VISION iD

Empowering Enterprise Intelligence

Successfully Migrate Mobile Apps to Transform your Organisation

Migrating mobile apps to next generation platforms is an essential process organizations need to undergo, to meet modern enterprise demands. However, the move is filled with complexity. In this whitepaper we discuss the reasons for app migration, the process organizations need to go through, the choices they need to make and the ways to successfully navigate through the process.

Time to Transform

The Workforce Mobility Revolution is here. New technology offers opportunities for organisations to get more done, more quickly, for less money.
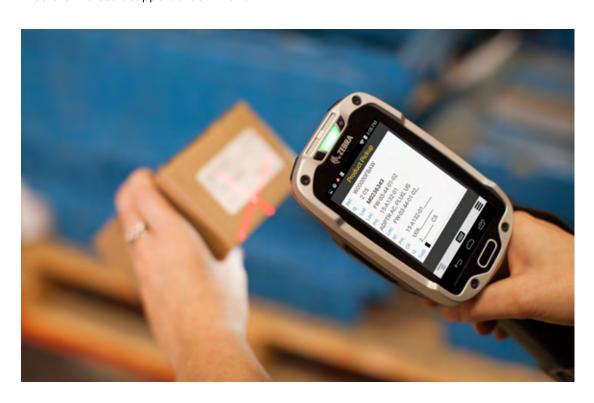
The driving force behind this revolution is the changing enterprise technology landscape:

- Modern rugged handheld devices have become just as intuitive as consumer-grade devices. Incredibly advanced functionality within user-friendly hardware and software is removing inefficient workflows and boosting productivity.

- A broader choice of mobile operating systems (OS) is emerging, as consumer-focused industry giants such as Android mature into genuine enterprise-ready platforms.

- Perhaps the biggest change is the end of support for the existing Windows mobile OS – relied upon for some $5 billion of enterprise application investments worldwide. Organisations running Windows-based rugged devices today will need to select an alternative OS, aquire new devices and re-write their Apps before Microsoft support ends in 2020.

In addition, with the 4th industrial revolution upon us offering new technologies such as beacons, sensors, NFC and GPS, it is critical that organisations leverage the possibilities they offer. This will enable firms to mobilise data, gain insights and determine strategic actions that will help them stay competitive, ensure growth and increase profits.

In order to adopt new technologies and bring about business transformation, organisations must migrate mobile applications that support key business functions. While the need to act is clear, the process of migrating mobile applications to a next generation mobility platform is not simple.

Organisations must now align their strategic priorities with the Workforce Mobility Revolution. This involves migrating apps to reduce risk, time and cost, as well as reimagining applications to improve workflows and leverage the power of modern operating systems, technologies and devices. This will enable them to stay competitive and reach new heights in productivity, efficiency and accuracy while enhancing the customer experience.

Preparing for App Migration

Mobile app migration is no easy feat. Organisations have a range of mobile applications that support key business functions that run on different operating systems and devices. Migrating and enhancing the entire portfolio can seem daunting, but it's vital if organisations want to compete in today's market.

The two biggest challenges for enterprise mobile app migration are the time and the cost involved. In fact, according to a Harvard Business Review study in September 2011, large IT projects of this kind are often likely to run significantly over time and budget. Based on findings from the largest ever study of IT change initiatives, one in six IT projects were over budget by 200% and over time by almost 70%. This is due to the complexity of integrating with back-end systems. IT often learns of interrelated apps and new requirements from business users after the fact. This might happen once they've finalised business requirements or even during UAT.

There are also risks when migrating business-critical apps as it can disrupt operations and affect customer experience. In addition, it can increase costs if you have to manage multiple environments while transitioning. Therefore, mitigating disruption and ensuring a clear cut-over plan is crucial.

KEY PLANNING STEPS
Planning is the key to success. It will reduce the time, cost and risk involved. That is why it is vital for you to have a clear migration plan. To accomplish this you need to:

1	**2**	**3**	**4**
Assess your mobility apps	Determine your migration goals for each app	Choose the new OS for each app	Determine the best migration approach for each app

ASSESS CURRENT MOBILITY APPLICATIONS

It is extremely important that you understand the full portfolio of mobile applications within the organisation. Companies often spend a lot of time and energy on primary apps and neglect smaller apps, which are just as important to refresh. Some apps may have dependencies on other apps. Some workflows may have dependencies on multiple apps. Not understanding the full portfolio of apps can lead to users having to carrying around two devices to access all apps they need to do their job.

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IT PROJECTS WERE OVER BUDGET BY
200%

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70%

DETERMINE THE MIGRATION GOALS FOR EACH APPLICATION

Modernising applications or porting them to a new OS isn't just a case of deploying a new version of an existing application. It's essential to plan and execute to deliver real business improvements – enhanced functionality, and uncover more efficient workflows and processes.

With that in mind, it's important never to start from the point of view of the application – start instead with your business goals. A vital first step is to ask "What could we achieve if…", and then use the answers as the foundation of your application strategy.

Simply taking a legacy "green screen" or Windows Mobile application with subpar experiences and placing it on new hardware isn't an effective use of the technology. In fact, this approach can often end up making your workers less productive. People today use mobile computing in many new ways, and the importance of the user experience should never be underestimated.

For example, replacing keyboard-entry menu choices with large touch-screen buttons plays into people's expectations of how modern mobile applications should behave. This doesn't just have efficiency implications; it can have a big impact on user adoption and employee satisfaction.

If you give employees applications that are easy to use, you'll certainly see a measurable uplift in productivity. But there's an important morale-boosting benefit too.

When people feel the technology they're asked to use enables them rather than encumbers them, morale will go up, alongside efficiency. For example, many manufacturing employees are paid for performance, so if the applications they're using help them to be more productive, they'll feel the benefit financially.
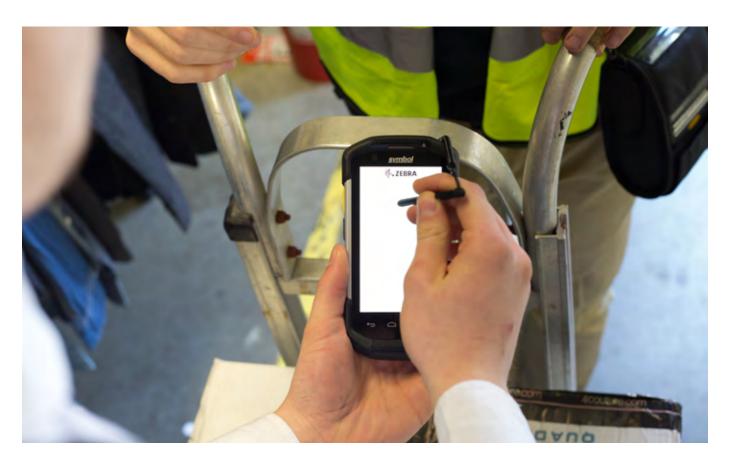
Other enhancements customers are implementing include: real-time data synchronisation, on-device capture of electronic signatures, ability to access the camera to take pictures of returned goods that are damaged and GPS route optimisation.

TAKING AN OS AGNOSTIC APPROACH

An important consideration in mobile app migration is deciding which operating system your apps will run on. Organisations have a choice of three operating systems: Android, Windows 8 and 10, and iOS.

From an enterprise perspective, it's probably unrealistic to think about standardising an OS across an organisation, with all the use cases and scenarios to address. With that in mind, it's important to be open and capable of supporting a multi-OS environment. That means designing and optimising your new apps to be OS agnostic.

DETERMINING THE RIGHT PLAN

Historically, migrating applications to a new OS has been a long and expensive process. However, with the utilities and technologies available in the market today, it does not have to be. There are approaches available that enable maximum code reuse, while getting your legacy applications running quickly on modern platforms without having to touch the backend system. Depending on the type of app: terminal emulation (TE), native and web, there are different approaches you can take.

App types & migration options

TERMINAL EMULATION (TE) OR "GREEN SCREEN" APPS

From a technical standpoint, TE apps are inherently portable because they can run on any device, including a modern touchscreen device. However, the screens need be updated to leverage the touch screen functionality to enhance the user experience, productivity, efficiency and accuracy. Failure to adapt the TE application to leverage an all-touch experience will lead to a poor user experience and could hamper productivity.

Options
While you can re-write or purchase an off-the-shelf solution, you can easily port TE applications and update the UI for little cost and risk. All-touch Terminal Emulation (TE), powered by Wavelink, allows you to convert all of your existing "green screen" TE apps into HTML5 intuitive all-touch apps that run on Zebra's Android mobile computers — without writing any code.

Native apps present a few more challenges, as they are inherently OS platform specific. Much of the code is not portable to modern platforms, be it Android, next-generation Windows or iOS, so it needs significant rewriting. The biggest misconception is that because modern Windows operating environments still use C# and a .Net compact framework, applications can be easily ported. However, only 11% of the Windows Mobile/CE API's still exist in the modern platform, preventing the app from being easily ported.

Options

Modernisation of C# on a .Net compact framework

You can make the most of your existing code while upgrading your application with a modern look and feel. You can also re-envision the application to enhance workflows to take advantage of advanced capabilities of modern operating systems and devices, leveraging Zebra's exclusive virtualisation technology and our app migration services. The benefits of modernising include reduced timelines, cost and risk, because you can leverage existing code and infrastructure. This option is best if you've determined that your business processes have not dramatically changed.

Port and rewrite

If you are dramatically changing the requirements of the app, consolidating multiple apps or changing your ERP system, you can port a small portion of the code and then rewrite the UI/UX.

- *For C# on a .NET compact framework*
  Leveraging Xamarin or Microsoft Visual Studio you can port a small portion of the code, then rewrite the UI/UX in C#. If you are looking to leverage Xamarin, it is important to understand that Xamarin supports about 30% of the Windows API's, requiring the rewrite of the interface and data layer, as well as the refactoring and restructuring of code and design patterns.

- *For Java*
  You can port and rewrite what can be ported with Java or use Zebra's Rhomobile open platform development tool to take an HTML5 cross platform approach, then rewrite the UI and hardware interface.

- *For C++*
  Leveraging Google C++ Compiler or Microsoft Visual Studio (C++ compiler) you can port some code and rewrite the UI/UX.

Rewriting from scratch

A complete re-write in Java or HTML 5 is an option, whether it's due to a dramatic change in business requirements, to consolidate apps, or a new ERP implementation, but this can take considerable time and money. However, this option enables you to create an app with the exact capabilities you need today and leverage current best practices to take full advantage of all that today's devices and operating systems have to offer. You can choose to rewrite on a specific OS platform or develop a cross platform application in the language you choose. To date, the market is split on this. Those choosing to rewrite on a specific platform must understand that if they chose a different OS platform in the future, they would have to re-write the app from scratch.

To be successful using this approach, you must create new requirements up-front and therefore you need to get input from the business users. If you do not get feedback up-front, you run the risk of discovering business rules after development, resulting in additional costs and delays. If the rewrite will take a couple years, you run the risk that by the time the app is completed, business rules have changed.

There are also logistical challenges to consider. Since many organisations can't commit to a quick changeover, you also have to plan for the update of both the Windows CE/Mobile app and the app in development. This requires the need to support two applications and two devices, as well as users having two devices to use to get the job done, doubling the total cost of ownership.

Replacing

Off-the-shelf applications could be a fit if there is one available that meets your needs. This enables you to quickly roll-out a new solution optimised for modern devices and operating systems. However, there is usually little customisation available and if it is available, it could be costly and take some time to adapt.

WEB APPS

Web apps are the easiest to migrate. If they are rendering well on an old device, they will render well on a new device. The challenge is that most web apps running on legacy devices have some sort of hybrid wrapper. This enables access to key features of the device, like barcode scanning, to lockdown the application, or to point users to a specific web app. Therefore, you will need to do some tweaking to get some of the wrapper apps working again.

Options

Port and rewrite
Zebra's Enterprise Browser enables you to quickly port a portion of the app and then tweak the UI/UX.

Rewrite from scratch
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How VisionID Can Help

Leveraging Zebra's application migration solutions and services, you can get your legacy applications running quickly and smoothly on modern systems without having to integrate with backend systems. This allows your business to take advantage of new hardware capabilities and improve the workflow and user experience.

STRATEGIC SERVICES

We can analyse your application portfolio and assist with building a strategy to migrate apps in the most cost-effective and efficient way. This will mitigate risk while enabling you to start seeing the benefits of a modern mobile platform quickly — many times in just a few months.

TE APP MIGRATION SERVICES

With our TE Migration service that leverages our All-Touch TE utility, it's possible to move TE apps to Android devices, quickly and inexpensively. This allows you to immediately recognise increased productivity, efficiency and accuracy — without writing code, or touching the backend systems.

MIGRATING NATIVE WINDOWS MOBILE APPLICATIONS

Legacy compact framework (CF) applications built for Windows CE/Mobile can quickly (typically in less than a month) migrate to modern Android platforms without modifying them using our OS agnostic CF Migration service.

A like-for-like translation of your existing application gets you onto modern systems quickly. It superimposes a modern user experience on top of the old app, without having to interfere with the backend system. From there, you have the opportunity to innovate and improve on the experience with iconography, coaching, workflow enhancements, and integration with hardware sensors. This service enables your legacy Windows applications to run on another OS as a native app. This approach, which is unique to Zebra reduces migration time and saves you money.

MIGRATING WEB-BASED APPLICATIONS

Zebra's Enterprise Browser is an OS agnostic mobile application development tool that allows developers to seamlessly integrate the native peripherals of a device into web-based apps, while enabling barcode scanning, signature capture and much more. It does all this without the need to integrate with backend systems.

UI SERVICES

Our user experience team specialises in optimising the user experience and workflow from the eyes of the user to realise additional ROI from the migration to a modern mobile platform.

LEARNING SUPPORT

Our learning team provides onsite or distance learning training to help you get to grips with the new applications, computers and even workflows.

Conclusion

There are many benefits to migrating your apps to modern mobility platforms – transforming inefficient workflows and processes, boosting productivity, enhancing employee and customer experiences, as well as delivering real competitive advantage and increased ROI. These benefits apply across all industries, from retail to transportation and logistics to manufacturing and healthcare.

Equipping employees with the same technology their customers have on their smartphones can be critical in maintaining relevance. Modern mobile technology is essential for all facets of the supply chain from the production line to the warehouse, to delivery and the store floor. The workforce mobility revolution enables businesses to re-evaluate what is possible from a business process and workflow standpoint and redefine their applications to harness the benefits.

There is no one-size-fits-all route. Solutions that take into consideration the types of apps, operating systems, tools and services available are what enterprises need to migrate their app portfolios effectively.

VisionID specialises in enterprise mobility solutions that maximise the opportunities presented by industry change. Our products and services help enterprises migrate their mobile applications in the best way for their organisation.