

Digital Transformation and Custom Development

DIGITAL TRANSFORMATION AND CUSTOM DEVELOPMENT

In today's world of digital transformation, the concept of 'customization' is coming into common practice and to handle the disruption and combat the economic concerns that have traditionally accompanied custom software development a new way of thinking is required. In every digital roadmap to achieve the planned results, user experience and the requirement to keep pace with innovation, digital platforms and infrastructure need to become the foundation for today's organizations. This is the only path for organizations to become 'Internet Grade', they must address the need to scale and the need to innovation along with making investments that are economically viable.

Speed to market and setting a foundation to scale are issues that business owners are wrestling with right now (some are trying to undo or recover from poor decisions, similar to the poor choices made in the 'Dot Com' rush to market 15 years ago) and the need to become more agile in their approach to Digital Transformation. A must-do item on everyone's agenda is to address how to deliver custom solutions based on current front-end and back-end technologies that they may or may-not own with speed and high levels of customization/personalization. To address the concept of custom development for most digital use cases (in both the B2B and B2C scenarios) new technology solutions and tools contained in API Management are playing an important role not only tying everything together, but also enabling custom development with reuse, common libraries for integration, digital security and analytics. API management is also critical in the fast moving word of "Internet of Things", Mobile App Development and in all digital experiences that revolve around multiple channels or technologies. Several vendors in the API Management space are starting to fill the gap in infrastructures that digital transformation requires. The major players are hyper-focused on platforms that facilitate ease of custom development and how to meet the challenges the digital world places on us all.

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The changes that most businesses are facing with the push into digital require the enterprise to revisit their point of view regarding customization of software. The needs of the digital customer are forcing this change; customizing or custom software development is not a bad thing as it was in the ERP methodologies; Custom is now an imperative or required word in digital transformation. The digital transformation wave is huge and is forcing companies to tackle:

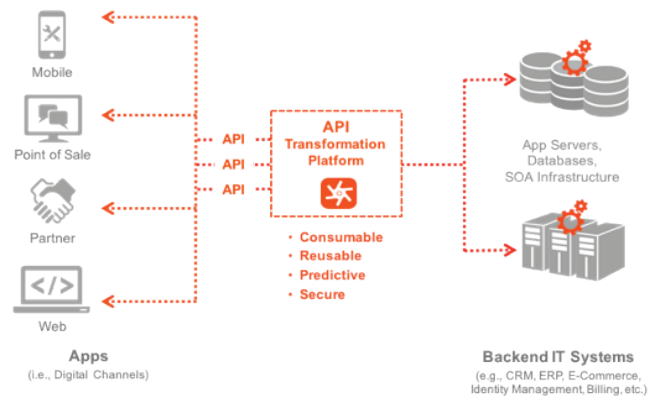
- 1) Continuous Innovation with an Agile Methodology
- 2) Reinvention of the brand through:
 - a. Expanding eCommerce with a Mobile 1st and API 1st approach
 - b. Making sure Mobile is not just treated as just another channel
 - c. IoT and “Connected” Products are new ways to generate products, new offering/services, and brand differentiation
 - d. Offering customizations/personalization is now a major factor in why customization in software is necessary
 - e. Leveraging of Digital or Big Data is providing a key insight in how to better leverage customer and enterprise data in the digital experience
 - f. Expanding demands of the digital culture – no longer is OOTB software good enough

Because of all of this, User Experience can't be put into a “box”, to help address all push for the high levels of customization, API Platforms allow agile custom software to come to life without the traditional cost and challenges of custom development (meaning the older definition of custom development).

Digital transformation is a “wake up call” the digital customer is mandating that custom software be reconsidered (if not mandated) to allow the user experience to lead the charge and at the same time reuse integration points across multiple channels. This will allow native development of apps and a better user experience that take advantage of the device it operates on. In the world of the digital customer, a mobile 1st mindset is key in how to address the demands of digital transformation and why custom software is going to be more of the standard along with an agile methodology for development as well as delivery.

THE DIGITAL APPLICATION DELIVERY – HOW AMAZON IS OUTPACING WAL-MART (ILLUSTRATIVE EXAMPLE)

In today's digital world how we enable the experience on the applications is a major challenge for any enterprise, the digital customer has placed high demands on backend systems and servers that were never engineered to handle the traffic or integrations.



The diagram above shows that any application in any digital channel should leverage a API platform to transform and repurpose integrations. Most enterprise software vendors will make an API promise and may say come out of the box, but in a heterogeneous environment that will not work without a ton of expensive customization that will never meet the economics of a solution investment.

All digital transformation occurs in a layer of the infrastructure that many companies are realizing is missing – vendors like Apigee, Mashery and Layer7 (to name a few) are showing that to really embrace the customizations that personalized user experiences the digital world requires for a company to be successful.

Consumable APIs – Most vendor solutions come as API enabled, but a platform needs to be able to consume them for transformation.

Reusable APIs – Once the APIs are consumed into the platform they can be repurposed and reused by the developers creating the Apps for the various digital channels.

Predictive APIs – This is where some vendors like Apigee are allowing the platform to have insights about what is going on inside creating intelligence around the API/s

Secure APIs – creates a secure environment for all channels, especially when sensitive data is used on the digital edges (Mobile, IoT, etc.)

APIS ARE THE “SECRET SAUCE” TO AGILE CUSTOM DEVELOPMENT IN THE DIGITAL WORLD

APIs in a technical sense are simply a mechanism that allows the capabilities of a computer program to be used by other computer programs. One of the leading vendors is Apigee, and they sell products that make APIs secure, manageable, and scalable. That managing APIs is vital and important as a tool for business can no longer be in doubt. Amazon and Microsoft have announced and launched their own products for API management, and Tibco bought Mashery, the company that Intel had previously acquired. There is a tremendous amount of movement on the API platform side, but even more on the providers and integrator of those services especially as extending the infrastructure to account for all things digital.

In a larger sense, APIs are the secret sauce to becoming digital, that is, to transforming business so that innovation can happen at a faster pace, so that barriers to change are reduced, so that many more people can contribute to your company’s success, and so that you can create better products and defend yourself from the competition.

The API-first solution allows app developers to quickly reach subscribers on many different devices. With this strategy, you can build, deploy and manage the whole mobile lifecycle from one source using an API Backend as a Service (BaaS). Most importantly, BaaS allows you to save time and money while scaling your business rapidly. *According to Markets and Markets market research firm, BaaS will be a \$7.7 billion market by 2017, so BaaS as a safe bet.*

A Backend as a Service (BaaS) Backend as a Service is a way for developers to link to back-end cloud-based storage, most often for push notifications, data storage, file storage, messaging queues, monitoring and configuration, and social integration. We should all view BaaS as an alternative to traditional development, bringing more services to your customers in a quick mobile format. API should be

viewed as the center of your architecture and center of the backend. API back-ends is the “key to helping companies deliver their mobile and digital products on time and budget.” As an example, BaaS is helpful when delivering your first mobile app, and becomes critical when delivering ten or twelve apps a year.

HOW API BACK-ENDS ARE DESIGNED FOR TODAY’S APPS:

An API backend (BaaS) unifies many of the development steps that you would typically repeat for various OS and mobile devices, with one block of functionality to remodel on top of. BaaS is built for the world we live in where the quantity and complexity of apps grows exponentially year after year. This will allow more developers “to get more done faster”, leaving more time to focus on an app’s core differentiating value and user experience.

In essence, if you were starting fresh today to reinvent architecture for mobile – instead of dealing with your architecture for mobile. This will also make things simpler for app developers, as these customers only need to pair a less complex, smaller Software Development Kit (SDK) with the API.

Three Main Benefits of BaaS to the Developer:

- 1) Eliminates redundant stack setup for each app.
- 2) Eliminates boilerplate code.
- 3) All within one model.

Together these benefits help developers build native mobile apps faster with greater ease. Instead of worrying about REST API code semantics and dealing with security models such as OAuth implementation, a developer only needs to learn three or so repeatable lines of code: connecting to the account, mapping to the collection and filtering down.

Of course this is all dependent upon API providers offering an SDK, but nearly all have iOS, Android and JavaScript. SDK support for JAVA, .NET, Ruby, Ruby on Rails, Python, and Node.js is growing as well.

If you already have your own Data Source, you can bring-your-own backend with an API Gateway. There is a belief that the same ease of use and unified access control while still looking like a singular API.

Do not make developers jump through a lot of hoops to access API-based services. Developers do not want to be hassled with complex registration processes or have to learn the provider's business process in order to use APIs. "If you have a real complex business process, you need to figure out how to turn that into a modern API interface."

What do developers want?

- 1) They want RESTful APIs that adhere to standards,
- 2) Usable examples of real use cases for an API,
- 3) Easy discovery of what the APIs do, and a simple monetization model.

An illustrative example:

Consider Chipotle's streamlined menu next to a more complex restaurant menu. With Chipotle, customers get only what they want, API providers should make the developer experience as easy and enjoyable as possible. <http://www.infoworld.com/article/2993138/apis/word-to-api-providers-make-it-simple-for-developers.html>

2 DIGITAL IMPERATIVES:

There are two divergent trends happening in digital/mobile development right now.

- 1) The most common one is the mobile-first approach strategy. You construct a landing page website and then build a product in iOS, if targeting the U.S. market, or Android, if targeting the European market. Then, you push a single version and develop for other markets down the line.
- 2) The other trend is the API-first approach, in which the underlying construct — the application programming interface (API) — is built first. This strategy allows the website and apps on various platforms to be built on top of the same basic conditions. If your sole target audience is iOS users, perhaps a mobile-first strategy works for you. However, the downside is this hinders quick development for future audiences, including Windows, BlackBerry, Android, and a web-app for your non-mobile users.



The diagram above shows an API Platform increases consumption of data, integrations, insights, reuse and security of the infrastructure. This moves a company from Enterprise-ready to Internet-ready – there is a big different that is discussed below in the CIO.com article "APIs, today's game-changing, disruptive information".

Reference: APIs have changed the game – CIO.com

<http://www.cio.com/article/3003455/apis/apis-have-changed-the-game.html>

6D GLOBAL

6D Global delivers top talent with the skills and experience in the key digital technology areas that enterprises need during critical changes and growth.

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