Native agility for Engineering & Construction

Increasing business resilience with composable enterprise software

Native agility equals business resilience.

Tighter margins, global skills shortages and new industry entrants are all ramping up the pressure on traditional construction and engineering businesses. Organizations need ways to increase productivity and to improve project performance; delivering on time and on budget is just the start.

Today's constantly changing landscape requires the ability to adapt. With hungry new market entrants poised to bid for modular and offsite manufacturing contracts, domestic players will require new hybrid business capabilities spanning construction, manufacturing and service. Companies must be equipped to swiftly embrace new business models, driven either by their own business requirements or possibly by the clients they want to work for, such as outcome-based service and operation and maintenance opportunities. The ability to exploit predictable, profitable revenue streams that extend not just to the build, but also repeat for the whole lifecycle of an asset, is transformative, simultaneously increasing stock market valuations. In short, the next-generation contractor needs to be a Total Asset Lifecycle Service Provider.

Surviving, and thriving, demands native business agility.

This whitepaper explores what this agility means for the engineering and construction industry: what it can look like, and how the choice of sector-honed enterprise software like IFS Cloud can drive revenue diversification, increased performance, greater cost control and business resilience. We examine:

- What is agility and why does it matter?
- How can enterprise software help construction and engineering companies become resilient?
- Enabling change: what is a composable enterprise platform with IFS Cloud?
- How modernizing for tomorrow demands a flexible digital backbone

Agility: the need to adapt to challenges and trends

If there's one constant in the engineering and construction sector, it's change. To grow, a business needs to be able to evolve.

Traditional ways of working, and a spreadsheet and static document-driven culture, are simply no longer fit for purpose. Transformative digital technologies such as building information modeling (BIM), robotics, drones, laser scanning, artificial intelligence (AI), modular construction and 3D printing are reshaping the industry.

Fragmented monolithic systems, a siloed management environment and a reliance on expensive third-party integrations pose a costly, and high risk, legacy infrastructure. Operational, process, new business model and regulatory challenges are far-reaching. They include:

Project Management, Collaboration and Joint Ventures

Construction projects are inherently complex, often involving multiple contractors, teams, stakeholders, and phases. Increasingly, major infrastructure contracts are collaborative multi-party projects, calling for the swift creation of Joint Venture entities to manage and execute the program. Integrated business systems, such as Enterprise Resource Planning (ERP) and CDE (Common Data Environment) software, including project management and collaboration tools, enables seamless communication, real-time reporting, document sharing, and task tracking. By enhancing coordination and reducing delays, project execution is efficient, high quality, and ultimately faster and more profitable.

Resource Allocation and Optimization

Managing resources is critical in construction. ERP software helps you allocate labor, materials, subcontractors and equipment efficiently. Real-time data, budgets and forecasting, and project analytics enable better decision-making, reducing waste and cost overruns.

Cost Estimation and Control

Low profit margins and revenues place your business under constant pressure. Your project profitability stands or falls on accurate estimation and control of cost. Enterprise software can incorporate historical data, market trends, and project-specific information to generate precise cost estimates. Moreover, it enables real-time monitoring of costs and project scope changes ensuring contractors stay within budget.

Within 5 years, 50% of all construction projects will use offsite/modular manufacturing and/or 3D printing, with prefabricated modules accounting for up to 25% of the construction. Certain UK projects are already insisting contractors use Construction-integrated manufacturing methods.

Source: IFS research

Regulatory Compliance

Compliance with building codes and regulations is mandatory and often complex. Enterprise software can automate compliance tracking and reporting, reducing the risk of costly violations and delays.

Data Analytics and Insights

Construction companies generate vast amounts of data. Enterprise software, equipped with analytics capabilities, lets you confidently surface actionable insights to inform strategic shifts, optimize processes, and identify areas for improvement. In particular, the ability to understand and accurately scope future project performance, and the ability to integrate relevant other data sources using AI, allows far more accurate and forward-looking decision-making.

Industrialized construction

The industry needs to rapidly adapt to an industrialized construction model. This means doing less work on the construction site and more offsite, in production and manufacturing facilities. Construction site processes will become more standardized, with assembly-line type methods demanding a structured approach to materials management and logistics.

The processes and systems being used to manage the construction work will need to change. For some companies, this may also mean opening offsite and modular manufacturing facilities. Offsite and modular construction methods improve project performance and profitability. Delivery is faster, more predictable, at higher quality and at lower cost. This demands effective supply chain management, inventory tracking and coordinating the delivery of prefabricated parts.

Building Information Modelling (BIM) and Digital Twins

Embracing digital technologies such as 3-D BIM and the natural evolution to create a digital twin of an asset not only improves design, but also helps to quantify time, cost, scheduling constraints and risk during construction. In addition, BIM processes allow accurate Lifecycle Analysis, a cradle-to-grave assessment of the environmental impact of a product, asset or service, supporting outcome-based whole life service and maintenance revenues.

Modernize to succeed

Clearly, modernization is now business critical. Embracing enterprise software, transitioning towards composable enterprises, and harnessing digital technologies are all essential strategies to drive transformation and unlock new revenue streams.

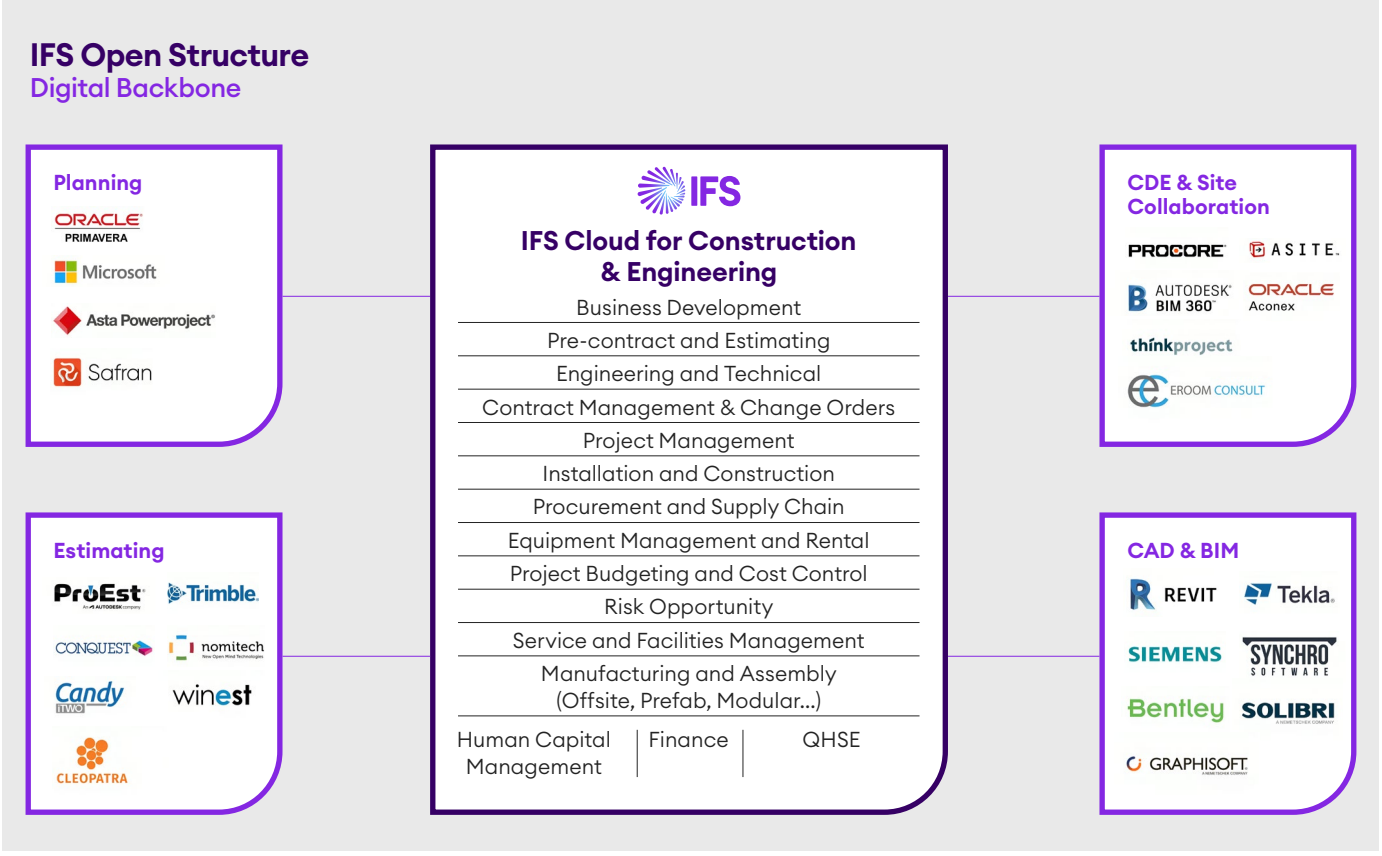
Resilience: construction business transformation with IFS Cloud

Most Enterprise Resource Planning software offers a way to unite management, finance and human resources in one system. ERP is meant to support the whole enterprise, not just Finance and Human Resources. IFS Cloud for Construction and Engineering is specifically designed to integrate tight control and governance of complex construction projects, ensuring best practice for all business processes, management and reporting.

There are two strategies that can be implemented:

1. Implement a digital strategy by adopting a new ERP solution as its backbone, or
2. Keep the existing Finance and Human Resources back-office ERP solution and implement a composable and easy-to-integrate ERP solution to manage the operational processes in your business.

The diagram below shows the typical solution architecture if you choose option one.



If you choose option two and want to keep your current back-office only ERP solution, then the IFS architecture is open, composable, and readily integrates with any pre-existing corporate ERP investment. Your business can implement as much, or as little, IFS functionality as you need at any one time, to rapidly achieve Common Operational Solutions for one or more construction trading entities.

The functionality available in the IFS Cloud engineering and construction solution supports the entire lifecycle of an asset including design, procure, construct, install and commission, handover, operate and maintain, modify and refurbish, decommission and dispose. Regardless of how simple or complex your business processes are, IFS Cloud enables your organization to successfully complete projects on-time and on budget while giving total visibility to best manage and then service your assets.

Full project mastery

Recognizing the construction business model is project orientated, IFS Cloud delivers a strong project solution addressing all the primary challenges. Assets and service as well as other complementary ERP areas like Finance, Human Resources, Health and Safety, Quality and ESG capabilities are also fully integrated.

Quickly integrate to existing ERP backbones

The modular nature and inherent flexibility of IFS Cloud enables rapid and cost-effective business transition and change. For example, Joint Venture contracts, or work opportunities with new clients, call for several different entities using different ERP backbones and processes to be able to quickly collaborate. By spinning up a virtualized instance, IFS Cloud rapidly presents a best-practice, highly cost-effective solution, fully configurable for the duration of the project, and readily able to integrate to third-party partner systems where needed.

Lifecycle revenue streams

IFS Cloud also delivers a dedicated environment to service, maintenance and facilities management specialists. Providing a complete solution to handle facilities, property, service and maintenance management, it ensures the customer is in complete control throughout the entire asset lifecycle.

Moreover, having embraced IFS Cloud for building assets, a traditional construction company can rapidly evolve when ready to deliver best-practice asset lifecycle operation, maintenance and service. Any required management, operational and other capabilities are simply added via seamlessly integrated modules, rapidly delivering sustainable business value through profitable and diversified new asset lifecycle revenue streams. In addition, if your organization builds, manufactures or owns assets such as equipment or temporary building modules, then IFS Cloud's Asset and Rental Management solution provides a complete solution for that business unit or company.

Composability: the benefits of choosing IFS Cloud

Construction and engineering companies need to be able to adapt to the pace of change. To realize innovation quickly, applications must be flexible. To deliver business outcomes, organizations need the ability to reassemble capabilities themselves.

Gartner has called this concept "the composable enterprise" and suggests the adoption of 'composable ERP': a core of composable or modular applications and, as a service, software platforms that are highly configurable, interoperable, and flexible to adapt to modern technology.

IFS Cloud lets you tailor an enterprise solution for construction and engineering using only the components that bring value across your customers, people and assets. Every component works together seamlessly, providing a solution that is assembled or composed to meet your requirements. When needs change, simply deploy any new application capabilities you need, unplugging and removing those you don't. By enabling the composable enterprise, IFS Cloud lets you:

- Innovate and adapt quickly to changing business needs
- Connect and extend out of the box
- Benefit from an intuitive and personalized experience

Innovate and adapt quickly

Delivering rapid business value through fast, simple implementations speaks to the heart of IFS Cloud. As software vendors around the world scramble to deliver emerging technologies, too many in the sector are left burdened with generic sets of new software that lack clear business relevance. Companies may also find themselves laden with expensive proofs of concept or integrations and trials with a high degree of uncertainty, cost and risk.

With IFS Cloud, our single platform enables you to quickly unlock value with established functional solutions and embedded applications of emerging technology. For example, some of our customers benefit from bringing connected asset sensor and drone data into our Enterprise Asset Management (EAM) capabilities through the Internet of Things. Others used mixed reality to enable experts to provide remote assistance to operatives and technicians. Validated by clear business-use cases that stand the test of time, our software platform gives you the right tools to bring innovation to life.

To keep your IFS Cloud environment secure and help you innovate more easily, we release new features and updates twice a year, along with monthly service updates containing fixes and security patches. This gives your business continual access to the latest technology. The key difference with IFS is that we do not force our customers to take each new release until their business is ready.

And we also offer choice in deployment model: it's up to your company if you prefer our cloud, another provider's cloud or remote. Regardless of the deployment method your business selects, you still have access to the same evergreen cadence of innovations.

Connect and extend out of the box

One of the ways we enable firms to connect their systems to IFS software is through APIs. We build our solutions with openness in mind, letting you complement built-in use cases by adding your own innovations – right out of the box.

By using 100% open APIs and by putting you in control of your software lifecycle experience, we're giving you the tools to drive further innovation on top of IFS solutions. Anything you can do in IFS Cloud, you can also automate and access from the outside using our APIs–the same APIs that our own user experience, mobile apps, and embedded automation uses. This paves the way for you to tailor capabilities to your specific needs and integrate them into the bigger picture of your business and IT landscape.

For tapping into other systems and services, we also provide connectors in collaboration with our preferred integration partner Boomi. Boomi is an integration industry leader that empowers IFS to deliver fast, high-quality software integrations with predictable timelines and costs. Our out-of-the-box Boomi connector lets you build connections more quickly and reduces the time spent on development by weeks or months. The Boomi iPaaS (integration platform as a service) is fast and low-code, so far less technical expertise is needed for integration work. While Boomi is our preferred partner, we also work with other integration and technology partners so that our customers have complete choice in building their partner ecosystem.

Intuitive and personalized experience

IFS Cloud is a single platform, bringing together multiple enterprise solutions and offering the freedom to tailor and extend, as well as mix and match different capabilities. For this to serve the construction sector effectively, a consistent look and feel, entry points and user experience are key. The starting point for users of IFS Cloud is the lobby – a dashboard page providing, at-a-glance the key information you need for your work each day.

Each lobby page presents a user with the information and functionality they need to do their work efficiently at any given time: a personalized environment that reflects a role, a process, or an industry-specific view.

Lobbies are a powerful way to centralize information pulled from multiple areas into a single view and increase visibility of key business metrics. But more than anything, lobbies reflect one of our core credos: to give our users the best experience, each experience may need to be a little different.

And by taking a people-first approach to software design, we're replicating the seamless look and feel of mass-market products in our browser-based user interface. By researching the consumer technologies our customers regularly use, and continually adding to the picture of who our users are, we're making IFS Cloud pages, visual language and interaction patterns feel as familiar and user-friendly as possible.

We've also built IFS Cloud using responsive design: every page will display in the best way for the device that's being used. All the controls and visuals that make up the user interface will optimize their behavior for the device you're using, whether that's desktop, mobile or tablet.

Our responsive design brings the best of IFS Cloud to the environment you're in. But when you need to tightly integrate with device hardware or don't have an internet connection, our offline-capable mobile apps are ideal. Our selection of offline-capable apps live on your device and let you integrate with other apps on the device, like phone contact lists or barcode scanners. They're available for specialized roles and tasks in field service, maintenance, CRM, time and expense reporting, notifications and approvals, warehouse data collection, and more.

Modernize and thrive with a versatile digital ERP backbone

To compete in today's market, you need the ability to add and remove solution capabilities to support your evolving business needs. That might be offering an after-market service or, as the company grows, adding a stronger financial package or a new recruitment solution as you hire new staff.

As a single, modular platform, IFS Cloud means:

- Multiple capabilities can share the same release cadence – they're all part of the larger IFS Cloud platform, also sharing the same user experience and Application Program Interface (API) architecture. This is much harder to achieve when capabilities are composed from different vendors – software upgrade planning becomes cumbersome and error-prone as multiple release cadences, experiences and architectures must be factored in.
- Software barriers are broken down. Rather than IFS stipulating a fixed model, you tell us what you want from an ERP, Enterprise Asset Management or Field Service and Facilities Management solution in the first instance. You have the flexibility and freedom to adapt and change the solution over time, as your business needs change.

In short, IFS Cloud is a digital ERP backbone for the future: a platform that's optimized for engineering and construction to help you expand, take control, and continuously innovate.

Rethink your business to focus on services and outcomes as well as products. Orchestrate your customers, people, and assets as your business transforms. Embrace opportunities across the full asset lifecycle whilst applying the best industry practices.

To learn more about how IFS Cloud can help you transform into the composable enterprise visit ifs.com/industries/construction-and-engineering.

A digital ERP backbone with IFS Cloud: embrace the freedom to...

Start construction faster

Deliver projects on budget, on time and at high quality

Realize innovations

Work with greater control, autonomy, and efficiency

Decrease costs and increase revenue streams

Increase agility and adaptability

Deliver world-class customer and end-user experienes

Proactively manage risks

Discover why IFS is the solution of choice for construction companies

Read more

About IFS

IFS develops and delivers enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers–at the Moment of Service™.

The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector. Our team of 4,500 employees every day live our values of agility, trustworthiness and collaboration in how we support our 10,000+ customers.

Learn more about how our enterprise software solutions can help your business today at ifs.com.

#MomentOfService

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