Deloitte.

Tech Trends 2023:
Trust, talent, transformation

Tech trends in industrial products and construction

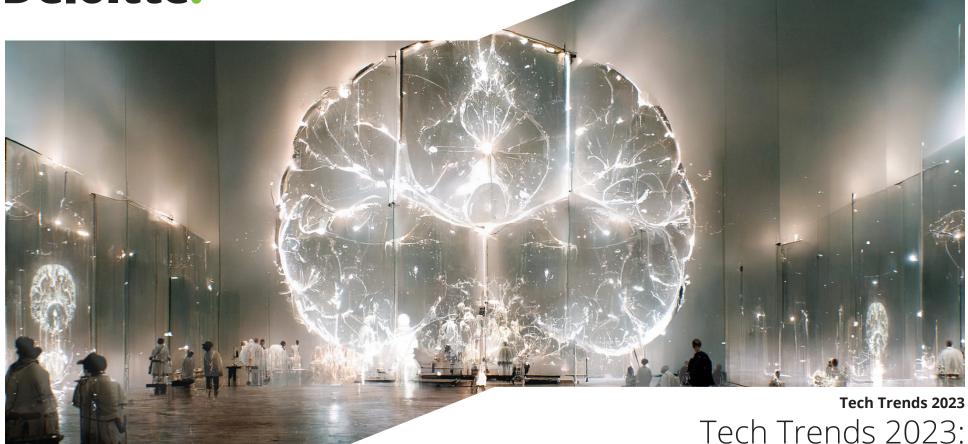### Relevance and readiness scale:

We looked at each trend and assigned a value from one (low) to five (high) based on the trend's relevance and readiness for IP&C organizational adoption.

Relevance:

How impactful would it be if organizations adopted the trend?

Readiness:

How ready are organizations to adopt the trend?

Technology is aging at an accelerated pace. To compensate and compete, companies are making investments modernizing their architecture—adopting multicloud approaches and dabbling in the metaverse but not yet fully abandoning their trusted mainframes. Companies are integrating AI solutions to facilitate decision rights—opening a multi-faceted debate on trust.

What does it take for people to trust AI? How can stakeholders trust digital organizations? Finally, companies are rethinking how they recruit and retain talent, and at the same time talent is demanding hybrid work constructs from their employers. How is IP&C, traditionally a slower-moving industry, responding to rapid changes in technology and higher demands from the workforce?

Through the glass: Immersive internet for the enterprise

For a generation, the connection to the digital world has been mediated through an ever-shrinking series of rectangular screens. Now, as technologists recognize that screens can't keep shrinking forever, the paradigm is shifting again, toward interfaces that take users through the glass and into immersive virtual experiences, including the digital world known as the metaverse. Over the next couple years, tangible, conversational, and virtual interfaces will likely continue to graduate from tech to toy to enterprise tool. While some companies build lucrative business models around the unique capabilities afforded by an "unlimited reality," others provide immersive environments for employees to streamline operations or collaborate and learn. As technology advances further over the next decade, organizations should be ready for reality to move online through expanded ways of interacting with mixed reality.

Trends in action

Operating with complex, capital-intensive assets, IP&C companies should prioritize adoption of augmented and virtual reality (AR/VR) technologies, an imperative tool for innovation, reducing costs, and optimizing production. For IP&C companies, innovation often requires robust design and build with specialized machinery, which can quickly drive up costs in the physical world. Meanwhile, virtual worlds offer a less expensive alternative for research and development to prove out concepts before implementation. Additionally, AR/VR technologies significantly enhance employee training experiences for processes that are intuitive, streamlined, and scalable. By training employees through immersive experiences, organizations can generate insights to improve training curriculums and can help employees develop muscle memory skills in a low-risk environment, which promotes greater efficiencies.

Opening up to AI: Learning to trust our AI colleagues

With AI tools increasingly standardized and commoditized, few businesses may realize true competitive gains from crafting a better algorithm. Instead, what will likely differentiate the truly AI-fueled enterprise from its competition will be how robustly it uses AI throughout its processes. The key element here, which has developed much more slowly than machine learning technology, is trust. As machines encroach on human-like tasks that go beyond basic number crunching and enter the realm of discernment and decision-making via AI, the business world is having to develop a new understanding of what it means to trust machines. Leading organizations are developing AI systems and inserting them into their processes with trust at the core, ensuring that all users understand how these tools work and feel they can rely on them.

Trends in action

Much like welcoming a new member to a team, it takes time and consistency to build and establish trust. IP&C companies that are embedding AI algorithms into decision rights are finding workers unwilling to simply accept AI output at face value. They want to understand the inputs into the decisions and the basic logic of the algorithm, and then they often want to run AI decisions in parallel with analog processes until they are convinced AI is providing better answers to problems. Companies should be prepared to not only solve "the math" part of AI but also the organizational psychology part.

READINESS: 4   **RELEVANCE: 5**

READINESS: 3   **RELEVANCE: 5**

Above the clouds: Taming multicloud chaos

As the number of cloud platforms maintained by the typical enterprise proliferated, so, too, did operational complexity. With multiple platforms comes multiple security protocols, applications, databases, and governance rules. To simplify multicloud management, some enterprises are beginning to turn to a layer of abstraction and automation that sits above the burgeoning multicloud. Known alternately as "metacloud" or "supercloud," this family of tools and techniques can help cut through the complexity of multicloud environments by providing access to common services such as storage and compute, AI, data, security, operations, governance, and application development and deployment. Metacloud offers a single pane of control for organizations feeling overwhelmed by multicloud complexity, allowing them to synchronize activities across their various cloud platforms.

Trends in action

Clients in IP&C have several systems used for production at various stages of cloud maturity. The industry is first focused on moving to and optimizing application hosting on the cloud as a primary goal. Once accomplished, they can then begin assessing capabilities of cloud counterparts for the right use cases and initiatives. Cloud collaboration, where the right cloud provider will be recruited to satisfy the right use case, will become more common even if the cloud providers themselves are competitors. Architecting an integrated cloud solution that covers applications for supply chain, planning, manufacturing, and financials will be key.

Flexibility, the best ability: Reimagining the tech workforce

In the last year, many organizations have been engaged in a heated competition for a limited supply of technology talent. Yet with technical skills becoming outdated every couple of years, hiring for current needs is not a winning long-term strategy. Rather than competing in scarcity, savvy leaders consider an abundance frame, wherein technology talent can be curated, created, and cultivated. Companies should be prepared to eschew IT orthodoxies and prize flexibility as the best ability. By building a skills-based organization, tapping into creative sources for finding talent, and providing a compelling talent experience, companies can meet their talent goals. In the longer term, organizations should plan to brush up on their humanities as AI technology advances enough to carry out many of the lower-order tasks that IT teams are burdened with today.

Trends in action

Trends such as Smart Factory are blurring the lines between IP&C and technology firms, which is increasing pressure in the labor market. On the demand side, companies want individuals who are proficient in the latest technology platforms and who are willing to remain loyal. On the supply side, employees want more control over work/life balance, hybrid and remote work arrangements, and fulfilling career development. Companies willing to rethink where work gets done, to invest in developing not just technical but also strategic training, and to appeal to employees' need for higher purpose work will attract, and retain top talent.

READINESS: 2   **RELEVANCE: 3**

READINESS: 4   **RELEVANCE: 5**

In us we trust: Decentralized architectures and ecosystems

Blockchain-powered ecosystems are becoming key not only to developing and monetizing digital assets but also to creating digital trust. As organizations begin to understand blockchain's utility, they're realizing that building stakeholder trust could be one of its primary benefits. From everyday enterprise applications to blockchain-native business models, blockchain-enabled architectures and ecosystems disintermediate trust, placing it not in a single person or organization but distributing it across the community of users. Organizations may be able to cement their credibility by helping reinvent a more decentralized internet, Web3, in which a single, immutable version of the truth is based on public blockchains. In this world, digital natives are increasingly likely to demand higher-quality proof and higher-order truth. Digital ledger technologies and decentralized business models that achieve consensus through code, cryptography, and technology protocols are demonstrating that none of us is as trustworthy as all of us.

Trends in action

As supply chains increasingly face more disruptions, businesses must be positioned for resilience and adaptability. Blockchain-powered solutions unlock capabilities to share data with external partners without compromising privacy, confidentiality, security, or intellectual property. With blockchain adoption, organizations can better collaborate with third parties across different value streams to increase visibility, mitigate risks, and respond in real time to big market shifts. Blockchain enables businesses to transform their supply chains into a unified ecosystem of partners with a closer connection to upstream supplier capabilities and operations and a deeper understanding of customer demand.

Connect and extend: Mainframe modernization hits its stride

Many businesses today feel that their legacy systems (like mainframes) are performing well on the types of workloads they were originally designed to do. The problem is that the business and technology environment has moved on, leaving business leaders expecting more functionality from their IT systems. Rather than rip and replace legacy core systems, enterprises are increasingly looking to bring them into the modern era by connecting and extending them to emerging technologies. Through tried-and-true approaches to legacy system modernization, businesses are leveraging things like mainframes—and their precious data—to drive digital transformation. AI-powered middleware solutions, advanced microservices applications, and refreshed user interfaces are giving organizations a powerful pairing that takes advantage of the trusted functionality of legacy systems and the expansive capabilities of emerging technologies.

Trends in action

"Don't change what isn't broken" is a common phrase in IP&C. A compelling business case may not exist for major system upgrades. End users on shop floors need reliable solutions that are scalable and can process large amounts of data, with intuitive front ends. Data aggregators and connectors are becoming more prevalent in the industry to knit together data from across source systems and data coming from physical hardware. However, companies need to be cautious that legacy systems can handle the increasing pipeline of data from existing and new sources and that maintaining the legacy systems is a cost-effective business decision.

READINESS: 3   **RELEVANCE: 4**

READINESS: 3   **RELEVANCE: 5**

When the humanities are blended with technology, the products that IP&C companies are manufacturing start to shift.

Widening the aperture: From infotech to xTech

Historically, to enterprise audiences, "technology" has served as shorthand for "information technology." But separate and distinct from enterprise IT, an extended set of technologies—or xTech—is on the horizon. Rooted in the formal, natural, and social sciences, these academic and research areas are brimming with patent and startup activity, technology maturity and advancements, academic and grant investments, and venture capital funding. And they're attracting the best and brightest talent. We anticipate six emerging technology disciplines to eventually rival IT in their impact on business innovation: space and aeronautical engineering; cellular and biomolecular engineering; brain and nervous system applications and interfaces; climate, sustainability, and the environment; autonomous and precision robotics; and power, energy, and battery technologies.

Trends in action

When the humanities are blended with technology, the products that IP&C companies are manufacturing start to shift. Autonomous vehicles and drones will shift the types of engines and support that manufacturers produce on their production lines. Construction will begin to look at the total carbon footprint of the building life cycle and its environmental impact instead of just simply constructing buildings where space can be secured. New manufacturing lines will be set up to support advanced aircraft and new spacecraft. Last, the expansion of autonomous and precision robotics will gradually replace human workers on the assembly lines, creating a paradigm for executives of where and how they will deploy their existing labor-intensive workforce.

READINESS: 3   **RELEVANCE: 5**

Learn more

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