The five fundamentals
of the Frictionless Enterprise

There are five fundamentals prerequisite to establishing solid foundations for an organization in which information flows seamlessly between people and processes, intelligently, and as and when it is needed. Achieving it doesn't mean the arbitrary application of technology, rules, or processes. It entails whole new, digital ways of thinking and working, combined with the capacity to constantly adapt itself to new contexts.

At Capgemini, we use the Digital Global Enterprise Model (D-GEM) – our proprietary business transformation platform – to help our clients remain competitive in a rapidly changing, business context. This, in turn, enables the Frictionless Enterprise.

Hyperscale automation

A company that wants to be more efficient and adapt to new market conditions needs to onboard its employees in this massive transformation. One immediate step is to prepare employees by giving them the solutions they need to speed up productivity and focus on more valuable tasks. This creates an **augmented workforce.**

The need for hyperscale and increasing competition have radically transformed the speed of many processes. For instance, subscribing to Netflix gives immediate access to its entire catalog of entertainment. Not only do consumers love Netflix's speed and simplicity, but having human interaction or controls in the process would represent a non-necessary friction that would slow down adoption. Processes need to be designed or redesigned to be fully automated. This delivers **touchless processes.**

Delivering touchless processes requires an architecture designed for it, with the key technologies being **microservices and application program interfaces (API)**. Each process must be designed in a way that it is automated end to end and split into small and autonomous sub-processes, each of them built as a microservice. Microservices can deliver complex business rules, are designed to scale up or down on demand, support sudden activity (such as Black Friday), while consuming nothing during periods of low activity (for example, at four o'clock in the morning). These microservices speak to each other with APIs and can run in the cloud, as an autonomous service.

Creating a touchless solution is even more complex when external partners need to be involved. The overall design has to be worked out collaboratively, and a way to **secure and automate communication** has to be applied. APIs and blockchain can deliver a high level of efficiency and trust by bringing a certified proof of work on both sides.

However, delivering a touchless process is not as easy as simply automating an existing one. The whole process needs to be redesigned as an autonomous operation – using Capgemini's D-GEM platform – and optimized to run on top of microservices.

Cloud agility

A frictionless enterprise can become dynamic, potent, and flexible – adapting automatically to the individual circumstances and needs of an organization, powering the organization and its changing process requirements to deliver innovation. Becoming a truly agile enterprise includes organizational aspects (setting up a transformation and innovation office, design office, and ways to develop entrepreneurship) but also **digital readiness** by using cloud native solutions to facilitate internal and external collaboration, support growth, and hyperscale up or down.

The arrival of cloud services has changed IT agility forever and has deeply changed the level of agility an entire business can reach. However, to benefit from cloud agility so that the entire enterprise can improve, the move to cloud needs to be a transformation to become **cloud native** with the ability to **combine multiple clouds.**

Becoming cloud native requires an enterprise to leverage **cloud native architecture** designed for agility. This means implementing an enterprise secured communication layer that links to an as-a-service platform to deliver customized microservices and applications (Salesforce, Workday, SAP S/4HANA) when needed. Becoming cloud native enables an enterprise to be innovative by implementing new services that can be scaled or downscaled rapidly as needed. It also enables an enterprise to **align IT with revenue streams**, while radically reducing the risks implied by new business.

Another key word for agility in digital technology is **DevOps.** This set of techniques simplifies the evolution process of a digital solution. In the past, applying a change to an application would take weeks or months due to multiple human tasks that included unitary testing, integration testing, deployment in multiple environments, versus continuous delivery in production, where stability can be guaranteed despite multiple deployments a day.

Of course, being **agile and innovative** is not only a question of mindset, organization, and process. Capgemini provides a number of assets (such as our Applied Innovation Exchange network) to help organizations change and adapt holistically. We have seen too many enterprises trying to change without addressing IT rigidity; or even worse, creating the illusion they have addressed it by building a private cloud, which is nothing more than hardware modernization.

Once ready to apply innovation, the world of cloud and communication will expand drastically. The **Internet of Things** (IoT) is underused and it is unclear just how many enterprises will exploit 5G as a growth opportunity. Combined with the arrival of **edge computing** as cloud 2.0, a revolution in usage of data, **artificial intelligence (AI)**, and automation will impact current processes and will be leveraged to generate a new source of revenue.

Data fluidity

We all know that data is the new oil, but which organization has really extracted it, refined it, fueled an engine with it, and leveraged it to reach a new level of operational excellence?

The implementation of a frictionless process doesn't end when it has been augmented or fully automated. Organizations need the ability to control, understand, and analyze the execution of each process in real time in order to conduct an ongoing program of continuous improvement. To do this, data must be collected and analyzed to detect malfunctions, inefficiencies, errors, improvements, unplanned ways of consuming the process, and fraud, or to link process execution to business and financial data. This is simply about applying **continuous improvement.**

Leveraging AI is essential to detecting a problem as soon as it arises, especially to avoid multiplying the errors and their consequences when using microservices on a huge scale. Analyzing data requires smart analytics to correlate and identify the hot spots that need to be corrected, stopped, improved, redesigned, or raised to the management for a strategic decision.

Of course, access to data has to be easy, efficient, and well documented, especially in terms of data quality aspects. The ability to effectively **exploit data lakes** and data warehouses is as important as the quality of the employees that analyze the data. And the use of touchless processes, microservices, and robots doesn't prevent feeding these data sources with fresh and quality data.

To deliver an optimal **user experience**, organizations need to consider the psychology of interaction and monitor digital activity using data and analytics to detect gaps in the solution. Let's not forget that the user experience is no longer limited to windows and a mouse – touch screens, haptics, and conversational interfaces provide distinct means of interaction that must be designed to optimally support the user. Another complementary approach to detecting non-optimal interactions is leveraging digital surveys and interviews with users to provide rich insights that can be correlated with generated data, monitored KPIs, and business activity in order to identify improvements.

Ultimately, enterprises should not only look at data knowing from the beginning what they're looking for. The huge increase in data vendors (both AI, data providers, vertical solutions) creates new opportunities. Why not ask data scientists to look at data for what it is, to cross it with external sources, leverage algorithms and AI to find what couldn't be found by starting from the conclusion? Data should enable organizations to find an exit to the maze that was not supposed to be there, and that could really deliver the change they need.

Sustainable planet

It's difficult for an organization to consider its evolution without factoring in its **responsibilities to the environment and society.** Targets such as increased business insight, greater efficiency, more seamless processes, and better user experience ought to be joined by a commitment to become carbon neutral as well as to corporate responsibility and sustainability (CR&S) and digital inclusiveness topics. Sustainability and efficiency are linked – the more efficient we are, the less resources or energy we spend. And the positive impact of truly sustainable engagements on employees and customers is the cherry on the cake.

Giving CR&S a technology focus should be as natural as the attention it gets in the organization and business strategy. But technology is often neglected in this area, and it must be addressed. It starts at the level of the enterprise architecture. For instance, the Capgemini Integrated Architecture Framework 6 includes a sustainability perspective designed to provide sustainability KPIs methods, such as planned CO_2 consumption correlated to hardware consumption (how much CO_2 is consumed per microservice call).

At the **application level**, leveraging solutions that can scale up or down depending on usage is an efficient way not to waste resources, bring down CO_2 consumption, and reduce cloud costs. Of course, auto-scaling solutions exist and include cloud native microservices, serverless solutions, and as-aservice and pay-as-you-use services.

At the **data level**, storing data multiple times in silos is an awful waste of energy and resources that can be avoided. But once simplified with a main data lake and the furniture of AI services on top, usage and data access will be easier, faster, with better freshness closer to the source, and provide enhanced insights that can lead to increased business benefits.

At the **infrastructure level**, moving from on-premise data centers to cloud providers can have a massive impact, as the latter increases the usage of renewable energy while constantly striving to improve energy efficiency. Out of cloud, the expansion of the Internet of Things (IoT) is bringing up several sustainability questions, and once again, partner technology will have a huge impact on energy usage.

Combining these elements will enable a far simplified mechanism for **measuring and monitoring the carbon footprint** of all business operations. This will require of course a dedicated application service, and soon compliance will come on top of it for regulation or tax purposes.

Last but not least, **digital inclusion** is about enabling society to access and benefit from the internet and digital services that it hosts. Reducing digital exclusion should be about rethinking access and simplifying existing services, by designing and selecting the right application frameworks that give access to everybody from day one. E-learning and knowledge management solutions are becoming more and more important in guiding employees to operate in this digital world. The use of smart search engines and digital teaching tools can reduce transition times and learning costs.

Secure business

Business cannot be done alone. Every enterprise needs suppliers to work with and customers to sell to. Solving internal frictions without addressing external frictions will have, by definition, a very limited impact. This requires **trust** to be built across an organization's ecosystem of customers, suppliers, and partners, and an established set of solid rules to be implemented by the lead enterprise.

Cybersecurity is a set of rules and solutions that are designed jointly but enforced by an independent team. It must be applied at each level of the architecture, starting at the enterprise level with unified rules up to the infrastructure layer, without forgetting the application and data layers. The weakest part of any cybersecurity strategy defines the level of protection. Shadow IT represents the most serious risk – applying an intuitive user experience is fundamental to avoiding shadow IT and strengthening an organization's overall cybersecurity.

The move to cloud and especially cloud native is a perfect opportunity to address security at the heart of any solution. Let's take the example of testing. Very often, performance and cybersecurity are tested only once before the first deployment, and then never again. Leveraging **DevOps** effectively involves testing tasks just once, and then automating any future testing and deployment. This has become so efficient that even broad and complex tasks such as cybersecurity or performance testing can now be automated and systematically executed. This deployment and testing strategy will be crucial for the partners as they will do business on top of APIs that they will have to rely and trust on.

Compliance is another set of rules to be applied, with technology mainly used to guarantee a process has respected a particular business rule and executed it as planned. The use of distributed ledger technology (blockchain) provides the ability to generate an immutable and trustworthy data source, a proof of work, a proof of data, certified timestamp, and the ability to use electronic signature at the heart of the process. As your partners will have to rely on your APIs, building trust becomes a direct business enabler.

Privacy is obviously an absolute prerequisite for communication (which is then under cybersecurity), but it is mainly requested as an element of data governance and compliance. Avoiding data silos, simplifying data, and applying rules on data usage is essential to be able to govern data. Leveraging an enterprise data discovery and search tool can identify all potentially sensitive data, and a tamper-proof audit trail can enable traceability. Privacy in business is the first element to start with.

As transparency becomes the norm, building trust with customers and partners is becoming more and more important.

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