SEAMLESS
THE RISE OF DIGITAL JOURNEYS

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Globant
we are ready

SEAMLESS
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THE RISE OF DIGIT

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PRACTICE LEAD - SEAMLESS EXPERIENCES

FOREWORD BY

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THE DIGITAL ECOSYSTEM

In 2014, Accenture asked CMOs how they thought their function would change in the coming years. 21% of those interviewed said,"We will be known as a Digital Company."[1] According to Gartner's CMO Spend Survey of 2015, companies are showing an increased investment in the customer experience in order to better drive business advantage and profitable revenue growth. The highest marketing technology investment in 2014 focuses on customer experience, with 68% of organizations utilizing a separate digital marketing budget.[2]

This shows a long due acknowledgement by these leaders of the fact that customers across every industry expect more in terms of the digital capabilities of their services and products providers; consumers already expect digital companies.

Traditional companies find themselves embedded in a digital environment and push themselves to become more technology focused. This process of achieving growth, integration, and multi-channel engagement through technology lays the necessary foundation for the development of effective digital journeys.

A study by MITSloan Management and Capgemini further describes this by stating that *"Successful digital transformation comes not from implementing new technologies, but from transforming your organization to take advantage of the possibilities that new technologies provide. Major digital transformation initiatives are centered on re-envisioning customer experience, operational processes, and business models."* [3]

THE DIGITAL ECOSYSTEM

Although it might seem daunting at first, this situation can be turned into opportunity by leveraging the help of experts in key fields, such as Digital Journey Design, Distributed Platforms, and Big Data among others.

These digital experts bring value across industries and empower leadership in a way that's essential to transforming a business. By providing a set of guiding principles, a roadmap, and a foundation based on proven Digital concepts any organization can reach its tech-focused goals.

For more information about trends in Consumer Behavior, please read our Sentinel Report. [4]

In this work Mr. Abait and Mr. Sobral outline solid foundations for a Digital Journey implementation, which I find essential for any organization seeking to dramatically improve reach and relationships with their customers while continuing to build a stronger digital business model aimed at achieving digital growth.

Juan Pereyra

INTRODUCTION

The domain of information technology is one of the most rapidly developing areas in the world. A decade ago, the vision of a digital product that targeted a specific market was tied to a platform. Behind the scenes each platform had its own frameworks and technologies. This technical constraint fragmented the way the user interacted with the features that he or she needed most.
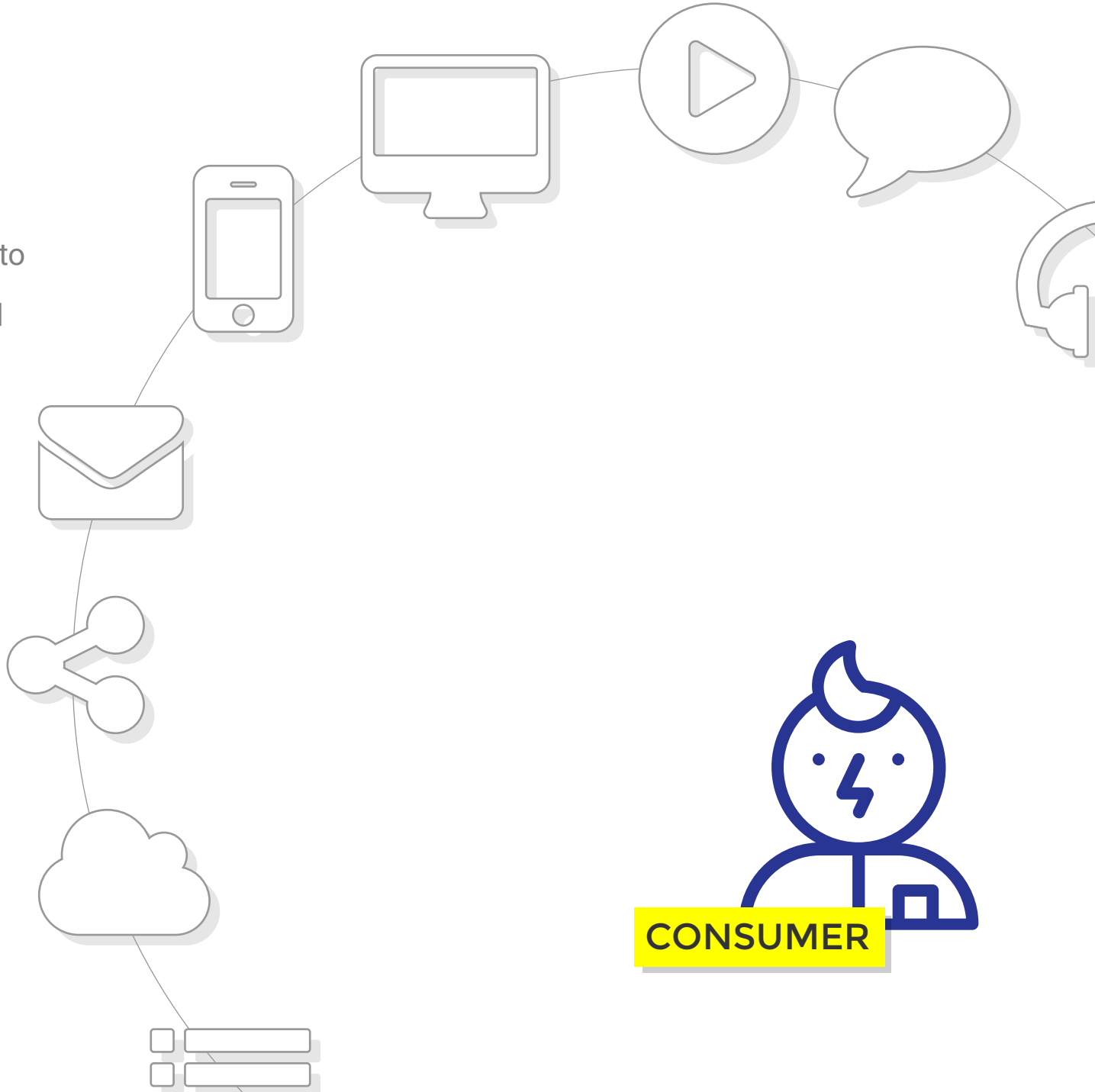
Redundancy of disjointed functionalities and ideas across multiple applications compromised the adoption of a next generation digital ecosystem, one that could give support to a consistent consumer journey and enable user engagement in every single touchpoint with a given brand.

TODAY'S USER IS NOT TIED TO WEB OR MOBILE OR ANY SPECIFIC PLATFORM OR CHANNEL. HE OR SHE MOVES FAST FROM PLACE TO PLACE AND NEEDS TO INTERACT WITH THEIR DIGITAL LIFE ANYWHERE AT ANYTIME, IN A PAINLESS AND UNRESTRICTED WAY.

INTRODUCTION

HIS OR HER EXPERIENCE NEEDS TO BE SEAMLESS AND CONSISTENT ACROSS ALL CHANNELS.

Just a few years ago we were talking about the mobile revolution as an innovation. Today's technology has made mobile a default platform. Recent advancements have made the logical evolution possible by providing the necessary tools and support that enables user to be connected to the digital flow of information 100% of the time, independent of platforms, locations or any physical constraints.

CONSUMER

A SEAMLESS DIGITAL JOURNEY

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A Digital Journey starts not within its systems or in its access to new hardware, but in its unified vision of an ecosystem that empowers the users throughout their journey. A Seamless Digital Journey is the set of practices and technologies that help companies move away from a fragmented set of tools to a unified approach that guides the user through a multiplatform, context-aware, seamless experience. This approach reaches the core foundations of this new relationship between companies, users, and data.

THE PATH AHEAD

A SEAMLESS DIGITAL JOURNEY

In order to achieve this change, companies needs to move away from a fragmented digital production platform and establish a strategic central governance that looks at the digital platform as a whole. In some cases, this requires changes in the organization and its internal structure.

There is a need for a short, medium, and long-term digital strategic plan. This requires an in-depth assessment of the current state of fragmentation within platforms, tools, and production methodologies.

A core part of a digital journey strategy is the need to clearly identify how a platform user interacts with its features in a seamless omnichannel scenario. With this information at our disposal, we can start building the core systems and applications that will make their digital plans a reality. Our new tools must be consistent, scalable, and adaptive across any platform. They must provide context aware functionalities.
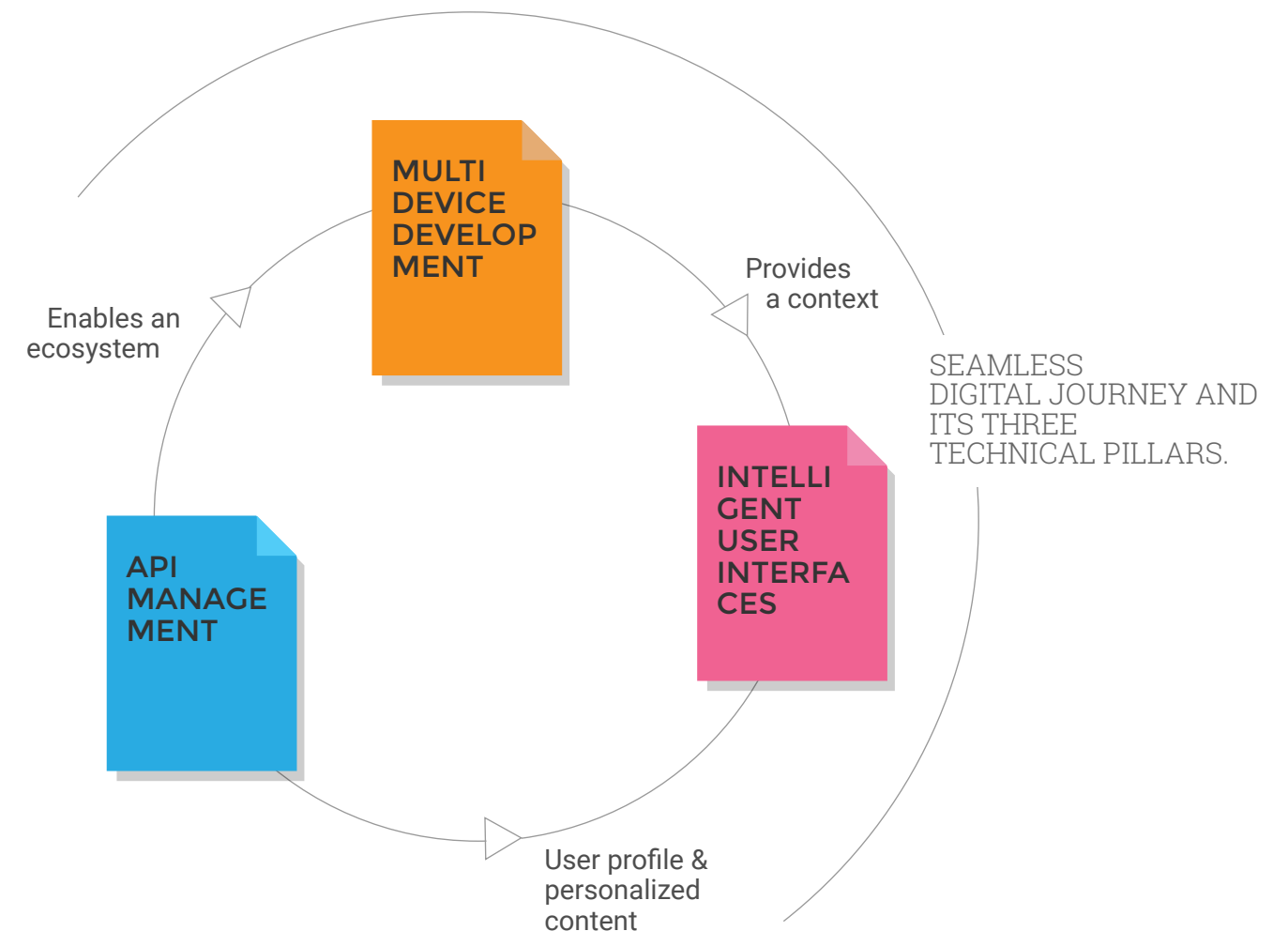
This activities require high expertise in strategic thinking and planning. Time needs to be invested in order to put these pieces into place.

In order to achieve a new state of maturity, companies needs to go through a mindset shift and adopt a digital journey that provides support through all the channels that a user accesses during their journey. This shift is driven by three core pillars:

API MANAGEMENT PRACTICES

MULTI-DEVICE TECHNIQUES

INTELLIGENT USER INTERFACES

MULTI DEVICE DEVELOPMENT

INTELLIGENT USER INTERFACES

API MANAGEMENT

Enables an ecosystem

Provides a context

User profile & personalized content

SEAMLESS DIGITAL JOURNEY AND ITS THREE TECHNICAL PILLARS.

API MANAGEMENT PRACTICE

In order to achieve a digital journey, all of the company's systems must be accessible and must not interfere with the customer journey.

For many companies this is a BIG challenge. CRM, Web Mobile, Web Desktop, Shopping Carts, and Mohave been building isolated and fragmented systems. These methods only address a limited area of the bile app, sometimes providing incomplete information and capabilities to customers. Due to poor integration (or no integration at all) these effects generate a completely different experience for customers interacting with different systems provided by the same company. Since most of these systems touch core parts of the businesses, they become as complex as the company itself. Think about Airlines scheduling and crew management systems. A lot of time and money are put into them in order to build and maintain a complex operation, but they evolve independently and become hard to integrate when they have to provide services to other clients they have not been designed to serve.

01 API MANAGEMENT PRACTICE

Users should be able to keep accessing tools and their data at any time, independently of the hardware or device they are using.

If they check the content of a catalog on their notebook, they should be able to continue with their shopping journey on other tablets or phones, online or offline. Their experience should be empowered by their digital environment and not hindered by it.

The key is to give prominence to these assets, promoting the collaboration of all major stakeholders (internal developers, external developers, and partners), who need to efficiently manage data from multiple locations and provide a single view of digital assets. In this way, the entire development cycle of new features for these "new end-users" can be achieved in a unified, transparent, and safe way regardless of the device they're using.

This collaboration allows organizations to realize the value of their assets, unlock their potential, and explore new opportunities for challenging business ideas.

The API Management engineering practice allows us to make this scenario a reality. The creation of an API will not only enable the development of mobile, wearables, or IoT experiences, but it will also allow the integration of many disconnected silos inside the company. This integration will lead an organization even closer to the ideal of an omnichannel. The products that built on top of this API will form are usually called the "user journey," which defines how users interact with the

organization through its services, applications, web sites, or products offered.

In order to achieve that, 3 areas of focus will allow us to cover the whole picture. ▶

API MANAGEMENT PRACTICE

ECOSYSTEM ANALYSIS AND INTEGRATION

By analyzing the current ecosystem and the new legacy systems, the organization can discover integration points and detect continuity blockers. As a result, it can develop technical and business support tools that will help the business achieve continuity.

DOMAIN MODELLING AND SERVICE DEFINITION

Analyze, define, and build the domain objects and services that are required to support the digital journey, including the ecosystem. The solutions can be:

Vendor-based using a suitable products like Apigee, Mashery or APISpark.

An in-house/custom development, developed on top of open source tools and frameworks in order to ensure maximized business tailoring.

Most likely, a combination of **both** (vendor-based and custom)

To ensure that continuity is not interrupted and that security is not compromised, the best solution is to build a secure yet easy to access service using methods like SSO, token and key distribution, hashing, and encryption.

MONITORING AND ANALYTICS

Implement the tools needed to provide control over the API like performance monitor, access control and load balancing. Finally, provide tools like service usage analytics, customized targeting and MVT capabilities to track and take data-driven decisions.

MULTI DEVICE TECHNIQUES

The Multi-device technical pillar will provide the techniques necessary to developing an ecosystem of products with a consistent experience across the user journey.

It's time to stop talking about a mobile version of a website or an app that does the same thing as a desktop application or a specific backend technology that is coupled with a frontend framework. Today's technical evolution, in hardware as well as software, makes this fragmentation unnecessary. A Digital Journey targets all devices and platforms by default, making use of the latest frontend and backend tools that provide a single architecture and codebase display with the right functionality in any platform. This also allows for the decoupling of data and the frontend through services based on the backend as a core concept.

According to a Forrester research,Google has found that 90% of consumers with multiple connected devices switch between an average of three different device combinations every day. In order for these interactions to run smoothly, the visual design, tone of voice, labels, and nomenclature need to be consistent across all channels. [5]

90%
of consumers with multiple connected devices switch between an avarage of 3 every day.

MICHAL LEVIN

UX DESIGNER AT GOOGLE

DESCRIBES MULTISCREEN ECOSYSTEMS IN TERMS OF THREE MAIN CATEGORIES:

1: Consistent experience, where the application and the experience are similar across all screens. For example, the Google Search application provides the same search experience across all devices.

2: Complementary experience, where devices work together and communicate with each other in order to create a unique experience.

3: App ecosystems for the continuous multiscreen experience, which is possibly the most important category for a contextual multi-screen design.
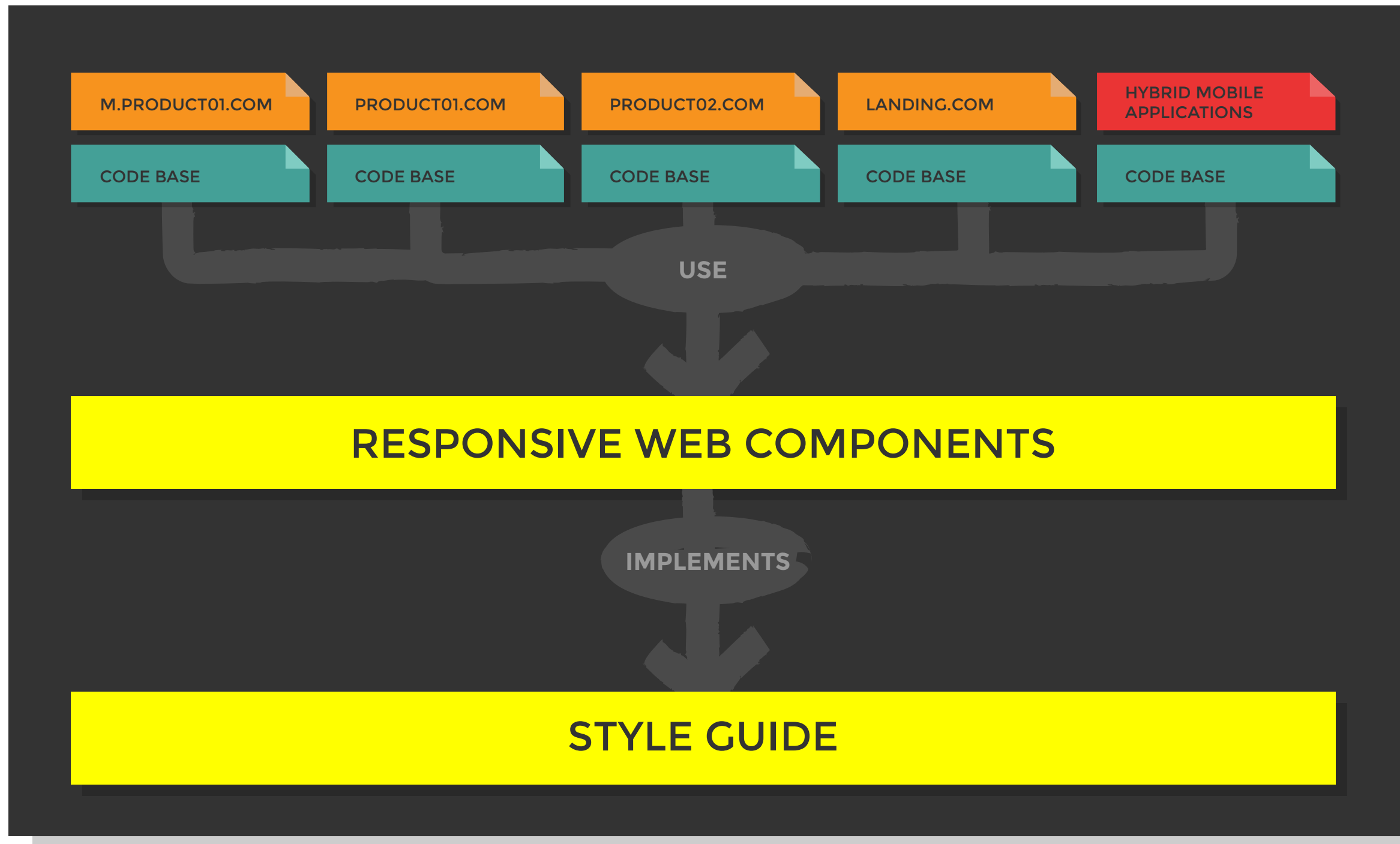
As the creation of an API allows an organization to integrate its multiple parts or silos, unifying the experience beyond different channels allows the creation of a true Digital Journey for end-users.

Multi-device development will not be limited only to merely unifying the experience, but it will also provide a context-aware environment. A context-aware user experience can adapt to changes in its physical environment or to changes in the user behavior as well as other user factors. In order to maintain a continuous experience across several devices, UX professionals must evaluate when and where a product will be used in order to assess the optimal interaction with the user at the time of each specific use. For more information about this topic, please see:

http://uxmag.com/articles/designing-for-context-the-multiscreen-ecosystem

MULTI DEVICE TECHNIQUES

M.PRODUCT01.COM	PRODUCT01.COM	PRODUCT02.COM	LANDING.COM	HYBRID MOBILE APPLICATIONS
CODE BASE	CODE BASE	CODE BASE	CODE BASE	CODE BASE

USE

RESPONSIVE WEB COMPONENTS

IMPLEMENTS

STYLE GUIDE

This figure shows a technical approach we have successfully used at Globant with different clients in order to ensure consistency across different products. Others have reported similar success working with a similar model.[6]

This approach is based on the use of a Style Guide designed to guide the development of a gallery of UI components. A Style Guide is essentially a set of instructions intended to systemize and unify visual and interaction designs for a product ecosystem. Our experience has shown that a properly written Style Guide offers the following advantages:

Fosters component-based development.

MULTI DEVICE TECHNIQUES

Ensures the same experience across devices.

Results in a pattern-library with working components, which can be used to automate functional tests.

*Improves development by providing unified solutions to similar problems.*

Each component will implement a given UI pattern defined in the Style Guide, such as buttons, modals or carrousels, among others. Components can even be grouped to form more complex components, like login forms. As a consequence, by reusing these components through different applications we can ensure the same look and feel with the same type of interaction capabilities across the platform.

This type of web-based component can

be implemented using different JavaScript frameworks, such as Polymer, AngularJS, EmberJS or ReactJS. In the future, browsers will provide a built-in API designed to define Web Components as regular HTML tags.[7]

Another advantage is that native-mobile applications can be developed to reuse these type of web-based components. Using projects like Cordova[8], we can create mobile applications that use the same components seen in our web apps.

There are plenty of variants regarding the previous approach. Using living style guides instead of components, and applying scaffolding or boilerplates to bootstrap the codebase, are two of the most popular options.
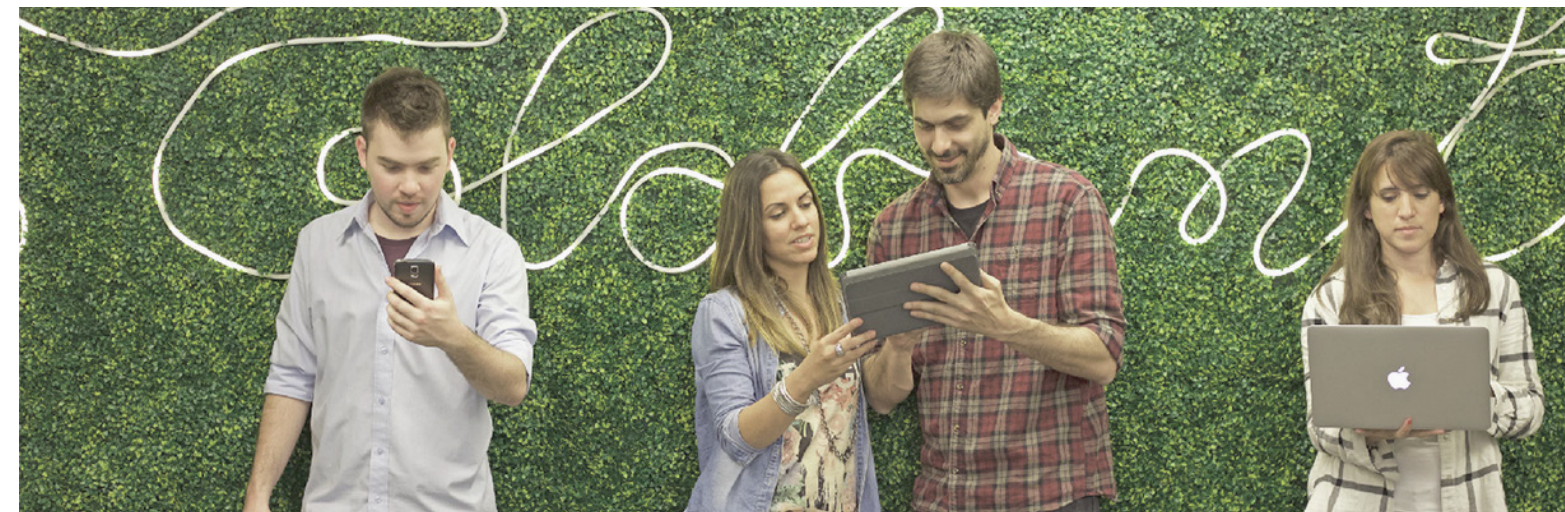
We can leverage Mobile Native, Wearable, and IoT practices for advanced context-aware tailored experiences. This makes use of hardware-enhanced features and maintains consistency throughout the use of a decoupled API.

INTELLIGENT USER INTERFACES

Truly digital journeys are those that learn from the user in order to adapt the user experience to their behavior and preferences. Based on the groundwork provided by API Management and Multi-Device, an Intelligent User Interface will emerge to provide a personalized user experience.

An Intelligent User Interface uses adaptive design in order to create an experience that can understand the context of use, and anticipate user needs at any particular moment. Adaptive design is meant to blur the distinction between the physical and the virtual worlds.

The cornerstone for this type of UI is the amount of analyzed data required in order to provide useful information and interactions. The level of personalization provided by an IUI will depend on the quality and amount of data available. If we consider how customers around the world started to use mobile devices in their day to day activities[9], (the introduction of wearables to their life, and the movement to an Internet of Things) we can conclude that there is an ever growing amount of data that must be analyzed in order to understand and help users in their daily routines.

CONCLUSION

Major companies are making the shift toward this new paradigm. Some of them have already gone through these changes up to certain degree, and others have this vision embedded in their DNA. The adoption of a digital transformation plan, and the switch to a fully developed digital ecosystem, is a necessity that companies must undertake in order to keep up with the new user relationship with his or her digital self.

In this paper, we outlined the main pillars required in order to create digital journeys. Organizations that apply the engineering practices defined by each pillar will be able to define a digital transformation plan. Such a plan, will start with an unified vision for the digital ecosystem, to be provided by a Seamless Digital Journey practice. API Management and Multi-Device practices will then set the technical foundations for an ecosystem of digital products that will continue to grow. Finally, Intelligent User Interfaces will emerge to provide customers with total personalization of their journies.

Our vision is a world where virtuality and reality intermixes to a point where users no longer care through which channel, media or platform they interact. Our goal is to help organizations make this new leap forward, and start changing the way they engage with customers by creating amazing digital journeys. Technology, hardware, and software have the right maturity to make this process a reality. Now is the time to start the transformation.

INTELLIGENT USER INTERFACES

IUI is the final step towards a successful digital journey, and is based on the foundations provided by API Management, and Multi-Device techniques.

API Management can be used to collect behavior analytics, and create a user profile with users' main preferences. Multi-device techniques can be used to understand the context in which the user is interacting. For example, by leveraging sensors embedded in smart devices we can understand the user's environment. A built-in accelerometer can be used to gauge if a user is walking or running[10]. Researchers have used wearable sensors and/or mobile

RESEARCHERS HAVE USED WEARABLE SENSORS AND/OR MOBILE PHONE DATA TO UNDERSTAND FACTORS SUCH AS PERSONALITY TYPE, MOOD, SLEEP AND SELF-REPORTED STRESS.

phone data to understand factors such as personality type, mood, sleep, and self-reported stress.[11]

Intelligent User Interfaces, built upon this new type of user information, will engage with the user by not only tailoring content or interface elements. They will also understand user's personality, emotion, and other social factors in order to improve the conversation in a natural, empathetic way.

All in all, Intelligent User Interfaces will be the final step in an evolutionary path to digital journeys in digital product design. They will unlock the true power of networks, mobile, wearables, and the Internet of Things in order to bring customers the ultimate personalized experience.

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