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The road ahead:
Four trends shaping the Industrial Products & Construction industry

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Contents

Introduction

The global Industrial Products & Construction (IP&C) industry is ever changing. Rapid globalization, technological advancements, shifting consumer preferences, and evolving government policies are reshaping the manufacturing, aerospace, defense, engineering, and construction industries, exponentially accelerating the pace of competition.

At the same time, barriers abound. To succeed in this era, companies in the IP&C sector must navigate volatile geopolitical climates, inflation, supply chain disruptions, cost pressures, and a shortage of skilled talent—while simultaneously uncovering ways to adapt to emerging trends such as environmental, social, and governance (ESG) mandates and rising customer expectations.

In the absence of a clear roadmap, companies striving to prosper must make risk-aware business decisions with the information available to them. Here, we explore four trends companies in the IP&C sector should consider in the coming years, as well as questions to ask themselves as they fine-tune their current business strategies.

Trend 1: The rise of ESG

As governments and businesses work to meet their Paris Climate Accord commitments, and ESG investment vehicles rise in popularity, the IP&C industry is taking steps to keep pace.

With industrial production accounting for c. 9.2 Gt of CO2 emissions in 2022,[1] many governments are adopting policies targeted at these high-emitting businesses—implementing a vast range of political interventions, technologies, and environmental measures to encourage a transition to clean energy and decarbonization. These include initiatives such as carbon taxation and trading, as well as financial support for carbon capture and storage (CCUS) (see figure 1).

Figure 1: Key global government initiatives and clean energy measures

Country	Net Zero target	Major Clean Energy initiatives / policies	EV grants/ subsidies	Carbon tax	CCS/CCUS	Clean Hydrogen
US	2050	CEMI, CEDI, IRA*	✔	✔	✔	✔
UK	2050	UK Clean Growth Strategy, Contracts for Difference	✔	✔	✔	✔
Germany	2045	Renewable Energy Sources Act, National Hydrogen Strategy	✔	✔	✔	✔
France	2050	National Energy and Climate Plan,vNational Low-Carbon Strategy	✔	✔	✔	✔
China	2060	Renewable Energy Law, Hydrogen plan 2021-2035	✔	✘	✔	✔
Japan	2050**	Feed-in-Tariff, Japan's Hydrogen Industrial Strategy	✔	✔	✔	✔
India	2070	National Hydrogen Mission	✔	✘	✔	✔
Australia	2050	Clean Energy Initiative (CEI), National HydrogenStrategy	✔	✘	✔	✔

Source: *see endnotes*

*CEMI: Clean Energy Manufacturing Initiative; CEDI: Clean Energy Demand Initiative; IRA: Inflation Reduction Act

**Japan has a legally-binding process under the Promotion Act to review the progress up to 2030 towards the net zero in 2050 but reviewing the net zero target itself is not legally-bound as it is not enshrined in a law but only stipulated in policy documents

At the same time, ESG mandates are playing a prominent role in both investment and mergers and acquisitions (M&A). Today's investors and acquirers are looking to "green" their portfolios and are integrating ESG into their due diligence efforts as a result. These ESG shifts are impacting the IP&C playing field in several different ways:

ESG investment

Although total assets invested in ESG funds declined 15% between the end of 2021 and June 2022, falling from US$2.9 trillion to US$2.5 trillion,[2] ESG mutual funds and exchange traded funds (ETFs) still received a net US$120 billion in new investments in 2022.[3] In fact, studies have shown that capital is flowing away from traditional funds into repurposed ESG funds which, beyond being less prone to the negative market background, are more resilient due to the structural shift in investor preferences.

Europe accounted for a significant proportion of the new assets invested in ESG in 2022. According to Morningstar, ESG products accounted for 65% of total asset flows in 2022—an increase from 53% in 2021.[4] Additionally, ESG ETFs and exchange-traded commodities (ETCs) reached US$270.9 billion.[5]

ESG in M&A

The urgency around ESG investment and the values at stake have a tangible effect on M&A activity. More than 30% of businesses have witnessed operational impacts from climate change and, in 2022, natural disasters caused an estimated US$313 billion worth of global economic losses.[6]

Because of this, private equity (PE) and venture capital (VC) investors have been weighing ESG as a critical factor when selecting new potential targets for investment, valuing targets, and assessing post-merger integration of target companies. These investors are particularly looking to better understand the dangers and opportunities around resources, working conditions, waste, energy, and market access.

Case study: Hempel acquires Farrow & Ball

In a recent example of a strategic acquisition at least partly driven by ESG priorities, Hempel Group—a leading coatings manufacturer—acquired Farrow & Ball, a luxury paint and wallpaper company with an eco-friendly product lineup.[9]

At the same time, ESG is introducing new M&A opportunities—as ESG is now regarded as a key lever of value. A growing number of PE/VC firms are taking steps to methodically capture sustainable and ethical value across deals by transforming middling ESG performers into disruptors or taking advantage of local government energy tax credits and incentives (which have the potential to render difficult prospects viable).

Notably, this trend isn't limited to PE firms. A recent Deloitte survey found that 46% of CFOs plan to consider ESG in their acquisition strategies.[7] At the same time, impact investing itself is fast becoming a dedicated M&A strategy. In 2021, companies spent approximately US$188 billion on ESG-aligned acquisitions, the highest figure on record.[8]

That said, quantifying ESG risks and opportunities—and setting value targets—remains notoriously complex. This is largely because most associated data is noncomparable and regulatory standards vary tremendously from region to region, creating a Wild West of sorts. Failure to correctly judge merger speed, align strategic ESG priorities, or motivate management can obstruct value creation. In the longer term, businesses must retain sight of their purpose, revisit deal rationale, and test assumptions.

ESG regulations

To make this terrain easier to navigate and respond to growing investor demand for more consistent climate-related corporate reporting, regulators across the globe are working to standardize ESG disclosure requirements and make sustainability reporting consistent and transparent across the board.

For instance, the Securities and Exchange Board of India (SEBI) has mandated the top 1,000 listed entities (by market capitalization) to comply with the country's Business Responsibility and Sustainability Reporting (BRSR) standards, which make reporting voluntary for FY2021-22 and mandatory as of FY2022-23.[10] Similarly, the US Securities Exchange Commission has indicated that all US domestic registrants and private issuers will be required to disclose climate-related information in their annual filings.

With tax incentives on offer, strong support from governments, and the relative maturity of assets, the US and European regions have also been attracting global ESG investment. In the second quarter of 2023, both US and European sustainable funds each saw the value of their assets grow by roughly $20 billion.[11] As global regulations continue to harmonize, opportunities for corporate investment are bound to increase. The key for companies will be to balance these investments with the costs associated with building out and maintaining high-quality oversight, monitoring, and reporting mechanisms.

ESG's impact on the IP&C industry

ESG and responsible investment considerations are profoundly reshaping business models—and, in the coming years, will become intrinsically embedded across M&A.

This shift will inevitably unlock new opportunities for competitiveness, profitability, and capital in the IP&C space. But it may also give businesses the nudge they need to address the growing demands of customers, investors, employees, societies, and governments—all of whom increasingly expect companies to play a bigger role in creating a fair and sustainable marketplace.

These factors—and others—are pushing companies in the IP&C industry to pay closer attention to their own ESG postures. Those at the leading edge of this change have started to embed a broader sense of purpose into their business strategies and drive future-forward transformations. By taking advantage of government incentives, prioritizing product innovation, and acquiring emerging and innovative clean energy startups, these companies are positioning themselves to meet growing customer demand for things like electric vehicles, lithium-ion batteries, wind turbines, electricity cables, and fuel cells, all while lowering their carbon footprints (and carbon tax bills).

Five advantages of transitioning manufacturing products towards green energies

- Increase global competitiveness in emerging clean energy industries
- Provide the basis for innovative new green products
- Improve sustainability
- Create jobs for current and next generation workers
- Meet the mounting expectations of global regulators and activist shareholders

Case study: Reliance Industries Ltd, India

The conglomerate Reliance Industries Ltd—an integrated player across energy, materials, retail, entertainment, and digital services—will soon add "renewable energy player" to the list.

The company plans to invest US$9.5 billion over the next three years in renewable energy, including a US$7.5 billion investment in a 5,000-acre, green energy integrated complex called Dhirubhai Ambani Green Energy Giga Complex in Jamnagar, Gujarat, India.[12]

The complex will be among the largest such integrated renewable energy manufacturing facilities in the world and will manufacture ancillary materials and equipment such as electrolyzers, fuel cells, and battery storage required for decarbonization of the Indian and global economies.

Product offering questions to consider:

- Which clean energy technologies should we prioritize as product offerings to best support net zero transition?
- How can our company accelerate R&D efforts to enable the use of these cleaner technologies (through products and/or business models)?

Key strategic questions to consider:

- How effective are our company's current strategies for achieving net zero target—and how can we enhance them?
- Which technologies, methods, or approaches can help us achieve our company's decarbonization targets (e.g., use of renewable energy through corporate PPAs, CCUS, green hydrogen or ammonia as a fuel, battery storage co-location, sustainable procurement to encourage lower footprint across supply chain, etc.)?
  - Does our company have sufficient funds to develop/invest in these technologies?
- In what ways can we build, buy, or collaborate to unlock both organic and inorganic growth opportunities in the clean technology space?
- How do we plan to demonstrate to stakeholders that the company is reducing its carbon footprint in cost-effective ways while making the business resilient to climate-risks?
- Are our company's ESG disclosures compliant with the multiple ESG frameworks across various countries and evolving regulations?

Trend 2: From product offerings to solution offerings

Traditionally, industrial manufacturer business models have focused primarily on product portfolio enhancements and new market expansion efforts. However, heightened competition, the deteriorating impacts of process improvements, and a slowdown in hardware innovation has made it difficult for companies to maintain profitability through these traditional means alone.

To overcome this challenge, more manufacturing companies are shifting their operating models in two primary ways: by investing in smart factories and transitioning towards more solution-based models (such as integrated hardware, software, and services).

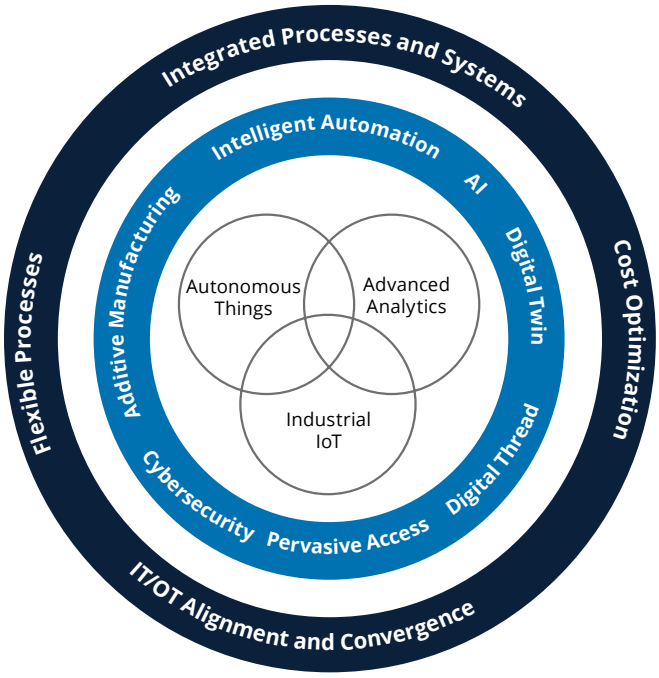
A surge in smart factories

Smart factories are essential in helping members of the IP&C sector keep pace in a rapidly evolving marketplace. Considered part of the Industry 4.0 or Factory 4.0 movement, these facilities leverage tools such as the Internet of Things (IoT), cloud computing, analytics, artificial intelligence (AI), and machine learning—as well as automation and immersive experiences—to collect and analyze data, bolster manufacturing efficiency, improve product quality, streamline distribution, reduce downtime, and allow for better business decision-making, as well as lower costs (see figure 2).

Daimler is one example of a company that's using its Mercedes-Benz smart factory to address pressing market challenges. Its "factory of the future", known as Factory 56, is designed to increase manufacturing flexibility and efficiency without sacrificing quality. In certain production areas, for instance, the company has replaced the traditional assembly line with driverless transport systems—a move that makes it possible to seamlessly adjust production without interrupting existing operations or redesigning the plant floor. The Daimler plant is also fully connected to the entire value chain, using digital tracking and tracing measures to follow load carriers around the world, while allowing for early detection of discrepancies in the supply chain and quicker reaction times.[13]

Many companies are also investing in smart industrial tech startups as a way to augment their smart factories. This was at Tesla's rationale in 2017 when it purchased Perbix, a designer of automated manufacturing equipment.[14]

Figure 2: Smart factoring building blocks and enablers



Source: Gartner

Solution-based business models

Solution-based offerings seize opportunities to add value or provide after-market support to complement existing product lines. Large aerospace companies, for instance, are starting to provide a wide array of digital aftermarket solutions, product performance engineering services, and product repair engineering services in addition to their core product offerings. Similarly, many companies are using M&A to grow in these adjacencies, a point driven home by the recent Siemens acquisition of Senseye,[15] which provides predictive maintenance and asset intelligence for industrial companies.

These tailor-made solutions can help conglomerates gain a competitive advantage over their peers, boost growth, and create long-term relationships with their customers by swiftly responding to changing customer demands. They also offer new opportunities in mature markets, help companies insulate themselves from cyclical fluctuations in new equipment sales and pricing, and provide a pathway to meet sustainability commitments (since software and services aren't prone to complex and carbon-intensive manufacturing processes).

Perhaps most advantageously, this services/solutions model can help businesses minimize many of the challenges encountered following the COVID-19 pandemic—such as stalled equipment orders, supply chain issues, and capital spending challenges.

Strategic questions to consider:

- Which value-added services could we offer in addition to the current product portfolio to ensure higher customer satisfaction?
- How can we acquire the talent and business know-how necessary to build these platform-as-a-service (PaaS) models?
- How can our company accelerate R&D of innovations that create opportunities for new products, solutions, business models, and, ultimately, new revenues?
- What would be the ideal business mix of products and solutions to improve our profitability and competitiveness? What time horizon are we looking at to achieve this target?
- Can acquisitions help us upgrade our capabilities in growth areas?

Case study: Schneider Electric launched EcoStruxure solutions in 2009

EcoStruxure is Schneider Electric's IoT-enabled, plug-and-play, open, interoperable architecture and platform that unites Power Management with connected devices, edge control software and digital services for enhanced productivity and improved resilience.

By leveraging IoT technology, EcoStruxure connects different devices and systems, enabling data collection and analysis for smarter decision-making. This integration provides insights into operational processes, leading to improved efficiency and productivity. It enables real-time monitoring and control of energy consumption across various systems and equipment, leading to significant cost savings and reduced carbon footprints. To complement this switch from equipment to solutions, Schneider Electric offers EcoStruxure service plans, which typically include a range of offerings like monitoring, maintenance, support, consulting, and optimization services, designed to ensure that businesses can fully leverage the benefits of the EcoStruxure platform. The plans range from basic remote support to advanced analytics and on-site advisory services. Finally, the last layer is dedicated to applications, with an ever stronger integration of AI, which allows for example predictive maintenance.

In FY23, aggregated revenue from Systems, Software & Services grew by 17%, significantly faster than other segments, and accounted for 47% of the group revenue. The group tracks the "Digital Flywheel", which includes Systems, Software & Services together with Connectable products and Edge Control. Digital Flywheel represented 56% of the group revenue in 2023. This share is expected to increase to 60%-65% by 2027.

Trend 3: A shifting global landscape

Global foreign direct investment (FDI) flows have increased substantially in recent years—reaching US$1.65 trillion in 2021, a 64% year-over-year increase, according to the United Nations.[17] This has had a trickle-down effect across the IP&C industry. With traditional supply and demand factors disrupted due to both the pandemic and global trade wars, global IP&C value chains have been shifting. This is forcing companies to reconsider their supply chains and manufacturing bases. This trend, coupled with advanced manufacturing technologies, is driving significant new investments in reverse shoring and in production hubs in historically overlooked markets.

Notably, many geographic regions are benefiting from this increase in investment—albeit in different ways, and to different extremes. The United States, for instance, saw FDI flows rise by 114% to US$323 billion, while cross-border M&As almost tripled in value to US$285 billion. China, meanwhile, saw a significant US$179 billion in inflows, while the Association of Southeast Asian Nations (ASEAN) experienced a 35% surge in inflows, with increases across most members.[18]

Manufacturing sectors in countries such as Japan and India are fast developing into investment hubs for foreign players mainly due to availability of technology, talent, and other essential resources. There has also been a surge in M&A activity in countries such as India, where foreign investors are targeting manufacturing companies/ industrial automation companies for their technology talent and resources. At the same time, the unwinding of the global supply chain is introducing new investment opportunities for local players. This was underscored in 2022 when India's Tata Motors acquired Ford Motor's Indian-based manufacturing facilities.[19]

In general, investor appetite in the IP&C industry is being driven by a few key trends:

Rising attractiveness of emerging economies
Emerging economies are attractive to investors for a host of reasons. Not only do they enjoy greater economic growth over developed markets, but they tend to be insulated from banking turmoil in developed regions. Additionally, a lot of capital within these markets is often under-owned and attractively valued.

Investment in emerging economies is also essential if the world hopes to achieve the UN's Sustainable Development Goals. Because of this, we've seen increased private-public sector collaboration to drive investment to many of these regions.

This trend has been particularly prevalent in the construction industry, where emerging markets have become attractive for companies looking to expand. Loose financing conditions, combined with major infrastructure stimulus packages, are driving investment in many regions. In some cases, construction companies are using M&A as a starting point for market entry, which has bolstered sector valuations. In fact, the global construction market is forecast to grow to US$15.2 trillion by 2030, with US$8.9 trillion of that amount invested in emerging markets.[20]

Yet construction companies seeking to expand into these markets should still keep a close eye on their financial health to avoid running into the types of cash flow challenges that may arise in an environment characterized by higher material costs, complex supply chains, rising fuel prices, and wage instability.

India manufacturing sector sparks interest from foreign investors
India's manufacturing sector received foreign direct investment (FDI) of US$104.2 billion between April 2000 and December 2021[21] — largely due to the Indian government's 'Make in India' initiative. The initiative provides a range of incentives to manufacturing companies, including production-linked incentives, which apply to infrastructure-related projects such as roads, transport, and highways.

Appetite for technology start-ups
Global private equity investors are showing greater interest in acquiring the underperforming business units of industrial giants that have high potential (and perhaps undervalued) technologies. In June 2022, for instance, private equity firm Clayton Dubilier & Rice acquired a majority stake in the industrial operations of Roper Technologies Inc.[22]

This trend is rapidly extending to the space industry, which recently opened its doors to private investments after being dominated by government agencies for decades. Companies in this industry and beyond are looking to acquire start-ups that can help drive technology innovation and allow for increased competitiveness.

There is a lesson embedded here for the IP&C sector, which could benefit by more actively investing in the startups and ecosystems driving global innovation.

Mounting supply chain resiliency
Pandemic shutdowns, poor international transit, and bad weather all wreaked havoc on supply chains in recent years. These factors, combined with geopolitical tensions—like the war between Russia and Ukraine, US-China tariffs, and sanctions—have inspired many companies to heighten their supply chain resiliency.

In some cases, this has resulted in a shift in manufacturing destinations. Some automotive manufacturers, for instance, are moving parts production from China's coastal region of Jiangsu to central Mexico's Guanajuato State (due, in part, to supply chain issues, but also because the US-Mexico-Canada Agreement which requires the majority of auto content be made in North America). Many original equipment manufacturers (OEMs) have also started to explore in-house production of semiconductor chips, to work around supply chain backlogs.

This has culminated in the rebalancing of manufacturing footprints in various regions. In Asia, for example, more organizations are relocating their plants from China to Southeast Asia. Companies that traditionally relied on supply chains in western Europe are now shifting them elsewhere—towards Romania and West Africa. North American companies, meanwhile, are choosing to insulate their operations from future recession by expanding their operations to Asia.

Strategic questions to consider:

- With ongoing macroeconomic uncertainty and/or geopolitical tensions, how will our company manage risks associated with business continuity?
- How can we reduce our reliance on specific manufacturers and diversify our component suppliers?
- Which methods could be most effective in dealing with the current challenges (e.g., should we buy, build/invest, or collaborate to drive growth)?
- What steps can we take to attract foreign investors for large infrastructure projects?
- How do we distinguish ourselves from our domestic and international competitors and ultimately obtain significant foreign investments at attractive valuations?
- What proportion of our revenues are generated from foreign countries/through exports? How can we leverage this for attracting private equity investors?

Trend 4: The ongoing competition for talent

Attracting and retaining a quality workforce remains a key remains a key concern for many members of the IP&C industry. While the pandemic exacerbated the problem, the truth is that the ongoing competition for talent had existed for some time—and it is only expected to get worse.

By 2030, the global workforce is expected to be short 85 million people, resulting in a loss of US$8.5 trillion in unrealized annual revenues. Shortages will be highest in China (12 million) followed by Russia and the United States (six million each).[23] In Europe, France will likely find it hardest to fill vacant positions, followed by Romania, Italy, Turkey, and Germany.

There are countless reasons for this talent gap. Low wages, an aging workforce, and a lack of skilled labor have been issues for some time. The industry 4.0 revolution is creating management-level talent gaps as IP&C companies scramble to train for new skillsets, such as robot teaming, smart factory management, and digital twin engineering. At the same time, jobs on the manufacturing floor are increasingly being replaced by automation. The industry is also grappling with:

- **A perception problem -** The IP&C industry has often been perceived as highly manual, in decline, and with a weak environmental track record. This complicates efforts to attract highly skilled younger workers, who will likely only be enticed by higher wages and the opportunity to work with leading-edge technologies.
- **Lack of awareness -** Many people simply aren't aware of IP&C job salaries or the variety of technological advancements that have transformed the nature of many jobs over the last few decades.
- **Changing workforce expectations -** Prospective employees are increasingly focused on well-being, purpose, diversity, equity, and inclusion—and are looking for work environments where they feel accepted, can work on flexible schedules, and that are in close proximity to their homes.

While there is no single solution to tackle this challenge, the following measures could potentially help:

Higher wages

While some IP&C industry workers are leaving the workforce altogether, the majority are simply changing jobs due to better opportunities, including higher salaries.

For organizations looking to attract more skilled workers, wage increases will almost certainly attract more applicants. Of course, raising wages will come with its own set of challenges. Organizations will have to decide whether to slash profits or pass the increased costs onto customers.

That said, in recent years wage increases in many sectors have remained low, indicating it may be time to play catch-up. For example, Canada's mining and manufacturing wage growth has been notably weak, despite strong growth in job vacancies.[24] Given the heightened risk of in-person manufacturing, more wage gains may be needed to meet demand.

Upskilling and reskilling initiatives
While a portion of today's talent shortages stem from numerous skilled workers leaving the workforce due to retirement, the main cause is likely the IP&C sector's growing reliance on advanced technology such as AI and automation. While this emerging technology helps to streamline business processes and improve workplace efficiencies, it also requires workers with the appropriate skills to operate it.

Training workers to use new forms of technology not only helps fill the labor gap, but it can boost the productivity of existing workers—and reduce the need for new ones. This has been proven in areas where employers are investing in equipment and software in response to labor shortages.

Building interest in the IP&C sector
For years, employers in many countries have had concerns about replacing record numbers of retiring workers. For instance, in the United States alone, 10,000 people per day reach the 65-year-old threshold for retirement and this rate is expected to continue until at least 2029.[25]

One way to overcome this gap is for organizations to help introduce the younger generation of workers to the sector by participating in educational and apprenticeship programs.

Creating more welcoming workplaces
Employers in the IP&C sector can broaden their talent pools by attracting a more diverse group of employees. This can be accomplished by creating more inclusive policies and cultures, as well as workplaces that focus on well-being and purpose.

In the Mercedes-Benz Factory 56 in Germany, for instance, the company is testing out a "Pool of Shift Employees", which aims to provide employees with more flexibility when choosing their shifts. The goal is to one day allow employees to choose their working hours via an app, so they can enjoy a better work/life balance.[26]

Strategic questions to consider:

- How can we ensure that our workforce has the right skillsets to allow for a smooth transition to clean energy manufacturing?
- What are our company's current policies to attract and retain the right employees—and how do they measure up to our closest competitors?
- How can we make sure our workforce has the right mix of skills for competitive success?
- Which labor-saving technologies can we invest in to realize long-term operational and financial benefits?
- Can acquisitions help us upgrade our talent in growth areas?

Facing the future

Today, organizations in the IP&C sector can't afford to rest on their laurels. To succeed in this swiftly changing business environment, it's imperative to consider factors like ESG, value-added offerings, geopolitical shifts, and talent strategies when planning for growth.

Specifically, IP&C organizations would be well-served to:

- Ensure ESG is embedded in business strategy and integrated into all facets of the business, including product development, accounting, business strategy, operations, compliance, stakeholder relations, etc.
- Respond to shifting customer demand and heightened competition by focusing on providing value. This will involve taking steps to better understand the needs of the end customer and looking beyond product offerings to meet those needs.
- Stay up to date on emerging threats and opportunities. Global organizations must keep pace with emerging trends, political climates, and government incentives.
- Take steps to develop their existing talent pools. This will involve proactively developing the skills of existing team members to meet the evolving needs of the sector, as well as recruiting new team members through participation in apprenticeship programs, education programs, and more attractive work environments.

To learn more about how Deloitte can help your organization thrive in today's new IP&C environment, contact us.

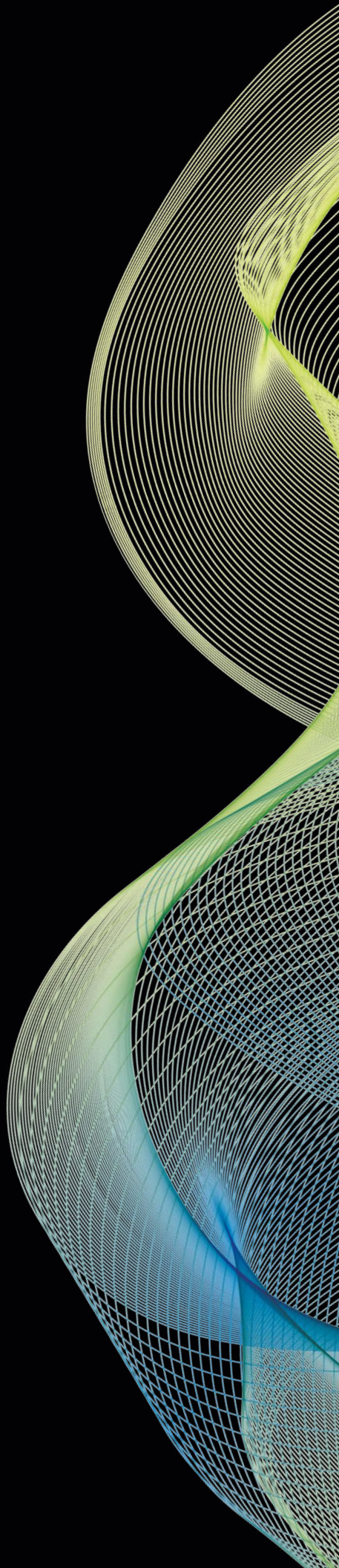


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Figure 2: Smart factoring building blocks and enablers, Gartner

Figure 3: Lumada revenue (¥t), GlobalLogic

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