactive maintenance regimes, which are more costly to organizations than planned or proactive maintenance.

Consequently, there needs to be a focus on how to optimize assets while reducing cost and maintaining performance levels, all the while without increasing risk.

There are a number of specific opportunities that public sector organizations can embrace to take asset-management forward:

- increasing use of data in decision-making;
- a focus on organizational culture to bring institutional knowledge into the digital era;
- engaging with the public sector supply chain to fill in skills and resource gaps, to further speed the adoption of digital asset management and stimulate innovation by using the strengths of the market.

### Technology focus: sensor-driven automated monitoring

One of Europe’s national rail operators has implemented a fully automated bridge condition monitoring system using sensors. First, Arcadis modelled the bridge in 3D and used finite element analysis to gain insight into the expected deformations and dynamic responses the bridge would have. This output was then used as an input for the monitoring plan, which allowed the selection of the right sensor’s installation. A range of sensors is now installed and provide live data to a dashboard that can be directly viewed by the rail operator allowing data analysis to be done in real-time.



## A CULTURAL CONUNDRUM

For many organizations, these changes are occurring at a time when institutional knowledge is literally walking out of the door. In many public-sector bodies such as US water utilities, 10% of the workforce is set to retire each year (Bluefield Research), and similar trends are reflected in other regions. With this comes the challenge of safeguarding that institutional knowledge.

It’s unreasonable to assume that an accelerated knowledge capture program will help to stem the knowledge out-flow, but an increased focus on adopting digital asset management tools will help to rebuild institutional knowledge digitally.





## PROMOTING PARTNERSHIPS

Another major barrier to adopting digital asset management within the public sector has been a collective bad memory of large-scale system implementations. Very few such systems have been successfully implemented, and the future for implementing digital asset management systems is likely to be more agile, more focused on achieving quick-wins and specific business-need goals than on implementing the ‘all things to all people’ approach. The coronavirus experience has shown how existing digital tools can be used to great effect to keep organizations functioning remotely and safely. A similar experience can perhaps be anticipated for digital asset management.

Crucial to this approach, however, will be agreement from all of the key stakeholders – finance, procurement, engineering, health and safety – on a digital strategy. Partnering with digital service providers can produce quick results, but ownership of systems, processes and data – and accountability – must sit within the business. This is crucial to installing a lasting digital culture.



### Maximizing resources to meet transformation goals

A U.S. water utility approached Arcadis to help it transition from outdated legacy asset management software, to build a system that would allow them to further enhance their capability to prioritize water mains assets by consequence of failure rather than age. In building a new system, the team was able to identify new opportunities to collect insights in the field and identify valuable correlations between asset conditions and future main breaks. With improved resource allocation, the utility raised its water main replacement program’s annual replacement target from two miles to ten miles of pipe – an achievement made all-the-more impressive against a backdrop of a declining workforce, as the organization had shrunk by 20% over a ten year period.



### Investing in digitization is important for the safety and future of tunnels

The Flemish Agency for Roads and Traffic in Belgium requested Arcadis to advise and support them in the modernization of the tunnel renovation and management of its tunnels. Much of the infrastructure was designed fifty to sixty years ago and was due for renovation work. Arcadis helped by advising on maintenance, research, control, helping with safety and renovation files, as well as the digitization of all tunnels plans with dynamic 3D BIM models.

*The coronavirus experience has shown how existing digital tools can be used to great effect to keep organizations functioning remotely and safely.*



## Six steps towards navigating the post-pandemic landscape

In exploring the topic of optimizing aging assets with clients and Arcadis subject matter experts, it's evident that there are some very clear steps that can be taken in the months ahead to enable organizations to emerge from the pandemic crisis and take back control of aging assets, and manage and mitigate any potential risks.



**STEP 01 FOCUS ON PEOPLE AND FOSTER A DIGITAL CULTURE**

Leaders need to embrace data-led decision making and introduce the necessary culture change within which a wholesale digital asset management system can thrive.

Engage and empower employees in the asset optimization journey. Simplify the message around what is important, why it is important, and be clear on the contribution that they can individually make to the successful outcome.

Break down silos that exist between the functional parts of your organization, so that there is proper integration between asset maintenance, new-build, renewal and enhancement, and investment/financial management. This will enable end-to-end asset lifecycle management to take place, helping to create a single unified approach to the digital optimization of assets.



**Using dashboards to bring data to life**

A major utility provider in the Western U.S. has partnered with Arcadis to make sense of the outputs from their SAP-based system to collect and manage data on their company-wide safety observation program. Arcadis developed a powerful, visually engaging, interactive tool to quickly extract data, insights, and connections from the nearly 70,000 data points, creating customized, interactive dashboards to clearly assess lagging indicators. It also allows the client to look forward by learning from observed behaviors and trends to proactively and strategically manage their health and safety processes and culture. The ability to bring tens of thousands of data points to life has allowed this utility to leverage their investment in the existing SAP tool and harness the power of their data to drive strategic decision making and engage with partners across all levels of the organization.

*The coronavirus experience has shown how existing digital tools can be used to great effect to keep organizations functioning remotely and safely.*

**STEP 02 USE DATA IN DECISION-MAKING**

Specifically articulate the business case of interventions on aging assets by using digital dashboards to show the interplay between various decision-making factors, such as cost, risk and performance, and showing how different variables can change the investment decisions.

Build a trusted data pipeline. Enhance your understanding of the risks you face by creating a common data structure and fill it with real-time information, gathered from sensors, drones and connected devices that your people use to make the critical decisions that matter.

Overcome short-term data management and data analysis skills shortages by engaging with existing supply chains to help bridge the knowledge and skills gap when building, for example, analytics dashboards that make sense of asset conditions using data analytics and visualization tools.



### STEP 03 EMBRACE DIGITAL INNOVATION

With the foundations in place, systems, artificial intelligence and machine learning unlock new potential to work assets harder and smarter for the good of your customers.

Within the digital space, embrace pilot programs or identify low-risk implementations including Digital Twins. If necessary, engage a trusted partner to help deliver solutions based upon business need, rather than the latest-and-greatest technological advance.



### UK high speed rail: Pushing the boundaries of digital asset management

One of the UK's high-speed rail networks engaged Arcadis to create an innovative strategic asset management plan and a fit-for-purpose asset information management system. It is helping them to clearly prioritize the asset management capabilities required at each stage of their asset lifecycle, and has led to an improved understanding of the vulnerabilities of their Asset Information Management System, with practical recommendations to mitigate risks.

### STEP 04 MANAGE RISK

Use a common risk framework. This will drive focus and consistency, supporting every level of the organization and allow everyone to understand how risks are aggregating from the asset to the board room.

Following the Covid-19 pandemic, expect risk frameworks to rise up the business agenda, with procurement processes needing to adapt to the new reality of insecure supply chains, and suppliers who are less able to take on the same contract risks as before.

Where possible, take the opportunity to share or move the asset lifecycle risk onto others in operation and maintenance contracts, and performance-related contracts.

### Digitally improving frequency and reliability of travel across London

Arcadis Gen has entered into a ten-year strategic partnership with Transport for London (TfL) to deliver Digital Asset Management services. The first phase of the contract is to upgrade their existing asset and safety management system, introducing it across all nine London Underground lines and London Tramlink. Upon completion, for the first time in its 157-year history, London Underground will have a single system responsible for optimizing management of every single asset on the network. The project will support the continuous improvement of Underground services across London and enable TfL to manage increasing passenger numbers to accommodate London's rapidly growing population; improve reliability and frequency of services; and reduce whole-life asset management costs supporting further capital investment in the network





**STEP 05 DEAL WITH IMPAIRED ASSETS**

Industrial manufacturing organizations should surface and confront the lifetime costs of carrying impaired assets. Full visibility of the total costs of keeping impaired assets should enable better decision-making around their remediation and redeployment.

**STEP 06 MANAGE FOR THE LONG-TERM**

Organizations that have embraced a preventative approach to asset maintenance and refurbishment are reporting a reduction in maintenance spend of up to 50% over three years. They are using sensors and advanced data analytics to advanced data collection tools and technology, coupled with sophisticated data analytics to identify assets that need refurbishing before they fail.

Post-pandemic, the greater volatility and uncertainty in the marketplace will necessitate earlier engagement with sector/industry experts within supply chains.

Explore the creation of dedicated Program and Project Offices. If the biggest pain for public sector clients is knowing the state of assets and where the risks are, the next pain point is how to program and prioritize refurbishment of those assets.

Try to gain agreement from all key stakeholders about the benefits of a single enterprise-wide digital asset management system. Understand the opportunity cost of replacing legacy systems and inefficient processes, and the longer-term benefits of a true optimized digital asset management approach.

Be realistic about your enterprise goals. If the promise of an enterprise-wide, all assets in a single system, single-version-of-the-truth is too much of a stretch, consider Software As a Service models which use industry-specific best-practice templates to allow go-live with a minimum viable product in a short timescale.

### Maximizing returns with an effective analytics solution

Severn Trent Water (STW) needed to up their data game to make sure they were making the right investment choices for their three million assets. With Enterprise Decision Analytics solutions, they are now maximizing returns for shareholders and can say with confidence that their 4.3 million customers are getting value for money.

For over a decade, STW's decision-making roadmap has combined investment scenarios, risk and uncertainty, conducting thousands of optimizations each year. They needed a proven decision support tool that was capable of complex asset-level investment modelling, risk management and optimization. With Arcadis Gen's industry-leading Enterprise Decision Analytics (EDA) software, STW now manages all their asset and portfolio optimization needs in a single, web-based, platform. EDA's rich visualization dashboards enhance communications, and predictive analytics allow STW to plan for the future with confidence. This performance has placed them consistently in the upper quartile in industry rankings, and their record of significantly and consistently outperforming performance commitments to the regulator has resulted in record-breaking rewards of £50 million.



## Heralding the digital era

The coronavirus pandemic will by necessity cause many organizations to have to reset their operations and look afresh at what they do. Some have taken a head-start as a consequence of retooling production lines to manufacture much-needed PPE equipment, but future challenges to business processes and production lines – and supply chains – will need to be examined closely and quickly, and adaptable and flexible solutions will be needed.



Aging assets will also quickly rise up the business agenda after the pandemic is over, and companies everywhere will need to adapt to the 'new normal' in a very short timeframe. Despite large government investment stimulus, organizations will still need to 'do more with less' – perhaps 'even more with even less' – and the challenge will remain of understanding the condition of aging assets and how to prioritize their repair or renewal, their remediation or rebuilding. After all, any stimulus funding will need to be applied appropriately, and an asset management approach can help to prioritize that spending.

What's already clear, however, is that the 'new normal' includes a significant acceleration of the use of digital tools and digital asset management.



#### PROTECTING THE DATA ASSET

A best-practice approach recognizes that data is an asset in its own right, that should be invested in, be properly maintained, and have proper processes to manage its condition. If data is used to inform and justify decisions, it results in a much stronger data culture, in which everyone understands the role that data plays.

Very few public or private sector organizations are currently at the stage where they have a true enterprise-wide digital asset management system – providing a unified view of all assets in a single system, driving common ways of working and providing real-time holistic reporting of the state of a system, network or organization. But instead, there is a growing trend towards using a 'Software As a Service' approach in order to get to a minimum viable product within a much shorter space of time, rather than aiming for an 'all things to all people' system.

And while public sector organizations may not have the flexibility to reorganize or to bring new skillsets into the organization in order to fully exploit new digital tools, there are many existing suppliers and third-party organizations who can help with that transition, or take some of those roles on.



*A best-practice approach recognizes that data is an asset in its own right, that should be invested in, be properly maintained, and have proper processes to manage its condition.*

#### A PRAGMATIC APPROACH

The goal for many organizations is to integrate technology into their business processes, and where those technologies and skills can't be adopted, to make use of existing supply chains to bring those skills and services in-house. By doing so, organizations can ensure they have the knowledge needed to maintain a strong state-of-refurbishment program without having to reorganize their structure.

This will also require suppliers to be more pragmatic when working with public and private sector clients. Many organizations who were early adopters in the digital space are still cautious of being burned again by digital vendors who over-promised and under-delivered. There will therefore need to be a re-setting of the digital asset management marketplace, where pragmatism and a proven tried-and-tested approach is embraced by private and public sector organizations alike.

As we emerge from the coronavirus pandemic and organizations have overcome the short-term financial constraints and ensured the health and safety of their workforces, it's beholden on them to take the opportunity to rethink and reset their approach to aging assets.

# About Arcadis

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 27,000 people, active in over 70 countries that generate €3.3 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

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