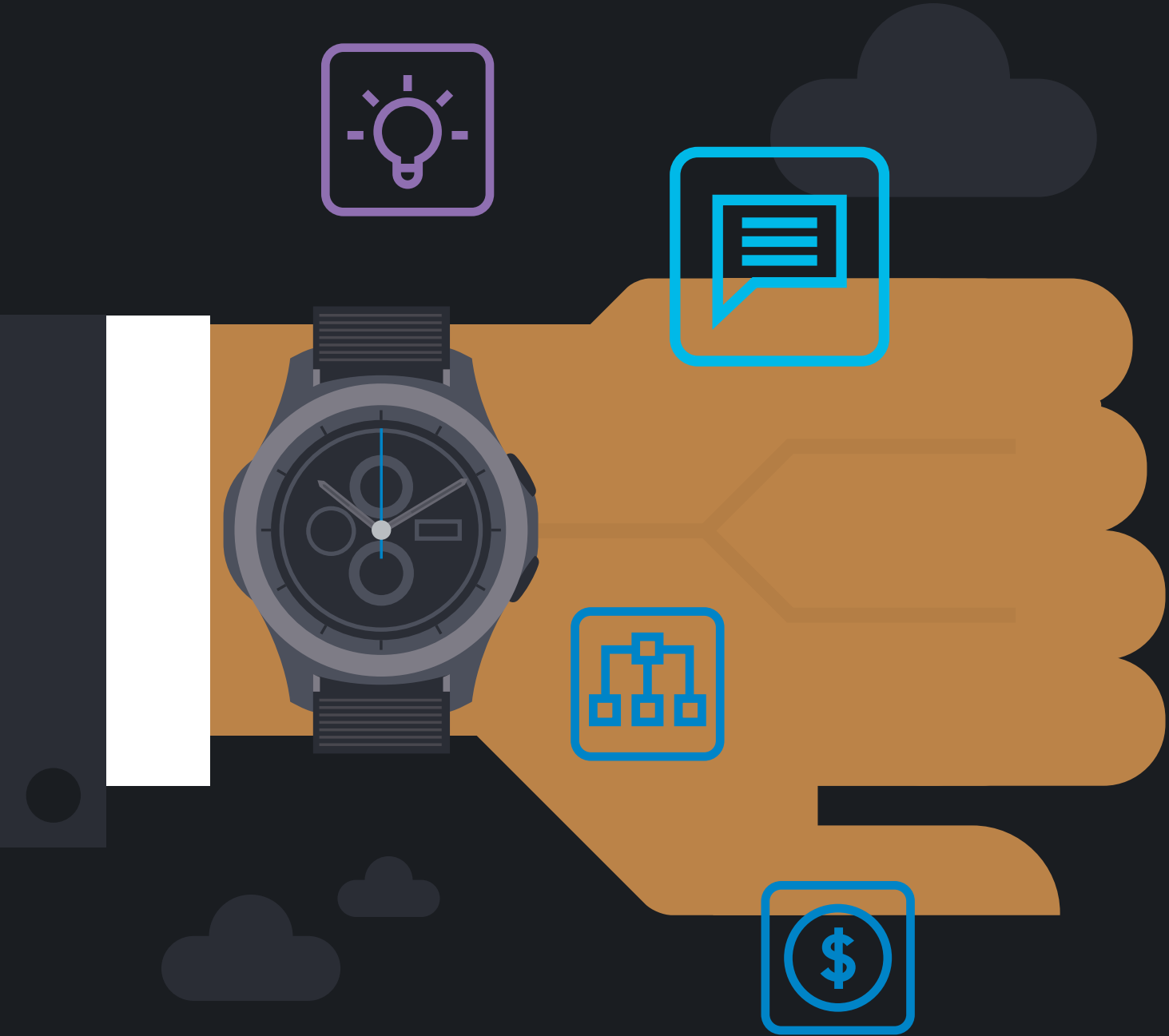


White Paper:

# A New Frontier: Customizing Wearables for Business Use



# Introduction

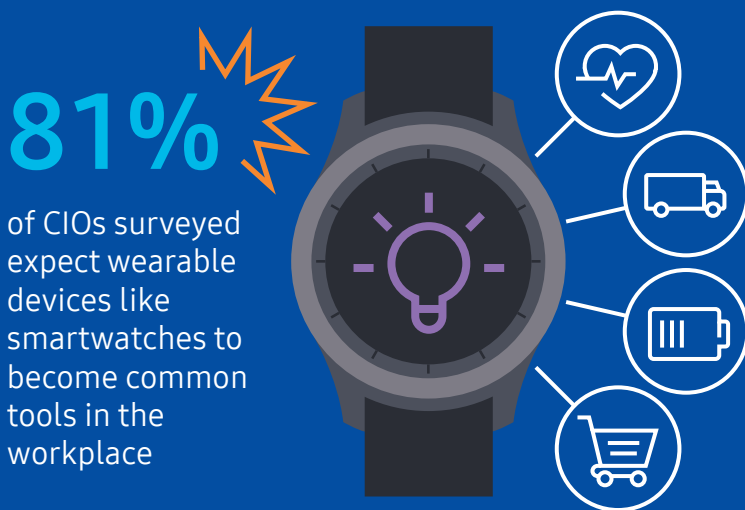
Imagine entering a retail store and having the sales associate immediately approach you with personalized and accurate suggestions for merchandise. Or imagine your airline travel experience improved dramatically through seamless communication between in-flight staff and ground crews, resulting in fewer delays. Wouldn't these types of exceptional customer service experiences increase your loyalty to these brands and spur you to purchase more of their products and services?

Industries such as healthcare, industrial, transportation, energy, field services and retail are actively exploring the use of wearable technology — and for good reason. In an APX Labs report, 87 percent of IT and business decision-makers surveyed said wearable technology will have a significant impact on their industry in the next five years.<sup>1</sup> The industries that stated the highest proportion of users who will benefit from wearables were operations and field service, while those who saw the lowest proportion of users benefiting were in corporate, sales and customer service roles.

Customized use cases — from being able to monitor driver fatigue in the transportation industry to retail scenarios where wearable technology can help find warehouse products through barcode scanning and GPS tracking — are just the tip of the iceberg. A report from Tractica projected that the number of units shipped in the enterprise wearables market is expected to

reach 66.4 million by 2021, while the total value of the market will rise to \$12.7 billion.<sup>2</sup> In 2016, over 80 percent of the wearables market consisted of smartwatches and fitness trackers. Another report by Robert Half Technology found that 81 percent of CIOs surveyed expect wearable devices like smartwatches to become common tools in the workplace.<sup>3</sup>

There are infinite possibilities and opportunities when it comes to developing customized business-to-business (B2B) apps for wearables — from improving the customer experience to increasing worker productivity and safety. The challenge so far, however, has been developing customized B2B wearable apps with ease. With the introduction of Samsung's Tizen Wearable SDK, businesses, developers and solution providers now have a way to easily develop or migrate customized apps to Gear S wearable devices — opening a new frontier for customized wearables in the enterprise.



# Why Tizen? An SDK for Wearables and More

Compared to competing operating systems, Tizen is far “lighter,” which means it uses less processing power and memory. The upshot is a smoother user experience and better battery life, especially important for a device users will wear every single day.

Tizen — an open source, Linux-based operating system developed by Samsung and Intel — allows the development of applications on a variety of platforms. As a flexible platform, it grants developers the ability to offer a unified experience across a broad range of devices, from wearables to televisions and even smart appliances.

## Flexible development

It’s also extremely flexible, so for apps that are designed to function on a wide variety of systems, development planning is simple and streamlined. With a few tweaks, apps can even be launched on different platforms.

Thanks to the codevelopment between Samsung and Intel, the operating system offers an immense capability to be personalized and adapted on a wide range of processors, including ARM and x86 chip architectures.

Software developers can easily develop Tizen applications using popular programming languages. With the addition of the Microsoft .NET and Xamarin UI frameworks, C# language-based applications can be developed in the Visual Studio environment for increased productivity.



# Tizen SDK for Wearables

Developers now have access to over 300 application programming interfaces (APIs) they can use to develop customized apps on Samsung Gear Smartwatches.

These APIs include three specific categories:

## Standard APIs

Allow developers to customize the device's hardware configuration, network connectivity, user accounts and security policies. In an enterprise environment, developers can use this SDK to fully control enterprise wearables to meet the strictest company policies.

## Customization APIs

Allow developers to create purpose-built devices for B2B use cases. Using the Pro Kiosk feature, developers can create apps that regulate how users employ their

wearables. This includes controlling the applications or device functions users can access or run, or preventing or limiting access to the underlying system, including prohibiting users from changing device settings.

## Attestation APIs

Allow developers to protect the wearable device and ensure it remains uncompromised by checking that the device's warranty bit is intact and the kernel is authentic.

The Tizen SDK is geared toward three key markets of opportunity: enterprises, professional app developers and solution providers. The following sections will explore how each market category can best approach developing and customizing wearable apps.



# Customization for Businesses

As LOBs envision new use cases for wearable devices to meet strategic goals or become more productive, IT will need to help make these dreams become a reality.

Lines of business (LOBs) see unique use cases for wearable apps, including sales agents in the field using smartwatches to discreetly keep an eye on who is calling or to easily read transcribed voicemails without having to use their phones in front of customers. However, as LOBs envision new strategies for wearable devices that will improve their ability to meet strategic goals or become more productive, there will be pressure on IT to help make these dreams become a reality.

For enterprises considering customized wearable app development, there are several different approaches: internal development, third-party development or a hybrid approach that combines internal development with outside consulting or development assistance.

To determine which approach would be best, IT and LOB leaders should consider:

## What internal resources are available for app development?

Where resources are abundant, some businesses may want to pursue an internal development approach. If corporate resources are scarce, however, looking to a third-party vendor with experience developing wearable apps and experience with Tizen might be the best option.

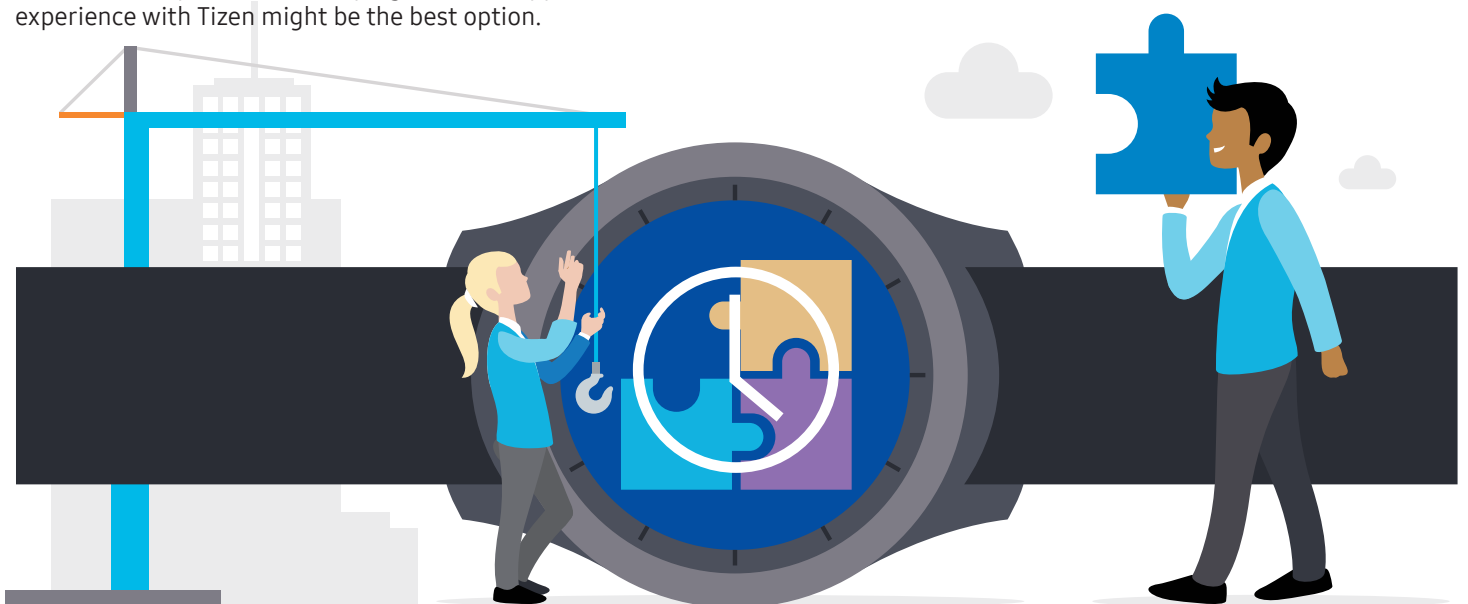
## What is the expertise of the internal team?

While Tizen is similar to other Android-based development platforms, there will always be a learning curve for software teams that haven't used it before. To bridge the knowledge gap, enterprises may employ a hybrid approach, with an application support services provider providing consulting services that can help speed up the process.

## What is the urgency or timeline for app development?

Some businesses have all the resources they need to roll out an app, but they're not able to get it done in the necessary timeframe. When the pressure is high to create the app on a shortened timeline, it might be best to enlist the help of a third-party partner.

Whether they choose to develop customized wearable apps internally or through a hybrid approach, businesses may benefit from a service provider to offer varying levels of support and smooth out processes.



# Application Support Services

An application support service team works closely with internal teams to identify the needs for custom wearable application development. By partnering with a provider, businesses can develop wearable applications that improve productivity, provide better customer service, improve worker safety and mobilize job functions for greater flexibility.

## Key Benefits of Business Application Support Services

- **Custom wearable application development:**  
Handle the entire wearable app development process to create an app for a specific business use case.
- **Custom wearable application development:**  
Work closely with IT teams to provide best practices and guidance during the internal team's development of a customized wearable app using the Tizen SDK.
- **Custom wearable application development:**  
Tailor services to fit the skill level and needs of an app development team.

For companies looking to develop wearable apps for the Samsung Gear S3, utilizing an application support services provider who has knowledge of Samsung smartwatches and its Tizen SDK allows internal development teams to speed the development process by getting needed guidance from experts at critical stages. This may include guidance on industry best practices on designing and maintaining applications, as well as hands-on consultations and training for IT teams. For example, Samsung's training program arms IT departments with new development technologies and can guide them to the appropriate libraries and APIs while being flexible enough to support development efforts on-site or through online assistance.

Whatever route IT and LOB leaders determine is best for their enterprise application, significant consulting support and access to online libraries and 300 APIs are available from Samsung. For enterprises that determine outsourcing to a third party is a better solution than internal development or a hybrid support option, the next section will discuss what support options are available for developers and service providers to streamline the development process for their enterprise clients or their own wearable app initiatives.

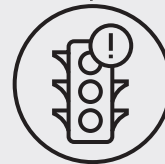
## Create a Powerful Productivity App in Minutes

Combining forces with TaskWatch, an enterprise platform for task management on smartwatches and mobile devices by Hipaax, creates a powerful productivity solution for Samsung Gear S2 smartwatches. Easily customized to meet the unique requirements of wearables for business, the solution enables businesses to mobilize a hands-free workforce while managing operations risk through real-time dashboards.

## Real-World Applications



Retail associates can connect to real-time inventory and marketing data.



Transportation employees can respond quickly to business needs, such as keeping the fleet moving with real-time traffic updates.



Field service workers can send situation reports, or SOS, to allocate work to team members or track locations and routes.

# Customization for Developers and Service Providers

As previously mentioned, the market for enterprise wearable applications is expected to reach \$8.5 billion by 2020.

For developers and service providers, this represents a significant opportunity to enter a relatively new market with heightening demand. For instance, with productivity losses linked to absenteeism costing employers \$225.8 billion annually in the United States, or \$1,685 per employee,<sup>4</sup> there are business opportunities to develop wearable apps that can promote and increase employee wellness. Similarly, with health insurance companies such as UnitedHealthcare offering discounts to employees (up to \$1,460 per year) and to employers for tracking specific health metrics,<sup>5</sup> the demand for wearable corporate wellness apps is likely to increase significantly in the next few years.

Other use cases are equally in demand, such as B2B wearable apps that can improve productivity through better hands-free communication between employees in the field, as well as time and task management apps that can help employees improve productivity. For example, a J.D. Power survey found that for the hotel industry, an unresolved problem drops customer satisfaction scores to 573 out of 1,000, but a successful resolution pushes it up to 842, and even higher if there was no problem to begin with.<sup>6</sup> Using wearables that can display a list of tasks, which are triggered by time or location and recorded via the wearable device in a central database once

completed, can better coordinate room service, repairs and calls for maintenance — ultimately improving customer satisfaction.

The transportation industry can also benefit from wearable devices in the field. A recent Conde Nast Traveler article noted that 23.1 million bags were mishandled in 2015, which equated to 6.5 bags per every 1,000 passengers and a cost of 2.3 billion for the airline industry.<sup>7</sup> To improve baggage handling procedures, wearables, beacons or GPS technology can be leveraged, with wearables providing the ability for ground crew and flight attendants to communicate hands-free in real-time when there are carry-on bags that need to be checked.

As developers and service providers begin to seek opportunities to create customized wearable apps for Samsung devices, there are two main approaches they may take. First, they may work with enterprises or on their own to determine a unique use case for wearable apps and then create a customized app to address the use case. Or, they can port previously developed applications to a wearable device.



## Fujitsu Develops Innovative Wearable App for Retail Checkout

As one of the leading Japanese information and communication technology (ICT) companies in the world, Fujitsu saw an opportunity to enhance its Fujitsu U-Scan Self-Checkout or Fresco Point-of-Sale (POS) touch-screen systems.

By working with Samsung to develop a two-way digital communication platform that connects Samsung Gear wearables to its POS systems, retail staff now have access to hands-free store information through their Samsung smartwatches. The new software can send instant alerts and messages as necessary in a variety of situations and can be used by all retail employees, including cashiers, managers, stock clerks and other employees.

### Key Use Cases



Cashiers can send a message to staff on the shop floor to check a price quickly.



Cashiers can inform managers of sensitive operations that need to take place, such as replenishing a cash register.



Cashiers can alert managers or other staff when more upfront assistance is needed.



Here's a look at the process for each opportunity:

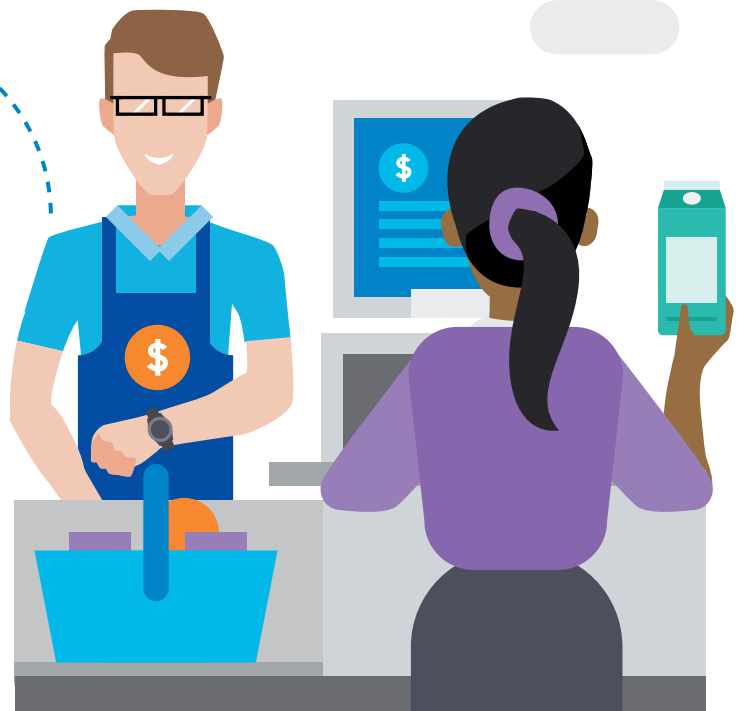
### Developing Customized Wearable Apps

For developers or service providers who want to develop customized wearable apps for enterprise clients or to market to enterprises using the Samsung Gear devices, they'll need to access the Tizen SDK. Because the Tizen SDK is open source, the libraries and 300 APIs are available to all developers. Developers should be able to access existing libraries and create the necessary code. However, Samsung Business Application Support Services are also available to developers and service providers should additional consulting and support services be required.

### Converting Previously Developed Apps to a Wearable App

For developers or service providers looking to port a previously developed application to a wearable app, there are development tools that will allow for rapid prototyping that can be leveraged to speed up the process. This will allow critical applications to be ported with a minimal amount of effort.

App development for Samsung Gear wearable devices presents an important business opportunity for developers and service providers. Taking the time to gain Tizen expertise will smooth the path to development and is well worth it, considering the enormous market opportunity and expected payout for enterprise wearable apps.





# Streamlined Wearable App Development With Innovative Partnerships

Just as with any application development project, the key is to first determine whether developing a wearable app is the right decision for your business.

Then think about what makes a good app: Will it solve a real problem or simplify a complicated process? Is there already an app on the market that can solve the problem?

For some use cases, there may already be a wearable app available or a way to easily integrate with specific software applications currently in use, such as payroll services or CRMs. In addition to its consulting services, Samsung works with

backend-as-a-service infrastructure providers and application developers to further streamline the custom B2B application development process for its wearable devices. Through Samsung's Gear Hub, enterprises and developers can design, develop, modify and deploy Gear S applications in minutes through back-end, cloud-based wearable services for specific applications, such as task management or payroll.



# Conclusion

Adding wearables to a B2B environment can deliver significant benefits in terms of productivity, safety and customer experience. For developers and service providers, the wearable app market is currently immature and small — providing a large opportunity to develop new and innovative B2B apps that can fit a variety of industries and use cases. For enterprises, there is also an opportunity to take advantage of wearable devices and the benefits they can provide for competitive advantage. Much like the mobile app market, wearable apps will eventually proliferate and saturate the market. Taking advantage of the opportunities now will put enterprises and wearable app developers on the cutting-edge and ahead of competitors.

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Learn more: [Samsung Wearables](#)

# Footnotes

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