In Pursuit of Relentless Simplicity

A (R)evolution in

Automation and

Software Integration

Contents

Introduction

Software is a key component of any business. It's the artery of any system, connecting hardware to end users while pumping endless amounts of data throughout the organization. Before the dawn of the internet and cloud computing, legacy systems were shackled to static enterprise applications with little to no customization or automation of workflows. As the world became interconnected via the web, Software as a Service (SaaS) was born and enterprise applications moved from static to dynamic, connecting more users, more devices, across all platforms and organizations. Then, with the continuing evolution of SaaS, robust applications–plugins or add-ons for larger enterprise applications–have come online with the promise of performing tasks or functions in harmony with their larger software brethren.

Implementing new software, whether it's a full-scale enterprise applications or smaller applications, *always* carries a risk of failure. In fact, according to the CHAOS Report by the Standish Group,

Modern resolution for all projects					
	2011	2012	2013	2014	2015
Successful	29%	27%	31%	28%	29%
Challenged	49%	56%	50%	55%	52%
Failed	22%	17%	19%	17%	19%

which measures the state of the software development industry, only 29% of all software development projects were successful. Now, there are many factors that contribute to a project's success or failure, but one thing is certain, integration is key. If software is the artery, then software integration is the nervous system sending messages to the brain, essentially translating code between software programs in order to perform tasks, workflows, or automations.
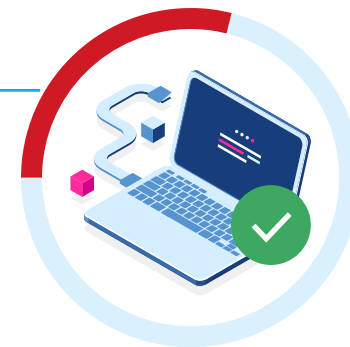
With that in mind, Pantheon partnered with Canam Research in 2019 ("Canam Research Survey") to conduct a survey of business leaders to better understand the state of automation and integration in today's business climate. Titled *The State of Integration & Automation Survey 2019,* the survey looked at top business priorities, the effectiveness of current integration tools, the complexities of today's enterprise applications, and areas of focus for the year ahead, among other topics.

One-hundred percent of respondents participated voluntarily and none were engaged using telemarketing. The results are objective, unbiased, and represent the most current thinking in the industry. By understanding these realities, you can better see the challenges facing businesses to benchmark the current situation.

This report will dive headfirst into some of the glaring issues with software integration and automation. We'll look at application programming interfaces (APIs) versus integration platforms as a service (IPaaS), the difference between low code and no code technology, integration between on-premise and cloud-based solutions, how to automate workflows with little effort, integration with next gen technology, including artificial intelligence and machine learning, security concerns, and so much more.

It's an honest, straightforward look at a topic that can be frustrating, even to a seasoned IT professional. So, without further ado, here is the report, In Pursuit of Relentless Simplicity: *A (R)evolution in Automation and Software Integration.*

Peeling Back the Layers of Software

Modern enterprise applications are robust, albeit complex, pieces of software that can transform a business from operating at a brisk jog to a full out sprint. The complexity of any enterprise applications depends on a wide array of variables, but according to the Canam Research Survey, over 37% of respondents rank their current technology stack as "highly complex." As powerful as enterprise applications are, they cannot perform every task or workflow easily and efficiently. To shore up these deficiencies, firms must purchase additional plug-ins or external software to fill the gaps. Not only do these added programs snowball the issue of complexity, but also, they typically create another layer on top of the enterprise applications, sometimes including additional databases or security measures.

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Example: Your ERP is great at managing the supply chain, inventory, pricing, fulfillment and logistics, but not so great when it comes to marketing or HR. In order to address these deficiencies, you purchase customer relationship management (CRM) and human resources information systems (HRIS) software. Additionally, the CRM and HRIS software includes databases for customers and employees (respectively) and has built-in security measures to avoid unwanted access to sensitive information. The result is a layered or siloed effect where communication is difficult.

CRM

ERP

Security Layer

HRIS
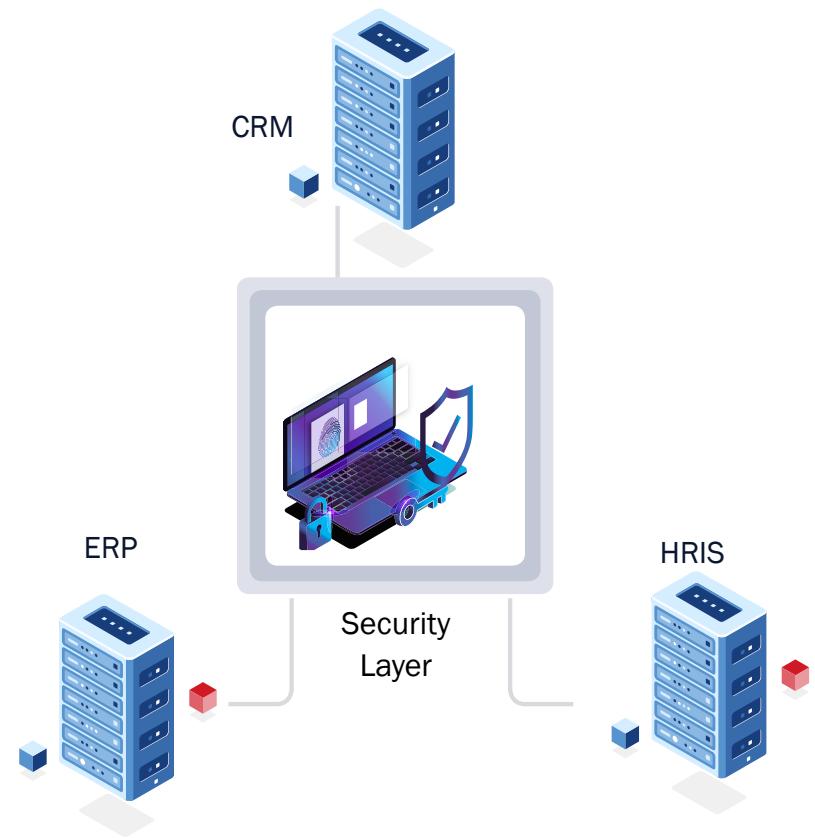
Of course, these additional software programs might lack some functionality as well, and so more software is needed. Furthermore, you may have some programs and databases on-premise, some in the cloud or specific client-focused apps, and others that are employee-facing. The layering continues and the inefficiencies mount. The Canam Research Survey also took this layered approach to software into consideration and asked business leaders to score how complex their enterprise application infrastructure is. It's not surprising that on a scale of one to five (with one being the least complex and five being the most), **the enterprise application landscape had an average weighted score of 4.05.**

Let's Meet
in the Middle

Historically, connecting enterprise applications and other legacy software to newer applications involved utilizing IT professionals–which meant spending large amounts of time and money. This equated to a literal middleman to code and build the interfaces that improved workflows, and automation or even more software to handle the web of interconnectivity between programs.

This is how middleware was born and with it, a whole new industry of software integration.

"Middleware" is a generic term for any software program that integrates multiple programs together. However, it is widely recognized that if multiple software programs are layered (as we highlighted above), then middleware is a vertical slice going through those layers. As robust as middleware can be, the software itself is generally expensive, proprietary and requires an IT professional (or many IT professionals) to install and configure. According to the research firm, Techaisle, cloud integration and budget constraints were two of the top 10 IT challenges facing SMBs over the past year.

2018 TOP 10 SMB — Business Issues, IT Priorities, IT Challenges

Rank	2018 Top 10 SMB Business Issues	2018 Top 10 SMB IT Priorities	2018 Top 10 SMB IT Challenges
01	Reducing opereational costs	Cloud	Budget constraints
02	Improving workforce productivity	Mobility	Mobility Securtiy
03	Improving quality of Products and processes	Managed Services	Data protection/ recovery/ business continuity
04	Increase Profitability	Collaboration	Cloud orchestration/ Integration
05	Increasing business Growth	Analytics	Managing data/ app Integration/ insights
06	Attracting and retaining new customers	Security	Workplace transformation
07	Improving speed to market	Virtualization	Regulatory compliance
08	Managing Uncertainty	Iot	Social networking/ Digitization
09	Managing inventory effectively	HCI/CI	FInding qualified and trained people
10	Creating innovative products	VR/AR	Maintaining current IT infrastructure

APIs vs IPaaS

Moving on from bloated middleware, integration has evolved to more robust application program interfaces (APIs) and integration platforms as a service (IPaaS). They are widely used today to connect local systems (both on-premise and cloud-based) to a multitude of applications and programs. APIs and IPaaS may seem to perform similar tasks, but they are different when it comes to implementation. At their core, both are connectors of data (inputs and outputs), but how they are deployed and the language (syntax) they speak are vastly different.
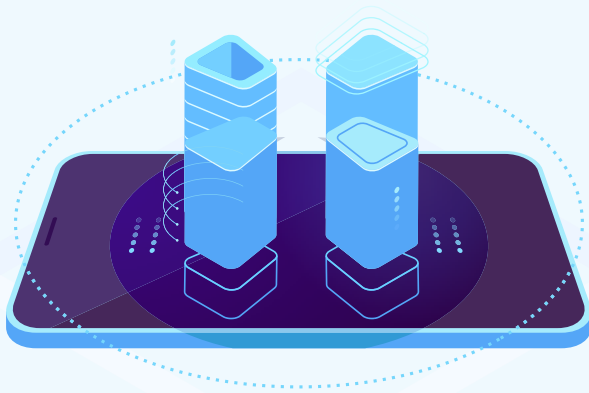
APIs are essentially code that tell a program to retrieve specific information and display it on your software. A classic example of this is Facebook. You might use a Facebook API to allow users to like, share, connect or post content to your site quickly. While this approach may seem simple enough, there are still caveats to consider. APIs are only as good as the programmers who designed them; the developers control the data and the interface. At any time, there may be restrictions or even complete shutdowns of the API, like Facebook's API did in the summer of 2018. Additionally, APIs are subject to gaps in security that make them a prime target for hackers. A 2018 study by the Cloud Security Alliance (CSA) revealed that insecure APIs were the third most severe threat to cloud computing. Finally, in order to implement APIs into your system, there is still the need to code, which of course requires the costs associated with hiring an IT professional.

Whereas APIs are a "one-to-many" integration solution, IPaaS takes it up a level with a "many-to-many" approach. The best way to explain how IPaaS works comes from an article in Tech Target:

An integrated platform as a service (IPaaS) provider is like a contractor who is hired to manage a kitchen renovation. After the homeowner picks out appliances, flooring and lighting, the onus is on the contractor to get the job done. The same can be said with iPaaS, in that the management and governance of the varied services is in the hands of the vendor.

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IPaaS is an ideal solution for integrating on-premise systems with those based in the cloud. It reduces the need to code and, therefore, is much cheaper to implement than middleware or APIs. It also removes the clutter associated with traditional integration platforms, as visualized with the below example from Ithaca College.
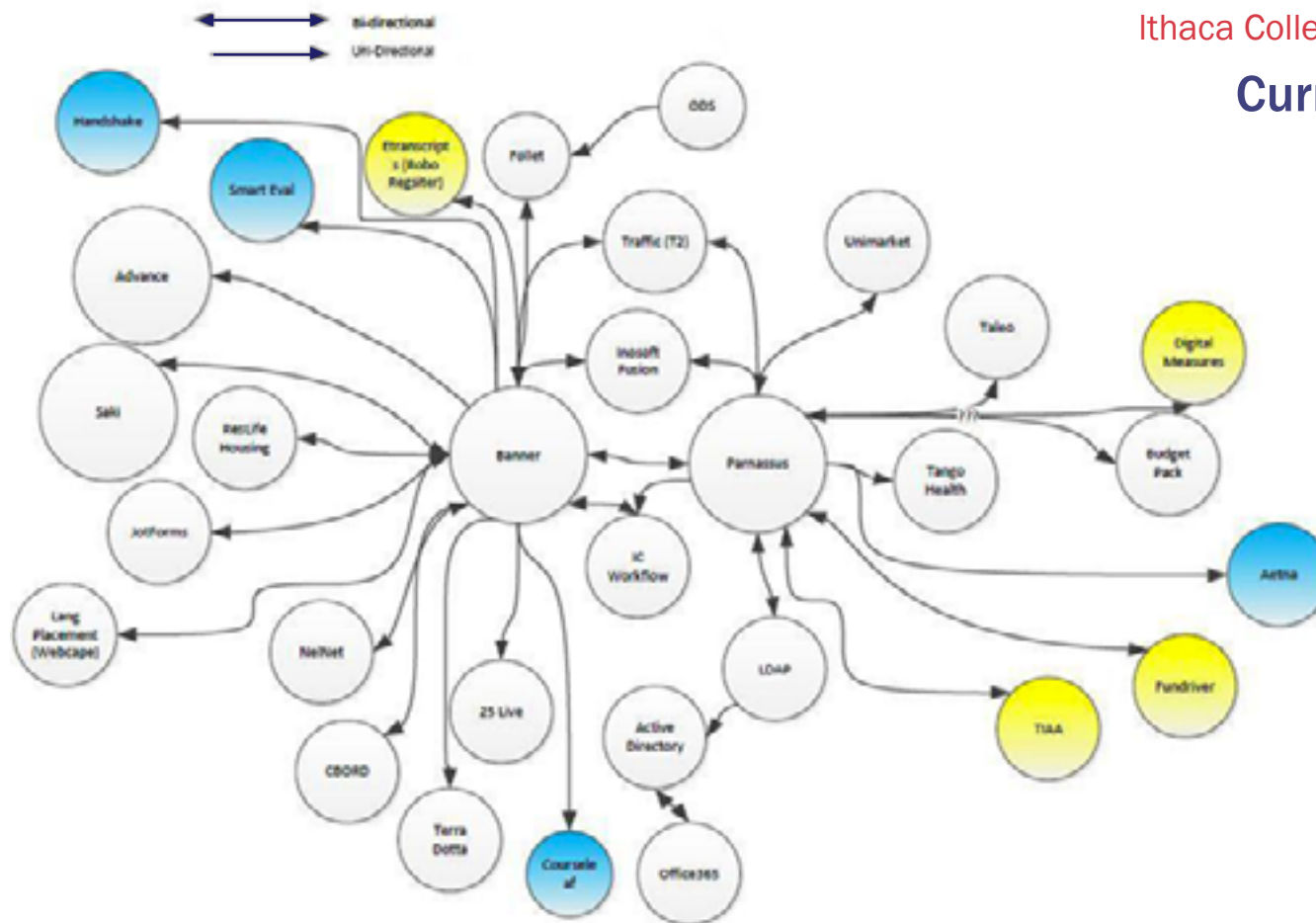
Ithaca College Integration

Current State

Desired State
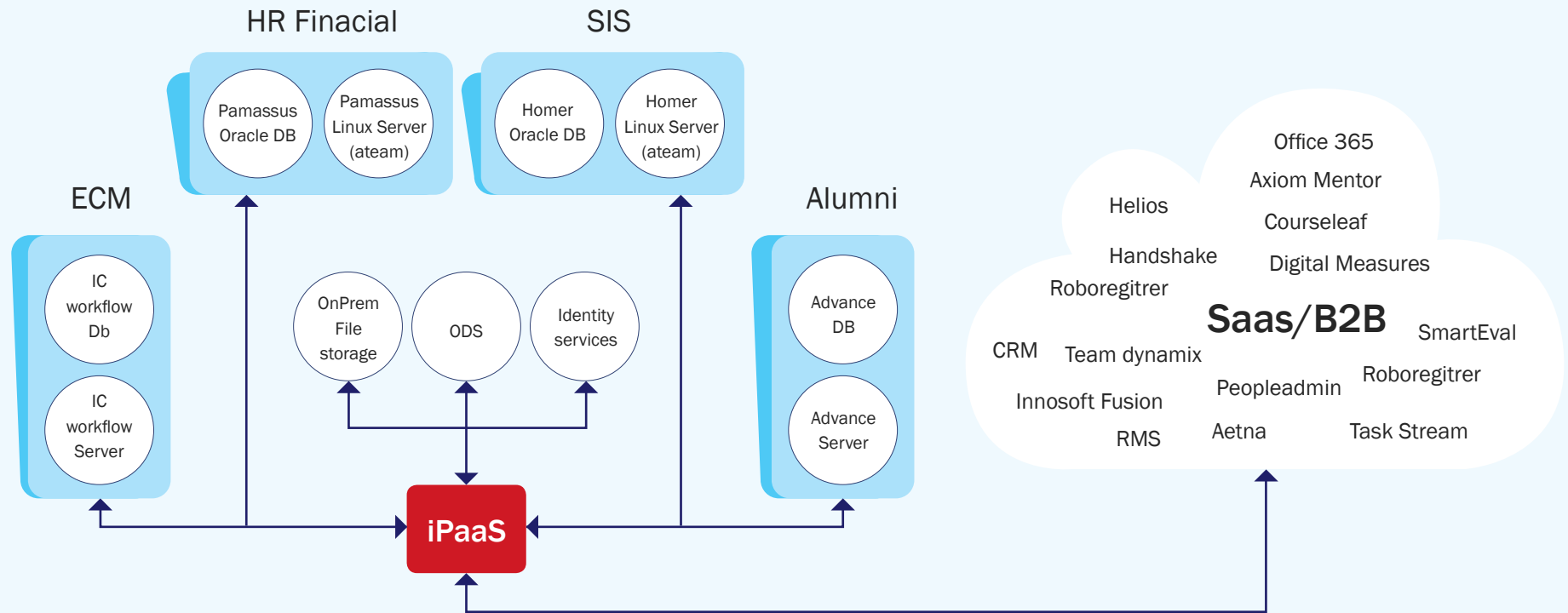
However, IPaaS is not without its shortcomings. Many IPaaS vendors are simply delivering APIs, which comes with restrictions and security issues. Additionally, there is still the need to do some coding. IPaaS systems are commonly referred to as "low code," and aren't built for the non-techie user, therefore requiring assistance from specialized IT professionals (typically at a *significantly* higher rate) to manage. This adds more time and costs associated with the platform. Finally—and most importantly—some IPaaS vendors prepackage software that is proprietary and incompatible with competitors' products, crippling the very benefit iPaaS should bring.

The Future of Integration – Relentless Simplicity

According to the Canam Research Survey, 56% of business leaders stated that complexity and time to implement are main concerns with the automation and integration tools they are now using or are considering using. As we highlighted previously, middleware, APIs and even IPaaS have pros and cons when it comes to complexity and time. But the future of integration – where no coding and limitless automation possibilities abound – is here with a hybrid approach to the integration platform. The no-code approach is agnostic to limitations of application boundaries and database restrictions for data acquisition.

With traditional integration platforms, software, and APIs, there is always some type of coding involved—whether it's native, custom code specific to a firm or industry, or low-code applications dependent on backend support. This creates a major roadblock for organizations who rely on agile development to stay nimble in competitive markets. Additionally, firms are straddled with wasting precious IT resources on connecting the dots, when those resources could be better spent working on new technologies.

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Pantheon offers a strategic low-code/no-code solution with strong integration...Pantheon's offering illustrates the blurring frontier between specialized integration tooling and low-code app development tools, which also provide strong integration capabilities."

- The Forrester Wave™ : Strategic iPaaS And Hybrid Integration Platforms, Q1 2019 The 15 Providers That Matter Most And How They Stack Up by Henry Peyret January 3, 2019.

However, with hybrid integration platforms (HIPs), true no code can be achieved by even the most "citizen developer" while also being robust enough that sophisticated IT professionals can deliver outstanding results. According to the Forrester Wave: Strategic iPaaS And Hybrid Integration Platforms, Q1 2019, "Pantheon's offering illustrates the blurring frontier between specialized integration tooling and low-code app development tools, which also provide strong integration capabilities."

Another area where HIPs outperform the competition is through the reduction of IT costs. From a January 2019 report by the WSJ, "IT spending last year was projected to total $3.7 trillion, up 4.5% over 2017, as more firms began to invest in emerging digital tools, like blockchain, Internet of Things and artificial intelligence, Gartner said." With increasing spending in new technology, firms can rest assured that HIPs will reduce their IT load by nearly eliminating needless support tickets. Without boundaries, end users are free to create their own path towards automation, business process management (BPM) and other applications. Essentially, if they can think it, they can do it.

The path by which end users and IT professionals will integrate software will most often be through the cloud. However, it is important to note that HIPs can also be installed on-premise.

No matter the location, removing software integration barriers increases agility and efficiency. What used to take months, can now be done in days/weeks
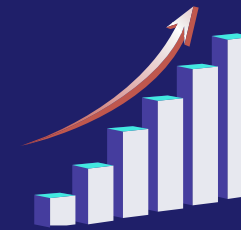
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A Revelation in Automation

Automating workflows has historically been a chaotic mess. Beginning in the late 80s/early 90s, programs were developed to replace pen and paper with electronic forms and filing. These files then followed a road map, using indicators or conditions to reach their intended target. Early automation programs were limited to basic tasks, but with advancements in technology, these programs have become much more powerful and allow firms to run with greater efficiency.

Today's workflow automation software uses dynamic tools like artificial intelligence (AI), machine learning (ML), big data, and cloud computing to reduce the need for human interaction. This is especially true in the customer service industry. Early workflow automation software came in the form of the telephone interactive voice response (IVR). We all know the routine: press 1 for sales, press 2 for service...beep...press 1 to hear your balance, press 2 to speak with an associate...etc. Nowadays, customer service is on the bleeding edge of workforce automation, with the use of sophisticated chatbots and other digital processes. Large knowledge bases backed by AI allow these systems to find the exact information you're looking for and deliver it to you in milliseconds, in most cases eliminating the need for human interaction.

With fewer humans needed to perform routine tasks, firms deploying workforce automation enjoy not only the cost savings in labor reduction, but also the ability to focus on other areas of their business. However, as workforce automation relies on software integration, there are still costs associated with keeping the system running smoothly. Additionally, the Canam Research Survey found that 55% of business leaders stated that the adoption of automation is driven by cost reduction needs.

Even more complex are the workforce automation tools currently being used in today's digital business climate. In addition to chatbots, as previously mentioned, there is robotic process automation (RPA), digital process automation (DPA), BPM and digital case management (DCM). Essentially, every workflow automation task or process has specific factors for input, organizational effect and the degree to which human interaction is needed.

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- According to the Canam Research Survey,

Again, we turn to HIPs to bridge the gap between app building and deployment. Using a true, no code platform like Pantheon's Odyssey Platform, end users--not just IT professionals--can build their own automated workflows by using simple on-screen tools, then set those workflows into motion. As mentioned above, time to deployment is a concern for many firms. In fact, the Canam Research Survey shows that 46% of organizations polled stated it takes between four to six months to fill a request to connect an application, partner or service. By using a HIP with a no code interface, these requests could be fulfilled in weeks or even days.

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Future Proofing

In the world of technology, nothing is static. Bigger, better systems and software are constantly coming online. New technologies, including the internet of things (IoT), edge computing, AI, and ML are driving the next wave of the digital age and again, integration will play a major role. Canam Research asked business leaders about the areas of focus for their organization over the next 12 months. Not surprisingly **57% said they were focusing on integration of systems and applications.**

So, what happens after a firm's next major systems upgrade or they adopt new tech, like edge computing? Not to worry, because HIPs are essentially indifferent to change, with a few caveats. Most HIPs use a "connector" to link an application to a database and retrieve the requested information. However, sometimes the formatting of the database may not match the application and therefore, some coding would be required to resolve the discrepancy.

A few HIPs, like Pantheon's Odyssey Platform, use "task agents" to connect an application to a database. These task agents are similar to connectors, but if there is a discrepancy between the application and the database, Pantheon ensures that the task agents are compatible with both the current and previous versions of the application. No matter the platform, database, backend or frontend code, these task agents find the data, format it and display it just as the user requested––all without the need for coding or contacting the IT department. Simple.

Not only do systems and software change, but so do security standards. Data privacy and protection concerns are at the forefront for both tech organizations and consumers. There are far too many well documented cases of data breaches. In response to data privacy concerns, new laws are being passed with stringent requirements and swift penalties for non-compliance. Most notably, in 2016 the EU adopted the General Data Protection Regulation (GDPR) and started enforcing it in 2018. The US took notice of the GDPR, and now states like California have adopted these rigorous standards. Once again, a robust HIP, like Pantheon's Odyssey Platform, has multiple layers (10 to be exact) of security built in, easing data privacy concerns for both the end user and the organization.

Summary

Software integration is a critical component for every organization doing business in the digital age. Connecting programs and applications, moving data freely, creating automated workflows and processes, and doing so securely–without borders or limitations–is what propels companies who want to accelerate at light speed.

Through the use of sophisticated, no code tools, like Pantheon's Odyssey platform, firms can now put the power of technology back into the hands of the user. The sky is literally the limit.

Relentless simplicity. It's not just an idea, but a motto for which all firms should live by.

See how your business can benefit from relentless simplicity. Contact Pantheon for more information about the Odyssey Platform.