

FORRESTER®

The Total Economic Impact™ Of IBM Cloud Pak For Integration

Cost Savings And Business Benefits
Enabled By Cloud Pak For Integration

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Executive Summary

As businesses accelerate their digital transformation journey, the need to integrate applications and data sources across hybrid cloud environments and existing legacy software becomes increasingly important. To improve customer experiences, create new digital products and services, and address security and governance complexities, integration platforms are key.¹ Enterprises must invest in an end-to-end integration platform to accelerate integration, reduce costs, and drive new engagement models.

IBM Cloud Pak® for Integration is a hybrid integration platform that supports multiple styles of integration within a single, unified experience. IBM Cloud Pak for Integration unlocks business data and assets as APIs, connects cloud and on-premises applications, delivers messaging and events reliably and in real-time, and transfers data at high speed across any cloud, all with enterprise-grade security, scalability, and reliability.

IBM commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Cloud Pak for Integration.² The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Cloud Pak for Integration on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five customers across financial services, healthcare, professional services, and technology industries with experience using Cloud Pak for Integration. For the purposes of this study, Forrester aggregated the experiences of the interviewed customers and combined the results into a single **composite organization**.

Prior to using Cloud Pak for Integration, the customers leveraged custom integrations, in-house solutions, and point solutions. They noted that these methods were manual, laborious, and expensive, which prevented their organizations from building and

KEY STATISTICS



Return on investment (ROI)

151%



Net present value (NPV)

\$4.1M

deploying integrations fast enough to meet business objectives. One customer previously leveraged multiple competitor solutions, which prevented cross-organizational collaboration and support, led to two to three times the amount of work, and required expensive licensing.

After investing in Cloud Pak for Integration, the interviewed customers described improved integration integrity; increased production system uptime; and decreased effort required to find, diagnose, and fix issues. Cloud Pak for Integration enabled these organizations to develop more revenue-generating applications and services, which fueled innovation and better customer experiences. Furthermore, the same organizations greatly accelerated their integration speed, reduced the time to onboard new developers, and added efficiency via Cloud Pak for Integration's easier integration management that provides better visibility, administration, and automated monitoring.

Organizations also found that built-in security features like access control and data encryption decreased risk and streamlined application security processes. Finally, consolidating multiple styles of integration into a single platform reduced technology sprawl and eliminated licensing, infrastructure, and support from legacy solutions.

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits for the composite include:

- **Up to 60% reduction in production outages.** IBM Cloud Pak for Integration improved the quality and resiliency of integrations across application, API, enterprise messaging, event streaming, and high-speed data transfers. Interviewed customers said that they reduced production application downtime by 40% to 60%, equating to improved reliability cost savings of \$1.9 million over three years.
- **Incremental income increase of \$1.1 million.** By leveraging Cloud Pak for Integration, organizations improved efficiency and developed more revenue-generating applications and services than they could in their previous environment. This drove greater innovation and improved employee and customer experience. Innovation improvements drove \$1.1 million of additional incremental income over three years.
- **Reduction in integration development time of 35% and faster developer onboarding time of 66%.** IBM Cloud Pak for Integration accelerated integration development speed because of its low-code, drag-and-drop developer interfaces, prebuilt and reusable integrations, shared asset repository, and automation features. Training was easier because of its simplified tooling and framework. Integration developer labor efficiency and decreased onboarding costs resulted in \$1.2 million in savings over three years.
- **Up to 60% time savings in managing integrations.** Cloud Pak for Integration improved integration management by minimizing maintenance and troubleshooting, bettered visibility and administration, and automated monitoring and alerting. IT operations spent less time managing integrations and drastically reduced time spent investigating issues with application and API services. Dashboards provided valuable insights into integration performance, and automated alerts accelerated remediation and increased uptime. IT operation labor savings equate to a cost savings of \$1.7 million over three years.
- **Reduction in application security labor of 10%.** Cloud Pak for Integration offers robust security frameworks and capabilities, such as end-to-end encryption, identity and access management, and consistent security policies to comply with security and privacy regulations. With IBM, organizations reduced security incidents and vulnerabilities, maintained stronger compliance controls, streamlined audit reviews, reduced the chance of breaches, improved brand reputation and the quality of business services, and reduced security labor workloads. The reduction in need for application security labor is worth \$336,000 over three years.
- **Technology cost savings of nearly \$568,000.** Consolidating application integration, API management, message queue (MQ), and event streaming into one platform minimized technology sprawl, allowing organizations to decommission legacy integration and security technologies. This saves \$568,000 in legacy licensing, infrastructure, and support over three years.

Unquantified benefits. Qualitative benefits experienced by customers include:

- **Enhanced user and customer experience.**
- **Reduced chance of breach.**
- **Improved compliance.**
- **Improved scalability and agility in the cloud.**
- **Seamless integration across hybrid cloud infrastructure.**
- **Improved allocation of higher-skilled labor to value-added tasks. Better employee experience.**
- **Enhanced developer experience.**
- **IBM ecosystem efficiencies.**
- **Increased contact center efficiencies.**

Costs. Risk-adjusted PV costs include:

- **Subscription cost of \$2 million over three years.** The IBM Cloud Pak for Integration subscription is modular with fees based on flexible deployment basis. Organizations can choose from a list of required capabilities, including API management, application integration, and enterprise messaging. The composite organizations use all core functionalities included in this model.
- **Implementation and ongoing costs of \$626,000 over three years.** Most interviewed organizations leveraged a mix of internal labor and professional services (from either IBM or other consultancies for the implementation of IBM Cloud Pak for Integration. Implementation length ranged from 2.5 to 5 months. Training varied depending on organizational requirements and internal skill levels, from multiday courses to center of excellence (COE) and train-the-trainer approaches.

\$6.8 million over three years versus costs of \$2.7 million, adding up to a net present value (NPV) of \$4.1 million and an ROI of 151%.

The customer interviews and financial analysis found that a composite organization experiences benefits of



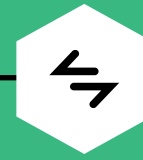
ROI
151%



BENEFITS PV
\$6.8M

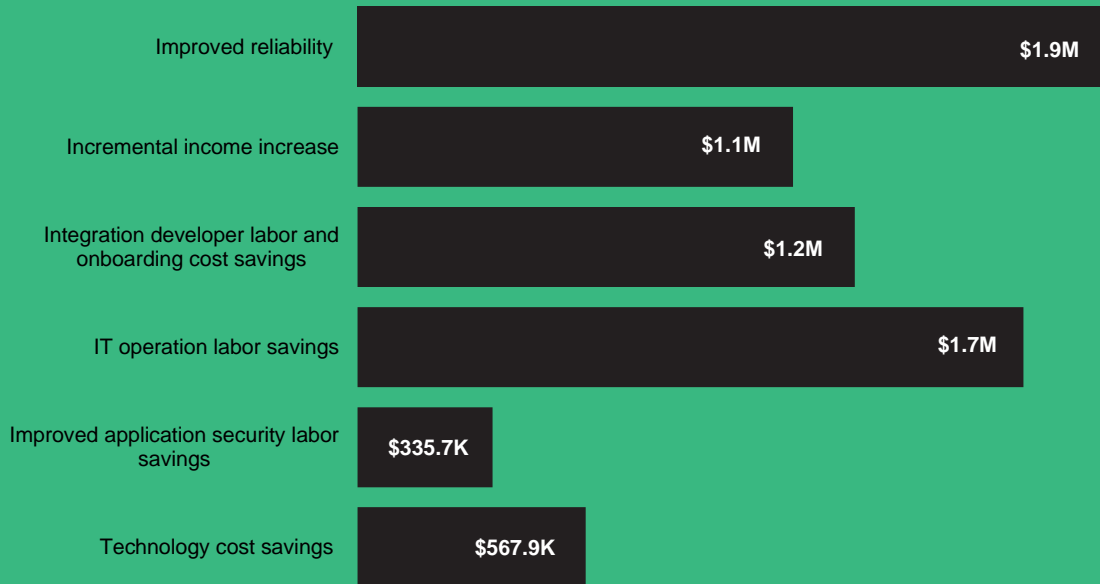


NPV
\$4.1M



PAYBACK
<6 months

Benefits (Three-Year)



“We were on seven different technology stacks with seven customized integration teams. Now, everything’s on one technology stack, one integration framework, one integration platform, and one development language. There’s only one way of doing things.”

— CTO, professional services organization

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Cloud Pak for Integration.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Cloud Pak for Integration can have on an organization.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by IBM and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Cloud Pak for Integration.

IBM reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

IBM provided the customer names for the interviews but did not participate in the interviews.



DUE DILIGENCE

Interviewed IBM stakeholders and Forrester analysts to gather data relative to Cloud Pak for Integration.



CUSTOMER INTERVIEWS

Interviewed five decision-makers at organizations using Cloud Pak for Integration to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewed organizations.



FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



CASE STUDY

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The IBM Cloud Pak for Integration Customer Journey

■ Drivers leading to the Cloud Pak for Integration investment

Interviewed Organizations

Industry	Region	Interviewee	Revenue	Solutions used
Financial services	US headquarters, global	Infrastructure tech lead	\$50 billion+	IBM App Connect API Connect MQ DataPower Gateway
Healthcare	US headquarters, global	Director of IT	\$5 billion+	IBM App Connect API Connect
Technology and professional services	US headquarters, global	CISO	\$4 billion+	IBM API Connect MQ
Professional services	US headquarters, global	CTO	\$1 billion+	API Connect MQ
Technology	US headquarters, global	CISO	\$100 million+	IBM API Connect MQ

PRIOR ENVIRONMENT

Before IBM Cloud Pak for Integration, interviewed organizations fell into one of the following environments:

- **Custom integrations, in-house solutions, and point solutions.** These tools were manual, laborious, and expensive, and they prevented the organization from building and deploying integrations fast enough to meet business objectives. Integration teams were siloed depending on the type of integration and line of business. This resulted in poor collaboration and utilization of integration developers across the organization. Custom integrations were error-prone, impacting integration integrity, system reliability, customer experience, and security.
- **Multiple competitor solutions.** Siloed integration teams prevented cross-organization collaboration, support, and ability to efficiently solve issues. Often, two or three times the amount of redundant work for integration creation meant wasted efforts and introduced more vulnerabilities. Supporting multiple vendor licenses was expensive. One customer noted

that legacy solutions did not provide adequate specialized support for healthcare organizations.

KEY CHALLENGES

In their prior environments, the interviewed organizations struggled with these challenges:

- **Lack of efficiency due to siloed integration teams, systems, tools, and processes.** Prior to implementing Cloud Pak for Integration, interviewees used an overly complex combination of integration solutions across different integration types, lines of business, and developer and IT teams. The multiple solutions created silos between integration developers and subsequently limited cross-functional collaboration due to differences in technology and processes. Developers often built nontransferable integrations with little governance and had specialized knowledge that could not be shared across teams. Developing integrations using multiple platforms meant more time learning legacy solutions and less time innovating.
- **Inefficient and expensive manual integrations.** Custom integrations built on homegrown

environments and open source frameworks were riddled with inefficiencies. Developers created and changed integrations manually and in non-standardized environments. Doing so was slow, laborious, and sacrificed quality as developers lacked guardrails such as prebuilt templates and frameworks to expedite creation and replication. Integrations were challenging to monitor and maintain. Ultimately, organizations could not scale integrations to keep up with their modernization and transformation goals.

The CISO of a technology and professional services organization stated: “We did a lot of custom integration, meaning we wrote scripts and programs or applications to integrate apps. Obviously, that’s not a scalable solution. The time and effort required to build an integration without an integration platform greatly exceeded the time that it takes to set up an integration using Cloud Pak for Integration.”

The CTO of a professional services organization stated that custom integrations were too expensive to serve their strategic business objectives: “It is very expensive to modernize interfaces and systems, and it’s challenging to

keep them updated and patched. We realized that creating and maintaining custom integrations did not support the strategic direction of our business.”

“We were prioritizing our development projects when we realized that we had a whole lot of efforts in the backlog to integrate these legacy applications which had long timelines and were labor intensive. We had to change the way we did our integrations to be innovative and build all the features and functionality.”

CISO, technology and professional services

“Our previous integration solutions were a nightmare. Before we needed to develop each integration individually which would create headaches. With IBM, you can build and manage APIs all in one shared place.”

VP, infrastructure tech lead, financial services

- **Performance, reliability, and availability suffered using legacy solutions, leading to poor customer experience and revenue impact.** The quality and integrity of integrations in prior states led to poor performance, reliability, and availability. Prior to using IBM Cloud Pak for Integration, unexpected production outages were common for a technology and professional services organization, leading to degraded customer experience, lost revenue, and huge efforts to find, diagnose, and fix issues. The CISO stated: “With custom-developed integrations, oftentimes with applications —either third-party apps or firmware — we might do a major upgrade where 40% or 50% of the time, it resulted in some type of production outage. We’ve quantified the costs for us to be down for

some of our major assets, and we're talking about tens or hundreds of thousands of dollars a minute type of numbers."

Additional infrastructure and labor resources were required to operate on-premises legacy solutions, resulting in high operating expenses and limiting user and customer business continuity. The CISO in a technology organization stated: "[In our legacy solution], there was always a concern about performance. When you rely on in-house solutions operated in data centers, you need to be prepared with the hardware and servers to keep the solution available and expandable in case of disaster and to provide business continuity. This creates additional expenses for hardware, operational, and other maintenance needs. It creates additional work for the production operation."

The CISO in the same technology organization continued: "Memory management and fault tolerance of the [legacy] solution was one of the main challenges. If we had spikes in user access and other types of requests, we needed to significantly expand the environment. We had many cases where we lost data [due] to the inability to process it like we can now with IBM MQ."

- **Custom and non-standardized integrations led to security vulnerabilities.** Creating integrations across multiple prior solutions introduced wider attack surfaces and vulnerabilities. Developer and security teams spent more time conducting static and dynamic application security testing for custom-developed integration code. A technology and professional services organization found an average of 2.3 critical vulnerabilities in staging and production environments before IBM, exposing them to higher chances of data breaches.

“One of the big issues that we had from a security perspective was around custom-developed code. We would have to do static application security testing of that code, and then we had to do manual pen testing and code review. All of that went away when we invested in Cloud Pak for Integration.”

CISO, technology and professional services

WHY IBM CLOUD PAK FOR INTEGRATION

The interviewed organizations searched for a solution that could:

- **Consolidate legacy competitor solutions into one environment.** The healthcare organization had nearly a dozen hospital sites with separate IT teams and environments. It leveraged several different competitor solutions for integrating medical services applications and data. The director of IT told Forrester their main strategic objective was to standardize integrations across all sites, breaking down barriers between developer teams and reducing total licensing costs.

The director of IT stated: “We had a different competitor [cloud solutions provider] solution for each hospital in our legacy environments. Our effort was to really think about how we can use IBM services and their professional services to standardize our integration solutions across the entire enterprise.”

“IBM makes the lives of our support staff easier because it is simpler to use compared to the three different systems that we had previously.”

Director of IT, healthcare

- **Support digital transformation, modernization and hybrid cloud initiatives.** Interviewed organizations required a modern, scalable cloud solution that could support their efforts to modernize legacy applications, support hybrid cloud environments, and expand development into microservices and cloud architecture. Cloud Pak for Integration was a natural fit for

interviewed organizations facing the significant effort of modernizing applications and developing greenfield, cloud-native integrations. The CISO of a technology organization said: “We have a strategic objective to move into the public cloud. IBM helped us to move parts of our service to a more cloud formation operation model.”

The CTO in a professional services organization told Forrester: “We wanted to achieve a level of automation and continuous improvement in relation to AI. One of the things IBM Cloud Pak solutions allow us to do is set a number of thresholds and rules that drive continuous data flow and automated recovery of [the] system.”

“We use IBM Cloud Pak for Integration to integrate of all our business and data applications very easily from the cloud. It is the simplest system, especially compared to the complex system we had previously.”

VP, infrastructure tech lead analyst, financial services

- **Enable automation, real-time integration, and new features for increased innovation at scale.** Due to its automation features and added benefits of labor efficiencies, Cloud Pak for Integration enabled interviewees to accelerate integration development and spend more time creating new integration features

The director of IT in a healthcare organization stated: “One of our goals was to introduce new features that would give us enhancements beyond our prior environment. We went with IBM

Cloud Pak for its resiliency, its ability to scale, [and] it being a secure environment — we felt that IBM had a leg up in that space. We are also using IBM for some healthcare products, so that enables our scaling objective and introduces pricing advantages.”

- **Unlock data from legacy applications.** As organizations move to the cloud, there emerge greater business risks in locking data within legacy environments. With IBM, interviewees can unlock the full extent of their data to provide better insights, services, and applications. The CISO in a technology and professional services organization stated: “We wanted to leverage the functionality and/or data within the legacy apps. Modernizing our stack and improving our integrations were important because we are trying to provide our customers with better insights into data stored in legacy apps.”

The CTO in a professional services organization stated: “[Cloud Pak for Integration] gives us the ability to expertly handle the majority of use cases that our clients present us with in a lot more productive and cost-efficient manner.”

- **Reliable vendor partner services and support.** IBM was the clear choice for customers who required enterprise solutions to provide enhanced reliability, support, and credibility. A CISO at a technology organization stated: “We provide services to large enterprise customers, which means we need to have a reliable solution and reliable support. There is a risk of having small or open source solutions because if they get updated or changed, or if something happens, you may not get proper support from them at all. With IBM, we know that we will get reliable support, and the solutions would be available, tested, and maintained.”

“We wanted to leverage some of the assets that we have that are legacy apps from this modern tech stack that we’ve created. In order to do that, we need to actually integrate that modern tech faster and those apps with our legacy apps. We brought Cloud Pak [for Integration] to build those integrations faster.”

CISO, technology and professional services

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the five companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The global, multibillion-dollar organization provides B2B services to small and medium-sized businesses and enterprise customers. It relies on a robust technology environment and production applications to service customers. The composite organization's long-term strategic objective is to enable cloud migration and digital transformation. Another core objective is to modernize legacy environments requiring integrations with various legacy, usually on-premises, environments, to connect with modernized services. The composite organization also set out to expand cloud-native development, which requires integrating APIs and microservices on modern, scalable cloud resources.

The developer teams under analysis include 50 developers who create integrations across internal, external, and third-party applications and APIs. Maintenance and monitoring are conducted by a separate team of 25 IT operations FTEs. There are 20 application security engineers who oversee security testing and remediation related to applications.

Deployment characteristics. Before IBM, the composite organization relied on multiple siloed developer and IT operations teams to build and manage integrations. Developer teams heavily relied on custom integrations, as well as point solutions and low usage of competitor solutions. Integration management was conducted by IT operation teams to ensure business continuity. To accomplish business modernization goals, the composite

organization required a robust, centralized cloud solution to migrate existing integrations and continue building new integrations.

The composite invests in Cloud Pak for Integration as a unified solution across the organization for application, API, and messaging integrations. With IBM Cloud Pak for Integration's pay-for-what-you-deploy licensing model, the composite organization realizes advantageous scalability and flexibility.

Key assumptions

- **\$5 billion in annual revenue**
- **50 integration developers**
- **25 IT operation FTEs**
- **20 application security engineers**

Analysis Of Benefits

■ Quantified benefit data as applied to the composite

Total Benefits						
Ref.	Benefit	Year 1	Year 2	Year 3	Total	Present Value
Atr	Improved reliability	\$612,000	\$765,000	\$918,000	\$2,295,000	\$1,878,302
Btr	Incremental income increase	\$225,000	\$450,000	\$675,000	\$1,350,000	\$1,083,584
Ctr	Integration developer labor and onboarding cost savings	\$412,399	\$503,524	\$594,649	\$1,510,572	\$1,237,812
Dtr	IT operation labor savings	\$540,000	\$675,000	\$810,000	\$2,025,000	\$1,657,325
Etr	Improved application security labor savings	\$135,000	\$135,000	\$135,000	\$405,000	\$335,725
Ftr	Technology cost savings	\$102,000	\$204,000	\$408,000	\$714,000	\$567,859
	Total benefits (risk-adjusted)	\$2,026,399	\$2,732,524	\$3,540,649	\$8,299,572	\$6,760,607

IMPROVED RELIABILITY

Evidence and data. Interviewed organizations told Forrester that using IBM Cloud Pak for Integration improved the quality and integrity of integrations across application, API, enterprise messaging, event streaming, and high-speed data transfers. In prior environments, integrations often led to outages and degradation of production services, impacting customer service, revenue, employee experience, and productivity, while requiring huge efforts in finding, diagnosing, and resolving incidents. After investing in IBM Cloud Pak for Integration, customers reported drastic reductions in production system downtime and degradation.

- The CISO at a technology and professional services firm told Forrester that major or large upgrades resulted in production outages 40% to 50% of the time. Depending on client impact, these outages could cost tens to hundreds of thousands of dollars per minute, not including rollback and break-fix labor across cross-functional teams to troubleshoot and resolve.

With IBM, the organization eliminated these types of outages.

The CISO stated: “We found that when we upgraded one of our legacy apps or a third-party app to a new version, oftentimes the custom-written integrations would break and would result in a production outage. When we use the Cloud Pak integrations, especially the out-of-the-box integrations, they’re basically designed to map out an update so that when you make changes to either side it then gets remapped, and the integration continues to function.”

- A professional services organization improved uptime across all systems for one of its managed services clients by 90% to 95%, with 33% attribution to IBM Cloud Pak for Integration. Maintenance windows were reduced from 45 minutes every couple of days to 45 minutes a year across 4,000 applications and hundreds of interfaces.

In addition, the organization drastically reduced customer calls and tickets, improved average handle time, and consolidated swivel-chair

interfaces, driving customer experience and reducing call center labor. According to the CTO, this “night and day” transformation ultimately saved \$142 million a year for their client.

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumes the following about the composite organization:

- Prior to implementing IBM Cloud Pak for Integration, the composite organization realizes 18 unplanned outages per year related to application and API integrations.
- The average unplanned outage lasts 20 minutes.
- The cost of each minute of unplanned outages is \$5,000, accounting for external revenue impact and internal detection, diagnosis, and remediation efforts.
- With IBM Cloud Pak for Integration and increased annual adoption, the composite organization reduces the percentage of outages by 40%, 50%, and 60% in Years 1, 2, and 3, respectively.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

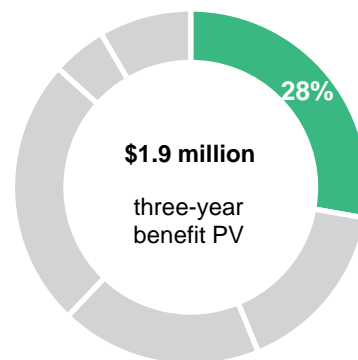
- The number of unplanned outages, the associated average response time, and the severity of impact and cost of each outage.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$1.9 million.

“API Connect side of Cloud Pak for Integration offers better value. It’s more feature-rich. It allows better integration. From an operational perspective, there is an increase in quality. We are less bound by any kind of performance spikes.”

CISO, technology

Improved Reliability



Reduction in unplanned outages using IBM Cloud Pak for Integration
40% to 60%



Improved Reliability

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of unplanned outages related to application and API integration per year before IBM	Composite	18	18	18
A2	Average number of minutes per unplanned outage	Composite	20	20	20
A3	Average cost of outage per minute	Composite	\$5,000	\$5,000	\$5,000
A4	Annual cost of outages before IBM	Composite	\$1,800,000	\$1,800,000	\$1,800,000
A5	Reduction in outages with IBM	Interviews	40%	50%	60%
At	Improved reliability	Composite	\$720,000	\$900,000	\$1,080,000
	Risk adjustment	↓15%			
Atr	Improved reliability (risk-adjusted)		\$612,000	\$765,000	\$918,000
Three-year total: \$2,295,000			Three-year present value: \$1,878,302		

INCREMENTAL INCOME INCREASE

Evidence and data. IBM Cloud Pak for Integration played a leading role in enabling organizations to create net-new revenue-generating capabilities. Before IBM, organizations struggled to unlock data across siloed data sources. Developers were limited in the new features and capabilities they could create with applications and APIs.

Through new capabilities provided across IBM Cloud Pak for Integration’s feature set, as well as improved efficiency in using those features, organizations developed more revenue-generating services and applications than they could in their previous environment, driving greater innovation, employee experience, and customer experience.

- A financial services organization created eight to nine new applications, five of which were customer-facing, after investing in IBM Cloud Pak for Integration. The infrastructure tech lead told Forrester that they modernized a mortgage service application that had siloed teams to collect and review customer data. With IBM, they integrated all customer data across simple

software as a service (SaaS) to complex applications to accelerate loan processing, increase customer conversation, and generate greater revenues.

- A professional services organization built an app store service where customers could leverage pre-built AI and machine learning (ML) models. The organization used Cloud Pak for Integration to build all the interfaces and allow the models and microservices to be consumed externally. The application improved revenue time-to-value, increased customer retention, and led to an account renewal worth more than \$50 million.
- The CISO of the professional services organization stated: “IBM helps us improve customer stickiness. Losing just one client is a huge revenue hit for us.... It also gives us the opportunity to go and reuse those AI and ML models as part of new applications that we build for clients. It’s not just revenue recognition — it’s also revenue acceleration because now, instead of it taking six months to realize the solution, it only takes me two months.”

- A technology and professional services organization used IBM Cloud Pak for Integration to leverage data stored in legacy applications to strengthen core customer-facing applications integrated with internal and third-party applications. The CISO stated, “Using IBM provides our customers with better data insights because we can enrich the data that we have in our modern apps with some of the data that we have locked away with the legacy apps.”
- A healthcare organization created a real-time Health Level Seven (HL7)–supported integration that provides real-time patient data, enabling clinicians to more quickly screen, diagnose, and treat patients, leading to better overall patient care.
- A CISO in a technology and professional services organization told Forrester that they generated new revenue because they could offload two entire integration developer teams to more value-added tasks due to increased developer efficiency. The CISO explained: “Because it takes a third of the time to do an integration, we’ve been able to do a lot more of them, which means we’ve been able to add a lot more features and functionality to our applications through integration than we would have otherwise. It’s allowed us to implement more revenue-increasing changes, because we don’t have to do the manual integration work.”

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumed the following about the composite organization:

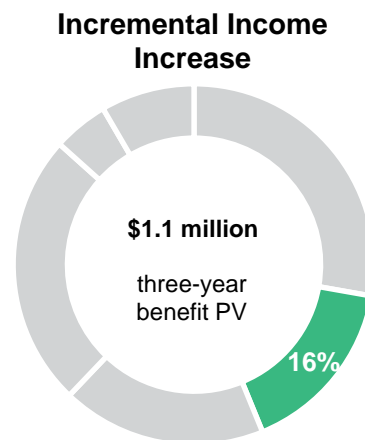
- With IBM Cloud Pak for Integration, the composite organization creates two, four, and six new customer-facing applications and services in Years 1, 2, and 3, respectively.

- The average annual revenue associated with each new application and service is \$10 million.
- Forrester understands that increased revenue generation from new applications and services is not entirely attributable to the IBM Cloud Pak for Integration investment, as people, processes, and other technology factors in. Therefore, only 15% of the financial impact have been included in this economic analysis and ROI calculation.
- The composite organization has a 10% operating margin.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

- The number and revenue impact of new applications and services created can vary depending on each organization, its use cases, and vertical.
- How comprehensively customers utilize the platform’s offerings will also affect the revenue impact.

Results. To account for these risks, Forrester adjusted this benefit downward by 25%, yielding a three-year, risk-adjusted total PV of \$1.1 million.



Incremental Income Increase					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Cumulative new customer facing applications and services developed	Composite	2	4	6
B2	Average revenue associated with each application	Composite	\$10,000,000	\$10,000,000	\$10,000,000
B3	Revenue attribution to IBM Cloud Pak for Integration	Interviews	15%	15%	15%
B4	Operating margin	Composite	10%	10%	10%
Bt	Incremental income increase	B1*B2*B3*B4	\$300,000	\$600,000	\$900,000
	Risk adjustment	↓25%			
Btr	Incremental income increase (risk-adjusted)		\$225,000	\$450,000	\$675,000
Three-year total: \$1,350,000			Three-year present value: \$1,083,584		

INTEGRATION DEVELOPER LABOR AND ONBOARDING COST SAVINGS

Evidence and data. IBM Cloud Pak for Integration accelerated integration development compared to legacy environments because of low-code drag-and-drop developer interfaces, prebuilt and reusable integrations, shared asset repository, less time spent testing, more automation features, increased interoperability, better documentation, and scalable infrastructure to support growing capacity needs.

In prior environments, interviewed customers had multiple, siloed tooling depending on integration style and use cases. Consolidating and rationalizing legacy solutions into IBM standardized integrations into a unified platform, improving integration developer collaboration; minimizing switching costs; and enabling development across various use cases without sacrificing productivity or quality.

Training new integration developers was faster and easier using Cloud Pak for Integration as the tooling and framework were less complex (i.e., low-code interface, prebuilt integration, GUIs) as compared to legacy environment tools. Cloud Pak for Integration also enabled better documentation leading to less-

siloed workers, higher knowledge retention, and greater productivity.

Interviewees cited the following results in improving integration developer efficiency and onboarding:

“Most of the integrations require about one-third the amount of time that we previously allocated to dev teams for integration. Before, we were building the integration from scratch. Now, we’re essentially going in contact and drag-and-drop it, and mapping, and it’s done.”

CISO, technology and professional services

- **Prebuilt and reusable integrations that accelerate development.** Interviewees leveraged IBM Cloud Pak for Integration's out-of-the-box, prebuilt integrations to simplify and accelerate integration time. The CISO in a technology and professional services firm told Forrester: "IBM has a straightforward integrated developer environment to create the integrations. There's plenty of out-of-box integrations or basically prebuilt integrations, and custom integrations are much easier to map the functionality and/or data fields using the graphical user interface."

- **Greater collaboration.** IBM Cloud Pak for Integration improved developer collaboration. An interviewee from a financial organization implemented Cloud Pak for Integration across various use cases to collect and integrate customer loan application data into one cloud, integrate trading applications, and facilitate and exchange data across the IT infrastructure. As such, unifying integration tooling was crucial to facilitate better cross-organization collaboration.

The infrastructure and tech lead attested: "We now have one platform to create, secure, and manage share of API so that's what we use for trade applications right now, the system. People are more productive and collaborative."

- **Higher developer utilization.** In legacy environments, integration developers were limited by their specific knowledge and integration solutions. With IBM Cloud Pak for Integration, developer skill sets were standardized, allowing organizations to transfer developers across teams and use cases without sacrificing quality and efficiency.

The CTO at a professional services firm explained: "Our developers have become a lot more productive in that there's not a lot of rework or redesign that has to be done. We can pull 20 people working on clinical applications and move

"IBM helps considerably because we are creating APIs with a simplified method and built-in toolkit. It's not all this custom development that we were doing before. The Cloud Pak for Integration exposes data, microservices, and enterprise applications, so it focuses on reuse. We're able to develop a lot faster. I would say we've probably cut development time by 40% to 50%."

CTO, professional services

them over to a pharmacy benefit management system, and they're going to be productive on day one. There's nothing new to learn. There's the business domain to learn, but in terms of the actual integration work, it's a reasonable skill set."

- **Faster time-to-value.** Better developer efficiency and productivity ultimately drove shorter integration times, increased time-to-value, and greater business results. A healthcare organization improved overall integration time by 20% to 25% from their legacy competitor solution environment. The IT director stated: "When constructing an API from the solution interface to help manage data flow, for example, IBM allows for data transfer from one program to another in a more compatible and reliable format. It simplifies and speeds up development. On average, we're probably around 20% to 25% faster than what we were doing previously."

A technology and professional services organization described how their organization reduced the time to create an integration from three months to one month using Cloud Pak for Integration. The CISO said: “Using IBM Cloud Pak for Integration has taken down the average effort to create an integration from three months and several sprints worth of dev team efforts down to one or two sprints swept out in two weeks to a month. It’s a significant change in time-to-value because we’re basically rolling out that capability two months earlier than we otherwise would.”

- **Reduced total labor required for building integrations.** Interviewed organizations reduced the labor requirements for creating integrations. The CTO of a professional services organization told Forrester that rationalizing and consolidating into the IBM ecosystem, including IBM Cloud Pak for Integration, dramatically reduced the complexity of their managed IT estate and allowed a workforce reduction from 600 to 350 developers.

“Two out of our 133 dev teams were completely dedicated to integrations in our prior environment. Now we don’t even have a dedicated integration team at all, because these can be done fairly quickly and don’t even necessarily require an experienced developer to create the integrations with.”

CISO, technology and professional services

A technology and professional services organization completely repurposed two teams of 10 developers whose sole function was creating and maintaining integrations. Integration abilities were democratized across the other 133 developer teams, reducing total effort by nearly 66%.

- **Faster developer onboarding.** Customers explained that training and onboarding new developers was faster and easier. A professional services firm reduced the time to onboard new developers from three months to three weeks — a 75% improvement. The CTO said, “It’s a lot easier to onboard people because getting them up to speed is a lot faster since they don’t have to learn multiple different tools or frameworks.”

“It used to take us three months to get a developer productive because of all the training they had to do, all the toolsets they had to learn, and the business knowledge they had to learn. Now it takes three weeks for them to be productive.”

CTO, professional services

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumes the following about the composite organization:

- There are 50 developers involved in integration within the composite organization.
- On average, each developer spends 30% of their time creating applications and API integrations.

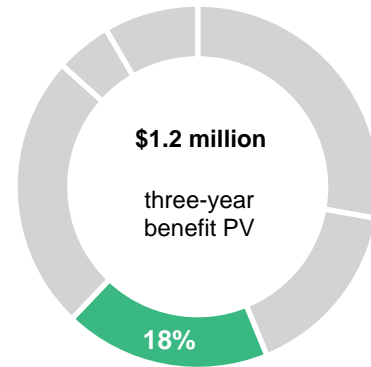
- With IBM Cloud Pak for Integration, developers reduce the time to create integrations by 35%, 45%, and 55% in Years 1, 2, and 3, respectively, scaling with the increased adoption of IBM Cloud Pak for Integration.
- Forrester assumes that each FTE recaptures 50% of their time saved into productive tasks.
- The average fully burdened salary for a developer FTE is \$135,000 annually.
- There is an annual 10% churn in developers.
- With IBM Cloud Pak for Integration, developers can be onboarded 66% faster.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

- The amount of labor dedicated to creating integrations may be higher or lower.
- Developer salary may vary depending on several factors, including skill level, seniority, and geography.
- The number of developers susceptible to churn may be higher or lower.
- Onboarding time varies by organization and by developer requirements.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$1.2 million.

Integration Developer Labor And Onboarding Cost Savings



Reduction in integration time using IBM Cloud Pak for Integration
35% to 55%



Integration Developer Labor And Onboarding Cost Savings					
Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of developers involved in integrations	Composite	50	50	50
C2	Time dedicated to creating application and API integrations	Composite	30%	30%	30%
C3	Reduction in integration time using IBM Cloud Pak for Integration	Interviews	35%	45%	55%
C4	Productivity recapture	Composite	50%	50%	50%
C5	Fully burdened annual salary for developers	Composite	\$135,000	\$135,000	\$135,000
C6	Subtotal: reduced developer costs	$C1 * C2 * C3 * C4 * C5$	\$354,375	\$455,625	\$556,875
C7	New integration developers due to churn	$B1 * 10\%$	5	5	5
C8	Time to onboard before IBM (weeks)	Composite	12	12	12
C9	Faster time to onboard	Interviews	66%	66%	66%
C10	Time to onboard after IBM (weeks)	$C8 * (1 - C9)$	4	4	4
C11	Subtotal: avoided onboarding costs	$C7 * (C8 - C10) * (C5 / 52)$	\$103,846	\$103,846	\$103,846
Ct	Integration developer labor and onboarding cost savings	$C6 + C11$	\$458,221	\$559,471	\$660,721
	Risk adjustment	↓10%			
Ctr	Integration developer labor and onboarding cost savings (risk-adjusted)		\$412,399	\$503,524	\$594,649
Three-year total: \$1,510,572			Three-year present value: \$1,237,812		

IT OPERATIONS LABOR SAVINGS

Evidence and data. IBM Cloud Pak for Integration improved integration management by minimizing maintenance and troubleshooting, improving visibility and administration, and automating monitoring and alerting. With Cloud Pak for Integration, IT operations in interviewee organizations spent less time managing integrations and less time investigating issues with application and API services. Dashboards provided valuable insights into integration performance. Automated alerts accelerated remediation and increased uptime.

Interviewed customers cited the following results in improving integration developer efficiency and onboarding:

“IBM increases improved our IT operations efficiency by 40% to 50% compared to our previous tools. IBM has better documentation, requires less testing, and is enterprise-ready, allowing our IT operations to spend less time on certain activities and to utilize tools faster.”

CISO, technology

- **Better monitoring, administration, and visibility.** Integrations built in IBM Cloud Pak for Integration required less maintenance than previous states of custom integration or multiple-competitor solutions. An infrastructure tech lead at a financial services organization reduced their IT operations workforce from 100 FTEs to 50 FTEs during the course of their digital transformation efforts of adopting IBM, largely driven by IBM Cloud Pak for Integration. The infrastructure tech lead stated: “Everything is an automated platform where it manages everything. We are more productive and labor costs have gone down by 2x. Our workforce has gone down to 50 people in operations; before, we used to have more than 100 people.”

The director of IT in a healthcare organization told Forrester: “The APIs that we have are a one-time setup, are set to run on their own, and do not require a lot of maintenance. We have dashboards that give us visibility into overall performance, how our backups are doing, how our apps are connecting, and how our APIs are doing. We also receive alerts if things aren’t going the way we need them to go. Monitoring is just easier.”

With IBM, interviewees gained a greater breadth and depth of integration performance metrics, improving business insights and enabling organizations to improve their services. The

CISO in a technology and professional services organization said, “When you build an integration and you move it into production, it keeps track of the use of that integration and tons of metrics related to that integration that we didn’t previously have.”

- **Less time troubleshooting problems.** Integrations created on IBM were more reliable and stable, especially when leveraging prebuilt templates. As such, IT operations spent less time investigating various problems. A technology organization saved 60% of time spent on troubleshooting and investigations, increasing productivity for those resources. The CISO stated, “IBM significantly reduces our investment in troubleshooting different problems of operation, specifically on the message bot side, which is a critical side of the application.”

Automation within IBM Cloud Pak for Integration reduced complexity, contributing to a professional services organization’s ability to significantly reduce maintenance windows and labor. The CTO stated: “Maintenance windows have reduced considerably. For some of our client accounts, we can reduce the amount of maintenance down to something like 45 minutes a year. It used to take 45 minutes every couple of days”.

“IBM brings significant quality in administration, performance, monitoring, and overall operations.”

CISO, technology

“IBM has better visibility and administration. We have reduced the overall time spent on troubleshooting and investigation by 50% to 60%.”

CISO, technology

Modeling and assumptions. To reflect the interviewees' experiences, Forrester assumes the following about the composite organization:

- There are 25 IT FTEs dedicated to maintaining integrations.
- With IBM Cloud Pak for Integration, each FTE reduces the time to maintain integrations by 40%, 50%, and 60% in Years 1, 2, and 3, respectively, as the consumption of IBM Cloud Pak for Integration scales.
- Forrester assumes that each FTE recaptures 50% of their time saved into productive tasks.
- The average fully burdened salary for an IT operations FTE is \$120,000 annually.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

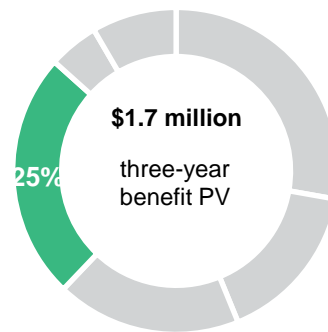
- The amount of labor involved in maintaining integrations will vary.
- IT operations salary may vary depending on several factors, including skill level, seniority, and geography.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$1.7 million.

Time savings managing and monitoring integrations
40% to 60%



IT Operation Labor Savings



IT Operation Labor Savings					
Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Number of IT operations FTEs dedicated to maintaining integrations	Composite	25	25	25
D2	Percentage of time savings in managing integrations with IBM Cloud Pak for Integration	Interviews	40%	50%	60%
D3	Productivity recapture rate	Composite	50%	50%	50%
D4	IT operations FTE fully burdened annual salary	Composite	\$120,000	\$120,000	\$120,000
Dt	IT operation labor savings	$D1 * D2 * D3 * D4$	\$600,000	\$750,000	\$900,000
	Risk adjustment	↓10%			
Dtr	IT operation labor savings (risk-adjusted)		\$540,000	\$675,000	\$810,000
Three-year total: \$2,025,000			Three-year present value: \$1,657,325		

IMPROVED APPLICATION SECURITY LABOR SAVINGS

Evidence and data. IBM Cloud Pak for Integration significantly bolstered security across networks and data sources. Integrations created in custom and siloed competitor solution legacy environments required extensive security oversight and introduced a greater number of vulnerabilities. IBM Cloud Pak for Integration offers robust security frameworks and capabilities such as end-to-end encryption, identity and access management, and consistent security policies to comply with security and private regulations. With IBM, organizations reduced security incidents and vulnerabilities, maintained stronger compliance controls, streamlined audit reviews, limited the chance of breaches, improved brand reputation and reduced security labor workloads.

Interviewed customers cited the following results in improving application security engineer productivity:

- **Reduced false positives.** Integrating data across on-premises and cloud environments widens attack surfaces and may introduce false positives during incident response. By using Cloud Pak for Integration, interviewed organizations reduced false positives, which

increased security engineer productivity. The CTO in a professional services origination told Forrester: “Cloud Pak for Integration uses the IBM DataPower Gateway, which is an encrypted gateway that reduces cybersecurity incidents. It is a lot more secure than prior solutions. One of our customers had 100,000 attacks a day with hundreds of false positives that the security team had to go and investigate. And now, we’re down to something less than 30 false positives a day.”

- **Reduced vulnerabilities.** Vulnerabilities spanning both east-west and north-south traffic across multiple data stores and hybrid environments pose significant threat to organizations’ security posture. Furthermore, identifying and remediating those vulnerabilities is expensive and time-consuming.

A technology and professional services firm eliminated vulnerabilities associated with custom integrations. The CISO stated: “Before, we did static and dynamic application security testing of our custom-developed integration code. On average we would find 2.3 critical vulnerabilities and 5.6 high-rated vulnerabilities in the code that had to be remediated. Those vulnerabilities may have been in production for some period of time before they were discovered. With IBM Cloud Pak for Integration, we find zero issues.”

- **Better identity and access management.** Built-in and easily integrated security features like identity and access management saved time and effort for security engineers. The CISO at a

“Using IBM took about 5% to 10% of our workload off of our application security engineers’ plates. We probably eliminated work for one application security engineer from switching to these integrations instead of building them.”

CISO, technology and professional services

Reduction in labor requirements for application security engineers

10%



technology organization said: “Our security team spends significantly less time on access controls management because everything is built-in and easily tied to various [single sign-ons] like Azure ID. You don’t need to develop or code your own solutions for identity management or access.”

- **Better compliance controls, audits, and reviews.** Organizations that used Cloud Pak for Integration found they were able to reduce labor and time spent setting compliance controls and completing compliance reviews. The CISO at a technology organization stated: “IBM maintains multiple levels of compliance, like GDPR and various forms of security compliances required to work with large tasks. This significantly helps us with audits and compliance reviews. We have strong administration and the ability to create a strong access model to prevent unwanted activities. This is critical because our organization’s environment type is very sensitive.”

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumes the following about the composite organization:

- The composite organization leverages 20 application security engineers in Years 1, 2, and 3.
- Using IBM Cloud Pak for Integration reduces application security engineer labor by 10%.
- The average fully burdened salary for an application security engineer FTE is \$150,000 annually.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

- Application security complexity and labor requirements.
- Application security engineer fully burdened rate.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of nearly \$336,000.

Improved Application Security Labor Savings					
Ref.	Metric	Source	Year 1	Year 2	Year 3
E1	Number of application security engineer FTEs	Composite	20	20	20
E2	Reduction in labor	Interviews	10%	10%	10%
E3	Productivity recapture	Composite	50%	50%	50%
E4	Application security fully burdened rate	Composite	\$150,000	\$150,000	\$150,000
Et	Improved application security labor savings	$E1 \cdot E2 \cdot E3 \cdot E4$	\$150,000	\$150,000	\$150,000
	Risk adjustment	↓10%			
Etr	Improved application security labor savings (risk-adjusted)		\$135,000	\$135,000	\$135,000
Three-year total: \$405,000			Three-year present value: \$335,725		

TECHNOLOGY COST SAVINGS

Evidence and data. Consolidating application integration, API management, MQ, and event streaming into one platform minimizes technology sprawl and allowed organizations to decommission legacy integration and security technology licensing, maintenance, and infrastructure.

Customers running on-premises environments struggled to provision resources and provide high-performance customer experience. Maintaining local infrastructure was costly and difficult to scale.

IBM Cloud Pak for Integration’s flexible cloud deployment and pricing model allows customers to scale depending on business needs. Because IBM doesn’t charge for data, connections, or endpoints used, customers can shift focus on building better, more profitable applications per integration.

Modeling and assumptions. Based on customer interviews, Forrester estimates the following for the composite organization:

- The composite organization spent \$400,000 on legacy on-premises licensing and infrastructure costs.
- Support costs for legacy solutions were \$80,000, 20% of licensing and infrastructure.

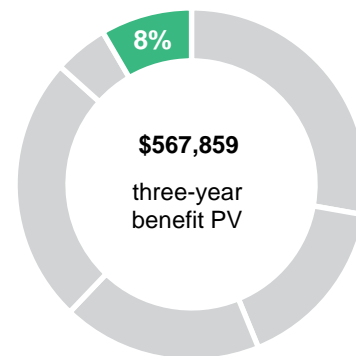
- The composite organization decommissions the 25% of the legacy solution in Year 1, 50% in Year 2, and 10% in Year 3.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

- The annual cost of maintaining the legacy solutions and the number and cost of resources maintaining the tools.
- An organization’s ability to consolidate and decommission legacy tools without business interruption.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of close to \$568,000.

Technology Cost Savings



Technology Cost Savings					
Ref.	Metric	Source	Year 1	Year 2	Year 3
F1	Legacy license and infrastructure costs	Interviews	\$400,000	\$400,000	\$400,000
F2	On-premises support costs	F1*20%	\$80,000	\$80,000	\$80,000
F3	Percentage of legacy technology decommissioned	Composite	25%	50%	100%
Ft	Technology cost savings	(F1+F2)*F3	\$120,000	\$240,000	\$480,000
	Risk adjustment	↓15%			
Ftr	Technology cost savings (risk-adjusted)		\$102,000	\$204,000	\$408,000
Three-year total: \$714,000			Three-year present value: \$567,859		

UNQUANTIFIED BENEFITS

Additional benefits that customers experienced but were not able to quantify include:

- **Enhanced user and customer experience.**

Business users of internal applications and customers alike benefited from improved integration quality and innovation. A healthcare organization utilized IBM to create real-time integrations that improved the quality of care physicians could provide to patients. The director of IT told Forrester: “We created integrations that allow physicians to see patient images in real time. This helps provide care and diagnoses to patients who need treatment or intervention faster.”

The director of IT continued: “IBM is able to create an HL7 seed, and that data goes into your electronic medical records. The benefit therein is that you don’t have to manually enter that data. There’s no printing, scanning to email or to PDF, and then attaching it. It automatically goes there for you. Because of this, you are lessening the amount of work that the clinician or care team has to do, and they can then attend to patient care a little bit more effectively.”

- **Reduced chance of breach.** Customers reported that IBM provided robust, enterprise-scale security that helped reduce the likelihood of data breaches. The CISO in a technology organization stated: “We have seen more and more secure APIs, [have] better abilities to create clear API schema for the tools, and have less API exposure to unwanted activity. It reduces the risk by 50% — maybe even more. We care create better policies and significantly reduce risk with relatively low effort. It basically reduces our chance of a breach.”

- **Improved compliance.** A director of IT in a healthcare organization noted that Cloud Pak for Integration’s compliance features were well-suited for healthcare use cases. He said: “IBM

helps create an environment that is going to be compliant, going to be helping out from a data loss prevention and a backup schema that is going to be used. They also store the content in a secure way that really doesn’t fall down the network or make the information a little bit difficult to get to.”

- **Improved scalability and agility in cloud-native environments.** IBM’s cloud-native model helped organizations scale to meet demand, reduce costs, and increase agility. The CISO in a technology and professional services organization stated: “[Cloud Pak for Integration] allowed us to achieve a lot of the benefits that you would see from a typical public cloud environment in terms of being able to expand capacity elastically to quickly spin up and destroy resources in our own data center environments.”

“By utilizing IBM Cloud Pak for Integration, we can sync information from on-prem solutions to cloud solutions to give much more real-time information than what we had in our previous environment.”

Director of IT, healthcare

- **Seamless integration across hybrid cloud infrastructure.** IBM Cloud Pak for Integration supported organizations no matter their infrastructure. A CTO in a professional services organization said: “It gives us the ability to deploy these services on-premises in the cloud, in public cloud, in private cloud and also hybrid cloud. It gives us a lot more flexibility than we used to

have because now we can repurpose the interfaces across any of those different environments and ecosystems.”

- **Improved allocation of higher-skilled labor to value-added tasks.** IBM Cloud Pak for Integration’s low-code interface enabled organizations to employ lower-skilled, less-costly resources to build the same quality of integrations. The CISO in a technology and professional services firm said: “Before IBM we were using a full set of software engineers to code the integration from scratch. Now we can train a junior developer who’s making \$90,000 a year to build out integrations on IBM Cloud Pak, rather than having a set of senior developers who are all in the \$130,000 to \$150,000 range writing code.”
- **Enhanced developer experience.** A technology and professional services organization reduced integration developer turnover from roughly 20% to 9%. The CISO stated: “Integration developers in our prior environment had some of the highest turnover rate in all of our organization because nobody wanted to build custom integrations. Those teams had turnover rates that were well into the double digits, that’s been like 20% or 25% turnover rates, and our regular dev turnover rate is 8% or 9%.”
- **Consolidated IBM ecosystem efficiencies.** Consolidating development onto IBM Cloud Pak for Integration created new opportunities for developers to specialize and learn more capabilities. The CTO in a professional services organization said: “Moving to IBM Cloud Pak for Integration is reducing complexity. It’s created a career track, if you will. Instead of requiring people to learn seven different ways of doing things, they can specialize in one. They can become even more specialized, and they can learn more capabilities within the IBM

framework because we’re doing so much in the IBM ecosystem.”

- **Increased contact center efficiency.** Creating new integrations with contact center platforms saved a professional organization millions of dollars in operating costs. The CTO told Forrester: “Cloud Pak for Integration allowed us to significantly improve [agent] response times. One of the challenges they had is they have a lot of batch procedures as well as real-time repositories. Calls are taking 15.5 minutes, on average. By the time we got done rewriting all the interfaces using IBM Cloud Pak for Integration, putting in real-time repositories, and getting rid of all the batch procedures, we were able to shorten calls to 5.5 minutes, on average. All because the data were not available at the same moment across all of its parent systems.”

“You don’t need full stack developers anymore. It’s not quite yet a citizen developer model, but you don’t need developers that are as deep in the code as you traditionally would have. The tool kits to build the APIs are greatly simplified and you have a lot of reusable components.”

CTO, professional services

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Cloud Pak for Integration and later realize additional uses and business opportunities, including:

- **Improved strategic decision-making.** Customers told Forrester that IBM provides dashboards and greater visibility into integration metrics and performance, enabling more-informed strategic decisions. The CISO at a technology and professional services organization stated: “IBM provides us a lot of decision support. When we build an integration, we can start to then track whether we’re getting the value from that integration. We can see how many clients are leveraging the functionalities with our new integrations and how much they contribute to the customer experience.”
- **Increased innovation.** The CISO at a technology and professional services organization explained how Cloud Pak for Integration opened the door to future innovations, stating: “We can now build integrations that improve our products that we might not have previously decided to do because of the level of effort. We can integration applications much easier and get more creative in the types of integrations that can build.”

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in [Appendix A](#)).

Analysis Of Costs

■ Quantified cost data as applied to the composite

Total Costs							
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Gtr	Subscription costs	\$0	\$720,000	\$840,000	\$960,000	\$2,520,000	\$2,070,023
Htr	Implementation and ongoing costs	\$498,170	\$51,213	\$51,213	\$51,213	\$651,808	\$625,529
	Total costs (risk-adjusted)	\$498,170	\$771,213	\$891,213	\$1,011,213	\$3,171,808	\$2,695,552

SUBSCRIPTION COSTS

Evidence and data. Pricing for IBM Cloud Pak for Integration subscription is modular. Organizations can choose the capabilities required — from API management, application integration, enterprise messaging, event streaming, and high-speed file transfer — and are charged on a flexible deployment basis. Red Hat OpenShift container platform, automation foundation, API management, asset repository, operations dashboard, and platform navigator are included. The composite organization uses all core functionalities included in this model.

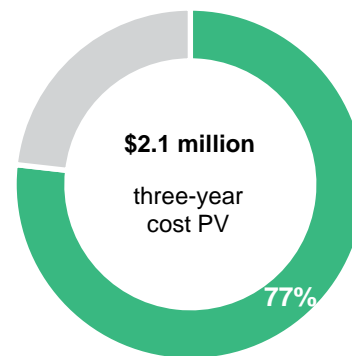
Forrester understands that subscription costs will vary widely depending on each organization’s characteristics and use cases. Please speak with an IBM sales specialist for specific pricing information.

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumes that the composite organization pays \$600,000 in subscription costs in Year 1, scaling to \$700,000 in Year 2 and \$800,000 in Year 3 with increased usage and consumption.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on organization size, geography, use case, solutions required, deployment size, and other characteristics.

Results. To account for these risks, Forrester adjusted this cost upward by 20%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$2.1 million.

Subscription Cost



Subscription Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
G1	IBM Cloud Pak for Integration subscription	Interviews		\$600,000	\$700,000	\$800,000
Gt	Subscription costs	G1	\$0	\$600,000	\$700,000	\$800,000
	Risk adjustment	↑20%				
Gtr	Subscription costs (risk-adjusted)		\$0	\$720,000	\$840,000	\$960,000
Three-year total: \$2,520,000			Three-year present value: \$2,070,023			

IMPLEMENTATION AND ONGOING COSTS

Evidence and data. Most interviewed organizations leveraged a mix of internal labor and professional services (from either IBM or other consultancies for the implementation of IBM Cloud Pak for Integration. Implementation length ranged from two and a half to five months. Training varied, depending on organizational requirements and internal skill levels, from multiday courses to center-of-excellence and train-the-trainer approaches.

Modeling and assumptions. To reflect the interviewees’ experiences, Forrester assumes the following about the composite organization:

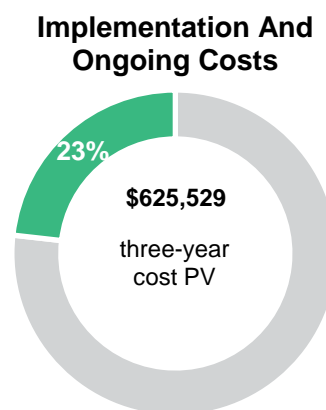
- The composite organization utilizes a combination of professional services and internal developer labor for four weeks to get installed and running. Implementation takes less than two and a half months.
- Fifty developers are trained in the initial period over a three-day course, with five developers trained each year afterward due to an assumed 10% churn.
- Twenty-five IT operations engineers are trained in the initial period over a two-day course, with three developers trained each year afterward due to an assumed 10% churn.

- The composite organization incurs ongoing operational labor costs of nearly one-third an FTE for maintenance and support.

Risks. Forrester recognizes that these results may not be representative of all experiences, and the benefit will vary among organizations depending on:

- The scale of professional services needed and associated fees.
- Internal skill sets and change management requirements.
- Training requirements and the number of users.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$626,000.

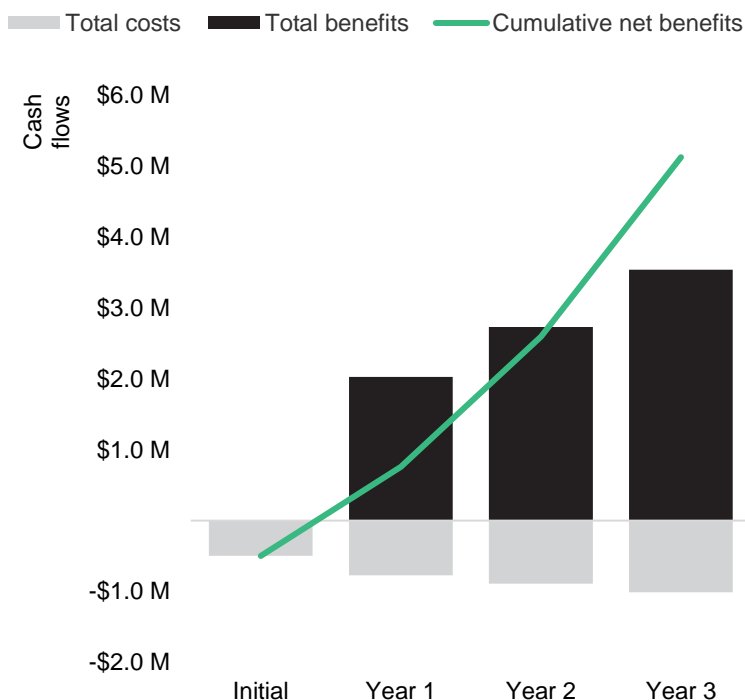


Implementation And Ongoing Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
H1	Professional services	Composite	\$300,000			
H2	Number of developers involved with implementation	50 FTEs*10%	5			
H3	Weeks dedicated to implementation	Composite	4			
H4	Weekly fully burdened developer rate	\$135,000/52	\$2,596			
H5	Subtotal: internal labor for implementation	H2*H3*H4	\$51,920			
H6	Developers to be trained	Composite	50	5	5	5
H7	Developer training costs	Hourly rate*24 hours of training	\$77,885	\$7,788	\$7,788	\$7,788
H8	IT operations to be trained	Composite	25	3	3	3
H9	IT operations training costs	Hourly rate*16 hours	\$23,077	\$2,769	\$2,769	\$2,769
H10	Subtotal: training		\$100,962	\$10,557	\$10,557	\$10,557
H11	IT operations FTEs dedicated to ongoing maintenance	Composite		0.3	0.3	0.3
H12	Subtotal: ongoing maintenance	H11*D4		\$36,000	\$36,000	\$36,000
Ht	Implementation and ongoing costs	H1+H5+H10+H12	\$452,882	\$46,557	\$46,557	\$46,557
	Risk adjustment	↑10%				
Htr	Implementation and ongoing costs (risk-adjusted)		\$498,170	\$51,213	\$51,213	\$51,213
Three-year total: \$651,808			Three-year present value: \$625,529			

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	(\$498,170)	(\$771,213)	(\$891,213)	(\$1,011,213)	(\$3,171,808)	(\$2,695,552)
Total benefits	\$0	\$2,026,399	\$2,732,524	\$3,540,649	\$8,299,572	\$6,760,607
Net benefits	(\$498,170)	\$1,255,186	\$1,841,311	\$2,529,436	\$5,127,763	\$4,065,055
ROI						151%
Payback (months)						<6

Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

TOTAL ECONOMIC IMPACT APPROACH

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.



PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.



NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.



RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.



DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.



PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Appendix B: Endnotes

¹ Source: “Now Tech: Integration Platforms, Q2 2021,” Forrester Research, Inc., May 24, 2021.

² Total Economic Impact is a methodology developed by Forrester Research that enhances a company’s technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

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