

OPTIMIZING CX WITH IOT

Realizing the Benefits of IoT

eggplant

Test Automation Software



Overview

Embracing what the Internet of Things (IoT) has to offer will be one of the biggest developments of a generation.

With organizations and consumers seeing the potential benefits and jumping onboard, the question is simple – how do you maximize its opportunities? The answer is to look at optimizing the customer experience. This ebook explores why – and how.

Introduction

One look at the numbers reveals the importance of the IoT. Gartner, for example, forecasts that the enterprise and automotive IoT market will grow to 5.8 billion endpoints in 2020, a 21% increase from 2019.

There's no doubt that this market is an exciting one in which to be active. But at the same time, it is important to ask – how can you be sure you are realizing all the benefits it has to offer?

The question applies to organizations developing IoT-enabled devices as well as to organizations implementing IoT-enabled technologies to capitalize gains.

Security is one option. It is a key concern and stories about IoT security breaches regularly hit the headlines.

But this is not the way forward when it comes to differentiation. Users have a right to expect that their devices are secure as standard. Security is not an extra option, it's essential – and governments are already taking steps to legislate to ensure this is the case.

The answer is to go back to basics and remember the founding purpose of the IoT – to add value to everyday life and activities. The starting point for that is to create a seamless customer experience which means interacting with IoT devices is easy.

This ebook considers this point of view, looks at the challenges it presents – and offers a route to delivering an outstanding experience that enables organizations on both sides of the fence to see a return on investment.

Realizing the benefits of IoT

In its Business Benefits of the Internet of Things insight report, Gartner says that the IoT “is providing business benefits, such as operational efficiency and workforce productivity.”

However, it also warns that while “IoT data is perceived to present revenue opportunities, companies have yet to either generate huge revenue gains or strike the right business model, causing investment concerns.”

It suggests that the “challenge for companies to move beyond the IoT proof-of-concept stage stems from a failure to tie quantifiable metrics and demonstrable business value.”

In other words, the IoT is not delivering on its expectations on the ground. Users are excited about the theoretical possibilities – but failing to achieve those possibilities in practice.

It's worth unpacking why this should be. In the first instance, many organizations are likely to invest in IoT in an ad hoc fashion.

Alfonso Velosa, Research VicePresident at Gartner, highlights the problem with this approach –without a coordinated or planned strategy, there's a risk nothing will be properly joined up.

It's easy to see the reality of what this means.

“Overall, end users will need to prepare to address an environment where the business units will increasingly buy IoT-enabled assets without policies for support, data ownership or integration into existing business applications.”

— Alfonso Velosa

We can all recount experiences when technology has frustrated us, when something should have worked but hasn't

For workers who want technology to help them do their job more effectively and efficiently – or consumers hoping their daily lives will run more smoothly – it's incredibly frustrating.

It's also frustrating for IT support teams having to deal with multiple queries or untangle other people's efforts.

The problem is even greater in an IoT environment. One bug on one device is likely to have a knock-on effect on every other device in the chain. It's also true that the point where you discovered the problem might not be the point where the problem lies.

In short, multiple applications and multiple interfaces are likely to cause even bigger frustrations than we face in a non-IoT environment.

Gartner found that workforce productivity enhancements were perceived to be the number one benefit of harnessing the power of the IoT.

A world where devices don't integrate seamlessly (or at all) and there's a lack of support policies does not look like a world where productivity enhancements are optimized or realized.

When you consider the IoT from this point of view, the key to realizing all the benefits is simple. It's to deliver technology with an impressive, seamless CX.

When it comes to testing code, automated testing gives developers the tools to test at scale and find and resolve bugs.

Focusing attention on CX testing

Quite simply, digital transformation is dependent upon better quality software and users expect it to work- at every interaction, on every possible platform, and operating system. Gartner's findings show that this is not yet happening.

This is because many developers test code rather than CX. This is not to downplay the importance of testing code – as we know, a bug in an IoT-connected device has the potential to wreak havoc on an IoT-enabled setup.

However, CX, especially CX in an omnichannel environment, is not tested to the same degree. It needs to be – and the organizations that do focus on it give themselves a competitive advantage.

A user-centric approach to testing ensures that UI errors, bugs, and performance issues are identified and addressed long before they go into production and have the chance to negatively impact the customer experience and, potentially, brand perception.

Fast, reliable applications increase engagement, deliver revenue and drive positive business outcomes. Ensuring that these objectives are met should, therefore, be an essential part of any modern testing strategy.

Of course, the reason too many organizations do not undertake comprehensive CX testing is not because it has not been considered. It is because it has traditionally been perceived as difficult and time-consuming.

When it comes to testing code, automated testing gives developers the tools to test at scale and find and resolve bugs.

Its abilities and capabilities mean it has been widely adopted as a tool. On the other hand, it is all-too-easy to assume that CX testing by its very nature is a purely manual task.

When you take this view, the speed and scale at which DevOps works means that effective and comprehensive CX testing is simply not feasible. Manual testing needs a heavy investment of either time or resources – and these aren't an option when you're working at scale.

However, there are tools for automated CX testing. They give teams the tools to conduct CX testing at scale, giving them the same confidence in the quality of the CX as they have in the code.

The best applications incorporate the ability to test in an omnichannel environment, taking the capabilities to the next level.

One such platform is Eggplant.

It gives teams the capabilities they need, allowing them to develop easy-to-use and easy-to-configure IoT applications that help their customers secure the return on investment they projected.

It also allows organizations who are implementing IoT solutions to harness everything the technologies have to offer.

Eggplant for the IoT

Eggplant enables organizations to view their technology through the eyes of their users. Its continuous, intelligent, automated AI-assisted approach tests the end-to-end customer experience and investigates every possible user journey, providing unparalleled test coverage even as new digital content is introduced.

It means organizations can relate real user behavior to desired business outcomes and over-deliver on customer expectations.

The technology also enables organizations to predict the impact of new releases and investigate “what if” scenarios, so that upgrades can be timed to have the least possible UI interruption.

It helps organizations embrace digital automation intelligence and deliver DevOps at speed and scale.

The five key features of Eggplant for the IoT

1. Harness intelligent test automation

Eggplant uses script-less models, AI, and analytics, so automation can be implemented across the full testing process from test-case generation and test optimization to results analytics.

2. Future proof testing

Automated exploratory testing and fixed regression packs can be combined to dramatically simplify testing scenarios and present testing data in business terms.

3. Test every technology every way

Eggplant can test any device, any OS, any browser, and any technology. It can also test at any layer from the UI, to APIs, to the database.

4. Access enterprise scale testing capabilities via a single user interface

Eggplant enables authoring, scheduling, execution and test results analysis via a single, intuitive UI, making it easy to scale execution and identify root causes of failures.

5. Break down siloes and maximize collaborative working

Eggplant's low-code/no-code platform requires no coding expertise, so organizations can break down siloes and embrace the knowledge of domain experts, business analysts, and full stack developers.

Case study:

Shaw Industries

Automating a global provider

Shaw Industries is the world's largest carpet manufacturer and leading global floor covering provider. The full-service flooring company generates more than \$4.8 billion in annual sales and has approximately 22,000 employees across the United States. The company is owned by investment giant Berkshire Hathaway.

Shaw's facilities across the country are supported by an information systems (IS) team of several hundred IT professionals who develop and manage the key business systems that are used by the company's staff on a daily basis. Ensuring the quality of these systems is a key function of Shaw's IS group and the company historically tested all these systems manually.

Agile needs test automation

James Briley, manager of Shaw's Unit Shop Floor Systems team, explained the issue he was facing:

"We work in an agile environment and development was typically running two to three releases ahead of testing, which was not ideal and we wanted to shorten that cycle time. We needed an automated testing tool that was easy enough for non-developers to use so that business users could help ease the testing burden by conducting tests themselves."

While considering the market for solutions, Briley was given a demo of **Eggplant Functional** that convinced him this was the tool Shaw needed:

"The moment I was able to use Eggplant to run a test on a web app simultaneously with an IBM mainframe I knew that nothing else we had seen could do this. Coupled with its Turbo Capture capability, which allows business users to record their actual activities as test scripts, and its open database connectivity feature, it was clearly the right tool for us."

50%+ cut in testing time with test automation

Simplicity is key

Eggplant's user-centric test automation approach makes it intuitive to write tests, so anyone can be productive with Eggplant within a few hours.

Briley's team is using Eggplant to test one of Shaw's shop floor systems, which is a web-based Java application linked to a mainframe database and used by the company's staff for a range of tasks including inventory management and control.

Test automation is currently being phased in at a rate of 10 key functions per quarter and, once complete, Briley expects the testing to be fully part of the team's agile methodology.

"The SenseTalk language is a great feature for non-technical users, as it provides them with the ability to write test scripts without having any programming knowledge.

Eggplant impact

"We are aiming for 100 percent automation of regression testing within a year and that will help us ensure that testing is running in sync with development, rather than several releases behind. Using Eggplant has already benefited us by ensuring we use a standard system under test across the organization, and by allowing us to test on virtual machines thanks to Eggplant's remote desktop capabilities." - **Briley**

Other teams within Shaw's IS group are also using Eggplant to test their systems, including the customer service and distribution teams. The distribution team develops systems relating to functions including shipping and receiving and has been using Eggplant to great effect. Eggplant Impact"

For one project, every week the distribution team would have to spend two to three days loading data so that the developers would have something to test the following week. With Eggplant, they have automated that process so they simply press the button in Eggplant on Friday and in eight hours they have all the data they need. They more than cut the time in half for that project." - Briley

"I've demonstrated Eggplant to upper management as well as trained over 60 staff myself, which is a testament to how easy to use it is."
— James Briley

Conclusion

The IoT presents exciting opportunities for organizations developing the technologies and organizations harnessing what they have to offer. But both sides need to consider customer experience (CX).

Organizations wanting to capitalize on the opportunities in developing IoT-enabled software can give themselves a competitive advantage by considering CX from the start. And those wanting to maximize what the IoT has to offer need to ensure every device works seamlessly across the piece and delivers a valuable CX if they want to realize the potential returns.

The key to unlocking both scenarios is Eggplant.

Learn more at: www.keysight.com/find/eggplant

For more information on Keysight Eggplant products and solutions, please [contact us](#).

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