Recovery Resilience Reconnection

→ Designing business for an ever-present state of disruption

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Executive summary

- With unpredictability now the norm, a competitive advantage can be gained by companies that can ensure their business operations are able to withstand unknown but likely future disruptions.
- 77% of business leaders consider their organisation to be prepared for disruption in the future, however our research highlights several key areas that are imperative to building future resilience.
- The Water, Information & Communications and Energy industries are in the Reconnection phase functioning effectively and reconnecting with markets and customers, but with opportunities to enhance resilience.
- The Rail, Financial Services, Chemical & Pharmaceutical, Manufacturing and Highways markets are looking to take tangible steps on their resilience journey and become more disruption-proof.
- Retail, Construction and Real Estate are the sectors that our research highlighted were in the Recovery phase from the aftermath of the pandemic.
- A unifying theme from our research is the need for organisations to better understand changing consumer demands as it is a considerable vulnerability across the majority of industries and is one of the top risks for the Energy, Rail, Financial Services and Retail sectors.
- Central to designing a more resilient future is the re-evaluation of business models and fully embed ESG into operations to remain investible and be better prepared when disruption occurs, however striking a balance between ESG and profitability is a key challenge for all sectors.

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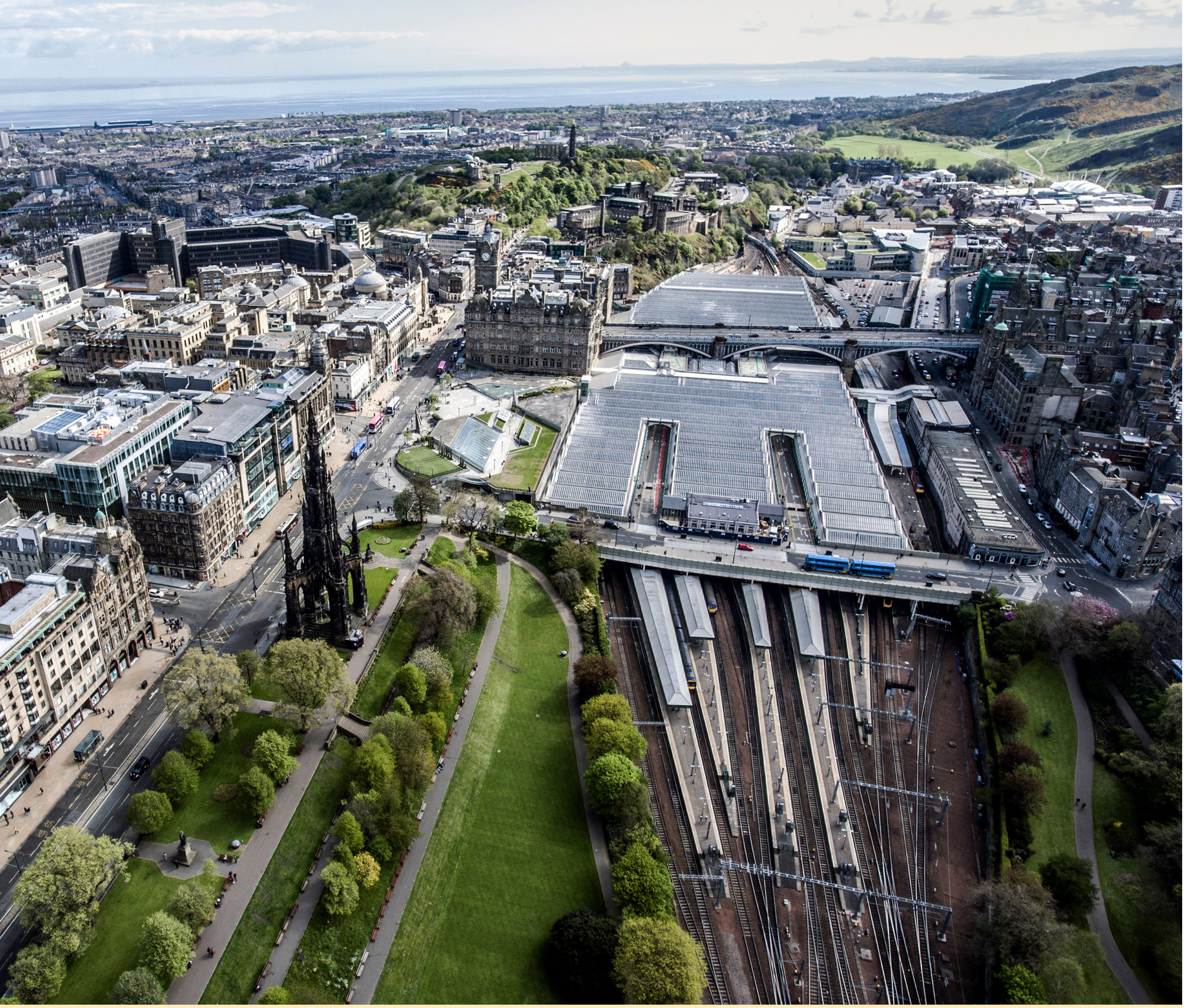
Designing a more resilient future



The next phase for industries in an ever-changing world

The world is changing at a pace most of us have never experienced. The uncertainty that has lingered since the global financial crisis has been exacerbated by the pandemic, increasing cost of living, climate change and ongoing geopolitical conflicts.

There seems to be no end in sight when it comes to this disruption, presenting huge challenges, but also great opportunity, when it comes to forward planning. Successful industries have weathered disruption before, but with uncertainty intensifying in the information age, now more than ever businesses must take a different approach.

As we emerge from the biggest shake-up of global markets in living memory, and with different sectors at varying stages of recovery, the question is what next? Is the 'new normal' just normal? How major will the next disruption to our markets be and will our industries withstand it?

To speed up the recovery process and ensure a more robust future, whatever challenges lie ahead, there are four areas that businesses should prioritise.

It's time to place customers at the very centre, to make sure you know who your customers are, understand their changing behaviours and are able to not only meet, but design for their expectations. It's time to evaluate your business model, embedding ESG fully into your operations to remain investable. It's time to analyse and optimise your assets, minimising waste and reducing the risk of obsolescence. And now really is the time to innovate – this means investing in technology and creation of a forward-thinking culture, truly making your company a digital enterprise, and testing and adapting solutions to meet changing consumer demand.

GHD has carried out extensive research to evaluate how well-equipped UK industries are to meet these challenges. We've looked at which sectors have established resilience, and which are most at risk of being disrupted. The results are both affirming and surprising as we see crisis and disruption management becoming a key part of sustainable business.

Some sectors, like Rail – who were already experiencing stagnation in growth pre-pandemic – are still struggling to recover from the devastation of Covid-19 and have many hurdles ahead to meet climate goals against a backdrop of aging infrastructure and rapidly changing customer habits. Then there are sectors that have proved resilient to the effects of the pandemic, such as Energy and Water, but are vulnerable to environmental factors, need to accelerate their investment in innovation, and must respond to changing consumer expectations and demands.

Whatever the sector, it's our hope that businesses use our research to identify what to prioritise in their own journeys to recovery, resilience and reconnection.

Never before has there been such an opportunity for industries to rethink every facet of their being. If it's not quite a blank slate, it's the closest thing we've had – and will have – for some time to come. UK industry needs to take that step forward to create greater balance of connectivity, resilience, productivity and investability to ensure a strong future for the British economy. Now is the time to move beyond recovery, build resilience against future instability, and reconnect – with the market, with communities, and with each other.

Jonathan Edwards,
EMEA Market Development Leader

Whatever the sector, it's our hope that businesses use our research to identify what to prioritise in their own journeys to recovery, resilience and reconnection.

Recovery, resilience, & reconnection

→ A varied picture for British industry

Through a combination of desk research, internal GHD expert consultation data, and a survey of over two thousand consumers and hundreds of business decision makers, we have created the disruption index.

The intention? To establish a framework for assessing how exposed sectors are now to potential disruption and create a benchmark for future assessment, to build confidence in future disruption readiness and highlight potential blind spots and growth opportunities.

To build the index, we have analysed the risk of disruption to sectors through four lenses: customers, business, assets and innovation. Each of the 11 sectors is positioned 1–11 depending on their overall resilience assessment. The results of each measurement are anywhere from 1–12, with 1 resulting in little to low disruption or impact, and 12 being the highest amount of disruption.

The disruption index

→ Summary of findings

Retail, Construction and Real Estate have been identified as the industries that are most likely to be disrupted, with Water, Information and Communications, and Energy being the least likely. The Construction industry is particularly vulnerable to disruption because of the increasing price of building materials and the long-term impact of more recent supply chain issues. The industry's hesitancy to utilise existing available technology to its full potential and lack of investment in innovation creates greater risk, but also great opportunity. Retail is particularly vulnerable to further disruption — as changes in consumer behaviours continue. To reduce their carbon footprint, customers are starting to favour environmentally friendly products, have increased their social awareness and assessment of brands and organisations, and are more likely to switch from brands that have a poor record.

Within the Real Estate sector, the disruption index highlighted that whilst customer perception for environmental attitudes is high, a lack of environmental commitments and regulation within the Real Estate sector puts it at greater risk of disruption. Government intervention could change the dynamic of how organisations operate and the commitments they must meet in the future. Other weak spots identified by the disruption index include ageing infrastructure and asset obsolescence across Rail and Highways respectively.

These sectors also need to improve innovation to better manage and predict the condition of their assets — and avoid falling lower down the disruption index.

At the other end of the spectrum, the Water and Energy industries are least likely to be disrupted, performing particularly well from a business point of view through recent disruption and having forward planning established for the known future disruptions likely to impact the markets.

Furthermore, both industries demonstrate high levels of commitment to meeting net zero targets, with Energy being the most likely industry to have performed ESG measurements on their supply chain, although the inflation increase and cost of living crisis could challenge this progress. Given that these are two highly regulated industries, their positive sustainable performance may partly be due to role and performance of regulating bodies like Ofgem and Ofwat. That is not to say that further progress cannot be made and pressure from customers is evident. However, disruption is more likely through the existing regulatory framework and with strong engagement of the regulator and companies, allowing time and foresight to prepare for the change. For Energy, pressure from customers is also evident with consumers likely to switch providers because of unmet environmental commitments. On the downside, however, neither of these utilities sectors has high projected growth in 2022, showing fewer investment opportunities.

		Customers			Business			Assets			Innovation		
		Consumer spending patterns	New demand patterns	Environmental attitudes	Investability & profitability	Regulatory environment	ESG/carbon commitments	Ageing infrastructure	Obsolescence	Systems integration	Utilising existing technology	Dedicated digital budget	Adopting emerging technology
Reconnection	Water utilities	4.0	5.5	7.5	2.5	4.0	4.5	9.0	3.0	4.0		5.0	2.5
	Information & communication	9.0	4.5	2.5	5.5	9.0	7.5	6.0	5.5	3.0	7.0	3.0	1.5
	Energy	4.0	9.0	11.5	5.5	2.0	2.0	3.0	3.0	4.0		8.0	3.0
Resilience	Highways	1.0	5.5	6.5	5.5	10.0	5.5	1.0	12.0	8.0	4.0	6.0	6.0
	Manufacturing		4.0	7.5	6.0	11.0	3.5	9.0	7.0	2.0	1.0	7.0	7.5
	Rail	2.0	9.5	6.0	5.5	3.0	5.5	12.0	7.5	6.0	4.0	1.0	8.5
	Chem & pharma	6.0	2.5	7.0	9.0	5.0	5.5	3.0	2.0	11.0	9.0	11.0	7.0
	Financial services	10.0	6.5	3.0	1.0	8.0	7.0	6.0	9.0	7.0	8.0	2.0	6.0
Recovery	Real state	8.0	5.5	2.0	2.0	12.0	11.5	3.0	5.0	10.0	2.0	12.0	10.0
	Construction	11.0	5.0	2.5	10.0	6.0	7.0	11.0	10.5	9.0	10.0	9.0	7.5
	Retail	6.0	9.5	10.5	7.0	7.0	11.0	6.0	8.5	12.0	3.0	4.0	11.0

Industry with lowest disruption within factor — **0.0 to 4.9** — **5.0 to 6.9** — **7.0 to 8.9** — **9.0 to 10.9** — **11.0 to 12.0** — **Industry with highest disruption within factor**

Resilience is key

Sectors in the UK are vastly different— from public to private and highly regulated to unregulated.

To provide a fair analysis, we reviewed and grouped industries and sectors into three areas which can be identified in the results:

1. **Recovery** – 11–9 (Retail, Construction, Real Estate)
   Recovering from the aftermath of the pandemic
2. **Resilience** – 8–4 (Rail, Financial Services, Chem & Pharma, Manufacturing, Highways)
   Working to build future resilience
3. **Reconnection** – 3–1 (Energy, Information & Communications, Water)
   Functioning effectively and reconnecting with markets and customers.

Designing for resilience in a world of uncertainty

Industries have always created business plans and conducted risk planning. Yet, many have not prepared for the global volatility that has been experienced in recent years.

For a business or industry to be truly robust and flourish in the long term, four central areas must be prioritised, each dependent on one another: Customers, Business, Assets and Innovation.

By adopting a framework not just for risk, but to analyse long-term resilience in a truly integrated way, businesses can be better prepared when disruption occurs.

Customers

Ensuring consumers are placed at the centre; understand and plan changing behaviours and expectations.

Business

Evaluating your business model; embedding ESG fully into your operations to remain investable.

Innovation

Investing in technology and piloting new solutions; testing how to meet changing consumer demand.

Assets

Analysing and optimising your assets; minimising waste and reducing the risk of obsolescence.

Customers

For a business to recover, build resilience, or reconnect with any part of their market, deeply understanding their current and future consumer behaviour, mentality and attitudes is imperative.

So, when analysing the risk of disruption to industries through the lens of customers, we looked at consumers' behavioural change, new demand patterns, and social drivers, such as toward environmental matters

Our research showed that changing consumer demands is a considerable vulnerability across the majority of industries and is one of the top risks for the Energy, Rail, Financial Services, and Retail sectors. It's also the factor that most decision makers think will cause the biggest disruption in the next ten years.

Over a quarter of business decision makers believe changing consumer demands is going to cause the greatest disruption in the next 10 years.

So, why are consumers causing so much uncertainty for businesses?

The impact of the pandemic is an obvious factor. Indeed, Covid-19 has set consumer behaviour on a course of permanent change, particularly in industries like Rail and Retail, where well established patterns have been turned on their head.

The change in travel and shopping patterns were already shifting – season tickets saw a slower increase and complete stagnation in 2019, as well as the increase in online shopping (GHD research from March 2021 estimates just under 50% of all UK shopping to be online because of the pandemic) and risk presented to highstreets. However, the pandemic dramatically accelerated these changes and has rendered old data and behavioural insights unreliable. These markets and companies now need to do more and take the extra steps to gain new insights, through data and close market analysis, to understand their consumers and adapt their business to reflect ever-evolving demands.

But it's simplistic to suggest this shift in user expectations is solely down to the pandemic. The move towards a green economy has been gathering pace amongst consumers for some time. Now, we're reaching a tipping point where people feel the need to self-organise and take responsibility for the drive to a more sustainable society. While the pandemic may have helped shift the focus, giving people the chance to re-evaluate what really mattered to them, the market was heading there already.

As consumers show loyalty to the brands they perceive to be doing right by environment or social issues, certain industries are feeling the pressure more than others. Our disruption index shows that consumers are most likely to switch Energy, and Retail providers as a result of not meeting ESG targets. Energy, along with Rail and Water, are the most likely industries to meet their committed net zero targets, however Retail is the least likely – which doesn't bode well for loyalty.

The pressure to transition to net zero, however, comes at a cost burden – and companies need to carefully manage how they pass this onto the consumer.

According to our research,

25%

of consumers would always choose to purchase from a net zero company even if it meant spending more

Three recommendations for businesses looking to become more resilient and understand consumers:

01 As behaviours change relating to where people work, visit, and enjoy leisure activities, analysing consumer movement is crucial. Look at factors like trip frequency, purpose, mode and destination. GHD works with local councils and business improvement districts (BIDs) in cities across the UK, including Liverpool, Bristol, Bath and York, to understand changing visitor patterns and a pre-and post-pandemic view as to how and why people visit cities and how this supports local economies.

02 Both private and public sector organisations can benefit from scrutinising customer spending to better understanding how customers are responding to new policies, pressures and opportunities. GHD works with leading financial institutions to understand changing consumer spending patterns both online and in high streets, transit agencies and hospitality.

03 Recognise the power of multiple data sets when analysing behaviour and put data at the heart of decision making. Demand drivers have changed so dramatically in recent years, only by understanding behaviours through multiple sources of data can organisations have truly smart insights and perspective on patterns, which in turn will lead to better investment decisions and increased returns.

Business

In a world where consumers have more choice and are better informed than ever before, there is more pressure on organisations to have a clear and coherent business strategy.

Companies need to exit the pandemic fitter and faster than their competition, with a strategy to reconnect and ensure resilience for the future. Much of this strategy should be around understanding the new business paradigm in which we exist and future potential scenarios with an aim to build investability, profitability and productivity. Alongside this, clearly defined business purpose will only serve to enhance resilience and success.

The prevailing economic uncertainty, which many industries surveyed see as the biggest disruptor to their recovery, is a cause for concern and may present pressures on asset portfolios, through increased competition and altered market dynamics impacting a company's investment status and potential for profit. Now more than ever senior management need to be clearly aligned to strategic and tactical outcomes, whilst remaining agile and open to potential markets and opportunities.

Our research also shows that many sectors — including Manufacturing, Real Estate, and Chemical and Pharmaceuticals — perceive a changing regulatory environment and ESG commitments as key disruptors to financial success. ESG is certainly something we are hearing more of, but what that really means for businesses in the long-term is often not fully understood. Previous research conducted by GHD showed that 92% of CEOs recognise ESG is a positive value driver, however 56% agreed there was still confusion on what comprised ESG factors within their businesses. Given Boards and their Directors will be signing off against their company's alignment to ESG factors, such knowledge is critical, as is a realistic and sustainable plan to achieve effective ESG reporting.

As well as the ESG factor, the pathway to decarbonisation is mission critical for senior leaders now, including addressing what this means for the nature and culture of their business. Having a clear net zero strategy is a major step that organisations have to take in order to build a resilient future. This is not only committing focused investment, but on developing a short, medium, and long-term plan to take the vital incremental steps.

Consumers and investors are expecting more in terms of auditing and reporting on ESG and decarbonisation plans. Action now will void expensive penalties, non-conformances and rushed or reactive strategy development. Whilst there may not be agreed reporting standards, the thrust of ESG and decarbonisation goals are well known and can be applied to businesses now.

The government has a major role to play in determining the resilience of our markets, for instance in renewables. If the government was willing to roll out more sovereign guarantees, it would be easier for the utilities sector to invest, funding the potential for cheaper and easier energy provision.

Looking forward, public/private co-finance models will be crucial to funding infrastructure maintenance and replacement and innovation across all public sector industries. The consumer simply can't keep footing the bill. For the Energy sector, meanwhile, the regulatory environment has supported the industry's ability to remain resilient throughout turbulent times. Yet, if regulations were to change, this could present a key disruption risk. As utility bills become unaffordable for many households, the Energy sector needs the regulator to intervene, or risks damaging their reputation with the consumer beyond repair.

What the Energy regulator is aware of, though, is that investment is needed in protecting the environment whilst also meeting ongoing energy transition challenges. The impact on investability is clear; if carbon commitments become more stringent, companies who are not ahead of the curve are less attractive investment prospects. The fundamental reality? Investors will put money where they can make that return. So, it's no wonder the majority of sectors see an investment in environmental factors as key to their recovery and resilience. Striking a balance between investment in ESG conformity and profitability will be one of the biggest challenges for all sectors — from a societal and regulatory point of view, as well as a business standpoint.

For the Water and Energy sectors, environmental crises are perceived as big disruptors to their recovery – most of that, however, is down to consumer perception, rather than an operational or strategic reality.

Business decision makers in Construction, Retail and Manufacturing cited supply chain issues as one of the top vulnerabilities for the future of their sectors. We have seen the effects of the pandemic hamper everything from logistics services, silicone manufacturing and even the import and export of raw materials necessary for almost all industrial sectors, while ongoing geopolitical conflicts are inevitably adding to that disruption. In the Real Estate sector, previous GHD research conducted in March 2021 suggests that 34% of those surveyed were looking to relocate away from urban environments, creating a positive pressure for the future of housing in the face of supply chain challenges.

Global supply chains have emerged as a much bigger risk to UK industries than previously estimated, with overreliance on international trade and single source supply chains creating challenges from a logistical, geopolitical, or environmental point of view. Localisation and the storage of inventory and goods is a key factor playing out in the market, and the need to increase domestic productivity and build self-sufficiency has never been clearer. Consideration of more resilient global trade routes in parallel with a growth in local capacity will strengthen the path forward for UK industry.

With the race to net zero well and truly on, companies need to think about how sustainable every point on their supply chain is. Right now, the ability to understand and declare with confidence that your whole supply chain is working to achieve net zero is an impossible task. Not only that, for many businesses having full control, transparency and sustainability of their supply chain is not currently a commercially viable model. This pressure is coupled with the increasing demand from consumers to have transparency of where and how goods are supplied – companies can no longer offset their net zero to supply chains without reprove.

Three recommendations for businesses looking to design more resilient business operations:

01 All sectors need to improve their incorporation of ESG policies into business practices and daily operations and better build objectives and ability to report and manage performance. Corporate reporting on ESG matters is fast becoming 'business as usual' and to be expected by most companies in all the sectors surveyed. Its highly likely that, in the next two to three years, increased climate-related reporting will be mandated.

02 Businesses need to ensure they have a coherent strategic and operating model aligned to their new consumer and client demands. Leaders in the business must have the management organisation to deal with emerging challenges and utilise scenario planning significantly in their strategy development.

03 Revisiting supply chain hierarchies and testing it for resilience, alternates, and contingencies. Companies need to think about how sustainable every point on their supply and apply an ESG lens whilst the review is underway.

Assets

Confidence in its physical assets, and a robust asset management strategy, are key for any sector hoping to bounce back, build resilience and thrive again in an uncertain market.

Our research assessed to what extent factors like ageing infrastructure, obsolescence, and system integration made sectors more vulnerable.

Ageing infrastructure is seen as the biggest threat to the future of both the Rail and Water sectors — industries defined, by consumers at least, by their infrastructure.

60%

of businesses have at least some of their physical assets at risk of obsolescence

36%

of which are unable to be repurposed

Water companies have a huge number of interconnected assets. Privatisation in the 1980s saw a lot of investment poured into improving and maintaining infrastructure, optimising it to boost operational performance and for the benefit of the environment. But that was 35 years ago. Now, that infrastructure needs updating. Where that money will come from remains unclear — but it's difficult to see how it can happen without investment from the private sector.

For the Rail industry, meanwhile, the need to update their tracks is clear. The timeline to reach net zero has changed, with pressures to become net zero in the UK by 2050, and 2030 for Transport for London. Electrification is the driver to modernise tracks and achieve net zero, but in light of changing consumer behaviours and the industry's entire profitability model shattered, the need to focus on garnering investment may be more pressing. This challenge is exacerbated by the reluctance of the consumer to pay for this through the increased cost of rail tickets, as evidenced in our research.

The Financial Services sector reported at least 72% of their physical assets are at risk of obsolescence, with Roads and Highways reporting an even greater number at 73%.

In many sectors, including Highways, Financial Services and Retail, the obsolescence of physical assets is a looming challenge for owners and investors alike.

The disruption and impact on assets within these sectors have been felt over the course of the pandemic, with the application of innovative, customer-led thinking required at the heart of any repurposing strategy to ensure resilience.

Three recommendations for businesses looking to design more resilient asset management:

01 Companies need to look at their business cases and plans for both capital and operational investment and consider the robustness of their supply chain. The return on investment, payback periods, and risks of obsolescence or disruption in construction or improvement should be assessed in light of changing market conditions. This requires a critical and objective assessment in terms of strategic and commercial priorities, funding and financing mechanisms and technical and operational capabilities.

02 Companies should consider new avenues for revenue generation and funding. The cost-of-living crisis means that consumers will struggle and not readily accept the burden to fund investment in new assets and infrastructure without a clear benefit. Organisations may need to diversify or divest their portfolio of assets to ensure future profitability and to enable the means of supporting critical investment.

03 The repurposing of assets needs to form part of the business strategy and asset management approach companies now take. Assets that are deemed obsolete, at risk of obsolesce or perceived as an unnecessary cost on the balance sheet need to be reviewed and revisited considering fluctuating market conditions. A strategic and periodic approach may present opportunities for companies to mitigate risks in the future. A core element of this is to address the human-centricity of assets, whether that be movement tracking or spend profiles, to predict demand and reduce obsolescence.

Innovation

If there's one thing that is constant at a time of uncertainty, it is change.

To be viable for the long term, businesses need to embrace this and innovate. Technology, as we've seen time and time again, has the ability to instantly change a market forever.

Most companies accept that digital readiness and embracing new technology are core components of their approach to innovation. This should continue, but companies must now do more to make innovation central to their company.

Innovation should be a cornerstone of culture, realising that though we can't predict the future of our markets, we can shape them. Building a corporate culture that embraces innovation means that we can also shape our companies to flexibly adapt and thrive through future disruption and any small or major shifts in the market.

Innovation is far from a new concept. But making innovation an integral part of an organisation, from a cultural and investment point of view, and with entire teams dedicated to it, is still a relatively new school of thought. Some sectors have been quicker than others to embrace it.

Much can and has sought to be learned from the technology sector in this area, but innovation doesn't always need to be driven by new technology or digital tools and ways of working. Innovation can be something else altogether, including rethinking the customer experience. In the Rail sector, Transport for London (TfL) witnessed an increase in customer satisfaction by simply telling passengers when the next train would be, rather than running more trains.

To truly drive innovation, businesses can't take a siloed approach or rely upon individual spirit and initiative. A multi-organisational effort is needed within sectors: a network of collaboration built to trigger a cultural shift and a commitment by leadership.

When innovation fails, it's often because businesses don't take people on the journey. Innovation without human centricity means nothing. If it's viewed as a gimmick by employees or consumers, it will fail. To successfully innovate, all stakeholders need to be on board – especially the employees. The challenge for sectors, then, is how to make innovation part of their DNA, so that everyone feels confident about contributing to the big drive forward.

The Construction sector fared one of the worst on our index in terms of innovation. But there are so many opportunities to innovate – and progress is being made. In a sector prone to over engineering, innovation can and should focus on better design, less material consumption, and a more sustainable material selection process. Whether we like it or not, we extend our human intelligence with digital intelligence, and arguably we can no longer operate with brain power alone – utilising digital tools is without question. The arrival of 5G, the first network created with the Internet of Things in mind, has the potential to revolutionise the way industries operate.

On average, businesses are dedicating around

25%

of their budget to digital transformation — an investment that could be lost if their people aren't taken on the journey

Three recommendations for businesses looking to design more resilient business operations through innovation:

01 Focus on purpose-led innovation. Ensure innovation is driving towards a business priority or a challenge that people are passionate about, such as achieving a great outcome for our planet or solving a genuine long standing consumer problem and designing with humans in mind. Tackle the root cause and not just the noisy part of the problem. GHD have the experience in bringing these challenges to life by simulating potential future disruptors to trigger an innovative mindset and culture. It is amazing what can be reimagined for people, planet and profit when we envisage a different future state and test the status quo.

02 Unleash fresh perspectives. When it comes to innovation, conceptualisation and fresh thinking is the priority. Look at your business, why are you taking this approach, and are there fresh technologies and techniques that could be explored? Which innovative solutions and diversity of thought are working for other industries that could be embraced? Adopting automation and tools that either streamline, enhance efficiency or reduce risk can all provide a high return on investment. At GHD, we are using an array of digital and design technologies that can capture, structure and manipulate data in a fraction of the time that traditional methods would have, providing our clients with greater, faster insights and leaner outcomes. Well-designed physical spaces can also be just as important as tools in enabling innovation to thrive, whether it is within the current office or as a separate lab.

03 Accept that for innovation to succeed, culture comes first. This means people need to be given the time and encouragement to innovate, the framework to succeed and the space to fail. GHD works with clients and partners across a range of different industries to facilitate innovative thinking, to bring people together to ideate and take a divergent approach on what the challenge really is. Not only does this enable an inclusive culture, but it also creates engagement and empowerment around finding the right solution together, taking people on the journey and securing input from all the right stakeholders associated with the challenge.

Sector analysis

→ Rail

2020 was the year that turned the UK Rail industry on its head. Season ticket demand had already stagnated pre-Covid, and unsurprisingly passenger numbers were down almost 80% following the pandemic. With a business model that relies on farebox revenue and consumer behaviour changed forever, the sector needs to realign its entire proposition to start to recover, build resilience, and reconnect with customers.

A key challenge is that the sector simply doesn't know who its consumers are anymore. And when its new competitor isn't another form of transport but advancing workplace technology, extensive research is needed to understand who is using the network – and how to encourage others back.

As well as the need to rebuild a new business model in line with the transition to Great British Rail, there's also the ongoing need to fund the transition to a carbon neutral network. To some extent, that goes hand in hand with updating ageing infrastructure, highlighted as a huge area of threat to the industry in our index. With sustainability a pressing need for today's consumers, as well as government pressures to reach net zero as soon as 2030, the industry simply can't push the problem down the track any longer.

What's clear is that to raise funds, the industry needs to diversify. Replicating global models to derive increased revenue from advertising, property development and telecoms operators, might seem idealistic — but it's certainly food for thought and a model that's likely needed to be replicated by operators in UK cities.

An immediate need is to focus on how people are using public transport now and better understanding consumer travel habits and demands and seeking to offer better connectivity. This could mean things like the rail industry working more closely with bus operators to improve connectivity for commuters particularly in suburban or rural areas — an opportunity to make a real difference to people's lives and communities.

Rail has worked with available technology but has garnered a reputation for itself as an industry that is slow to embrace innovation. By continuing to adopt technology, the industry can start to build resilience, particularly by utilising tech to improve user experience. The rollout of 5G, for example, will allow commuters to continue to work through their journey. Improvements in data exchange amongst rail operators, meanwhile, allows live feeds to be updated with accurate information about train occupancy levels.

To move beyond recovery, the transport network needs to be viewed as a national asset. The sector isn't going to achieve an optimal mobility strategy for the country unless a joined-up approach across networks and the government is taken. The need to collaborate has never been more imperative.

Three recommendations for the Rail sector to become more resilient:

1. Better understand the movement of people and goods from the point of origin to point of destination and the role in which rail can play to better connect its consumers, new and old. This will inform the use of existing assets and plans for investment and changes needed for the future.
2. Embrace new ticketing and technology. Accessing and utilising available data on the movement of people will enable the sector to maximise network efficiency across the UK. In addition, by providing innovative ticketing options that respond to the changing customer demands will help to get more passengers back on the network.
3. Diversifying its commercial model and revenue avenues is critical for the rail sector. Accessing different funds and investment opportunities that does not pass the cost onto consumers, who, as we have seen from our research, can't and won't pay, will help rail to build greater resilience for the future.

→ Energy

Operationally, the UK Energy industry has proved resilient during the recent years of uncertainty. In fact, it was one of the lowest scorers on the disruption index, and results from the business decision maker survey suggested that the sector itself doesn't see many threats to its future. Rises in energy costs and the drive towards decarbonisation are major steps many firms are taking towards securing that resilience.

Customers, however, aren't so certain. According to our findings, a big threat to the sector is customer perception, specifically where ESG is concerned. Paradoxically, the businesses themselves don't view environmental factors as a disruptor. They think they're getting it right, however high consumer expectations for the Energy sector presents a risk if they don't meet, and communicate, commitments. In an age where consumers have information at their fingertips and environmental crises involving energy companies are guaranteed to get clicks, a robust communications strategy is imperative.

The reality is that the sector is investing heavily in future energy. There is a clear vision for clean energy solutions for new generations – whether that's through large high-output power plants; localised hubs generated by domestic waste; using hydrogen in natural gas processes; or the wider use of solar, wind and tidal power generation.

Not only is the commitment to clean energy crucial to the UK's net zero strategy, but it's also creating job security across an entire region of the country. Plus, it's paving the way for adoption by regions across the globe to follow the model and build their own future resilience.

For a secure future for Energy, progressive thinking in terms of innovation adoption is key, for both managing existing assets and future investment. The disruption index, however, highlights a lack of innovation in the industry, particularly the availability of a dedicated digital budget.

Perhaps that's down to an aversion to risk. Early adopters of any new technology take on board a degree of risk, after all. But with correct planning by industry leaders and careful considerations of engineering solutions, steps can be taken to minimise threats and maximise the future potential of almost every future scheme.

The time is certainly right to embrace innovation. The sector is seeing its biggest technological jump in around 30 years in the control of electrical and electronic systems. Thanks to the Internet of Things, data collection and control facility can maximise system efficiency on a micro, meso and macro scale. The outcome? Supply and demand can be balanced to minimise waste, while potential disruption can be recognised and mitigated as soon as possible. There has been no better time to adapt and innovate this way following the pandemic and the huge impact on energy usage from offices to homes and cities into communities.

Three recommendations for the Energy sector to become more resilient:

1. Prioritise consumer education to achieve net zero and mitigate future disruption. Where people and communities better understand how they can reduce their carbon footprint, more manageable demand patterns will follow.
2. Take a long-term view and assess whether consumer concerns over energy affordability and supply security are transient swings, or a lasting shift in public sentiment. Above all, avoid reactive decision making.
3. Change investment to a public/private co-finance model, crucial for utilities sectors to maintain critical infrastructure.

→ Water

Of all the sectors featured in our research, Water appears the best equipped to face future disruption. The industry fared comparably well during the pandemic, with sector employees declared key workers, and many capital programmes that were delayed are now back on track.

The pandemic certainly changed the behaviour of water users. More people working from home meant increased personal consumption, putting more pressure on networks. On the other hand, business use will surely have been less. Generally, though, the Water sector is attractive for investors, thanks to the definite imbalance between water supply and demand (and the need to bridge that gap).

Our research shows that the Water sector thinks ageing infrastructure will have a big effect on its future. Accordingly, there is increasing focus on innovation, including how water companies collaborate around it. There's an emphasis on finding better ways of doing things, whether it's coming up with ways to minimise disruption to customers; use less carbon; or bring the network together digitally.

Working collectively makes sense, in an industry where companies' problems are — if not identical — usually very similar. The sector's approach to problem solving has already changed: they're starting to put the customer at the centre and engaging more proactively with the public.

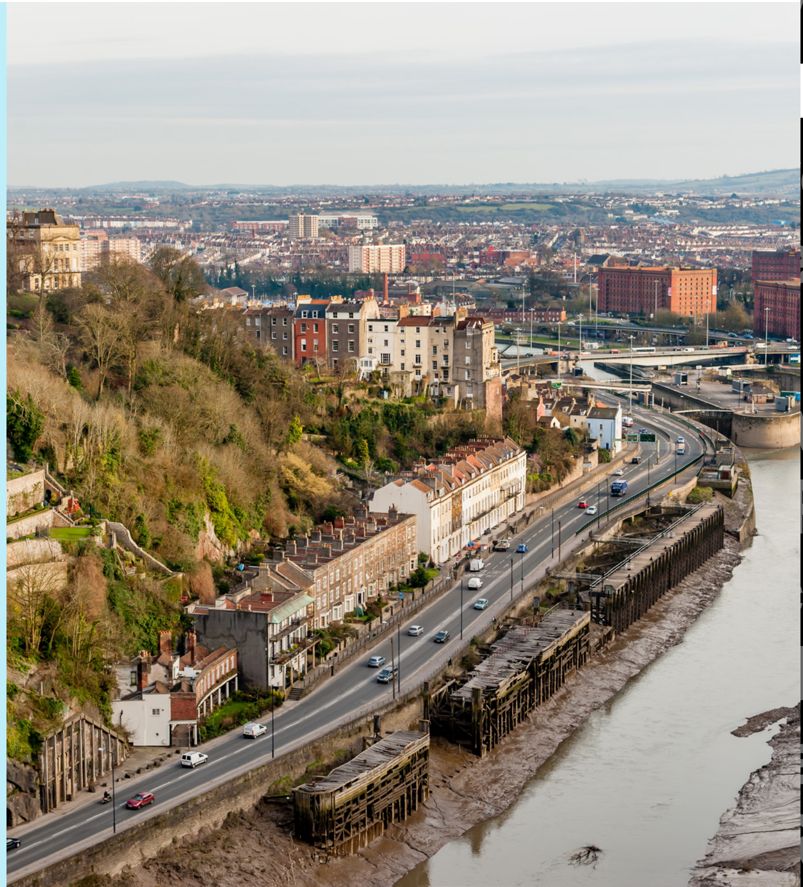
Changing consumer perception of the Water sector's environmental attitude, however, is likely to have the biggest effect on the resilience of the sector. Our research suggests that the public don't think the sector is doing enough. The reality is that the industry is making great gains in the ESG space. In 2019, water companies in England joined forces to pledge to reach net zero on operational emissions by 2030. Since then, companies in Scotland and Wales have committed to achieving carbon neutrality across all emissions by 2040.

And rightly so: the climate emergency is one of the main challenges to urban wastewater systems in future decades. More extreme weather events will lead to more untreated sewer overflows and increased flooding. And with the increased scarcity of water resources predicted, wastewater reuse will become more necessary as climate change accelerates. On the other hand, during wastewater treatment, greenhouse gases can be emitted to the atmosphere. The industry needs to find solutions.

The challenge, of course, is that it will be expensive to solve the problem of ageing infrastructure at a time when environmental pressures are so demanding. Innovative approached will be part of the solution, but ultimately the amount available to spend is driven by the value people place on water, regulatory demands, government policy and ultimately politics.

Three recommendations for the Water sector to become more resilient:

1. Better understand the condition and performance of assets in order to undertake more effective investment planning.
2. Upgrade infrastructure in anticipation of increasingly frequent floods, drought, water scarcity, and general climate uncertainty.
3. Work hard to create mutual trust with customers so they better understand water companies' challenges and reduce their water consumption.



Conclusion

The results of our research are fluid. We expect them to change, to fluctuate – just like the world these sectors operate in. But it's highlighted several points that are imperative to the future recovery, resilience, and reconnection of all sectors. The consumer has never had more information or power. Our research has confirmed that the changing behaviours and expectations of consumers presents the biggest risk to resilience across all industries. If businesses don't start designing for the user first and foremost, they will get left behind at best and fail at worst.

The need to innovate is clear. 5G is a game changer for all sectors and the Internet of Things can be rolled out in a whole new way. It has the potential to give us more transparency of how private and public sector networks operate – and that not only allows investments to be managed more effectively, but for sectors to be better regulated and compliance to ESG monitored.

Ultimately, technology has the ability to join up industries and deliver bigger value to the consumer. Technology, if you like, is the glue that brings everything together – and could help us reconnect as a community again.

And innovation isn't just about technology, but about changing ways of working and how we engage with employees and consumers. Innovation is not a matter of instant success or failure: it takes time. But ultimately, businesses that are able to stay on top of the change and provide increasingly new insights will be the ones that succeed.

By being human-centric and accelerating innovation, businesses stand their best chance of increasing their investability. If businesses can understand demand patterns, they can come up with solutions that are investable and achieve better outcomes for everyone.

It can be difficult to provide holistic solutions to the problems sectors face. Every industry faces challenges around net zero and the circular economy and how to fund the change. By being more creative – more innovative – solutions can be sought in the absence of huge amounts of investment.

At the heart of all these sectors is a community; the people, businesses, and environment they engage and impact. Every community is different and seeking to solve increasingly complex social, environmental and economic challenges. It's clear that only by working with their community and taking a people-first approach can businesses expect to reconnect with their market.

↳ At the heart of all these sectors is a community

Methodology and disclaimer

Authorship and acknowledgements

The data included within this report was commissioned by GHD and produced by Sapio, an independent professional market research agency. The views expressed herein are those of the authors only.

Disclaimer

This report is based on market perceptions and research carried out by GHD and with market research conducted by Sapio. It is provided for general guidance and information purposes only. The information in it should not be relied on in any way or construed as professional, investment or financial advice.

Whilst every reasonable effort has been made by GHD to ensure the content of this report is accurate at the time of publication, some errors or mistakes can occur. The report includes market research which has not been independently verified by GHD.

All information in this report is provided as is with no guarantee, warranty or representation in relation to completeness, accuracy, timeliness, relevance, sufficiency, fitness for any particular purpose or reliability.

Surveys

Two surveys were conducted among over 2002 consumers and 306 business leaders in the UK. The interviews were conducted online by Sapio Research in January 2022 using an email invitation and an online survey.

Results of any sample are subject to sampling variation. The magnitude of the variation is measurable and is affected by the number of interviews and the level of the percentages expressing the results. For any survey it will not necessarily represent the same result that would be obtained if interviews had been conducted with all persons in the universe represented by the sample. At an overall level consumer results are accurate to ± 2.2% at 95% confidence limits assuming a result of 50%. At an overall level business decision maker results are accurate to ± 5.6% at 95% confidence limits assuming a result of 50%.

Disruption Index

The disruption index was created through a mix methodology approach, combining desk research with primary data from the consumer and business decision maker surveys. 18 different data points were used to formulate the index for each industry. A ranking approach was used to keep scoring systems across factors consistent. Where more than one data point was utilised, average scores were taken. Any gaps in the disruption index are due to insufficient comparable data from the desk research. Please note that industries from the desk research were categorised as closely as possible to original industries in the index. The definition of categories are outlined below with an indication of scoring. Hyperlinks are also provided for any desk based research reports.

Given the disproportionate impact the different areas of our analysis have on a sector's ability to build greater resilience, we have applied weightings to each category to reflect its significance. With end user demand and increasingly volatile consumer trends that resonate right across the supply chain, understanding consumer base carries the greatest weighing of 40 percent. Business operations, including the likes of investability and net zero ambitions, we have deemed to be of elevated importance with a weighing of 30 percent. Meanwhile, ensuring ongoing efficiency and durability of systems (20 percent) and looking to embed innovation as core to business operations (10 percent) have been weighted to reflect our perspective on their relative impact.

Definition of categories

Customers

Consumer spending patterns

Average growth rate of spending 2012 to 2021 (bigger growth in spending = more likely to be disrupted)

New demand patterns

% consumer consumption expected to stay the same (higher % (stay same) = less likely disrupted)

% easiest to choose/switch to a new provider (lower percentage = less likely to be disrupted)

Environmental attitudes

% likely to change providers b/c of ESG commitments not met (low percentage = less likely disrupted)

% likely to do in two years to reduce carbon footprint (lower percentage = less likely disrupted)

Assets

Ageing infrastructure

Consumption of fixed capital (Depreciation) Average Growth Rate (CFC/Depreciation 2018-2020) (higher growth of depreciation = more likely to be disrupted)

Obsolescence

% at least some assets at risk of obsolescence (high percentage = high disruption)

% that have not been able to repurpose assets (higher percentage = more likely disrupt)

Systems integration

% of businesses that have fully integrated systems (high percentage = low disruption)

Business

Investability and profitability

Projected GVA growth – predicted growth 2022 in % (quick and slow recovery) (higher percentage = more likely to be disrupted)

Regulatory environment

% highly regulated (high percentage = less disrupted)

ESG/carbon commitments

% have committed to net zero targets (higher percentage = less disrupted)

% that have undertaken ESG measurement on supply chain (higher percentage = less disrupted)

Innovations

Utilising existing technology

% respondents perceive most opportunity for improvement through tech (high % = high disruption)

Dedicated digital budget

mean % of budget dedicated to digital transformation (Higher % = less likely disrupted)

Adopting emerging technology

% Already utilizing AI in their organisation

Mean number of new tech being prioritized in next two years

Contact us

The road to resilience starts here.

At GHD, we help businesses understand how their customers are operating, what business models are innovating in the new world, how to maximise the benefit of digital solutions, and enhance their portfolio of assets. Get in touch today to find out more.

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About GHD

GHD recognises and understands the world is constantly changing. We are committed to solving the world's biggest challenges in the areas of water, energy and urbanisation.

We are a global professional services company that leads through engineering, construction and architectural expertise. Our forward-looking, innovative approaches connect and sustain communities around the world. Delivering extraordinary social and economic outcomes, we are focused on building lasting relationships with our partners and clients.

Established in 1928, we remain wholly owned by our people. We are 10,000+ diverse and skilled individuals connected by over 200 offices, across five continents – Asia, Australia, Europe, North and South America, and the Pacific region.

→ The Power of Commitment