How to Fix Your Integration Problem

AND

Accelerate Digital Transformation

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Introduction: What Is Digital Transformation?

Digital transformation is one of the most popular business trends. But what is it, and more importantly, how does your business achieve it? In short, digital transformation is the application of digital capabilities to processes, products, and assets to improve efficiency, enhance customer value, manage risk, and uncover new monetization opportunities.[1] These transformations are driven primarily by changing technology, as well as by evolving markets and consumer demand.[2] Research shows that two-thirds of Global 2000 companies will, by the end of 2017, have placed digital transformation at the core of their corporate strategies.[3]

Research also reveals that as many as two-thirds of digital transformation projects fail.[4]

Let that sink in for a moment. Businesses feel pressure to implement digital transformation initiatives, but up

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1   http://www.cio.com/article/3199030/analytics/what-is-digital-transformation.html

2   https://www.theguardian.com/media-network/media-network-blog/2013/nov/21/digital-transformation

3   https://www.coxblue.com/21-jaw-dropping-statistics-shaping-digital-transformation-fortunes/

4   http://www.consultancy.uk/news/2656/two-thirds-of-digital-transformation-projects-fail

to 66% of those projects fail. For such a popular trend, those are strikingly depressing odds. Why is the failure rate so high, and how can businesses ensure that their digital transformation projects are successful?

What's holding back digital transformation?

Whether you realize it or not, you have an integration problem. VP of Constellation Research, Holger Mueller explains:

"The problem is, when you build something new, outside of the scope of what you have integrated, you by definition have an integration problem. With the multiple new things happening in the public cloud, you either have an integration problem between existing and new technology, or with multiple clouds, which you have to link together because you have fragmented automation. In other words, if there's innovation happening, then by definition you have an integration problem - and there should always be innovation happening.
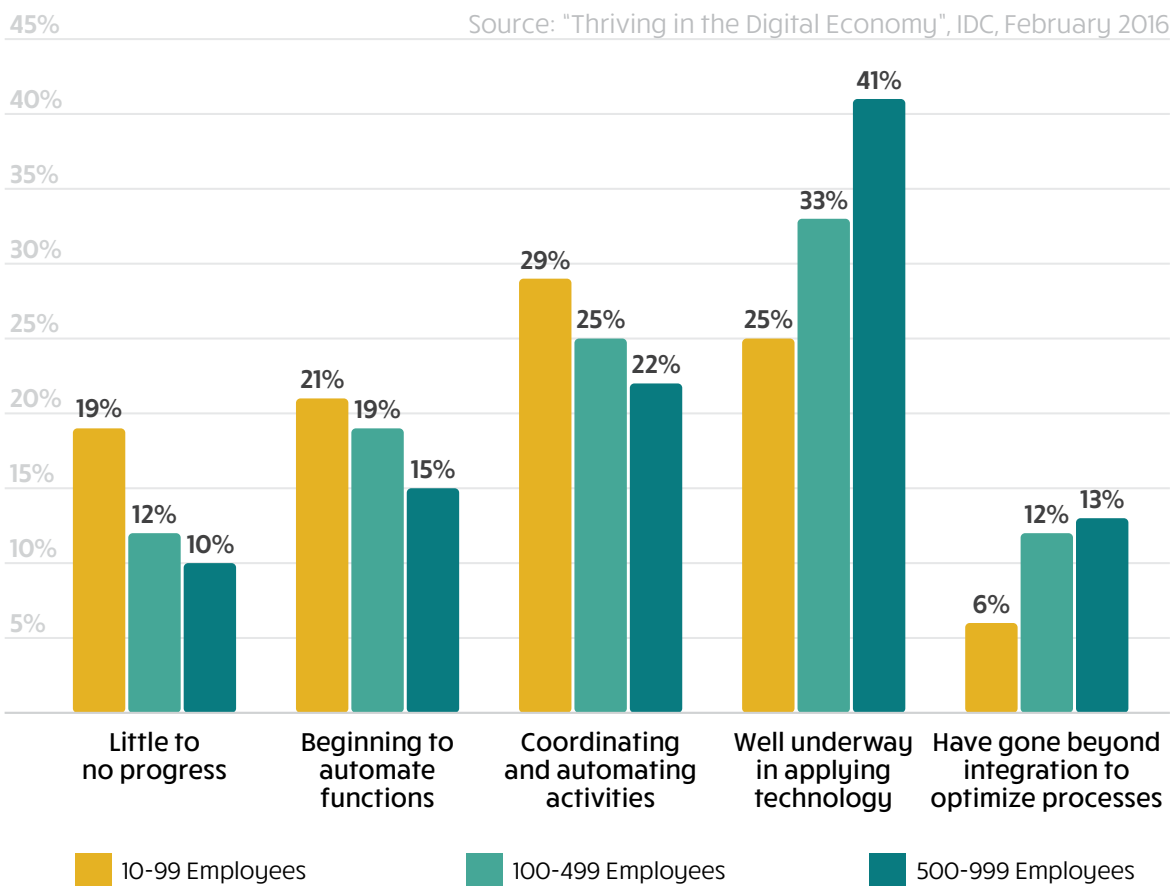
"This creates the need to have an integration tool. The integration tool and process needs to be faster than the scope at which you are

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building new systems, which is what creates integration problems. If your integration tool is not able to move fast enough, you can never catch up!"[5]

Much of this failure is related to the inadequacy of integration platforms to serve a rapidly evolving digital business. The first integration platform appeared in the

5   https://www.workato.com/blog/2017/08/holger-mueller-digital-transformation/

Digital Transformation by Company Size

Source: "Thriving in the Digital Economy", IDC, February 2016

Category	10-99 Employees	100-499 Employees	500-999 Employees
Little to no progress	19%	12%	10%
Beginning to automate functions	21%	19%	15%
Coordinating and automating activities	29%	25%	22%
Well underway in applying technology	25%	33%	41%
Have gone beyond integration to optimize processes	6%	12%	13%

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late 1980s. Known as The Information Bus (TIB), it was designed to be the software analog of a hardware bus. Its goal was similar: getting disparate, complex (in this case, software) components from different vendors to work together seamlessly. TIB prompted a wave of middleware technologies and public companies like Informatica, BEA, IBM, Webmethods, and Oracle, which in turn evolved into more cloud-y versions of those products like Mulesoft, Boomi, Snaplogic, and Jitterbit.

For a long time, the tech industry assumed that they'd solved The Integration Problem, so they moved on to other projects like SaaS, consumerization, and big data. There was a sense that middleware products and technologies had matured and become full-featured. But the urgent and universal digital transformation imperative—and the explosion of cloud apps and APIs unleashed by it—has changed everything. It has become both the biggest opportunity and an existential threat for companies to transform to dynamic digital companies in the mold of innovators like Amazon, Salesforce, Netflix, GE, Starbucks, and Walmart and avoid the fates of a Blockbuster, a Borders, or a Kmart.

All of this has meant an incredibly high rate of change across the board:

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- In the business strategy as new threats and opportunities emerge.

- In the number of apps and cloud, big data and AI technologies being adopted.[6]

- In the markets and competitive landscape.

- And even in their own employee and customer expectations, which are set by the revolution that's happening in the consumer tech in their lives.

Such high level of dynamism has put tremendous stresses on business and IT groups across the company to speed up the painfully slow transformation programs. There are two major problems holding back companies today: one is a **technology gap** in the technical capabilities required to for modern integrations and a **social gap** in the form of Business-IT divide. A new paradigm, intelligent automation, and supporting tooling based on a digital native approach is required to address these gaps and unlock the power of digital transformation in your business.

THE TECHNOLOGY GAP

Traditional integration tools—which were created over a decade ago—are inadequate for both handling this level of dynamism and for supporting digital

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6   https://newsroom.cisco.com/press-release-content?articleId=1714059

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customer journeys and workflows that cut across your apps and extend into your customers' and partners' systems. In fact, a survey shows that businesses see current IT systems as the third biggest hurdle to digital transformation.[7]

1. Customer data is more fragmented than ever.

The average large company now uses close to 1300 applications.[8] Customer data is splintered across hundreds of apps across your IT and business groups. At best, this fragmentation means poor visibility into customers, inconsistent or incorrect info about them stored in different places, and incomplete or irrelevant customer info in the hands of your workers. At worst, the uncontrolled data sprawl increases business and compliance risks due to poor transparency and lack of governance around critical customer information.[9] Either way, it results in subpar or counter-productive digital engagement with your customers—the antithesis of digital transformation. In 2016, an estimated 90% of businesses are working under this fragmented approach.[10]

7   http://ebooks.capgemini-consulting.com/The-Digital-Advantage/files/assets/basic-html/page1.html

8   https://blogs.cisco.com/cloud/shadow-it-rampant-pervasive-and-explosive

9   https://www.coxblue.com/21-jaw-dropping-statistics-shaping-digital-transformation-fortunes/

10 https://blogs.cisco.com/cloud/shadow-it-rampant-pervasive-and-explosive

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2. Integrations are now much more dynamic and pervasive.

It used to be that integrations were between a few departmental System-of-Record apps, like ERP, CRM, marketing, customer support, HR, and ITSM. Once implemented, no one expected these integrations to change much. The traditional integration tools were created for use by IT and specialists to solve this smaller set of integrations between systems-of-record.
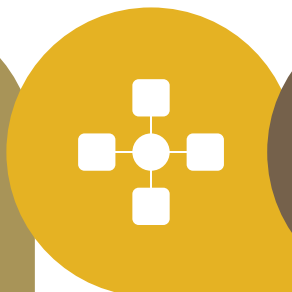
The Transformation of Application Integration
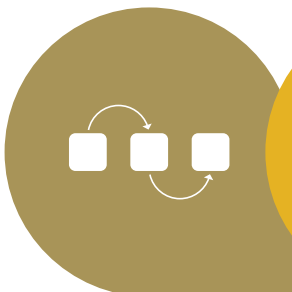
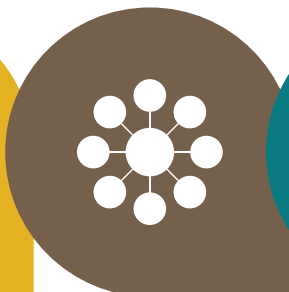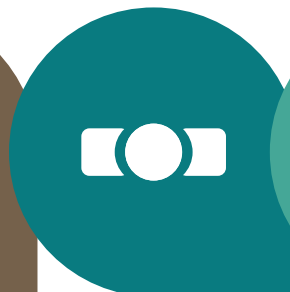| Point-to-Point	Hub-and-Spoke	Bus	Middleware	Microservices
With point-to-point integration, a piece of data goes from one application, gets translated and reformatted, and then travels to the next application, and the next, and so on. While this route is straightforward, things get quickly complicated with more applications and data. The larger the system, the slower the path.	Hub-and-Spoke offers a centralized hub that connects the applications, reformats and translates the data, and then decides what system to send to next. While faster for data, hub-and-spoke integration requires development teams to step in and manually direct the data with runtime components.	The bus method of app integration allows data and functions to travel and systems to speak to each other quickly, and without human interference. This is done through a set of defined standards that allows any new app to accept and emit data (provided it fits the standards).	Buses can serve an enterprise on their own as an app integration service, but middleware can, too. Middleware suites can contain bus or hub-and-spoke (messaging) app integration tools, also.	When it comes to cloud computing, microservices are the emerging standard application architecture. Microservices, if properly done, fix potential data traffic jams by allowing data to travel to applications both in the cloud and on premises.

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Integrations now must also cover hundreds of Systems-of-Engagement (like Slack, Email, Twilio, Zoom, and social media), Systems-of-Insight (like Redshift, Tableau, and Splunk), and Productivity apps (like JIRA, the Google Suite, and Trello) across departments. This scenario is significantly different from what traditional tools were designed for[11], because:

- The *scale* of integrations to be done is much greater and growing rapidly.

- Integrations must happen *fast*—in hours to days, not weeks.

- Integrations need to *change* frequently as business needs evolve and the set of apps change.

- Integrations need to be created by business users—not just IT—as it is the business that's driving the growth of apps.

- Integrations still need to *governed, secure, and compliant*. Otherwise, they're just even more shadow IT.

3. Digital customer journeys and experiences require more than integration.

An intelligent automation platform has to do a lot more

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11 http://www.itbusinessedge.com/blogs/integration/just-the-stats-cloud-and-saas-integration.html

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than back-end integrations of a few big departmental apps. It must be able to:

- Automate digital customer journeys for better CX.
- Deliver smarter, faster process automation with AI and machine learning.
- Empower employees to better serve customers by delivering them timely, relevant information, assist in the automation of their personal workflows across all of their apps.

A) THEY HELP AUTOMATE DIGITAL CUSTOMER JOURNEYS TO DELIVER A MODERN, ENGAGED CX.

Digital transformation, at its heart, is about delivering new products and services to customers in new ways, via new channels, based on new business models to engage them better. Transforming the customer journey with things like streamlined lead prospecting, enhanced customer onboarding, preemptive churn reduction, and accelerated quote-to-cash is at the core of digital transformation.

Workflow automation is essential to defining and orchestrating detailed business processes across all your systems, people, partners, and customers. From a technical requirements standpoint, it means:

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- Complex logic and process automation.

- Across thousands of apps, APIs and technologies.

- Human workflows and approvals.

- Transactional workflows: processing events exactly once, in sequence.

- Rolling back busted transactions via compensating transactions.

- Re-entrant processes to support long running workflows

- Google Docs-like auto-versioning of workflows to make it easy to go forward or roll back.

- Automated error and exception management.

- The ability to process millions of transactions per day and scaling up on demand.

B) THEY DELIVER SMARTER, FASTER PROCESS AUTOMATION WITH AI & MACHINE LEARNING.

Even with a great workflow automation tool, re-inventing the wheel to solve the same problems from scratch that thousands of other companies have already solved is not very smart. As a company with an aggressive timeline, you want to start with the best practices and then apply your secret sauce or point-of-view.

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What would it mean for your business if you could access smart, customizable workflows automatically created for you based on proven results from thousands of other companies doing similar things? An intelligent process automation platform gets you to smarter processes more quickly. It changes the digital transformation game because:

- It applies *machine learning technology* to a rich corpus of popular business workflows being used by thousands of other innovative companies. Such technology would automatically create customizable workflows for you that are smarter and more well-thought-out than you would likely get by starting from scratch.[12]

- It weaves in rich, *third party AI technologies* like Watson, Cortana, and Einstein to create smarter workflows than before.[13] When a customer support request comes in, for example, having Watson analyze the tone, urgency, and emotion of the message can help you dictate smarter automations surrounding how that request is handled.

- It helps you vastly simplify *B2B and business process outsourcing*. Business workflows must extend to engage thousands of companies and individuals in your customer
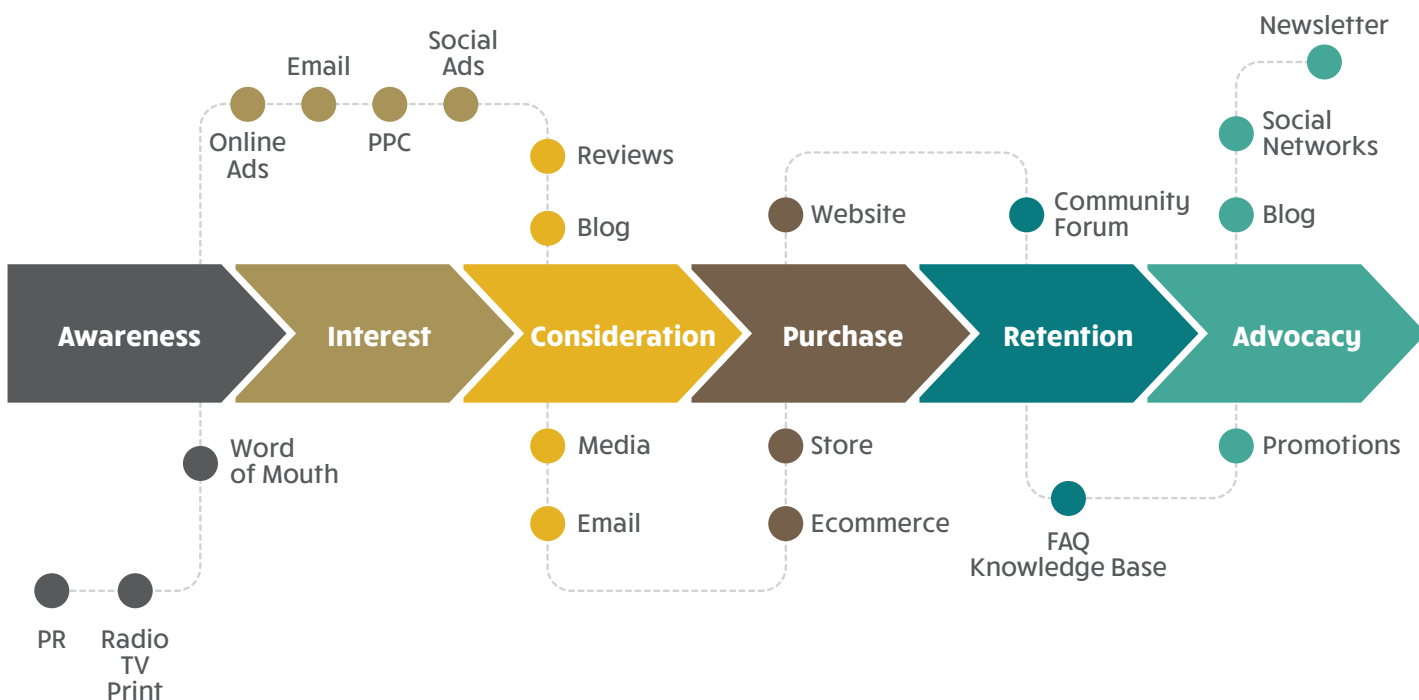
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12 https://www.accenture.com/t20160125T111718Z__w__/us-en/_acnmedia/Accenture/Omobono/TechnologyVision/pdf/Intelligent-Automation-Technology-Vision-2016.pdfla=en#zoom=50

13 http://www.teletech.com/resources/articles/machine-learning-next-generation-insight#.WYSYsNPyuRs

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and partner ecosystems. Brute force, one-at-a-time workflow execution is expensive and error-prone, and it lacks digital engagement. Workflow-as-a-service can drastically simplify operations, reduce costs, and improve engagement.[14]

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14 http://www.computerworld.com/article/3083264/it-careers/automation-not-cheap-labor-is-reshaping-outsourcing.html

The Marketing Funnel & Workflow

C) THEY PUT YOUR EMPLOYEES IN CHARGE WITH THE HELP OF INTELLIGENT WORKBOTS.

The fragmentation of apps and splintering of customer context is not just a back-end or a plumbing problem for IT. It impacts every employee in the company as they work with dozens of business apps to get their jobs done. The customer context needed by a support rep is spread across a dozen different apps—not just in, say, Salesforce. Employees' individual workflows and tasks are fragmented across these apps, with tens of tabs open in their browsers or their mobiles. They can miss time-critical business updates, must constantly app-hop to gather context, and then must open even more apps to take actions before repeating the process all over again. All of this is is incredibly frustrating and productivity-killing. Today's employees and customers expect a smarter, more fulfilling work experience.

Enterprise chat products like Slack, Microsoft Teams, and Facebook@Work are vying to become the single place from which employees can collaborate with coworkers and get most of their work done. But for such platforms to realize these ambitions, they need a digital assistant that:

• **Watches over their apps** and prompts them with the important updates across their apps that are relevant to them and their jobs.

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- **Provides 360° customer context or relevant historical data** around those alerts.

- Helps employees take actions in their apps without leaving the chat console.

- **Does all of this respecting the privacy and security of data** an employee is authorized for in a shared, collaborative work setting—like Slack or MS Teams.

A smart digital assistant empowers employees to be like mini-CEOs, with access to everything they need to get their jobs done quickly and well to enable next-gen customer journeys and experiences.

THE SOCIAL GAP

While fragmented data and the digital platform technology gap are significant hurdles for transformation, perhaps the most important challenge to overcome is the Social Gap or divide between business and IT. True transformation requires that you harness the full power of your entire organization.

Enterprise-grade tools are accessible only by IT and developers, while the digital business initiatives are being driven by business users across the company. Since IT can't keep up with all the integration requests from the business[15], shadow IT has exploded. According to

15 https://www.accenture.com/t20160919T031307Z__w__/us-en/_acnmedia/Accen-
ture/Conversion-Assets/DotCom/Documents/Global/PDF/Technology_10/Accen-

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Gartner, simply managing shadow IT accounted for 35% of IT expenditures in 2016.[16] The proliferation of rogue IT leads to poor visibility, lack of governance, high corporate risk, and an ever-expanding divide between business and IT, with as few as 8% of IT teams having strong knowledge of their companies' unmanaged cloud apps.[17]

IT and business teams using different tools and working at different speeds, on different wavelengths, for different purposes is the biggest obstacle to companies becoming dynamic digital businesses.[18] Bi-modal IT (control OR productivity) is a Faustian bargain; your company needs both to succeed, but 81% of executives believe IT cannot effectively support multiple objectives at once.[19]

More than ever, businesses need an intelligent automation tool that bridges this divide, aligns the organization, and makes it viable for business users to create robust automations in collaboration with IT for governance, compliance, transparency, and security. Business users should also be able to operate these

ture-Multi-Speed-IT-PoV.pdf#zoom=50

16 http://www.itproportal.com/2015/11/20/why-shutting-down-shadow-it-stifles-innovation/

17 http://www.itproportal.com/2015/11/20/why-shutting-down-shadow-it-stifles-innovation/

18 http://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/

19 https://www.accenture.com/us-en/insight-calibrating-multi-speed-it

integrations themselves. An intelligent automation platform must be accessible to all and work differently, drive teaming and governance between business and IT, and leverage the power of business community to execute faster and smarter.

Going digital requires 'digital literacy' far outside of IT.

Business users must be able to automate workflows themselves or maintain those created by IT so they can make ongoing changes as needed. "Citizen developers" and "citizen integrators" are among the most misused terms[20] when it comes to integration platforms, because:

- The majority of all "citizen developers" come from a strong technical background[21], but a normal Salesforce admin or a marketing analyst simply cannot use the "citizen integrator" tools out there. These analysts and admins know their apps, but not things like XML, XSLT, REST, SOAP, or deployment concepts that traditional tools require them to know. Intelligent automation tools must present an entirely different, business-friendly level of abstraction around these technologies.

- An intelligent automation tool must present a rational, humanized API-level interface so an average business

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20 https://www.forbes.com/sites/jasonbloomberg/2016/05/16/citizen-developers-low-code-is-now-enterprise-class/#3cd13b723b4f

21 https://devops.com/meet-citizen-developer/

user can create workflows and maintain them.[22] With the existing integration tools, implementing an integration or a workflow that is logically ten steps when written down on paper often devolves into 100 micro-steps with a ton of look-ups and low level API calls in order to get the job done. Such integrations are hard to create, impossible to understand, and painful for IT to maintain— let alone business users.

- Exceptions are the norm in enterprise automations. Handling these should not force work back onto IT. Business users must be able to operate the integrations themselves in a governed, secure manner. A digital native approach means *automating the automations* to recover quickly from data or process errors. It supports an intuitive ability to review errors, fix the data or process, and re-run them. An intelligent automation platform lets you set custom recovery and notification policies to proactively detect and resolve the inevitable data, process, or other exceptions.
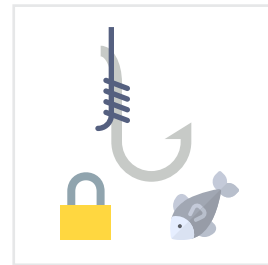

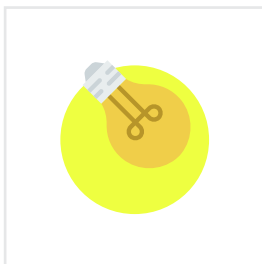22 https://www.ibm.com/developerworks/websphere/library/techarticles/1503_clark/1305_clark.html

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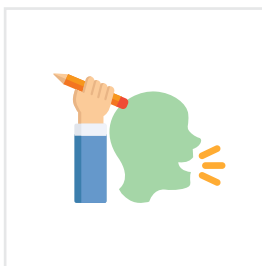Functional Skills**
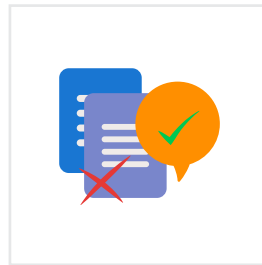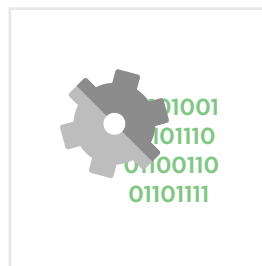
**Critical Thinking
and Evaluation**

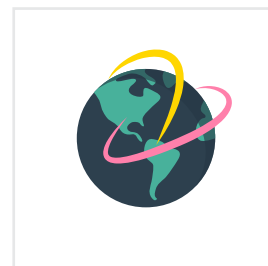**E-safety**

Creativity

Digital
Literacy

**Cultural & Social
Understanding**

**Proficient
Communicator**

**Curate
Information**

Collaboration

Digital platforms must work differently!

You don't go to your Instagram account and "provision" it for certain number of photos, videos, shares or comments; you don't think about setting it up for "peak loads"; you don't configure (or be forced pay for!) "high availability" so the service is Always On for you; and you certainly don't operate the sharing your posts and feedback! However, today's cloud iPaaS and ESB tools work exactly this way. This is incredibly backwards in today's enterprise platforms!

An intelligent automation tool—which enables speed, agility, and dynamism with beautiful experiences—must be based on a digital native architecture and *operate* very differently in 2017. It must work more like an Instagram account (where everything but taking the pictures is automatic) than like a camcorder, where you have to do literally everything.

An intelligent automation platform, one that is based on a digital native architecture:

• **Is highly productive, fun, and delivers instant feedback and quick gratification.**

- **Has instantaneous "deployment" of workflows**—not a long, technical process. No need to think about or set up nodes, servers, atoms, or molecules!

- **Scales automatically.** No guesswork needed around "provisioning" (and paying for!) sufficiently overhead server capacity that sits unused 99% of the time.

- **Is Always On, just like your Instagram**. Redundancy and high-availability are built in, not options you can opt into and be forced to pay for.

- **Recovers automatically from common errors** like API rate limits, network disconnect, API going down, and expired authentication tokens.

- **Drives secure, collaborative, fine-grained IT governance.** There will not be real empowerment without security and compliance to corporate standards. Security and empowerment are two sides of the same coin.

- **Supports a role-based collaborative integration project lifecycle** across the different different roles and orgs.

- **Detects automatically, anomalous data traffic patterns** (via ML) and prompts admins with courses of action.

- **Operates in real time with built-in analytics.**

- **Is open (composable)** to enable complex business workflows from simpler ones.

AUTOMATIONS AT SCALE MUST BE COMMUNITY-POWERED.

Automating workflows mainly consists of two things:

- Thinking about the automation challenge and designing a solution for how you will automate.
- Transcribing this design into a workflow automation tool to actually create and run workflows.

The traditional approach to automations is that of a lone-wolf working on their own on the integrations. They (typically an integration specialist) rethinks integrations from scratch, implements them from scratch, deploys them from scratch, and then hands them over to business or IT. This is how developers worked, too, until GitHub and the open source movement came along. Now developers are vastly more productive by collaborating with other developers and leveraging the work that thousands of others have done. GitHub solves not just the productivity problem around writing code; it also solves the thinking problem around designing what code to write!

Similarly, intelligent automation for digital businesses demands a *collaborative community of business users* within your company, across companies and industries—a GitHub for automations. Community-powered integrations:

- Have more thought behind them and are more whetted than lone-wolf integrations.

- Are at least 10x faster to get done and function better out of the gate.

- Are secure and protect your unique value differentiation via private integrations and automations that cannot be shared back to the community.

SO WHAT DOES AN INTELLIGENT AUTOMATION PLATFORM LOOK LIKE?

Intelligent automation, then, is necessary for digital transformation. But choosing an integration solution can seem daunting, especially to the less technically inclined. How do you know whether a platform is intelligent or not? When you're evaluating an integration platform, ask:

- Can it connect all your cloud apps, ground apps, databases, processes, and APIs?

- Is it enterprise-grade? Can everyone, both business and IT, use it in harmony?

- Does it use machine learning to creates better integrations, faster?

- Can it create smarter automations with AI tools like Watson and Einstein?

- Does it auto-scale? Is it always on? Does it instant deploy, and are there absolutely no DevOps required?

- Does it feature automated error repair and rollback, with no data loss or duplicates?

- Will it deliver relevant info and better workflows with AI-powered chatbots?
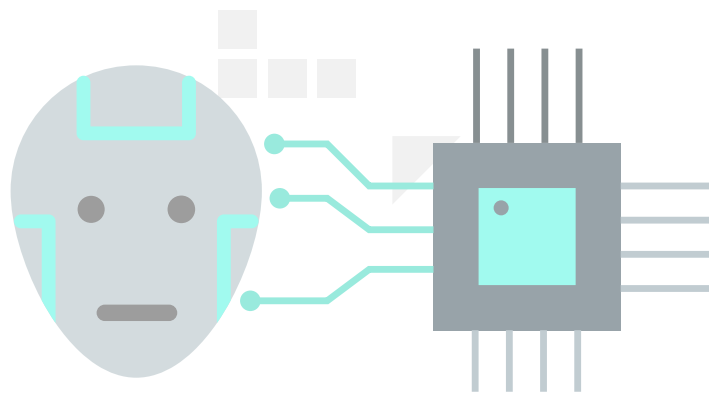
Conclusion

The opportunities for businesses to grow through intelligent automation are huge. When lines-of-business users are empowered to work more efficiently with integrations that are governed, secure, and easy to implement, the productivity gains offer a significant return on investment.

Before investing in digital transformation, organizations need to determine whether their integration solution meets the requirements of a dynamic digital business. Can business users create integrations to fit their rapidly changing needs? Are those integrations still centrally governable by IT? Does the platform require strong technical knowledge, or is its UX user-friendly to app admins and non-specialists? Is there a robust community pool of replicable integrations? If the answer to these questions is "no," it's not a an intelligent platform. And without intelligent automation, a digital transformation project will likely fail.

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