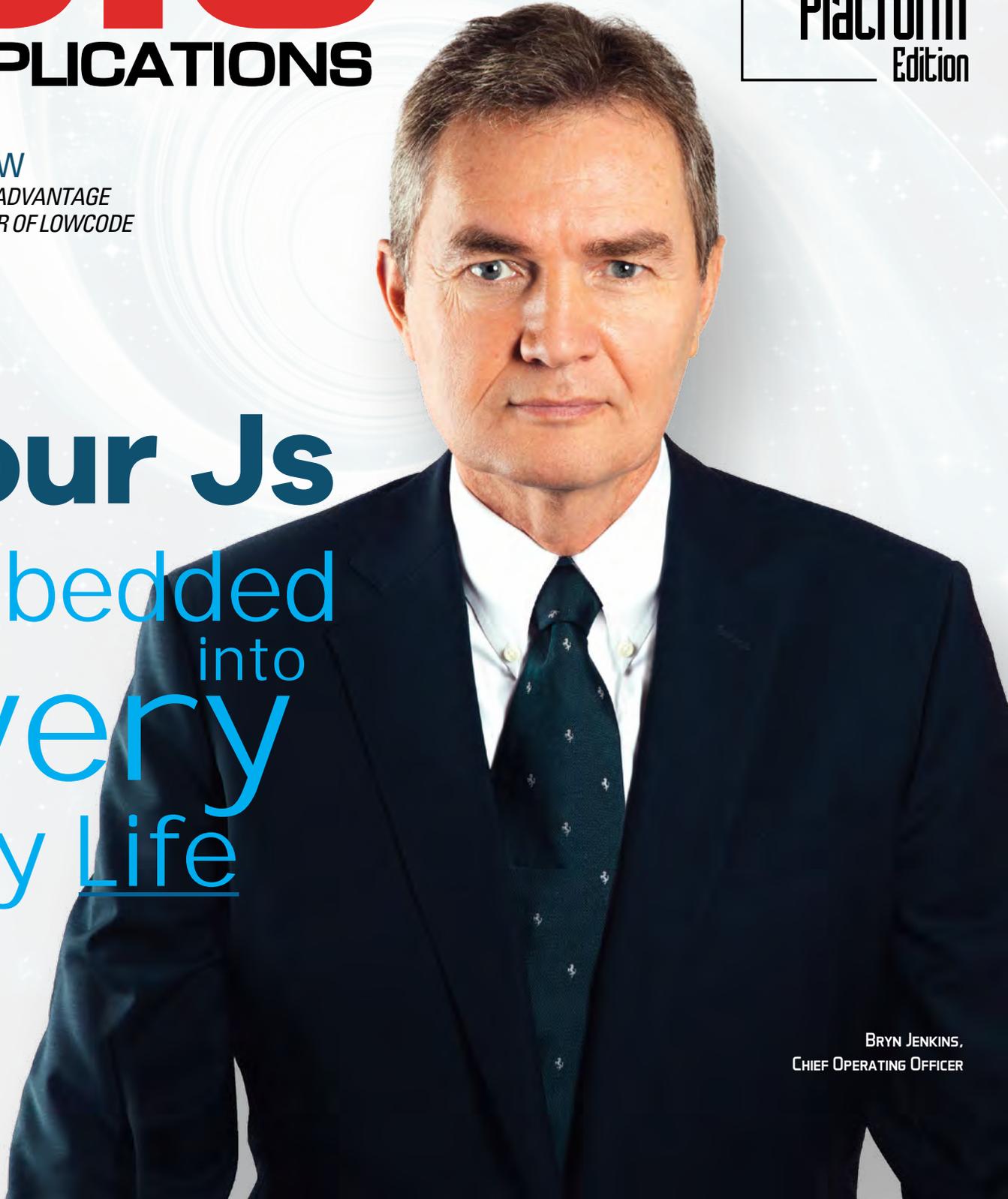# CIO
APPLICATIONS

Low Code
Platform
Edition

IN MY VIEW
TAKING FULL ADVANTAGE OF THE POWER OF LOWCODE PLATFORMS
WESTFIELD INSURANCE

Four Js
Embedded into
Every
Day Life

Bryn Jenkins,
Chief Operating Officer

$15

Bryn Jenkins,
Chief Operating Officer

Photo Credits @eleanor.kins

FOUR Js
The Power of Simplicity

Embedded into
Every
Day Life

By Joe Phillip

> " WE ENSURE OUR CUSTOMER'S APPS REMAIN FRESH AND RELEVANT. WE ANTICIPATE TECHNOLOGY TRENDS SO THAT OUR CUSTOMERS CAN FOCUS ON ADDING FUNCTIONAL VALUE "

Quite often, similarities exist between entities that bear no relation. That said, what is the common denominator between broadcast giants PBS and the BBC, retail powerhouses Sears and Kmart, footwear brands Skechers, Adidas and Reebok, and government agencies such as the UK Ministry of Defence, the Spanish Air Force, the French Air Force and Mexico's Federal Secretariat of Health?

They are all end users who benefit from a plethora of applications built with Four Js' technology—a Low Code Application Platform (LCAP) that helps businesses across vertical markets develop and deploy portable, scalable, high-performance apps rapidly and cost-efficiently.

While the BBC's developers leverage Genero—Four Js' LCAP infrastructure— to manage artist contracts and royalty payments, PBS uses a broadcast management app to streamline processes such as programming and scheduling. In South Africa, Reebok production plants use apps built to manage production control, stock control, bill of materials, sales administration and finance. In Indonesia, Adidas do the same. Elsewhere, the Mexican Federal Secretariat of Health relies on a Four Js-engineered solution to serve more than 10 million civil servants' healthcare and social security needs. The Spanish Air Force uses a Genero-built budgeting and finance app to transmit vital data to 19 regional military installations, its

headquarters, and the nation's Ministry of Defence. The French Air Force payroll system was modernized with Genero too and other upcoming public sector solutions include a mobile app for sworn police offers to file reports and several innovations for organizations that provide fire and ambulance services.

Four Js' software was also used to modernize specialized ERP and POS systems for market leaders such as CVS Pharmacy, Builders FirstSource, Sears and Kmart. Be it front-office or back-office, Four Js' Genero has exhibited the capability to build mission-critical apps that could make or break the daily operations of a business. "Failure is not an option. If it were, people wouldn't get paid, utility companies would miss millions of subscriber billings, fresh food would lie rotting in loading bays, customs could not process imports or exports, retail cash tills would fall silent, banks could not clear funds—it's a big deal. We are in people's everyday lives in a way you cannot imagine," says Bryn Jenkins, chief operating officer of Four Js, founded by four developers—all named 'John', hence the name.

So, how is Four Js building its business across so many vertical markets? Jenkins credits the company's "versatility" and the rare balance between technology and business competence of its developer community. Many of these developers came from within the vertical industries that they now serve.
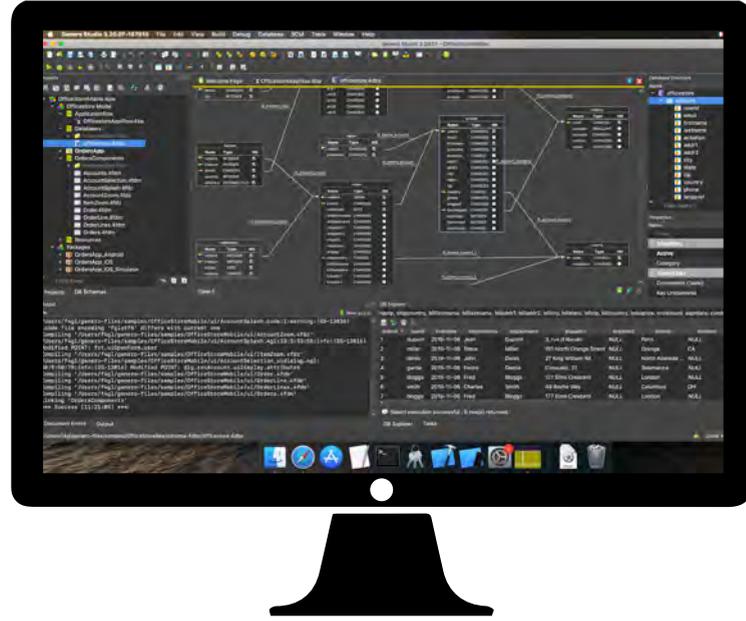

> ❝ FAILURE IS NOT AN OPTION. IF IT WERE, PEOPLE WOULDN'T GET PAID, UTILITY COMPANIES WOULD MISS MILLIONS OF SUBSCRIBER BILLINGS, FRESH FOOD WOULD LIE ROTTING IN LOADING BAYS, CUSTOMS OFFICIALS COULD NOT PROCESS IMPORTS OR EXPORTS, RETAIL CASH TILLS WOULD FALL SILENT, BANKS COULD NOT CLEAR FUNDS – IT'S A BIG DEAL. WE ARE IN PEOPLE'S EVERYDAY LIVES IN A WAY YOU CANNOT IMAGINE ❞

The Economics of Development

At its core, Four Js enables programmers, be they independent software vendors (ISVs) or in-house corporate development shops, to do more with less. That means increasing innovation with fewer resources in less time. Rather than being bogged down by the shifting sands of technology trends —database

servers, OSes, client UI technology—developers using Genero have more time to innovate because they code faster and are free from the constraints of third-party APIs. By creating more business logic in fewer lines, developers incur fewer bugs, develop scalable code with greater reliability, and deploy it in a fraction of the time. Apps no longer take man years to develop, rather they take man weeks or months. "With Genero, there is no need for third-party middleware, everything you need is in the Genero stack. The code is abstract—what you develop for Windows, macOS or Linux runs on iOS and Android too. That is precious, because it means a project manager can leverage the entire team – not just those that know iOS or Android. We focus on the technology infrastructure so that developers can focus on differentiating themselves in their market. Business logic is pure value. Technology APIs are pure cost," stresses Jenkins, before adding that developers can build apps "at least 5-10 times faster" with Genero.

This way businesses ensure they keep pace, even lead their industry. Apps that were written 20 years ago for desktops, run today on mobile devices. Developers without a deep knowledge of network web services protocols can for example, quickly publish or consume them using a WSDL generator provided by the tool. To achieve this, Four Js provides an infrastructure (a virtual machine, an abstract presentation layer, an abstract scripting language, and an integrated visual programming environment) for development and deployment. The deployment infrastructure supports the leading industry databases, OSes, and display types, meaning minimal or, in most cases, no changes to the software when switching vendors.
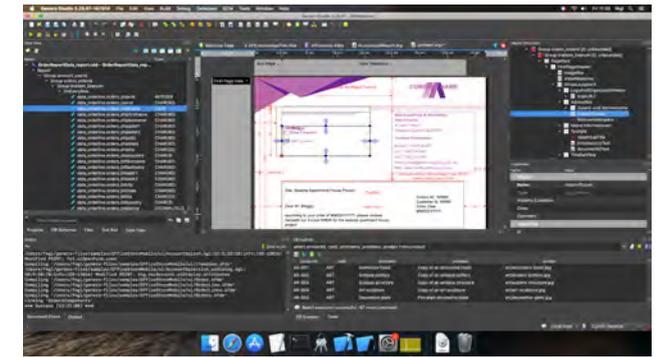
While many programming languages claim platform independence, with varying degrees of truth, Four Js actually achieves it. The 'secret sauce' that delivers this is its virtual machine and 'bytecode'. This virtual machine works on macOS, Windows, Unix, Linux, iOS and Android making apps portable without recompilation. A developer really can compile once and run everywhere. By the same token, developers reduce their test cycle effort, since just one software release covers all environments.

Saving Businesses from "Fickle" Tech Trends

Since Genero code is abstract, it is independent of third-party APIs that change constantly and in some cases vanish. That means the app you develop today will run decades from now. How? "Business logic is sacrosanct. We insulate it from the presentation, database and network layers"—that was the vision that spurred the founding fathers' original concept. Having all cut their teeth in application development themselves, they have lived first-hand through the nightmare of keeping solutions relevant in a world of bleeding-edge technology. Nearly 25 years ago, Jean Georges Schwartz, CEO of Four Js, introduced the idea of a 'Universal Compiler' capable of creating software that would run on disparate operating systems and user interfaces without recompilation. That vision has so far proven beneficial to customers that were running intranet apps developed for Windows and that now run them globally using browsers. Since then, the framework has evolved immensely, but the principles remain intact. "Our goal has always been to protect the business logic, and ensure it lives forever," emphasizes Jenkins.
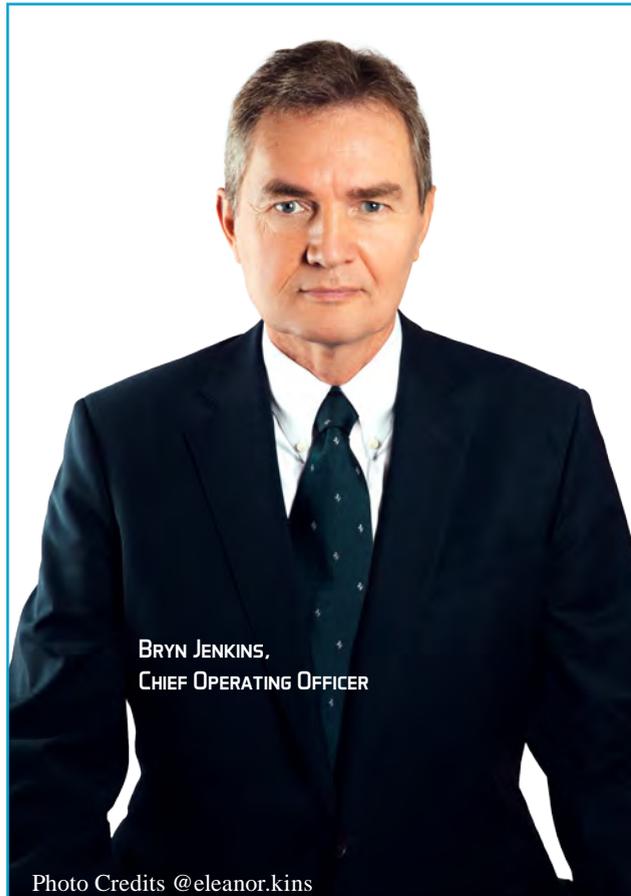

Over the years, Four Js customers have refreshed their hardware, OSes and databases many times without ever having to rewrite their business logic. What does that mean in real terms? Just take the example of a billion-dollar public sector ISV that serves local governments, schools, and 911 dispatch teams across the U.S. and Canada. They had previously invested heavily in the Microsoft Silverlight

API. When Microsoft announced its end-of-life however, they needed to "escape the environment" rather than sell systems to government bodies with software that was no longer supported. With Genero, the move from Silverlight to HTML5 was relatively quick and painless. With no embedded Silverlight calls in their code, not a single line of business logic was rewritten. Jenkins is quick to note that their peers "are still rewriting their way out of Silverlight three years later. While they do that, they are not creating value." Four Js acknowledges that "fickle" tech trends are not going away, and assumes the role with pride of steering clients through the state of constant industry flux. For example, a number of its clients developed their UIs using Adobe Flash, a platform that will be discontinued in 2020. Similarly, the interdependency of various versions of Java APIs has proven to be a nightmare for businesses across the world. If the latest API version is not compatible with an existing configuration, a developer can be forced to do a ton of rewriting. Since Genero's stack is vertically integrated and doesn't require third-party middleware or APIs, developers can steer clear of such issues. "We anticipate where technology is going so that when our community needs to evolve, they can do so immediately and seamlessly. We embed new technology services into the virtual machine and make it available to existing code with abstract calls. Everything you need to develop a modern app is there." adds Jenkins. To that end, Four Js has many clients that developed apps well before the Internet, browsers, Web services or mobile devices. Today those same apps now leverage all of these innovations making them just as fresh and relevant as the day they were 'born'. That makes for invaluable savings in time and dollars.

Genero Enterprise: Low Code and Cross-Platform

The core ingredient that makes Genero tick is its business development language (BDL), an easy-to-learn, legible, business-oriented language accessible to developers of all persuasions. One of Genero's unique features is the use of XML in its presentation layer architecture. This enables the same data to be displayed on heterogeneous graphical

Bryn Jenkins,
Chief Operating Officer

Photo Credits @eleanor.kins

clients simultaneously across different user constituencies. Front-office cash tills run in ASCII VT220 mode, back-office management on Windows connected to Linux servers, while executives access dashboards on tablets or smartphones. By using XML in this manner, Genero provides a portable and flexible state-of-the-art thin client, thereby reducing the need for system administration and specialized API skills.

Business Application Modeler lies at the heart of Genero Studio—its low code development framework. Business Application Modeler lets developers design object workflows from database schemas, insert bespoke code and generate 80-90 percent of the code with the press of a button. Genero Studio provides an intuitive suite of visual tools for creating user interfaces, debugging, analyzing and fine-tuning underlying program logic. Through Genero Studio, developers can create apps for back-end servers, desktop computers, or mobile devices with the same tool. No need to learn different frameworks that require heavy investment in mastering thousands of proprietary API methods. This helps reduce development times and enables enterprises to deploy new apps and quickly adapt to market paradigm shifts. Meanwhile, Genero Mobile, a part of Studio, facilitates the creation of native mobile apps simultaneously for iOS

and Android through "Universal Rendering"—a feature that allows developers to render user interfaces efficiently across Windows, browsers, and handheld devices. This capability to render displays without "reinventing the wheel," is deeply appreciated by clients, per Jenkins. Furthermore, developers can leverage Genero Report Writer to create enterprise-class reports—in rich layouts—and seamlessly integrate those into their existing Java, PHP, or C# applications. Although Genero Mobile and Genero Report Writer are included in the Genero Enterprise package, they are available as standalone products as well.

Transitioning to a Service Model

Presently, Four Js serves over 5,000 end users in close to twenty vertical markets by partnering with over 100 ISVs spread across five continents. While three-quarters of its business comes from ISVs, the remaining engagements are direct with end-users (this requires Four Js to train in-house software development teams.) Four Js has also set up a distribution model to reach certain parts of South America and Europe, where it presently doesn't have offices.

While its product suite has contributed to Four Js establishing a global footprint—with offices in Dallas, Mexico City, London, Paris, Munich, Madrid, and Sydney—the company is currently transitioning into a full-fledged professional services provider. On the services front, Four Js already has a PaaS offering, which allows ISVs to transition to the Cloud "without tears", delegate their security headaches, and refresh their business models so that they can address new markets.

Four Js' roadmap also includes a new Responsive Layout UI modeled on Responsive Web Design techniques (slated for late 2020 launch) that will enable developers to build cross-platform apps with a solitary screen layout. Today, even if the business logic 'fits all,' a developer requires at least two or three screen layouts to manage different desktop, tablet and smartphone aspect ratios. Four Js' Responsive Layout removes this need and draws on a single screen definition file. That way the Responsive Layout engine provides a different user experience depending on the device. Fields can be automatically hidden or exposed, screens can be split, swiped left or right, or can re-orient from portrait to landscape without the need for dedicated code. The virtual machine renders displays in a way that is always clean and readable.

In conclusion, Jenkins provides a peek into Four Js' distant future, "Currently, we are essentially a product company–a small fraction of our business comes from services. In 5 to 10 years, as we drive more and more of our license revenues to subscriptions and the Cloud and get more involved with helping our customers develop their apps, I expect services to represent the lion's share." CA

4js.com

Four Js Development Tools

recognized by CIO *magazine as*

CIO TOP 10 LOW CODE
APPLICATIONS PLATFORM SOLUTION PROVIDERS - 2019

The annual listing of 10 companies that are at the forefront of providing Low Code Platform solutions and transforming businesses

Joe Phillip
Managing Editor

Company:
Four Js Development Tools

Key Person:
Bryn Jenkins,
CEO

Description:
Offers a Low Code Application Platform (LCAP) development framework tailor-made for mission-critical business solutions

Website:
4js.com

Top 10 Low Code Platform Solution Providers - 2019

Application development traditionally involved developers writing long and lengthy codes. The advent of low-code platforms have made this cumbersome process much simpler by following a visual development approach. Designers can now leverage drag-and-drop components and model driven logic through a graphic interface. Low-code allows companies to address important issues such as productivity, lack of skilled resources, and project backlogs. Companies employing low code platforms not only experience cost effectiveness, but also flexibility and speed when addressing customer concerns.

Revamping business models and processes to increase revenue is of utmost importance for companies to survive in a competitive market. Luckily, business owners can now leverage low code platforms to automate their most complex and crucial processes. Streamlining business process using low code platforms allows organizations to maintain privacy of sensitive data and support critical business infrastructures.

Retail enterprises need to be able to embrace change in order to meet the increasing customer demands. The flexibility of low code platform designs makes customers feel more satisfied with a service or product than traditional methods. Using this technology, retailers provide improved services through order fulfillment applications and omnichannel customer experiences. Low code platforms allow companies to cut down delivery times from days to hours.

However, many IT leaders are yet to embrace these tools and enhance their business process. In an effort to help organizations adopt low code platform into their business models, CIO Applications' 2019 edition has put together a list of the leading solution providers for Low Code Platform.

We present to you "CIO Applications' Top 10 Low Code Platform Solution Providers - 2019."