

The Total Economic Impact™ Of IBM Cloud Pak For Watson AIOps With Instana

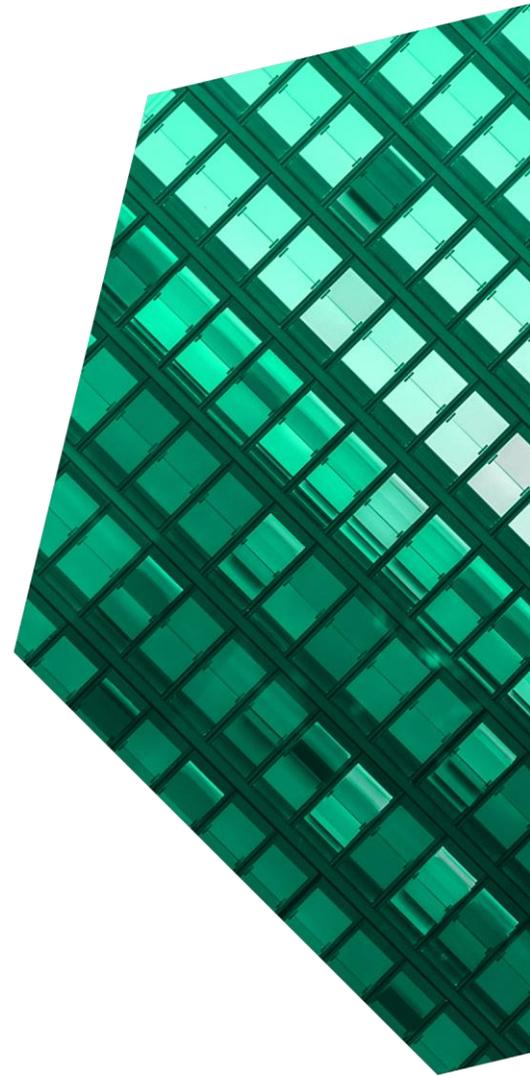
Cost Savings And Business Benefits
Enabled By IBM Cloud Pak for Watson AIOps with
Instana

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Executive Summary

As companies continue to make substantial investments in cloud and on-premises applications, their need to ensure performance of those investments grows. IBM Cloud Pak for Watson AIOps with Instana provides users with the ability to reduce the number of application alerts they experience, retire legacy software solutions, limit unplanned downtime, and mitigate the effects of bugs on their application development workflows.

Modernization of enterprise application infrastructure has caused IT decision-makers to shift their vision from traditional application performance monitoring and response workflows to ones that prioritize ease of use and ensure peak application performance. Traditionally, organizations relied on solutions that could not make connections between what users experience in an application and the insights provided by monitoring solutions. IBM Cloud Pak for Watson AIOps with Instana provides organizations with a cohesive platform that automates application incident response and monitoring to ensure a high-quality user experience.

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 [IBM Cloud Pak for Watson AIOps with Instana](#).¹ The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Cloud Pak for Watson AIOps with Instana on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four customers with experience using IBM Cloud Pak for Watson AIOps with Instana. 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 Watson AIOps with Instana, the customers relied on a series of point

KEY STATISTICS



Return on investment (ROI)

216%



Net present value (NPV)

\$2.43M

solutions intended to enhance application monitoring and incident remediation. However, these solutions often created highly manual workflows, created backlogs of incident response work, and provided limited insights into the root causes of application issues.

After the investment in Cloud Pak for Watson AIOps with Instana, the customers reduced the number of incidents that applications experience, increased uptime for business-critical applications, and provided increased insights into application performance, allowing for more efficient development workflows.



Reduced MTTR by:

50%

KEY FINDINGS

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

- **Reduced the number of incidents customers experience by 50%.** Cloud Pak for Watson AIOps enabled the organizations to automate certain aspects of their incident response workflows. This reduces the number of incidents applications experience as well as the time that employees spend remediating these incidents. Additionally, the increased visibility into the root cause of application incidents allows customers to reallocate employees previously required to perform root cause analysis. These efficiencies led to \$2 million in savings over the analyzed period.
- **Eliminated 80% of the time spent remediating false-positive incidents.** Cloud Pak for Watson AIOps users were able to build automated workflows that can quickly detect the validity of incidents. This enables users to avoid dedicating time to investigating false-positive incidents that were flagged by legacy solutions. Over the analyzed period, this leads to \$623,000 in savings.
- **Allowed customers to consolidate software vendors, reducing costs by 50%.** The interviewed organizations relied on a series of point solutions and homegrown workflows to enhance their incident response and application-monitoring workflows. Investing in Cloud Pak for Watson AIOps with Instana enabled the interviewed decision-makers to reduce their spending on these solutions and save \$528,000 annually.
- **Reduced unplanned application downtime increased availability for revenue-generating applications by 15%.** With legacy systems, the interviewees often experienced periods of unplanned downtime. When the applications experiencing downtime were integral to revenue generation, this could prove to be highly costly. Cloud Pak for Watson AIOps allows customers to avoid these periods of downtime, leading to an additional \$178,000 in revenue generated through customer-facing apps.
- **Increased visibility into application performance reduced time to fix issues by 75%.** Organizations that used Instana were able to improve their application performance-monitoring workflows, reducing the time they spent debugging applications. This led to an

“With Instana, you’re no longer interrupted by issues several times a week. We have shifted to a more proactive state where if we see something that’s going south, we can address it immediately.”

— Application architect, marketing

additional \$186,000 in savings over the analyzed period.

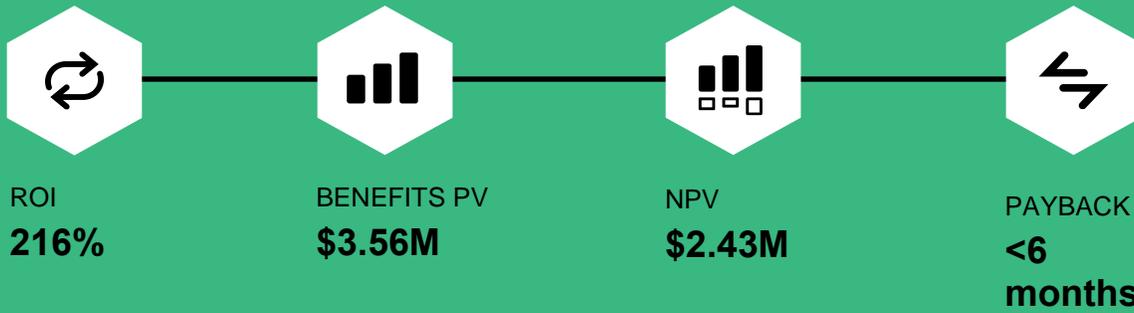
Unquantified benefits. Benefits that are not quantified for this study include:

- **Proactively avoid incidents.** Cloud Pak for Watson AIOps users found that by using the machine learning capabilities of the platform, they could proactively avoid certain incidents, allowing them to reallocate resources to more pressing business objectives.
- **Reduce organizational risks.** Using the capabilities of the Cloud Pak for Watson AIOps platform allowed customers to greatly lower their risk profile. Avoiding unplanned outages reduces risk across the organization, from potentially lost customers to harmful issues impacting brand image.

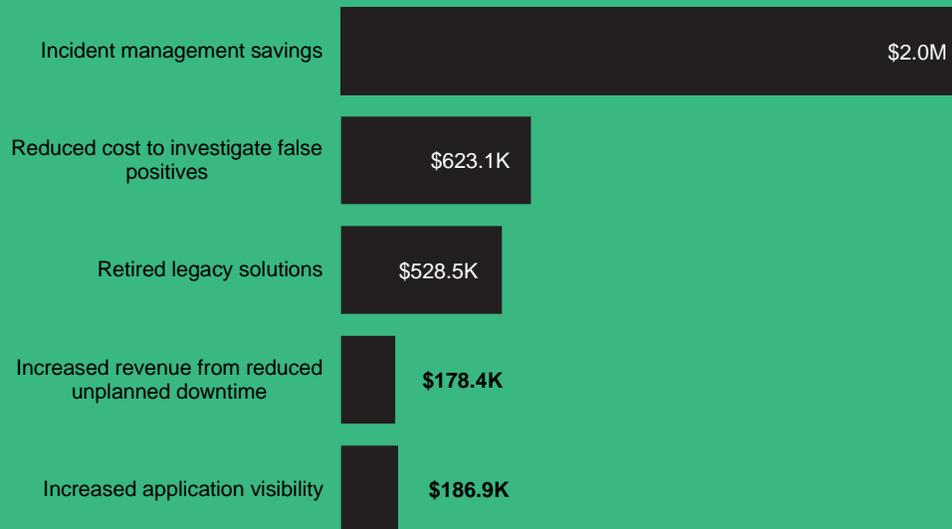
Costs. Risk-adjusted PV costs include:

- **Subscription and services costs.** Interviewees said that their organizations paid an annual fee for use of the Cloud Pak for Watson AIOps with Instana platforms. Some interviewees also invested in professional services to enhance their deployment processes.
- **Planning and implementation costs.** The interviewed organizations dedicated time and resources to implement Cloud Pak for Watson AIOps with Instana across their organization.
- **Training and management costs.** The organizations also allocated time to train users on the platforms' capabilities. In addition to the cost of implementing and training, the interviewed organizations dedicated individuals to manage the day-to-day operations of the platforms.

The customer interviews and financial analysis found that a composite organization experiences benefits of \$3.56 million over three years versus costs of \$1.13 million, adding up to a net present value (NPV) of \$2.43 million and an ROI of 216%.



Benefits (Three-Year)



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 IBM Cloud Pak for Watson AIOps with Instana.

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 Watson AIOps with Instana 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 Watson AIOps with Instana.

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 Watson AIOps with Instana.



CUSTOMER INTERVIEWS

Interviewed four decision-makers at organizations using Cloud Pak for Watson AIOps with Instana 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 Watson AIOps With Instana Customer Journey

■ Drivers leading to the Cloud Pak for Watson AIOps with Instana investment

Interviewed Organizations			
Industry	Region	Title	Annual Revenue
Travel	Headquartered in EMEA	IT Operations Director	\$200 million
Business services	Headquartered in the US	CTO	\$3 billion
Marketing	Headquartered in the US	Application architect	\$100 million
Healthcare	Headquartered in the US	Director of IT	\$45 billion

KEY CHALLENGES

Prior to investing in Cloud Pak for Watson AIOps with Instana, the interviewed organizations relied on a combination of homegrown solutions and disparate vendors to monitor application performance and incident resolution. The interviewed organizations struggled with common challenges, including:

- **Desire to increase agility.** Legacy incident management and response solutions were often slow and restricted users' abilities to proactively identify issues in their applications. The interviewed decision-makers stated that they were stuck in a perpetual reactive state due to their inability to quickly identify and respond to issues. An application architect at a marketing firm shared: "With our legacy vendors, we were so bogged down in alerts, our only option was to be in a constant reactive state. We needed a solution that could help us quickly find errors and determine when things were headed south before they actually failed."
- **Need to reduce spend on incident management.** The interviewed decision-makers all struggled with controlling the cost of incident management. Whether this came in the form of expensive vendors or time-intensive workflows,

they all needed a solution that could help them mitigate the cost of an application incident.

The director of IT in the healthcare industry said, "Ultimately we needed to decrease the amount we were spending on incident management. We looked for a vendor who could help us decrease some costs that we're having in terms of our solution turnaround, so we could focus the employees involved on other activities."

- **Need to increase visibility into application infrastructure.** All of the interviewed decision-makers were challenged with improving visibility into their application infrastructure. "I would say that from time to time, bugs will pop up in our applications, and they were often difficult to track down. You would have to spend hours going through application logs to find the little piece of information that you're trying to track down," stated the application architect at a marketing firm. Limited visibility into application

performance created highly manual workflows that limited developer productivity.

“IBM helps us remediate changes. It helps us identify when someone makes a change in their infrastructure that wasn’t coordinated through change control, wasn’t communicated to all their peers because we have a change control for reasons, so that we estimate the impact if something goes down.”

Director of IT, healthcare

spent significant time managing a constant stream of incidents that required highly manual workflows to investigate. On average, the organization investigates 300 incidents per year. Additionally, the composite organization frequently encounters periods of downtime among its business-critical apps, including revenue-generating applications.

Deployment characteristics. The composite organization shifts management of its application incident management to Cloud Pak for Watson AIOps. Additionally, the composite organization shifts application monitoring from legacy vendors to Instana. The primary goals of the composite organization are to limit the number of incidents that its incident-response team investigates and reduce periods of downtime for business-critical apps. The composite organization deploys the monitoring capabilities of Cloud Pak for Watson AIOps across 200 applications. For this analysis, we define an application as a collection of components providing business functionality that can be used internally, externally, or with other business applications.

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 four 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 composite organization is a multibillion-dollar global organization with approximately 40,000 employees. The organization dedicates a specific team of 20 IT ops employees and software engineers to its incident-response team. Prior to investing in IBM Cloud Pak for Watson AIOps with Instana, the composite organization relied on a combination of homegrown and point solutions meant to aid in incident management and root cause analysis. Employees of the composite organization’s incident-response team

Key assumptions

- **200 applications across the organization**
- **300 incidents each year**
- **20 FTEs dedicated to incident-response team**

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	Incident management savings	\$821,628	\$821,628	\$821,628	\$2,464,884	\$2,043,267
Btr	Reduced cost to investigate false positives	\$250,560	\$250,560	\$250,560	\$751,680	\$623,106
Ctr	Retired legacy solutions	\$212,500	\$212,500	\$212,500	\$637,500	\$528,456
Dtr	Increased revenue from reduced unplanned downtime	\$71,719	\$71,719	\$71,719	\$215,157	\$178,354
Etr	Increased application visibility	\$75,168	\$75,168	\$75,168	\$225,504	\$186,932
	Total benefits (risk-adjusted)	\$1,431,575	\$1,431,575	\$1,431,575	\$4,294,725	\$3,560,115

INCIDENT MANAGEMENT SAVINGS

Evidence and data. The interviewed decision-makers stated that in their legacy state, incident-response teams were constantly overwhelmed with the number of incidents applications produced daily. Employees had little to no way of managing or prioritizing events, which often caused them to spend extensive amounts of time investigating minor events while more critical issues plagued their applications. As a CTO in the business services industry noted: “A couple days before we implemented Cloud Pak for Watson AIOps, our mission-critical applications could be down for hours. We tried to tier the priority of incidents but had limited insight into what was causing the issues. Applications [could] be down for hours while we tried to sort out what was causing the issue.”

Additionally, these numerous incidents often required significant manual work to resolve. Employees were spending significant time performing root-cause analysis tasks before they could even begin to address the issues they uncovered. This left them overwhelmed and overworked. The interviewed organizations sought a solution that could help them

both address the number of incidents they needed to investigate daily and reduce the time required to remediate these incidents.

The interviewees stated that using IBM Cloud Pak for Watson AIOps enabled their organizations to drive efficiencies throughout their incident-management process. Users were able to use Watson AIOps to automate portions of their incident-response process, allowing the interviewed organizations to reduce the total number of incidents their employees investigated. “Prior to using Cloud Pak for Watson AIOps, incidents were popping up every day. Now we really only have applications go down when we have times of planned maintenance.” Shared the CTO of a business services organization.

Additionally, Cloud Pak for Watson AIOps provides organizations with an increased ability to quickly perform root-cause analysis, which reduces the mean time to remediate (MTTR) an incident. A CTO in the business services industry noted, “We can also mine for manual tasks. We can identify the low-hanging opportunities, where we do a lot of manual work. We

use Watson AIOps to identify opportunities for incident-response automation. Regardless of what solution we formerly used, IBM automated the repetitive tasks.” Reducing MTTR also allows the interviewed organizations to reduce the number of individuals required to perform incident-response tasks. Employees can be reallocated to other, more pressing business activities.

Modeling and assumptions. For the financial model, Forrester assumes the following:

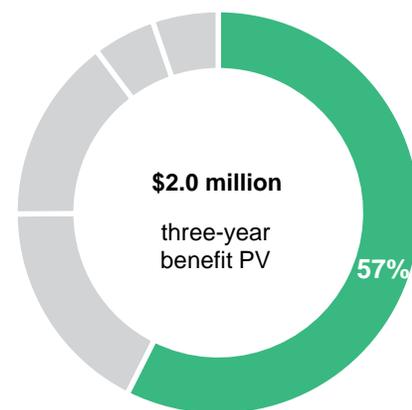
- Prior to investing in IBM Cloud Pak for Watson AIOps, the composite organization experienced 225 critical incidents across its application environment. The composite organization dedicated a team of 20 individuals to root-cause analysis and incident response. Typically, these events would take an average of 4 hours to resolve.
- The increased visibility into incident root cause and automating incident response enables the composite organization to easily prioritize incidents and reduce the number of critical incidents investigated by 50%.
- Automating incident response enables the composite organization to greatly reduce the time required to analyze an incident and remediate its effects. With IBM Cloud Pak for Watson AIOps, the composite organization reduces the time required to perform investigation and response tasks by 2 hours.
- Reductions in the number of incidents investigated and the time to remediate these incidents allows the composite organization to reallocate resources to other areas of their organization. The composite organization reduces the number of resources involved in these workflows from 20 to 10.
- The average fully burdened hourly salary for the employees involved in these projects is \$58.

“For root-cause analysis, it has reduced time savings down to next to nothing because the great majority of instances get fixed automatically. And the only ones where people have to get involved – we are talking minutes instead of hours.”

CTO, business services

Risks. The following risks may affect this benefit category:

- This benefit will vary based on the number of applications monitored with Cloud Pak for Watson AIOps and the number of incidents those applications produce.
- Established legacy workflows will affect the number of individuals involved in incident response, as well as the time required to resolve incidents.
- The hourly salary of employees will depend on the individuals involved, as well as regional and vertical variations.



Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$2,043,267.

Incident Management Savings					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Number of application incidents experienced prior to using Watson AIOps	Assumption	225	225	225
A2	Time spent performing root-cause analysis prior to using Watson AIOps (hours)	Interviews	4	4	4
A3	Employees involved in incidents management prior to using Watson AIOps	Assumption	20	20	20
A4	Time to mitigate incidents prior to investing in Watson AIOps	A1*A2*A3	18,000	18,000	18,000
A5	Number of application incidents experienced with Watson AIOps	Interviews	113	113	113
A6	Time spent performing root-cause analysis with Watson AIOps (hours)	Interviews	2	2	2
A7	Employees involved in incident management with Watson AIOps	Interviews	10	10	10
A8	Time to mitigate incidents with Watson AIOps	A5*A6*A7	2,260	2,260	2,260
A9	Average hourly salary of employees involved in incident management	Payscale.com	\$58	\$58	\$58
At	Incident management savings	(A4-A8)*A9	\$912,920	\$912,920	\$912,920
	Risk adjustment	↓10%			
Atr	Incident management savings (risk-adjusted)		\$821,628	\$821,628	\$821,628
Three-year total: \$2,464,884			Three-year present value: \$2,043,267		

REDUCED COST TO INVESTIGATE FALSE POSITIVES

Evidence and data. In addition to automating incident response, Cloud Pak for Watson AIOps also reduces the number of false positives that organizations investigate. Interviewees noted that Cloud Pak for Watson AIOps gave them increased visibility into incident origin and allowed users to filter out false positives. This was a capability that legacy systems were unable to do. Incident-response teams were forced to investigate each critical incident thoroughly before learning that the incident was a false positive, as a business services CTO noted.

“Before we had Watson AIOps, I’d say that we had probably 50% false positives. It varies by application and vertical, but literally hundreds of false positives.”

The incident automation capabilities of Cloud Pak for Watson AIOps allowed the interviewed organizations to avoid the need to investigate all incidents. IBM Cloud Pak for Watson AIOps allowed users to automate application discovery and hygiene tasks, shifting workflow from reactive to proactive and reducing the number of false positive incidents that are investigated. “It helps us get a better sense of all the group events and anomalies to rule out the false positives. It also helps us get a better sense of how to

proactively avoid incidents.” (CTO, business services)

Modeling and assumptions. For the financial model, Forrester assumes the following:

- In its legacy state, the composite organization investigated 75 incidents that are classified as false positives. This represents 25% of the total number of incidents investigated annually.
- Each false-positive event required a full investigation and analysis to resolve. As stated in the previous benefit, this required a team of 20 individuals to spend 4 hours investigating these incidents.
- Automating and categorizing incidents allowed these teams to reduce the effort to discover and investigate a false positive by 80%.
- The hourly salary of individuals involved in these workflows is \$58.

Risks. The following risks may affect this benefit category:

- The number of false positives investigated and the time required to investigate each incident will vary by each organization.
- The hourly salary of employees will depend on the individuals involved, as well as regional and vertical variations.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$623,106.

“We can monitor our applications across any number of metrics and reduce the time we spend on investigating these incidents down to next to nothing because the great majority of instances get fixed automatically.”
CTO, business services

Reduced Cost To Investigate False Positives

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	False positives investigated prior to using	Assumption	75	75	75
B2	Time spent investigating false positives	Interviews	4	4	4
B3	Employees involved in incident management prior to using Watson AIOps	Assumption	20	20	20
B4	Time spent investigating false positives prior to using Watson AIOps (hours)	B1*B2*B3	6,000	6,000	6,000
B5	Reduction in false positives with Watson AIOps	Interviews	80%	80%	80%
B6	Average hourly salary of employees involved in incident management	Payscale.com	\$58	\$58	\$58
Bt	Reduced cost to investigate false positives	B4*B5*B6	\$278,400	\$278,400	\$278,400
	Risk adjustment	↓10%			
Btr	Reduced cost to investigate false positives (risk-adjusted)		\$250,560	\$250,560	\$250,560
Three-year total: \$751,680			Three-year present value: \$623,106		

RETIRED LEGACY SOLUTIONS

Evidence and data. In their legacy states, the interviewed organizations relied upon a mix of disparate point solutions and homegrown workflows for incident remediation and application performance monitoring. This often led to a lack of cohesion across IT ops teams leading to rework and extending resolution timelines for application issues.

IBM Cloud Pak for Watson AIOps with Instana offers users a cohesive solution that can be used in all aspects of application monitoring, incident investigation, and remediation. This enabled the interviewed organizations to reduce their spending with other vendors and scale back internal efforts to complete these tasks outside of Watson AIOps or Instana.

The CTO of a business services organization stated, “With Watson AIOps, we don’t need a lot of our legacy solutions. IBM Cloud Pak for Watson AIOps creates a virtual war room for us automatically. It does a lot of site reliability engineering like a fire alarm. It notifies all the respective teams that something has happened, automatically creates a blast radius for those effected by the incident, and then notifies the relative teams of the potential impact that needs to be explored.”

Modeling and assumptions. For the financial model, Forrester assumes the following:

- Prior to investing in Cloud Pak for Watson AIOps, the composite organization invested \$500,000 annually on application performance monitoring and incident investigation/resolution solutions. This also represent the effort spent maintaining homegrown solutions.
- The capabilities provided by Cloud Pak for Watson AIOps with Instana enable the composite organization to scale back its investment in these other solutions by 50%.

Risks. The cost of legacy monitoring solutions will vary based on the number of solutions used by an organization and established internal workflows.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$528,456.

Retired Legacy Solutions					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
C1	Cost of legacy application monitoring solutions	Assumption	\$500,000	\$500,000	\$500,000
C2	Reduction in spending with Watson AIOps	Interviews	50%	50%	50%
Ct	Retired legacy solutions	C1*C2	\$250,000	\$250,000	\$250,000
	Risk adjustment	↓15%			
Ctr	Retired legacy solutions (risk-adjusted)		\$212,500	\$212,500	\$212,500
Three-year total: \$637,500			Three-year present value: \$528,456		

INCREASED REVENUE FROM REDUCED UNPLANNED DOWNTIME

Evidence and data. All the interviewed organizations struggled with periods of unplanned downtime

throughout their application environments. These could prove to be costly both in terms of wasting employee time and costing the organizations potential revenue. Most of the interviewed organizations deployed a customer-facing application that was responsible for generating revenue for the organization. Periods of unplanned downtime could prove to be extremely costly to the organization as they limited short-term revenue opportunities and could affect long-term customer lifetimes. “Unplanned downtime is very impactful because our operations are done exclusively these applications. And so, when we do have downtime, it has a negative impact on our customers experiences and ultimately our bottom line,” stated a director of IT in healthcare.

Both Cloud Pak for Watson AIOps and Instana help users avoid losing revenue due to unplanned downtime by providing increased visibility into application performance and proactive monitoring. The director of IT in healthcare noted: “Watson AIOps allows us to do more proactive monitoring. That within itself has allowed us to be more in the driver’s seat when it comes to downtime. We aren’t just waiting for something to happen to us.”

Modeling and assumptions. For the financial model, Forrester assumes the following:

- Prior to investing in Cloud Pak for Watson AIOps or Instana, the composite organization experienced 250 hours of unplanned downtime across its application portfolio. Per the customer interviewees, each hour of downtime the composite organization experienced resulted in \$22,500 of lost revenue.
- The increased visibility provided by Cloud Pak for Watson AIOps with Instana allows the composite

organization to reduce the amount of unplanned downtime it experiences by 15%.

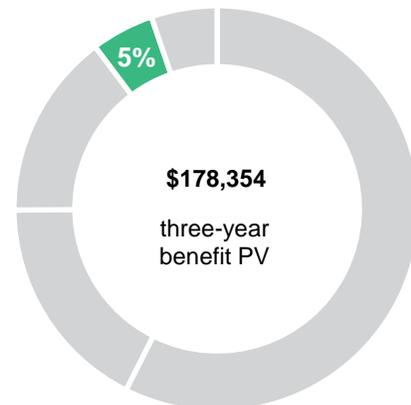
- The operating margin for the composite organization is 10%.



Risks. The following risks may affect this benefit category:

- The number of hours of unplanned downtime and the impact of downtime will vary based on legacy workflows, established solutions, and organization industry.
- Operating margins will vary by region and vertical.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$178,354.



Increased Revenue From Reduced Unplanned Downtime

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Hours of unplanned downtime prior to investing in Watson AIOps	Interviews	250	250	250
D2	Revenue lost due to unplanned downtime (per hour)	Interviews	\$22,500	\$22,500	\$22,500
D3	Reduction in unplanned downtime with Watson AIOps	Interviews	15%	15%	15%
D4	Operating margin	Assumption	10%	10%	10%
Dt	Increased revenue from reduced unplanned downtime	$D1 * D2 * D3 * D4$	\$84,375	\$84,375	\$84,375
	Risk adjustment	↓15%			
Dtr	Increased revenue from reduced unplanned downtime (risk-adjusted)		\$71,719	\$71,719	\$71,719
Three-year total: \$215,157			Three-year present value: \$178,354		

INCREASED APPLICATION VISIBILITY

Evidence and data. Lastly, the interviewed organizations noted that Instana gave them increased visibility into their application coding processes allowing them to reduce the time employees spent debugging applications.

Prior to investing in Instana, the interviewees struggled to gain visibility into application performance. Legacy solutions had rudimentary application performance monitoring capabilities that could not provide any high-level insights. An extensive quality assurance process and highly manual workflows were needed to ensure application performance. “Previously the biggest issue we faced was the lack of visibility into our application performance. You might deploy a path or an update, it would be deployed without having any real dashboards or historical data to look back on. This made it very difficult to see how an application is performing,” stated an application architect in marketing.

Instana provides organizations with in-depth insights into application performance, allowing users to better understand where performance issues stem from. The analytics dashboard allows developers to

monitor application performance and helps reduce the time needed to remediate issues that arise in the development lifecycle. One application architect in marketing highlighted these efficiencies by saying: “With Instana, we can look at the traces, see the performance, and very quickly identify where the degradation is happening. Before, you might have seen an issue and have a developer saying it is X and infrastructure personnel saying it is Y, but now when you have got these metrics here, you can definitively say, ‘Well, this is the problem.’ Performance itself is probably one of the harder things to test for in a real-world environment. So being able to play your code quickly, see those issues, or see no issues or an actual improvement in performance is incredibly, incredibly helpful.”

Modeling and assumptions. For the financial model, Forrester assumes the following:

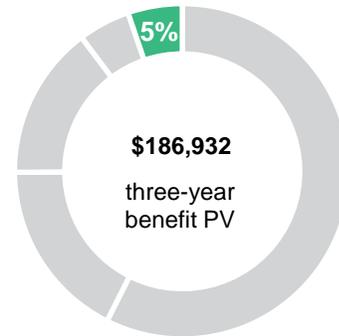
- Prior to investing in Instana, the composite organization dedicated 10 individuals to debugging their various applications. These individuals spent an average of 16 hours each month debugging applications.

- The insights provided by Instana enabled developers to reduce the time they spent debugging applications by 75%.
- The hourly salary of individuals involved in these workflows is \$58.

Reduced time to debug applications by **75%**

- The hourly salary of employees will depend on the individuals involved, as well as regional and vertical variations.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$186,932.



Risks. The following risks may affect this benefit category:

- The number of employees involved in application debugging workflows will vary based on organizational size and legacy debugging workflows.

Increased Application Visibility					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Hours spent debugging applications in legacy environment (monthly)	Interviews	16	16	16
E2	Individuals involved in debugging process	Interviews	10	10	10
E3	Time spent debugging applications in legacy environment	$E1 * E2 * 12$	1,920	1,920	1,920
E4	Reduction in time spent debugging code with Instana	Interviews	75%	75%	75%
E5	Average hourly salary of employees involved in debugging applications	Payscale.com	\$58	\$58	\$58
Et	Increased application visibility	$E3 * E4 * E5$	\$83,520	\$83,520	\$83,520
	Risk adjustment	↓10%			
Etr	Increased application visibility (risk-adjusted)		\$75,168	\$75,168	\$75,168
Three-year total: \$225,504			Three-year present value: \$186,932		

UNQUANTIFIED BENEFITS

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

- **Apply Watson machine learning capabilities to proactively avoid incidents.** Customers noted that the machine learning provided by

Cloud Pak for Watson AIOps allowed them to adapt workflows to actively avoid incidents. “What’s really good about Watson AIOps is that it can process real-time event streams. So as things are happening in real time, it can process the event streams and then apply machine learning. It can learn various patterns, and then it can also suggest remediation based on those patterns.”

The machine learning capabilities of Cloud Pak for Watson AIOps could help drive further efficiencies within incident response workflows and could even be applied to application monitoring to help proactively avoid bugs.

- **Reduce risk across the application portfolio.** A business services CTO noted that the increase in application performance across their organization helped them reduce risk for all aspects of their business: “Our risk has dropped significantly. It is a combination of reduced brand risk, reduced liability risk, and reduced financial risk because we are hitting all of our SLAs. Our increased reliability for our customers actually benefitted us financially.” Having more control over incident response and application performance greatly reduces the risk of costly unplanned downtime which could ultimately help improve customer experiences.

FLEXIBILITY

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

- **Expanding the use case to hybrid cloud applications.** Customers noted that a potential future use case of Cloud Pak for Watson AIOps with Instana would be applying their monitoring capabilities to applications deployed in a hybrid cloud environment. By deploying Watson AIOps with Instana on Red Hat OpenShift environments

running in different clouds and on-premises environments, organizations could recognize even greater value. The interviewees believe that as they expand their use of Cloud Pak for Watson AIOps to cloud-native applications, they will be able to increase many of the efficiencies they have experienced.

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
Ftr	Subscription and services costs	\$0	\$378,000	\$378,000	\$378,000	\$1,134,000	\$940,030
Gtr	Planning and implementation costs	\$76,560	\$0	\$0	\$0	\$76,560	\$76,560
Htr	Training and management costs	\$5,104	\$42,746	\$42,746	\$42,746	\$133,342	\$111,407
	Total costs (risk-adjusted)	\$81,664	\$420,746	\$420,746	\$420,746	\$1,343,902	\$1,127,997

SUBSCRIPTION AND SERVICES COSTS

Evidence and data. Watson AIOps with Instana customers pay for the ongoing use of the platform. The fees are calculated based the number of incidents and applications managed by the platform.

In addition, some customers chose to invest in professional services to tailor the solution to their individual needs and integrate the solution with their legacy applications.

Modeling and assumptions. For the financial model, Forrester assumes the following:

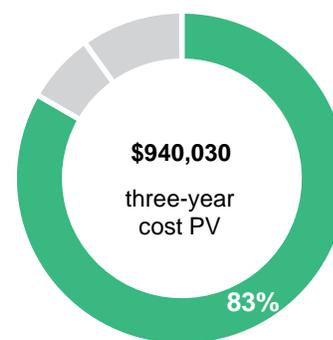
- The composite organization pays \$300,000 annually for the use of Cloud Pak for Watson AIOps with Instana.
- The organization experiences \$60,000 in professional services costs annually.

Risks. The following risks may affect this benefit category:

- The number of incidents an organization experience annually. Individuals will pay varying amounts for their IBM licenses and should contact an IBM account team member for specific details.

- The need to deploy professional services will vary on an organizational basis.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$940,030.



Planning And Implementation Costs						
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
G1	Time spent planning & implementing	Interviews	1,200			
G2	Hourly cost of employees involved in planning and implementation	Payscale.com	\$58			
Gt	Planning and implementation costs	G1*G2	\$69,600	\$0	\$0	\$0
	Risk adjustment	↑10%				
Gtr	Planning and implementation costs (risk-adjusted)		\$76,560	\$0	\$0	\$0
Three-year total: \$76,560			Three-year present value: \$76,560			

PLANNING AND IMPLEMENTATION COSTS

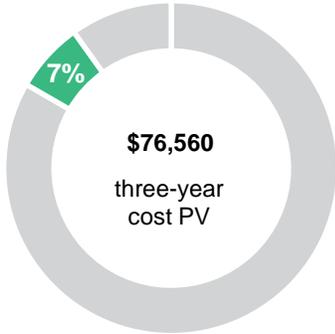
Evidence and data. The interviewed organizations incurred indirect costs for internal labor to deploy the Watson AIOps with Instana products. The interviewees spent some upfront time researching IBM, planning for the implementation, and executing this plan.

Modeling and assumptions. This section explains how the modeling is done.

- The composite organization has a team of employees who spend a collective 1,200 hours planning for and implementing IBM Cloud Pak for Watson AIOps with Instana.
- The hourly salary of the individuals involved in these workflows is \$58.

Risks. Planning and implementation will vary based on each organization’s internal processes regarding vendor onboarding.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$76,560.



Subscription And Services Costs						
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
F1	Watson AIOps subscription cost	Interviews		\$300,000	\$300,000	\$300,000
F2	Services costs	Assumption		\$60,000	\$60,000	\$60,000
Ft	Subscription and services costs	F1+F2	\$0	\$360,000	\$360,000	\$360,000
	Risk adjustment	↑5%				
Ftr	Subscription and services costs (risk-adjusted)		\$0	\$378,000	\$378,000	\$378,000
Three-year total: \$1,134,000			Three-year present value: \$940,030			

TRAINING AND MANAGEMENT COSTS

Evidence and data. Interviewees stated that once implementation is complete, ongoing management of IBM Watson AIOps with Instana is minimal. Most organizations dedicated a small group of employees to manage Cloud Pak for Watson AIOps day-to-day. These employees were usually established members of IT operations teams and only spent a certain percentage of their time managing Watson AIOps.

Additionally, customers spent time training to use the different features of Cloud Pak for Watson AIOps with Instana. Typically, customers spent time upfront training on the platform and completed some annual training to refresh their knowledge of the platform and familiarize themselves with new features.

Modeling and assumptions. This section explains how the modeling is done.

- The composite organization trains 10 employees to use Cloud Pak for Watson AIOps with Instana. Employees spend 8 hours in initial training to use

the platforms and spend 2 hours each year familiarizing themselves with new features and updates.

- These employees spend a total of 65 hours annually working in Cloud Pak for Watson AIOps. They spend their time communicating with the Cloud Pak for Watson AIOps with Instana account management teams, implementing changes to the platform, building out customizations within the solution, and helping other employees use the platform.

Risks. The following risks may affect this benefit category:

- Management costs will vary based on established product management workflows.
- Training will vary on an organizational basis.

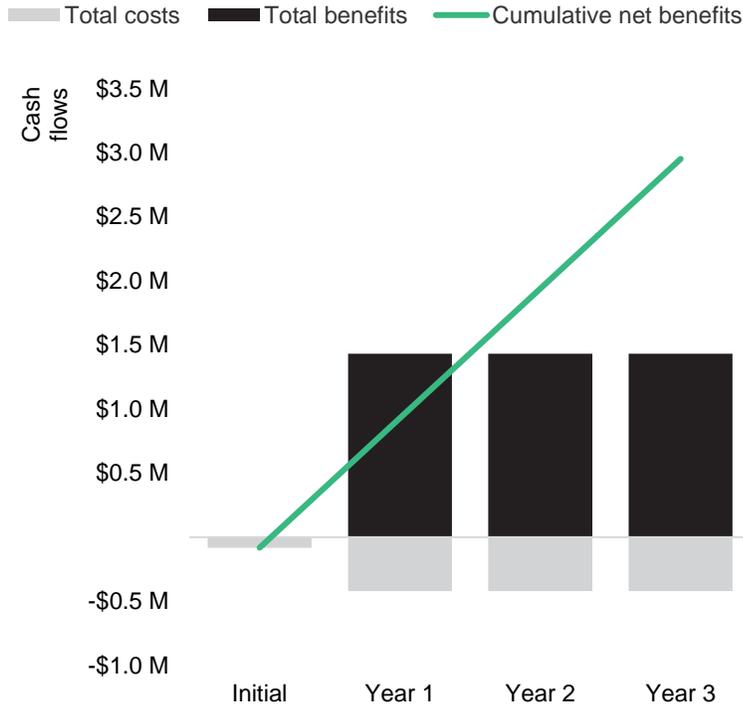
Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$111,407.

Training And Management Costs						
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
H1	Employees trained on Cloud Pak for Watson AIOps	Interviews	10	10	10	10
H2	Hours spent in training	Interviews	8	2	2	2
H3	Hours spent managing Cloud Pak for Watson AIOps	Interviews		65	65	65
H4	Hourly cost of employees involved in training and management	Payscale.com	\$58	\$58	\$58	\$58
Ht	Training and management costs	$(H1*H2*H4)+(H1*H3*H4)$	\$4,640	\$38,860	\$38,860	\$38,860
	Risk adjustment	↑10%				
Htr	Training and management costs (risk-adjusted)		\$5,104	\$42,746	\$42,746	\$42,746
Three-year total: \$133,342			Three-year present value: \$111,407			

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	(\$81,664)	(\$420,746)	(\$420,746)	(\$420,746)	(\$1,343,902)	(\$1,127,997)
Total benefits	\$0	\$1,431,575	\$1,431,575	\$1,431,575	\$4,294,725	\$3,560,115
Net benefits	(\$81,664)	\$1,010,829	\$1,010,829	\$1,010,829	\$2,950,822	\$2,432,118
ROI						216%
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 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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