INTRODUCING THE ENTERPRISE DIGITAL PLATFORM
ENABLING THE REAL-TIME PLATFORM BUSINESS

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Introduction

When Instagram was acquired by Facebook for $1 billion in 2012 the premium price tag was not because of contributions from the 13 employees that were in place at the time, but from its ecosystem of 30 million users. The company had succeeded in building a platform for “experience sharing” that has since attracted an additional 570 million users, resulting in over 600 million active users on its platform all interacting with each other in real time (and at scale). This is a classic example of the much vaunted “real-time platform” business model many organizations are striving for.

But what does this entail? Unfortunately, as with most new business concepts, it is not straightforward.

When we look at two leading brands in sports fashion and equipment and their efforts to develop this type of business model, we find different interpretations of what a real-time platform business can be. For Nike, it is all about enabling mass personalization via its customer engagement portals focusing on ecommerce, mobility, and analytics. For Under Armour, it is all about creating a hub for connected health and fitness so users can store and track personal data centrally. In both cases, the platform is used to create a network, or ecosystem, of connected customers, partners, and suppliers that use the information and services available to them. This works according to Metcalfe’s law, which states that the value of the network is proportional to the square of the number of connected users of the system (or platform). In other words, the value of a platform increases as the ecosystem grows and more and more people start using it. Therefore, a real-time platform business model requires the creation of an ecosystem connected through the use of a system — and innovation is defined by a company’s ability to combine code and data to deliver game-changing digital capabilities that easily attract users from the ecosystem.

Why “Real Time”?  

So far so good. But why the need for the real-time nature of this new type of business model? The answer is linked to a key metric for the digital economy — the need for speed. To cope with the expectations of the hyperconnected business ecosystems of consumers, customers, partners, and “connected things,” this digital business of the future will need to deal with real-time events at scale and to steer the business based on triggers from the external ecosystem. For the manufacturer, this could be around linking the supply chain and inventory management systems to evolving consumer feedback derived from social media sources to be able to deliver the “lot size of one.” For an airline, this could be around directly linking the revenue management (or baggage handling systems) with passenger experience systems. Or for a utility, this would be about allowing dynamic billing and invoicing of the customer based on a smart metering system — and then cross-selling or up-selling new products based on evolving customer demands.
Now that the first movers have successfully launched their own platforms, large European players are responding:

- French utilities corporation ENGIE is putting in place a digital “factory” to link its efforts with partners and customers as part of a Smart City Ecosystem.
- U.K. insurer Aviva is building a digital platform to deliver product innovation and development to its customers through data analytics, customer insights, and risk management.
- German metals logistics company Klöckner & Co. is building an industry digital platform to connect suppliers and customers in the steel distribution industry.

These organizations will focus on developing software that feed on sources of data via an API-driven architecture and disseminate data-driven capabilities and services via digital platforms. Software and data-driven innovation will become the most important differentiators for many organizations looking to compete in the digital economy.
Underpinning the Shift to the Real-Time Platform Business — Introducing the Enterprise Digital Platform

The shift to this new type of business model requires a fundamentally different technology architecture to underpin business, digital, and IT requirements — an architecture that needs to be dynamic so that it can evolve over time. In addition, it will need to become the engine for an organization to get smarter, more agile, and begin to connect with its customers and partners in real time and at scale. IDC believes that this dynamic architecture is the Enterprise Digital Platform.

The initial objective of this platform would be to democratize data and organizational intelligence, enabling agile development in the cloud and simplified integration capabilities so that new and innovative applications can be built and use cases explored that were not possible or would require significant investment to realize previously. It effects change and change effects it. The eventual goal is for the revenues of the organization to be generated by its digital platform, but it is a journey in terms of the evolution of the architecture to get there.

What is an Enterprise Digital Platform?
A cloud-first technology architecture that spans IT, digital, and business domains delivering technology capabilities enabling the rapid creation of externally facing digital products, services, and experiences. It consists of five key service layers:

- Engagement
- Integration
- Development
- Data
- Core IT

What are the technical benefits?
- Integrated nature allows seamless modernization of legacy IT systems linked to new digital services
- Enables continuous delivery and integration to roll out new capabilities in an accelerated fashion
- Polyglot development environments
- Aggressive use of advanced data services (e.g., analytics, AI, and machine learning)
- Portability of workloads across cloud delivery models
- Scale to deal with real-time events cost-effectively
- Simplified data mapping to prepare data sets for analytics

What are the business benefits?
- Supports new co-innovation methods and use case prototyping to drive business model transformation linked to digital innovation
- Quicker time to market with new products and services
- Game-changing user experience to attract new users from the ecosystem
- Seamless integration of new data sources from external sources
- New revenue streams from information-based services and APIs
- Easily accessible datasets to deliver new insights leveraging visualization, advanced analytics, and AI capabilities

Why it’s an important part of the CIO agenda
The Enterprise Digital Platform should become the reference point for the CIO and the rest of the “Digital Dream Team” to develop a common and enterprisewide approach to digital transformation. It provides the basis for the CIO to drive down cost in core IT, speed up efforts to modernize, and provide scale to the DX efforts. The CIO can then also work with the chief digital officer (CDO) to leverage the platform to create innovative use cases, develop new services with additional data insights, and extend these new capabilities into the broader ecosystem.
The Enterprise Digital Platform: A Set of Innovative Technology Building Blocks

The Enterprise Digital Platform provides the underlying set of technology capabilities that deliver the game-changing digital experiences to capture the attention (and allegiance) of the external ecosystem. It is a set of building technology blocks to drive DX consisting of the following potential components:

**Data services**
Multitiered and multitenanted data discovery environments with applied intelligence to extract business value and meaning. The data services should also include advanced analytics, visualization, and AI/machine learning to allow data scientists to create new algorithms and models to deliver entirely new insights.

**Cloud delivery models and architectures**
Cloud-first, but not necessarily cloud-only, delivery model and architectures to deliver “net new” applications to the ecosystem in an open and accelerated fashion and to modernize core IT applications and infrastructure.

**Polyglot code environments**
For professional and digital developers to deliver game-changing digital products, services, and experiences. This capability should also incorporate new technology building blocks into the development environments (e.g., blockchain).

**API libraries**
An API library and SDKs exposed to both internal users and the external ecosystem to create loosely coupled services in an API-driven architecture.

**Secure by design**
Security features such as cloud-based encryption, threat analytics, user and entity behavior analytics, blockchain, and compliance services to mitigate risks associated with new digital capabilities.

**User experience (UX) capabilities**
Stateless, user-centric, and services-enabled to deliver immersive experiences (enabled by a mix of mobile, augmented reality, virtual reality, and voice interfaces where appropriate).

**Collaboration and social**
Seamless communication and chat features, workflows, and process flows to provide context and guided templates for developers (and even external users) to leverage capabilities intuitively.

**Mash-ups**
Combinations of the above (e.g., a mobile banking app with augmented reality, social features, contextual analytics based in a cloud environment with a set of APIs to extend new capabilities).

Depending on the use case journey that an organization is looking to put in place (it could be real-time IoT data analysis, customer engagement analytics, rolling out mobile apps, etc.), the combination of those components or building blocks could look very different. But the outcome should always be to focus on providing an engagement platform that is ever evolving with constant interaction and focuses on the external customer and ecosystem. And because it is externally facing, it needs to be world class and to generate new revenue streams (to continue justifying additional investments in it).
The Enterprise Digital Platform — The Background

Monolithic systems of record that dominated IT environments of the past focused on driving efficiencies through automation of core processes. The applications were built using a tightly coupled, single-tenant architecture and the capabilities were purely functional with a basic user interface. The application logic attempted to “package up” the innovation, and the data derived from those systems (via query, reporting, and analysis) was internal to the organization, with the associated decision making focused on this internal view.

However, innovation is increasingly being driven from outside the organization and it cannot be driven solely from core systems which are built from an industry best practice viewpoint. These external triggers are primarily data driven (i.e., it could be an IoT-connected device, a social media feed, or a chatbot response) — and organizations will need to respond to them far more dynamically. IDC believes that to “sense and respond” to these triggers, the enterprise of the future will require a technical architecture that is fundamentally different to what is in place within most organizations today. Nevertheless, the underlying core enterprise business systems (ERP, SCM, MES, etc.) still have a critical role to play and cannot be seen to exist outside the realm of the new business innovation. They need to be modernized and integrated to work seamlessly with a broader collection of new technologies. We term this new integrated architecture for digital transformation (inclusive of modernized enterprise applications) the Enterprise Digital Platform.

Below are five questions that you should be asking about your Enterprise Digital Platform.

1. Will this platform be able to operate in real time and at scale?
2. Will the platform be able to dynamically interact with external ecosystem in real time?
3. Will it be able to attract developers to build out new capabilities seamlessly?
4. Can it provide easy ‘integration’ points to internal systems where applicable?
5. Will it provide the necessary data-driven innovation services to drive the future business model of the company?

The Enterprise Digital Platform capabilities will be linked very closely to what IDC calls the 3rd Platform, which defines the new era of IT driven by Big Data and analytics, cloud, mobile, and social business. Building on these four technology forces, a new line of technologies captures the next wave of 3rd Platform technologies critical to digital transformation, such as the Internet of Things (IoT) and cognitive systems. Capturing growth in the rapidly scaling digital marketplace will require that offerings focus on key growth drivers as the foundation for the next wave of killer business applications and services.
Mini Case Study

Zalando

In the eight years since the German ecommerce apparel retailer Zalando was established in Berlin, its annual revenues have nearly reached €4 billion. While this has been an impressive start, the company believes that the next phase of its growth will be defined by its ability to develop a digital platform business model. It envisions the Zalando platform as an operating system for the fashion world, with multiple ways of integrating all forms of fashion contributors and stakeholders from the broader ecosystem.

The Zalando Digital Platform offers services that include analytics, advertising, and fulfilment. There are currently 1,600 technology developers (growing every day) that form part of the Zalando “Tech” Business Unit which operates across seven hubs in Europe. These hubs consist of:

- Berlin — Technology HQ
- Dortmund — Fashion platform hub
- Dublin — Data insights hub
- Hamburg — Advertising technology hub
- Erfurt and Monchengladbach — High-tech logistics hubs
- Zalando Research — Internal research scientists focused on the application of data science, machine learning, and artificial intelligence as it applies to fashion commerce

These hubs highlight the type of expertise areas that digital platforms of the future need to consider as they look to scale the business. Zalando’s ambitious goals have forced it to reevaluate the organization of skills and resources which has resulted in a new philosophy that the CTO refers to as “Radical Agility.”

“We are moving from a retail model to being a platform model … And it all comes down to data at the end of the day.”

Robert Gentz, CEO and co-founder, Zalando

“Radical Agility at Zalando is centered around small teams of three to seven people who own a topic, or a technological aspect of the platform, from end to end. We arm them with purpose and clear insight into why they’re doing something and how we believe the end result should look from the customer’s perspective, but it’s up to them to take it from there. We trust them, give them autonomy to take decisions on their own, but also expect them to be responsible for those decisions.”

Philipp Erler, CTO, Zalando
The Zalando case study illustrates that even the so-called digital disruptors are investing in a shift to real-time platform business models — a shift whereby companies increasingly become software companies and invest aggressively in the development of digital capabilities. Organizations that recognize this opportunity also realize that the internal IT environment is not always set up to support the launch of a new external, software-driven business. These organizations will need to start developing their own Enterprise Digital Platform that will provide the foundation for innovation and interface with the ecosystem while running or feeding mission-critical information systems.

Depending on the industry or domain, the enterprise digital platform can serve a range of purposes. However, we believe that there will be common “layers of services” that will be necessary across these different deployments.

The Enterprise Digital Platform Architecture

IDC believes that across these areas, the growing enterprise digital platform opportunity for most businesses should not be limited to software development on flexible infrastructure but be associated with the ability to add intelligence to operations.

The first form of intelligence will be that of Big Data solutions on cloud platforms, which will allow organizations to capture, store, process, and analyze data in a single, holistic environment, allowing executives to focus on discovering and acting on meaningful insights. The second form of intelligence will be derived from artificial intelligence (and more specifically machine learning), where organizations can expose data and processes to pretrained or tailored algorithms to automate and accelerate business or consumer processes and applications.
The Enterprise Digital Platform —
Key Stages of Development

**Stage 1:** Islands of Innovation
If you track the progress of digital initiatives over time, IDC’s research shows that the culture of digital experimentation and innovation has created a range of new “use cases” across different business domains. For example, it could be a predictive maintenance IoT use case in the after-sales services unit, a mobile app/dynamic web application in marketing, or a cloud-based Big Data environment for product analysis in engineering. Despite being standalone “islands of innovation,” these islands often deliver significant business value and potentially deliver new revenue streams. However, they were frequently driven by business departments outside the realms of traditional IT. So, it can be very challenging when there is a need to integrate these islands of innovation with traditional core IT systems.

**Stage 2:** Building the Digital Platform
To deal with these challenges, many organizations are setting up a separate technology environment that is separate from their traditional enterprise IT platform to support B2B and B2E interactions, and creating a digital platform to a new type of engagement strategy with customers to join up those islands of innovation as they tend to be focused on B2C engagement. The applications being built in this world are API-driven, loosely coupled, and multitenanted architecture. They have an immersive user experience with contextual analytics integrated and are developed using a DevOps model because the continuous delivery type of approach is required in terms of the speed to market and creation of new features. Setting these two environments this way is the classic two-speed IT approach that we started to see emerge about four to five years ago. While these different platform environments are a necessary step in the process, they do create additional challenges. Often in these situations, traditional IT departments become relegated to second-class citizens focusing on the “dull and boring” traditional systems (which are critical for the company), while the “new kids on the block” focus on the “bright and shiny” new digital initiatives that get most organizational attention (and budget). In addition, there are frequent integration challenges between the two different technology architectures and approaches.

**Stage 3:** Implementing the Enterprise Digital Platform — An Integrated Architecture
Due to the divide that has started to emerge between business innovation and traditional IT, many CIOs are rethinking the approach with an integrated model where the core enterprise IT platform sits at the heart of the broader architecture, and the integration points are developed accordingly. They are looking at a new type of technology architecture that spans IT, digital, and business domains delivering technology capabilities that enable the rapid creation of externally facing digital products, services, and experiences (while also aggressively modernizing enterprise IT platforms in parallel). This includes the five key service layers highlighted earlier (engagement, integration, development, data, core IT). In this model, core IT is not a separate environment but is brought to the center of the integrated Enterprise Digital Platform so that integration points between the new and old styles of IT can be brought closer together.
Mini Case Study

An IoT Use Case from a Forklift Manufacturer

**Background**
An example of an emerging digital use case based on this shift to an Enterprise Digital Platform comes from a leading German forklift manufacturer. The company’s core business is the production of a large range of forklifts and trucks.

**Challenges**
Typically, customers would put a call in to the technical service team and make an unqualified report of a machine fault. A technician had to be dispatched to the customer site, often with little or no useful information, and no spare parts. Technicians had to make an average of more than two trips before being able to solve the problem. In parallel, customers were asking for real- or near-real-time services to monitor and control their forklift fleets.

**Solution**
In response, the manufacturer launched a Fleet Data Services initiative. It decided to implement sensors and firmware in its forklifts and these could send data wireless to a centralized IoT platform that was closely integrated to its core ERP system. Data on the forklift’s health status, potential faults, and usage was collected and used to generate a service report with accurate information. The Fleet Data Services are delivered via a web interface, pulling data from a central data repository, and allowing customers to efficiently allocate its forklifts based on hard information around frequency of usage, vehicle age, and so on.
Benefits
For the forklift manufacturer, it was an additional revenue stream; for its customers, an opportunity to unlock value by improving their processes. Customers can now use their fleets optimally, monitor their energy consumption, and prolong the lifespan of their vehicles. In addition, the cost of repairs related to heavy damage was reduced by 70%. There is another positive consequence: after successfully collecting and using large amounts of IoT data to react to faults over several months, the forklift manufacturer found itself able to sift through the data and identify patterns that would allow it to predict when a forklift was at risk of breaking down, enabling predictive maintenance capabilities.

The Enterprise Digital Platform Example Supporting Digital Use Cases

Implementing this Enterprise Digital Platform and creating this integrated architecture requires three key things:

1. Firstly, an aggressive timetable to modernize, replatform (or in some cases retire), deconstruct, and then rearchitect the traditional applications to ensure that they are transformed to the point where they can indeed be used to dynamically interact with new digital capabilities that are being spun up.

2. Secondly, a set of new services that can be used as building technology blocks that fit within the digital platform layers to drive new digital capabilities as highlighted earlier. IDC believes that an enterprisewide DX strategy requires organizations to integrate these innovative use cases with traditional IT environments and scale them across the broader organization in an accelerated fashion.

3. Finally, there is a requirement for a new organizational structure that in many cases will be led by the CIO, but should encompass IT, digital, and business domains collaboratively — the Digital Dream Team. This team will need to be constantly drawing (and redrawing) the lines on what is possible — keeping in mind the need to manage risk and cost downward while innovating at speed.
The Digital Dream Team

CFO  CDO  CTO  Disruptive CIO

The Enterprise Digital Platform —
**Why It is Important for the CIO and the Digital Dream Team**

The Enterprise Digital Platform should become the reference point for the CIO and the rest of the Digital Dream Team (see Enabling the CIO to Lead Digital: Recipes for Success for more details on the Digital Dream Team) to develop a common and enterprisewide approach to digital transformation. It provides the basis for the IT organization to drive down cost and accelerate the modernization of core IT, while at the same time speeding up efforts to innovate and provide scale to the DX efforts. In some organizations, the chief digital officer (CDO) is being introduced to support transformation initiatives. Leading digital organizations often have CDOs who report to CIOs. CDOs are typically responsible for the creation of digital products, services, and experiences. Regardless of the reporting structure, CIOs and CDOs together should develop a platform and capabilities that deliver on new business initiatives and customer requirements. The digital team should be looking to leverage the platform to create innovative use cases, develop new services with additional data insights, and extend these new capabilities into the broader ecosystem.

The digital team should then be looking to align its respective organizations to deliver on the key focus areas as highlighted below.
The responsibilities of IT and digital can be laid out across the different layers of the digital platform as highlighted below.

<table>
<thead>
<tr>
<th>Digital Platform layer</th>
<th>IT</th>
<th>Digital</th>
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<tbody>
<tr>
<td>Engagement</td>
<td>Supports: establishing an understanding of the ecosystem and developing consumer expertise to help shape the underlying technology capabilities to support this</td>
<td>Leads: tasked with attracting a variety of ecosystem stakeholders to build profitable new digital products, services, and experiences</td>
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<tr>
<td>Integration</td>
<td>Shared responsibility: focuses on creating API libraries and SDKs with integration points to internally facing enterprise applications (SaaS-based where possible) and externally facing apps and services</td>
<td>Shared responsibility: focuses on leveraging APIs and integration points to provide new game changing digital services to the ecosystem which can be integrated into internal core systems</td>
</tr>
<tr>
<td>Development</td>
<td>Shared responsibility: creates the right internal UX for employee experience and ensures the necessary application development environments are in place for external-facing UX</td>
<td>Shared responsibility: creates next-generation UX for immersive interfaces across mobile, voice, and augmented/virtual reality where applicable</td>
</tr>
<tr>
<td>Data</td>
<td>Leads: focuses on creating an enterprise data strategy with world-class architecture and governance structures in place as well as the right combination of visualization and predictive capabilities</td>
<td>Supports: leverages data environments (both internal and external data sources) with the right mix of data scientists and developers to create the applicable cognitive algorithms to apply new insights for new business-centric use cases</td>
</tr>
<tr>
<td>Core IT</td>
<td>Leads: focuses on modernizing the existing environments to a cloud-first model with a focus on containers and microservices</td>
<td>Supports: helps to co-fund modernization efforts and new investments that support digital services</td>
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Conclusion and Recommendations:

Six Initial Steps That You Can Take

For digital startups and “born in the cloud” players that have initially led the way in the digital economy, innovation is driven through experimentation, and digital products and services are created with tools, technologies, and data that are available in a greenfield setting. However, for most organizations that have legacy operating models to transform, a more deliberate Enterprise Digital Platform strategy is required. This architecture forms the central foundation for innovation, integrating with the internal and external ecosystem, and incorporating new IT systems and applications to evolve the organization.

Below, we have listed a series of steps for companies that are building their enterprise digital platforms:

1. IT, digital, LOB leaders, and the Digital Dream Team should work with the board to align around how the business aims to transform its fundamental model moving forward at a macro level.
2. The digital lead should map out a key digital use case journey and identify what the interaction layer of the digital platform will need to achieve.
3. With this broad interaction layer roadmap in mind, conduct a gap analysis of the current enterprise IT architecture. This is a critical step that requires significant interaction alignment between the IT and digital teams.
4. Aggressively help to modernize enterprise IT platforms by replatforming (or in some cases retiring) and rearchitecting the traditional applications to accelerate DX initiatives to support the real-time platform business at scale.
5. Implement “cloud first” architectures and data analytics platforms to enable seamless integration across both worlds. Focus on enabling key business outcomes as part of this.
6. Innovate at speed on the external-facing layers of the digital platform with new use cases and digital products, services, and experiences that garner allegiance across the ecosystem.

Organizations looking to launch their own real-time platform model will need to evaluate how they can create and manage an enterprise digital platform that cements their position in the future digital economy. As part of this IDC believes the Digital Dream Team needs to work together to execute on digital transformation initiatives across the enterprise. So, on the one hand, the IT organization needs to work with internal stakeholders to manage internal business changes, but also shift its focus from operations and service brokering to a focus on partnership, innovation, and new, digitally enabled products and services. On the other side, the digital team needs to anticipate how external changes will drive business innovation and use these real-time events to position the organization’s unique capabilities within the ecosystem. The enterprise digital platform will play a crucial role in providing the new architecture to align these key stakeholders and deliver the real-time platform business that is built on a scalable, flexible, open, and data-driven enterprise digital platform.

Further Reading

- Enabling the CIO to Lead Digital: Recipes for Success
- Information Transformation Workbook
- CIO Scorecard: Identifying Metrics for IT Leadership to Execute on DX
- CDO Scorecard: Identifying Digital Metrics to Execute on DX
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