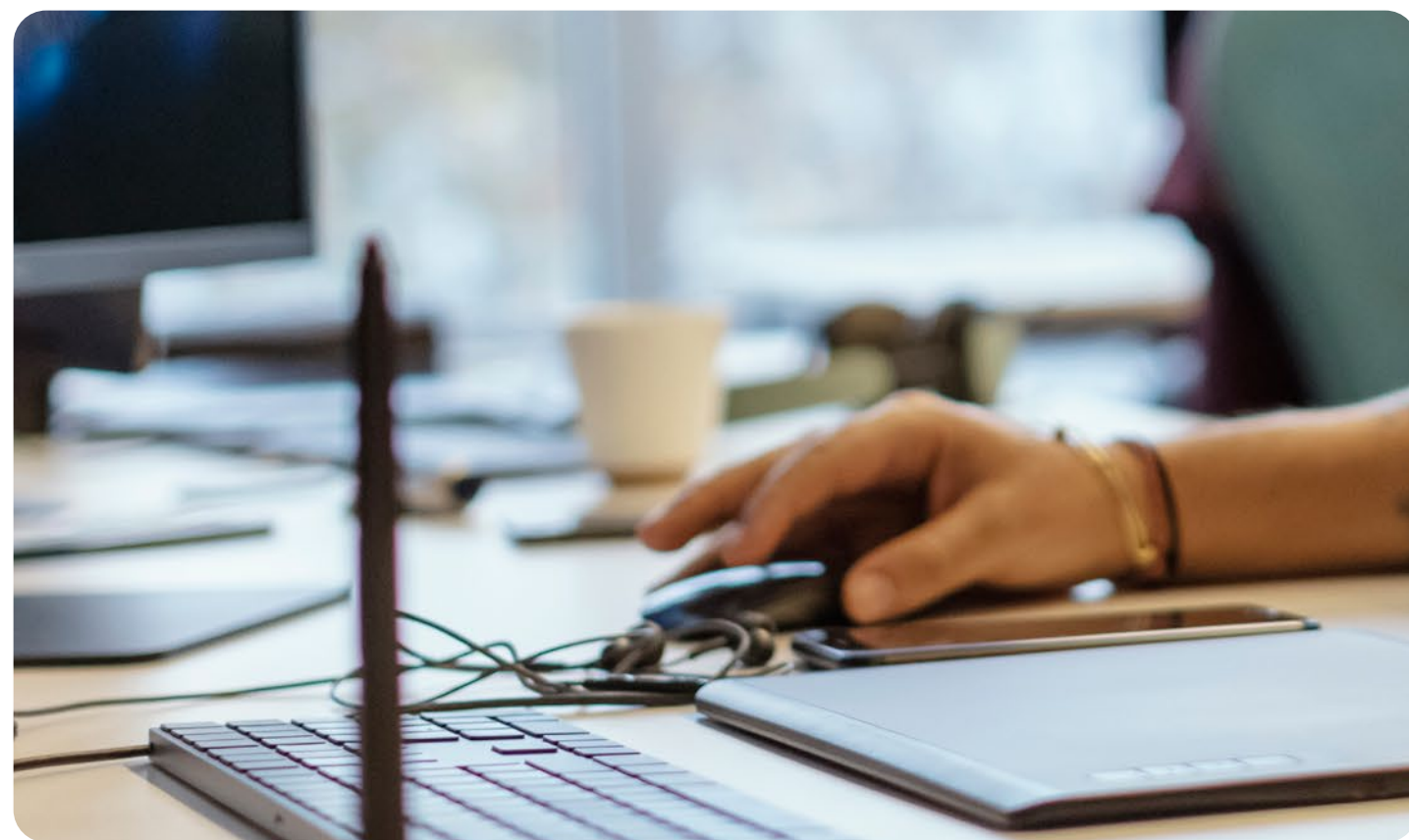




Modern App Development Platforms: The Key to Building Software that Changes Business





1. Introduction

In 2020, COVID19 and the subsequent lockdown shut branches and offices around the world – forcing people to work from home (where possible) and to buy goods and services online in unprecedented numbers. Businesses around the world invested vast sums of money on enabling employees to work virtually and moving previously face-to-face customer processes online – the pandemic had the effect of vastly accelerated digital transformation around the world.

According to Deloitte¹, digitization – the adoption of contactless technologies and digital experiences – and workforce virtualisation were the two trends most accelerated by the pandemic. Research by McKinsey found that it took only 11 days on average for companies to set up remote working infrastructures and reliable online communication channels for employees – in pre-pandemic times, a transition of such scale would have taken up to a year, marking an acceleration of 40 times. At the same time, growth in digital product/ service offerings jumped ahead by an average of seven years in just a few months in 2020.

However, despite this focus on moving into the future at pace, many organisations are hamstrung by the investments they have made in the past. Businesses around the world continue to rely on legacy systems that were not built for the online (particularly mobile world) and offer clunky user experiences. Implementing change

to legacy systems is time-consuming and many of those with the skills to do so are retiring, meaning that the right people are scarce and therefore difficult and expensive to hire. What's more, according to recent research commissioned by OutSystems, 66% of IT resources are spent managing existing operations or the technical debt arising from them – rather than being applied to the transformation that the business needs, now more than ever.

Research suggests that the need to upgrade these ageing systems is increasingly being recognised by organisations in all industries with technology now seen as a strategic capability – rather than simply a means of cutting costs. Today, only 10% of executives view digital transformation primarily as a source of cost savings whereas 'scaling down costs' was a top three priority before the pandemic². By contrast, modernising core technology capabilities (i.e., to keep up with competitors) and investing in technology to make it a competitive advantage are the priorities for two thirds of companies interviewed.

The pandemic has therefore changed not only where people work, but how customers interact with the business and how businesses need to operate. This means that business across all verticals need to replace, refresh, or upgrade their core digital systems and the applications that run on them.

¹ Deloitte Global Analysis, December 2020

² McKinsey, How Covid Has Pushed Companies Over The Tech Tipping Point, October 2020

2. Application Modernisation

As analyst Jason Bloomberg observes in a [blog](#), “For many years, legacy modernisation was a black or white affair: either rip out all the old technology and start afresh or make do with it, layering new technology onto old to extend its useful lifetime. Afraid of the risks of the first option, most IT executives opted for the second, for better or worse.”

Today, the rise to prominence of hybrid IT approaches means that on-premise legacy systems can now coexist much more easily with cloud-based systems. Sure, you can still choose to completely replace those old systems, but other choices are available.

When it comes to modernising legacy applications, you can now Extend or Refactor, as well as Rebuild.

- **Extend** – quickly unlock the value of your existing systems by leveraging current systems to support new, customised processes and provide an improved user experience.
- **Refactor** – create a flexible foundation for business-critical processes by breaking down monolithic legacy applications to create a modular composite architecture that is more agile and takes better advantage of cloud models.
- **Rebuild** – craft a new vision for your core systems, moving legacy apps and/or systems to the cloud to eliminate technical debt and create a platform for future innovation, without the complexity of managing cloud operations.

One Size does not fit all

How you choose to modernise your applications is dependent upon a variety of different factors. These include:

Driver	Consideration
Time to value	How quickly do you need to see ROI?
Urgency	Are the new capabilities critical for your competitive advantage?
Interoperability	Do you need to create e.g. APIs that will enable different systems to work together?
Maintenance costs	Is ‘keeping the lights on’ consuming too much resource?
Business needs	Are existing systems able to fulfil your strategic ambitions?
Legacy debt	How much re-work is created by making a single change to existing systems?



One size does not fit all.

Bearing all of this in mind, let’s take a closer look at the three strategies:

Extend

You should consider Extending your legacy applications if you want to bring new value and add flexibility to existing systems. It’s likely that your core system is still functional, but the business demands new use cases, which could be critical to competitive advantage. Extending legacy systems would allow you to create new applications fast without costly upgrades, customised high code, or licensing changes.

Refactor

If you have a complex legacy application portfolio that is expensive to maintain – and efficiency is your priority – then Refactoring may suit you best. This will allow you to consolidate disparate IT systems by decoupling legacy apps to create a modular and interoperable architecture that is easy to change and update, enabling a phased approach to modernisation.

Rebuild

If your legacy estate is hugely complex with deeply entangled architecture, code, and processes, then it may be that the cost of completely rebuilding core applications is less than the cost of managing the technical debt involved in maintaining them as they are. Rebuilding will allow you to create cloud-native apps, tailored to your business needs, or to replace custom-code (Lotus, COBOL, Oracle Forms, etc.) and end of life apps or systems – without the need for in-house cloud operations expertise.

3. Industry Focus (UKI)

As noted above, the global lockdown affected different industries in different ways. Here, we take a snapshot of the pandemic's impact in three different UKI industries.

Financial Services Institutions

With branches shut and face-to-face interactions made impractical due to social distancing, even those customers that had previously shunned Internet banking were forced online – in fact, 76% of UK citizens used online banking in 2020. So, the pandemic effectively ushered in a wide range of customer-facing digital transformation initiatives with core banking applications made available online – many for the first time.

Previously office-based staff were also affected and, for example, the Nationwide Building Society enabled 98% of its workers to work from home in the space of just five days. With call centres shut, agents were only able to access customer data online, again requiring core systems to be internet-enabled.

Given the time pressures under which these new applications were created, it is no surprise that many are best effort, rather than best – and will require ongoing iteration to meet rising consumer expectations for the online customer experience.

“We were able to rapidly build a web-based portal for our brokers that helps them better serve their customers and eliminated unnecessary

[Find out more](#)



3. Industry Focus (UKI)

Manufacturing

In a sector coping with the fallout from Brexit, the pandemic caused even more disruption. Limits on travel meant further re-engineering of supply chains. Huge volatility in demand was accompanied by social distancing restrictions in production sites to create a perfect storm. Agility became an absolute must.

Manufacturing is also embracing the low-latency capabilities of 5G networks to further extend Industry 4.0 initiatives, with the emphasis on automation and the introduction of cloud-based IoT devices.

Manufacturers need to be able to respond quickly to rapidly changing business environments and customer needs. The emphasis is on rapid modernisation of legacy applications and easy integration with cloud-native technologies.



“We’re replacing an enormous number of legacy systems while reducing the cost of development across the board. We’re also making business operations more efficient by providing mobile support for a wide range of applications.”

Seiichi Shinagawa
Technical Leader IT Department,

[Find out more](#)



3. Industry Focus (UKI)

Telco

2020 saw the continuing rollout of 5G networks (and the ‘fake news’-induced hysteria concerning the role of 5G base stations in transmitting COVID-19). However, 5G is vastly different from that of 4G – it runs on industry standard servers with a software virtualisation level across them – and its implementation creates fresh technical challenges.

On the upside, ultra-fast connectivity, low latency, and greater bandwidth will help telcos expand beyond being mere carriers. According to PwC, “Telco operators can monetise 5G with new revenue streams, which will require adopting new business models. Working as an enabler, they can partner with companies in other industries to co-offer 5G-supported products and services.”³

However, this will require telcos to reuse and extend existing applications for fast, easy integration with their customers’ applications and systems. They must also be able manage and refactor complex interdependent service components easily with no technical debt.

“Our development team could see the benefits of OutSystems very early on. We can produce applications quickly, work more collaboratively, and make iterative improvements whenever we want.”

Perryn Hodge

[Find out more](#)



4. Challenges of Application Modernisation

With workforces now largely virtualised and the majority of customer interactions moved online, 'keeping the lights on' has never been harder. Yet, the IT function must fulfil this mandate at precisely the time when the appetite for digital transformation from the business – and the willingness to sign off the activity attached to that – has never been higher. As a result, the IT function is under an unprecedented amount of pressure.

According to AppDynamics⁴, almost two thirds (66%) of IT executives confirmed that the pandemic has exposed weaknesses in their digital strategies, creating an urgent need to accelerate initiatives that were once part of multi-year digital transformation programs. And almost three quarters (74%) reported that digital transformation projects that would typically take over a year to be approved, have been signed off in weeks.

As a result of this, the same research found that:

- 81%** of technologists state that COVID-19 has created the biggest technology pressure for their organisation ever experienced.
- 61%** feel under more pressure at work than ever before.
- 64%** are being asked to perform tasks and activities they have never done before.

Pressure exacerbated by skills shortages

If in-house resources are stretched, then the ability to hire in new skills has never been more constrained. There is a widely acknowledged shortage of skilled developers – and an insufficient number of new programmers coming into the jobs market.

A recent article in Forbes magazine⁵ stated that, in the last five years, over 50% of CIOs have reported that skills shortages made it hard for their companies to keep up with the latest technologies – and 60% said the same issue made it hard for their companies to keep up with their competitors.

It will come as no surprise therefore that finding the talent organisations need is hard. According to a recent study⁶, it takes 50% longer to hire talent for tech roles than other positions. The same study also found that it takes, on average, 66 days to find the right person to file a tech role.

Those that can hire the right people will find that scarce resources don't come cheap. In the US, for example, the US Bureau of Labor Statistics found that software developers earn on average over \$100,000 per year⁷.

Few companies will have the resources (or the desire) to simply throw money at the problem by hiring large numbers of developers at record salaries to carry out this much-needed application modernisation. The vast majority will need to find a better way to address the problem.



61% feel under more pressure at work than ever before.



⁴Sources: AppDynamics, Agents of Change Report, May 27th, 2020

⁵<https://www.forbes.com/sites/forbestechcouncil/2021/04/13/analyzing-the-software-engineer-shortage/?sh=a53c594321c6>

⁶<https://www.icims.com/company/blog/article-how-to-prepare-for-tech-hiring-in-2020/>

⁷<https://cacm.acm.org/magazines/2021/7/253461-the-2021-software-developer-shortage-is-coming/fulltext>



5. A Modern Application Development Platform

Traditional 'waterfall' application development approaches are now (rightly) seen as an archaic approach to application modernisation. But even so-called 'Agile' methodologies can't meet the accelerated deployment schedules that businesses now demand. Instead, IT leaders need to move beyond Agile to embrace an approach to application development that includes much higher degrees of automation and repeatability.

Modern application development platforms such as OutSystems empowers any developer to create better software with drag and drop simplicity. Some of these platforms act as a virtual assistant, guiding less experienced developers through the application development process – and enabling experienced software engineers to be more productive.

For example, AI-powered tools accelerate the entire application lifecycle, highlighting areas where modified code might have created problems and providing an instant 'undo' button if code pushed into production is not of the right quality.

These cloud-native platforms enable organisations to quickly and easily build, deploy and manage the software that makes a difference to the effectiveness of their organisations. In fact, according to Gartner, these modern application development platforms will be responsible for more than 65% of application development activity by 2024⁸.

To find out more, please visit:
outsystems.com/platform

6. Conclusion

COVID-19 and the subsequent pandemic has massively accelerated the digitisation of many everyday experiences – from virtual workplaces to online grocery delivery. The quality of those digital experiences will increasingly determine the commercial success of any organisation.

For many organisations, the data and applications residing on legacy systems is the foundation of these digital experiences, and these ageing systems are not well adapted to meet the rising expectations of today's digital consumer.

'Rip and replace' is no longer the only option open to business leaders seeking to re-engineer their IT estate to make it fit for purpose for the digital age: rebuilding is one option alongside extending and refactoring as viable application modernisation strategies.

However, the scarcity of development expertise means that, whatever application modernisation approach they choose, IT leaders must embrace a more automated approach to software development to ensure that it is not only built fast but built right. To find out more about how OutSystems' modern application platform can help you modernise your legacy estate, [visit our website](#).





Visit us at
outsystems.com

Follow us on

 Twitter at [@OutSystems](https://twitter.com/OutSystems)

 LinkedIn at linkedin.com/company/outsystems

