



How APIs can help Businesses Transform and Stay Competitive in COVID-19 Affected Economies

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Biography

Dunith Dhanushka is a Lead Solutions Engineer at WSO2 (<https://wso2.com/>) and has over ten years of hands-on experience in software architecture, design, and development. He currently works with customers and prospects in evaluating, designing and building solutions on the WSO2 platform.

Contributing to several Open Source software projects including LinkedIn's Voldemort and Apache Flume, Dunith's focus areas include Cloud-Native Application Development, Enterprise Integration and Data Analytics.

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Abstract

As business continues to operate far from its norms, companies are having to get creative in thinking up new ways to operate in a day-to-day world where mobility has been strictly reduced. Web services are booming, yet traditional businesses are struggling to offer their services whilst staying relevant and competitive in a pandemic affected economy. Digital transformation is a popular route which many traditional businesses are beginning to utilize, whether it is integrating an entirely new business eco-system to help the business rely further on IT systems or installing an API system's which is a set of functions and procedures that help build applications to access features or data.

In this article the author highlights the major benefits of adopting API management platforms and extending your businesses ecosystem during this uncertain time. The main aim is to help businesses who are far from their comfort zone with working from an online presence, however with appropriate training and if properly planned, traditional businesses can also sell their APIs via marketplaces to remain successful.

Introduction

The biggest damage the ongoing COVID-19 pandemic has created outside the human cost is the paralysis of economies worldwide. Many countries have been forced into lockdown mode, almost completely restricting people's mobility. As the situation continues, it may result in companies in certain sectors like retail,



Technology and Innovation

hospitality and airlines going out of business. It is imperative for many businesses to come up with new strategies to reach their customer base. This is where technology and APIs can help.

Traditional businesses need to figure out a mechanism to deliver value to their customers, whilst staying relevant and competitive in a pandemic affected economy. For example, what can restaurant owners do to reach their customers when they can no longer walk through the door? With limited mobility, people will definitely use the web or mobile devices to access services and today delivering value over the Internet has become the only choice. Restaurants that don't transition to digital strategies may cease to exist.

But going digital is easier said than done. Let's take a fine dining restaurant as an example. Customers usually visit such places due to prestige and are not particularly concerned about the lack of online food delivery services. Such organizations typically have no customer-facing IT applications except the website. As we adapt to our circumstances, the restaurant owner has to:

- Build a mobile app to display the menu and let customers place orders;
- Modify the website to accept orders online;
- Build a back-end application to process orders and integrate with existing in-house systems; and
- Hire delivery staff, undertake and track deliveries and manage the fleet.

So, the restaurant must invest in IT and delivery, both of which they are unfamiliar. This involves a lot of work and many other traditional businesses that do not have an online presence will face similar issues. The most common problems are lack of expertise in digital transformation, shortage of skilled staff, complexity, slow time to market, and most importantly budget.

How business ecosystems can help

But what if businesses could go digital while still doing what they are good at?

Obviously, handling IT is not a core competency of a restaurant. Also maintaining a fleet of vehicles and staff to do doorstep deliveries is, for many, a new concept. What if the restaurant could partner with a business whose core competency is IT? For example, it could partner with a mobile or web app provider that lists the restaurant to users allowing them to place orders. In this way, the restaurant doesn't need to worry about building web/mobile applications to reach its customers and they will continue to receive orders. Likewise, the restaurant could partner with a delivery service to offload the order fulfilment burden.

The main point here is that businesses should not attempt to go digital unless they have the right capacity to do so. They should try to build partner ecosystems to complement the skills they lack. Not only will this help businesses to survive the hard times ahead, but it also boosts the economy by opening new revenue streams.



Their key to success is building a close-knit ecosystem. This is where APIs can really help. Businesses that partner together need to communicate frequently and effectively. Taking the above example, the mobile app provider should let the restaurant know about an order being placed. Also, the restaurant should let the delivery service know about an order that is ready to be delivered. The ideal way to do this is via APIs.

How APIs and API management works

For those less familiar, APIs are a set of functions and procedures that help build applications to access features or data of a system and API management involves a technology platform that allows the business to expose and manage these APIs. In other words, API management enables you to provide a proxy for existing services and exposes any newly created APIs in a standard, compliant, and consistent manner to users.

API management typically has multiple components and feature sets including an API gateway as the API run time and policy enforcement point, a security component for API key management, an API developer portal acting as a catalogue of APIs providing a centralized location for application developers to discover, subscribe to and test APIs. An API publisher provides the ability to design APIs from back-end services, and API analytics provide a snapshot of API usage.

A case in point

1. **Business level agreements (SLA) and API design** – Taking our restaurant example, all parties need to come to an agreement on what business interfaces they will be needing from each other. At this stage, businesses and technical stakeholders should collaborate to produce an API contract that documents and governs what interfaces are exposed, the expected request and response formats, and how each interface will be secured. The output of this step would be an API design document.
2. **API implementation** – Then each business must implement interfaces (APIs) as per the agreement they have made – for that, an API management system must be installed in each business. There are multiple API management vendors in the market that offer on-premise, cloud-based, or hybrid API Management capabilities. An API management platform comes with an API designer component that helps developers in each business to create APIs. Once the API has been created, it needs to be published to the developer portal for outside consumption.
3. **Developer on-boarding** – Once APIs are created and hosted in API management platforms, that means each business is ready to accept traffic from the outside. Now each business must discover available APIs, try them out, and build the client applications to consume those APIs. Usually, the developer portal is hosted publicly to enable access for partner developers.
4. **API run time, governance, and monitoring** – At this stage, developers from each business should have subscribed to each other's APIs and have the credentials to access them. When APIs are invoked, API Gateway



Technology and Innovation

components of each business will receive the traffic and route it to the appropriate back-end service. While doing that, the API Gateway can also provide other services such as authenticate and log requests, enforce policies, collect statistics and so on.

Taking APIs to the next level

What we have talked about is a very simple example where businesses can collaborate digitally with APIs. But API management offers many more benefits beyond this. The biggest benefit is that APIs can generate revenues for businesses via an API marketplace. Here businesses that produce APIs can list them for sale. Developers who plan to consume them can subscribe and start using them in their applications. Developers are typically billed according to the API call volumes they make.

I have summarized the major benefits of adopting an API management platform to extend your business ecosystem. From a business and technical standpoint, API management platforms provide a lot of value by digitally exposing existing services to the outside world. When properly planned, traditional businesses can also sell their APIs via marketplaces to gain additional revenues.