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The Total Economic Impact™ Of Laiye Work Execution Platform
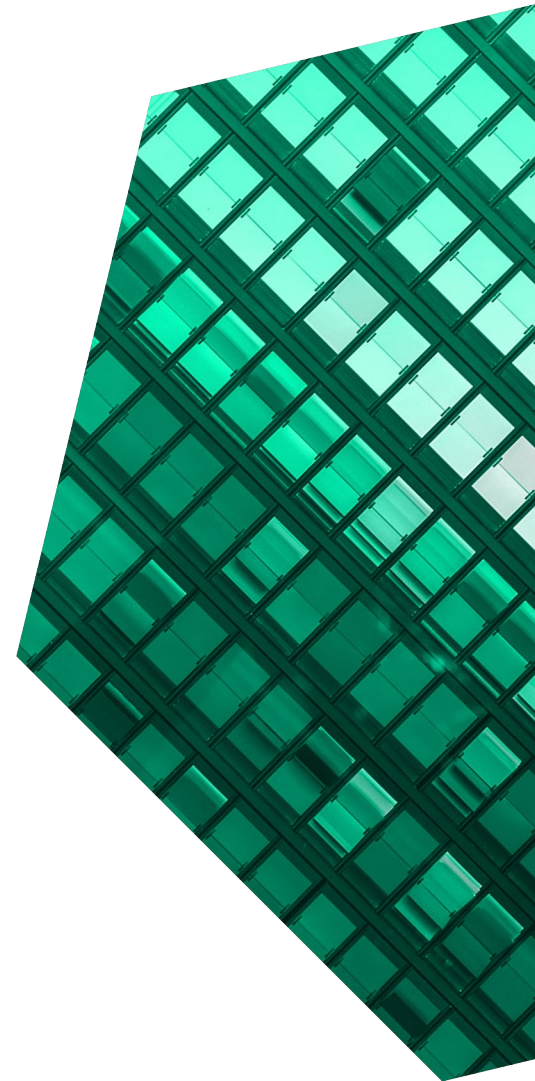
Cost Savings And Business Benefits
Enabled By Work Execution Platform

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Industry Insights

> Explosive technological innovation over the past decade has led to a surge in automation. Business and society have come to embrace automation as a necessity. The prior decade saw automation evolve through a tactical period into another surge due to the COVID-19 pandemic. The next period is now upon us — the era of automation fabric. This phase promises intense competitive power for those enterprises able to truly capitalize on automation as an institutional philosophy, not just as a tech tool.

Automation Fabric Is The Evolution Of Intelligent Automation And Hyperautomation

The terms intelligent automation (IA) and hyperautomation caught on during the pandemic. The focus was fast deployment, clear ROI, and pragmatic AI support, such as text analytics for document extraction. Largely tactical and focused on immediate issues, the pandemic automation period undersold the potential of transformed processes. But it also created dramatic shifts in the market, leading to:

- **Consolidation of process platforms.** In the pandemic automation period, the process improvement platforms realized that if they offered robotic process automation (RPA), low-code digital process automation (DPA) features, process- and task-mining, and intelligent document extraction, they could help automate thousands of processes. This led to frantic acquisition activity by major tech vendors.

- **Enterprise applications that became viable for process improvement.** Applications and suites that had low-code as a feature extended their market reach. Platforms became more commonly adopted for process automation and competed effectively with DPA, RPA, and solution-specific process platforms. Acquired RPA and DPA became features of these tools.

- **The rise of EX-driven automation.** The global worker shortages alter the attitude toward automation. Internal employee experience (EX) skills building, governance, and programs now play a stronger role with a goal to elevate human strengths of emotional intelligence, reasoning, judgment, and interaction with customers. All are important for recruiting and retaining workers.

- **Low-code merging with DPA as discovery-to-execution tools accelerate**. This early 2023 milestone will prove a tipping point for low-code expertise and experience. Issues of governance, coordination, and organizational structure will begin to settle. Vendors that help solve these problems will prosper. There will be no distinction between DPA and low-code vendors. By 2024, task and process mining discovery tools will lead directly to executable automations.[1] Discovery-to-execution will replace low-code as a direction in process automation.

The Automation Fabric — The Next Phase Of Digital Differentiation

Companies realize that competitors that excel at automation are outperforming them. They will see IA and hyperautomation fall short, despite being an accessible way to jump-start automation. Companies must achieve depth in machine learning, data integration, conversational intelligence, and process discovery before they can attempt automation. Leaders will transform processes by weaving together automations in a thoughtful, scalable, and managed way — the automation fabric. By 2024, this will include:[2]

- **A focus on AI-led process improvement.** AI in various forms will find its way into almost every enterprise software category, including process improvement platforms. A new wave of AI-led

vendors will start to make inroads into the process automation market in 2023. These are AI-led as opposed to task- or workflow-led. They will stake their value and reputation on an AI building block augmented with a chatbot workflow, a decision-management component, or a text analytics approach for document extraction.

- **Data integration that addresses where automation is headed**. A modern data integration strategy is essential to support the next generation of automation. Data virtualization, AI-enabled integration, and support for real-time data and modern edge applications becomes essential. Integration platform as a service (iPaaS); API management; extract, transform, load (ETL); and emerging data integration providers will become targets of process automation platforms. Why make a buyer choose between API and RPA's UI integration approach? Offer both and even have them managed from the same console.

- **Tools to integrate the physical and cognitive automation worlds.** Stores, hotels, hospitals, warehouses, and restaurants report shortages for warehouse packing and sorting, delivery, food processing, and janitorial workers. These jobs become prime candidates for automation support but often operate on proprietary, disconnected technology stacks and are managed by specialized talent, both of which are isolated from the purview of automation centers of excellence (COEs). As robotics evolves and becomes mainstream, the automation fabric can provide the connective tissue between the physical and the cognitive worlds.

- **The merging of DPA and low-code tools.** Business developers will drive the democratization of automation, which will reach scale for many organizations in the automation

fabric period. The low-code market disappears as declarative features are embedded in all automation tools and platforms to create more business-user friendly, drag-and-drop development environments. As the automation fabric evolves, automation creation tools will become more refined and allow more flexibility within heterogeneous, bot-based, and API-based workflows.

- **A roadmap to Web3 workflow integration**. New distributed technologies will continue to develop to move millions of transactions outside of traditional corporate control. A growing gap between today's centralized, enterprise-controlled information domains and Web3-based blockchain systems will likely grow. The exact shape is unknown today, but RPA, DPA, and emerging low-code and AI-led platforms will play a role. One thing is clear: There will be a need to integrate the two domains, and this is a gap typically filled by process improvement technologies.

The automation fabric will deliver a comprehensive and integrated automation toolkit and a focus on interoperability and inclusion of physical automation. Importantly, it embraces methods and tools from EX and customer experience (CX) disciplines to design a process around the human rather than have the human adapt to an automation.

Future Of Work Is At A Tipping Point

The pandemic has affected how organizations respond to challenges like the aging workforce and low fertility rates. Meanwhile, intelligent software, AI, robotic process automation bots, and physical robots will take human workers off predictable tasks. According to Forrester research, by 2030, software will replace two-thirds of cubicle worker jobs — those that include repetitive, manual tasks like accounts payable and data entry.[3] Amid these changes, every organization needs to consider:

- **A new division of labor between humans and machines.** The future of work offers up a constellation of innovations that individuals and firms can apply to solve business problems and seize growth opportunities amidst this choppy business environment.

- **Dramatic shifts in human skill sets.** Shifts in the division of labor will require many employees to reskill or upskill themselves. For example, some employees will become robot masters. While software completes 75% of the work, this person will be responsible for handling accidents and acting as a subject matter expert to continuously improve the robot's performance and use the accumulated data to continuously optimize business operation processes.

- **Business innovation empowered by digital workforce.** This new model of work execution based on digital workforce is taking shape and is changing the way workers think about and execute work, enabling companies to do better at their core competencies and inspiring employees to try innovation.

To better meet the challenges of future uncertainty, this automation fabric also need to focus on identifying inefficiencies and work execution gaps through process mining and data analytics, and then take real action to close the gaps.

Executive Summary

Intelligent automation (IA) investment has increased to meet the demands of digital businesses. Enterprises intend to drive future work collaboration between human and digital workers by leveraging a robust portfolio of intelligent automation assets. According to Forrester research, the top two IA ROI expectations for enterprises are labor savings and returns on mistake reduction with CX and EX ranking third and fourth, which will potentially deliver great strategic value to businesses.[4]

The <u>Laiye Work Execution Platform</u> provides a unified, AI-powered, enterprise-class automation platform that allow organizations to optimize their operations and enhance the satisfaction and efficacy of their people.

Laiye commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying the Work Execution Platform.[5] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the Laiye Work Execution Platform in their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed the representative of the Shandong branch of China Mobile Online Marketing Service Center (CMOS Shandong), who has over three years of experience using the Laiye Work Execution Platform. Forrester used this experience to project a three-year financial analysis.

Prior to using the Laiye Work Execution Platform, CMOS Shandong dealt with error-prone and time-consuming manual or partially automated business processes. This hampered both staff and customer satisfaction. CMOS Shandong also managed its business processes through unintegrated point solutions. This limitation resulted in data and process

KEY STATISTICS

Return on investment (ROI)
414%

Net present value (NPV)
$11.24M

silos within the organization, as well as a lack of data-driven decision-making.

Following their investment in Laiye, CMOS Shandong successfully automated the majority of its business processes, resulting in more efficient operations, better employee experience, increased customer engagement, and a more agile business model.

KEY FINDINGS

Quantified benefits. Three-year, risk-adjusted present value (PV) quantified benefits include:

- **Released 300 FTEs from customer service per year.** The automation of customer service management frees hundreds of full-time task workers from answering customer questions and troubleshooting issues. On average, 300 FTEs are released per year. This improvement of service efficiency is worth more than $7.5 million.

- **Service-quality-monitoring efficiency improvement totaled $6.1 million.** Laiye platform automatically integrates multiple data sources and generated reports, which allows for faster access to data and fewer efforts for quality assurance. This generates a total of $6.1 million over three years.

- **Achieved 900% IT management efficiency improvement and improved IT resources allocation.** Using the Laiye Work Execution Platform for routine monitoring and maintenance of IT systems, IT team performs 24/7 system monitoring and maintenance, improving IT management efficiency by 900%. The IT team then devotes its time to higher-value tasks. This reallocation of IT resources totals $301,000 over three years.

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

- **Improve customer experience.** With the Laiye platform, CMOS Shandong reduced customer service repose time and improved the quality of customer service, which created a greater customer experience.

- **Improved employee experience.** The Laiye Work Execution Platform freed employees from mundane and redundant tasks, giving them time back for personal and professional development. This improved employee experience.

- **Broke down data and process silos.** The Laiye Work Execution Platform acted as an organizational integrator that connected different data sources and multiple systems, broke down existing data and process silos, and accelerated internal collaboration and business innovation.

- **Supported data-driven decision-making.** The Laiye Work Execution Platform brought together different data sources, provided a single source of truth, and allowed decision-makers to make more informed decisions that further drive business development.

- **Reduced environmental impact.** The Laiye Work Execution Platform contributed to CMOS Shandong's environmental impact reduction through lower energy consumption in office and reduced commuting.

Costs. Three-year, risk-adjusted PV costs include:

- **License fees.** Laiye charges an annual license fee and, as CMOS Shandong expands its usage, the license fees increased accordingly. These total a three-year, risk-adjusted PV of $794,000.

- **Hardware costs.** This cost includes costs of servers used to set up the whole Laiye solution. These costs total $496,000 over three years.

- **Internal deployment and maintenance costs.** This cost includes costs for initial platform selection, testing, and installation, as well as continuous maintenance over the years. These costs total a three-year, risk-adjusted PV of $691,000.

- **Process development and optimization costs.** CMOS Shandong continued to improve its existing processes and mine new processes over the years. This generates a total cost of $733,000.

The interview and financial analysis found that the representative's organization experiences benefits of $13.96 million over three years versus costs of $2.71 million, adding up to a net present value (NPV) of $11.24 million and an ROI of 414%.

ROI
414%

BENEFITS PV
$13.96M

NPV
$11.24M

PAYBACK
<6 months

Benefits (Three-Year)

Service efficiency improvement	$7.51M
Service-quality-monitoring efficiency improvement	$6.15M
Reallocation of IT management resources	$301K
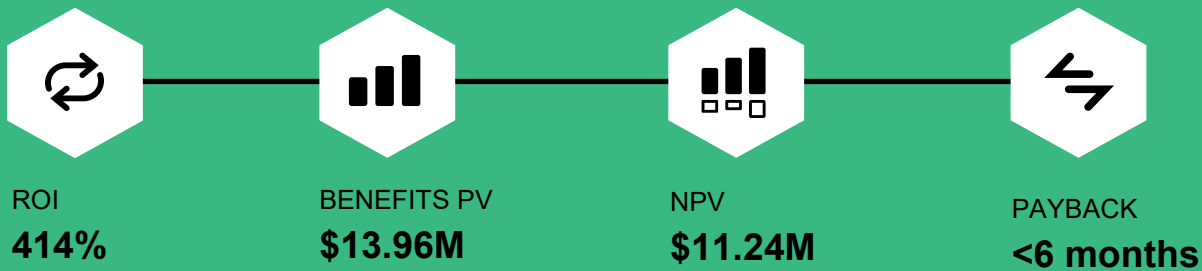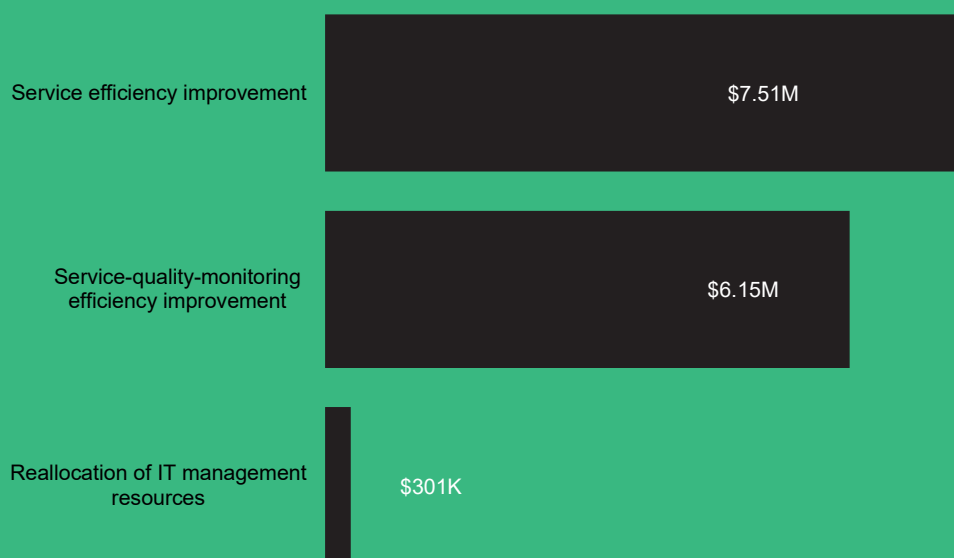
"**The Laiye Work Execution Platform works as a connector, not only breaking down data silos between systems, but also integrating workflows on legacy systems. This helps us further digitalize our operation.**"

— Head of digital team

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 the Laiye Work Execution Platform.

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 the Laiye Work Execution Platform can have on an organization.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Laiye 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 Work Execution Platform.

Laiye 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.

Laiye provided the customer name for the interview but did not participate in the interview.

DUE DILIGENCE
Interviewed Laiye stakeholders and Forrester analysts to gather data relative to Work Execution Platform.

INTERVIEW
Interviewed the representative of an organization using Work Execution Platform to obtain data with respect to costs, benefits, and risks.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interview using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewee.

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.

INTERVIEWEE'S ORGANIZATION

Forrester interviewed the representative of the Shandong branch of China Mobile Online Marketing Service Center (CMOS Shandong), who has three years of experience using Laiye Work Execution Platform. CMOS Shandong has the following characteristics:

- The organization serves as a call center and online service center for China Mobile. It provides customer service online and over the phone.

- It has around 2,500 FTEs and numerous contractors.

KEY CHALLENGES

Prior to using the Laiye Work Execution Platform, CMOS Shandong struggled with manual or partially automated business processes managed by unintegrated point solutions. The interviewee noted how their organization struggled with common challenges, including:

- **Low employee satisfaction and customer experience.** Error-prone and time-consuming processes impacted the speed to delivery and often caused rework. This hindered both customer and employee experiences.

- **Lack of data-driven decision-making.** With many business processes in place managed by unintegrated systems, decision-makers had difficulties getting insights into how these workflows were performing. Often, a business decision was made on a hunch without sufficient supporting data.

- **Data and process silos within the organization.** Business end users were frustrated by too many disparate systems to work with and no direction for cross-functional collaboration.

SOLUTION REQUIREMENTS

The interviewee's organization searched for a solution that could:

- Optimize and automate repetitive and labor-intensive workflows and business processes.

- Improve workflows and business quality.

- Act as a connector and work together with legacy systems and tools.

- Empower the company to develop its own automation capacity.

USE CASE DESCRIPTION

After a request for proposal (RFP) and business case process evaluating multiple vendors, the interviewee's organization chose Work Execution Platform and began deployment:

- CMOS Shandong chose a phased approach for implementation with the volume of business processes increasing by 10% every year.

- Over time, CMOS Shandong became more mature in using the platform and began developing and optimizing processes on their own.

> **"IA returns extend beyond labor savings. It also brings continuous improvement of employee skills and optimization of organizational structures"**
>
> *Head of digital team*

Analysis Of Benefits

■ Quantified benefit data

	Total Benefits						
Ref.	**Benefit**	**Initial**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Atr	Service efficiency improvement	$0	$2,735,775	$3,039,750	$3,343,725	$9,119,250	$7,511,448
Btr	Service-quality-monitoring efficiency improvement	$0	$2,300,078	$2,477,396	$2,672,447	$7,449,921	$6,146,263
Ctr	Reallocation of IT management resources	$0	$120,960	$120,960	$120,960	$362,880	$300,810
	Total benefits (risk-adjusted)	$0	$5,156,813	$5,638,106	$6,137,132	$16,932,051	$13,958,521

SERVICE EFFICIENCY IMPROVEMENT

Evidence and data. One important use case of Laiye platform was automating the customer service process. These included answering customer questions, troubleshooting technical problems, handling customer complaints, collecting and analyzing customer feedback, etc.

After standardizing the operating procedure and enabling attended bots, the interviewee's organization freed up 300 FTEs on average across the three years. These workers moved to work on other tasks.

Modeling and assumptions. The calculation of this benefit considered the following assumptions:

- An assumed 10% annual increase in the number of FTEs released from processing customer service is applied as new customer service-related processes are added each year.

- The average cost for office supplies, equipment (such as laptops, computers, and other accessories), and office management per employee is at regional standard of $910.

Risks. In this calculation, Forrester also assumes the following risks:

- Accuracy of the increase of number of FTEs released and consistency in this rate across years.

- The total volume of customer service requests varies over time, impacting the total number of resources required for customer services.

- Differing annual rates across levels of seniority in customer service functions. The annual rate used will also vary based on industry and location.

Results. To account for these risks, Forrester adjusted this benefit downward by 25%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $7.5 million.

"**With such a large workload, human errors are unavoidable. This is detrimental to both our customers and our business. The Laiye platform eliminates human errors, improves service quality, and makes both our employee and customers happy.**"

Head of digital team

Service Efficiency Improvement						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
A1	Number of FTEs released from processing service before	Interview		270	300	330
A2	Average annual salary	TEI standard		$12,600	$12,600	$12,600
A3	Office supplies and other costs per FTE	Assumption		$910	$910	$910
At	Service efficiency improvement	A1*(A2+A3)	$0	$3,647,700	$4,053,000	$4,458,300
	Risk adjustment	↓25%				
Atr	Service efficiency improvement (risk-adjusted)		$0	$2,735,775	$3,039,750	$3,343,725
	Three-year total: $9,119,250			Three-year present value: $7,511,448		

SERVICE-QUALITY-MONITORING EFFICIENCY IMPROVEMENT

Evidence and data. Implementation of the Laiye platform enabled better success in service-quality monitoring. The Laiye platform automatically integrated multiple data sources and generated reports, which allowed for faster access to data and less effort for validating the data.

- An average of 250 FTEs across the organization needed to be allocated for overlooking process management and generating internal reports. With process automation, the organization avoided allocating these FTEs on such tasks.

- Previously, a team of 52 FTEs was needed to perform manual spot-checks on content and data quality. With Laiye platforms, bots could review content and data posting on a continuous and real-time basis, reducing manual efforts for internal reporting.

Modeling and assumptions. The calculation of this benefit considered the following assumptions:

- An assumed 10% annual increase in the number of FTEs avoided to allocate for process management is applied as new operational workflows are added every year. Each FTE devotes 70% of their time to process management.

- The average cost for office supplies, equipment (such as laptops, computers, and other accessories), and office management per employee is at regional standard of $910.

Risks. In this calculation, Forrester also assumes the following risks:

- Accuracy of the increase of the number of FTEs avoided allocating and consistency in this rate across years.

- The total volume of data and reports varies over time, impacting the total number of resources required.

- Productivity varies across individuals.

- Differing annual rates across levels of seniority in the organization. The annual rate used will also vary based on industry and location.

Results. To account for these risks, Forrester adjusted this benefit downward by 25%, yielding a three-year, risk-adjusted total PV of $6.1 million.

Service-Quality-Monitoring Efficiency Improvement

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
B1	Number of FTEs avoided to allocate for process management	Interview		250	275	303
B2	Percentage of time dedicated to internal reporting related tasks	Assumption		70%	70%	70%
B3	Reduction of number of FTEs responsible for quality assurance	Interview		52	52	52
B4	Average annual salary	TEI standard		$12,600	$12,600	$12,600
B5	Office supplies and other costs per FTE	Assumption		$910	$910	$910
Bt	Service-quality-monitoring efficiency improvement	(B1*B2+B3)*(B4+B5)	$0	$3,066,770	$3,303,195	$3,563,263
	Risk adjustment	↓25%				
Btr	Service-quality-monitoring efficiency improvement (risk-adjusted)		$0	$2,300,078	$2,477,396	$2,672,447
	Three-year total: $7,449,921			**Three-year present value: $6,146,263**		

REALLOCATION OF IT MANAGEMENT RESOURCES

Evidence and data. The IT team was responsible for monitoring various aspects of the business system and IT infrastructure. The team used the Laiye platform for routine monitoring and maintenance of these systems. When an issue occurred, the program automatically flagged the issue to alert the IT team.

- Previously, the IT team needed to conduct system monitoring and maintenance manually. After the deployment of the Laiye platform, CMOS Shandong achieved 24/7 monitoring and alert flagging, improving IT management efficiency by 900%.

- IT workers were freed from these tasks, devoting their time to higher-value activities, such as IT process improvement and innovation.

Modeling and assumptions. IT workers freed from night shifts devote 80% of their freed time to higher-value tasks

Risks. In this calculation, Forrester also assumes the following risks:

- Productivity varies across individuals.

- Differing annual rates across levels of seniority in IT functions. The annual rate used will also vary based on industry and location.

Results. To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV of $301,000.

	Reallocation Of IT Management Resources						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
C1	IT management team efficiency improvement	Interview		900%	900%	900%
C2	Average annual rate	Interview		$21,000	$21,000	$21,000
C3	IT management cost savings	C1*C2		$189,000	$189,000	$189,000
C4	Percentage of time spent on higher-value, IT-related tasks	Assumption		80%	80%	80%
Ct	Reallocation of IT management resources	C3*C4	$0	$151,200	$151,200	$151,200
	Risk adjustment	↓20%				
Ctr	Reallocation of IT management resources (risk-adjusted)		$0	$120,960	$120,960	$120,960
	Three-year total: $362,880			**Three-year present value: $300,810**		

UNQUANTIFIED BENEFITS

The interviewee mentioned the following additional benefits that their organization experienced but was not able to quantify:

- **Improved customer experience.** With the Laiye platform, CMOS Shandong standardized and automated the workflows and responded to customers' needs faster within hours, compared to days. This created a better customer experience and contributed to customer loyalty.

- **Improved employee experience.** The Laiye platform helped CMOS Shandong automate mundane and redundant tasks that otherwise took up valuable employee time. As such, employees felt more supported and motivated, and spent time on more productive, innovative work. This improved employee experience and retention.

- **Broke down data and process silos**. The Laiye platform streamlined and automated business processes through pulling data from multiple sources and linking various systems. As the Laiye platform turned into an enterprise-level initiative, it acted as an organizational integrator that broke down business silos from the back office to the front office. This increased internal collaboration among different departments and enabled a more efficient and innovative operation model.

- **Supported data-driven decision-making**. Prior to the deployment of Laiye, employee found it cumbersome to build and scale internal reports. Many decisions are made on instinct without reliable data support. Laiye brought together different data sources and streamlined the internal reporting processes. CMOS Shandong decision-makers thus were able to discover insights that they were unable to see before, and made data-driven decisions that could improve business performance.

- **Reduced environmental impact.** The Laiye platform supported CMOS Shandong's sustainability efforts and contributed to a reduction of its environmental footprint. With the introduction of the Laiye platform, CMOS Shandong released around 500 FTEs per year. This led to lower energy consumption in office and reduced commuting, which was equivalent to 1,149 tons of greenhouse gas emissions per year.

FLEXIBILITY

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

- **Reskilled and upskilled workforce.** Demands for nonroutine analytics tasks that required skills like critical thinking and technical familiarity increased as CMOS Shandong expanded its usage of the Laiye platform. CMOS Shandong educated its employees on how to work alongside IA.

- **Accelerate cross-functional collaboration**. CMOS Shandong built a center of excellence that bridged operation, strategy, training, and technology related to automation. With the scaling of the Laiye platform, CMOS Shandong expected to further break down silos within the organization and encourage more cross-functional collaboration.

- **Enable further digital transformation**. By automating processes and minimizing human input, the Laiye platform reshaped the way CMOS Shandong operated and made it possible for further digital transformation.

- **Support business innovation**. As CMOS Shandong brought the Laiye platform from back

to the front office, it looked forward to creating more business value and driving more business innovation.

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

Enabled by the Laiye platform, we not only improve our operational capability, but also expand our market based on accumulated IA capability and experience.

Head of digital team

Analysis Of Costs

Quantified cost data

Total Costs

Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Dtr	License fees	$0	$291,200	$320,320	$352,352	$963,872	$794,182
Etr	Hardware costs	$0	$182,000	$200,200	$220,220	$602,420	$496,364
Ftr	Internal deployment and maintenance costs	$220,500	$189,000	$189,000	$189,000	$787,500	$690,515
Gtr	Process development and optimization costs	$0	$294,840	$294,840	$294,840	$884,520	$733,223
	Total costs (risk-adjusted)	$220,500	$957,040	$1,004,360	$1,056,412	$3,238,312	$2,714,284

LICENSE FEES

Evidence and data. CMOS Shandong paid an annual license fee to Laiye. License fees were based on a per process basis.

Modeling and assumptions. The license fee for Year 1 is $224,000. With a 10% annual increase in newly added business processes, the license fee has a 10% increase accordingly.

Risks. License fees vary depending on the following:

- The size of the organization.
- The number of processes automated and newly added processes.

Results. To account for these risks, Forrester adjusted this cost upward by 30%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $794,000.

License Fees

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
D1	Annual Laiye license	Interview		$224,000	$246,400	$271,040
Dt	License fees	D1	$0	$224,000	$246,400	$271,040
	Risk adjustment	↑30%				
Dtr	License fees (risk-adjusted)		$0	$291,200	$320,320	$352,352
	Three-year total: $963,872			Three-year present value: $794,182		

HARDWARE COSTS

Evidence and data. CMOS Shandong chose to deploy the Laiye platform on-premises. This cost included fees related to the hardware used for deployment.

Modeling and assumptions. Forrester made the following assumptions:

- Physical servers are used to support the deployment of Laiye platform.

- Server costs for Year 1 are $140,000. With a 10% annual increase of newly added business process, the server fees have a 10% increase accordingly.

Risks. Hardware costs vary depending on the following:

- The size of the organization.

- The number of processes automated and newly added processes.

Results. To account for these risks, Forrester adjusted this cost upward by 30%, yielding a three-year, risk-adjusted total PV of $496,000.

Hardware Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
E1	Server costs	Interview		$140,000	$154,000	$169,400
Et	Hardware costs	E1	$0	$140,000	$154,000	$169,400
	Risk adjustment	↑30%				
Etr	Hardware costs (risk-adjusted)		$0	$182,000	$200,200	$220,220
	Three-year total: $602,420			Three-year present value: $496,364		

INTERNAL DEPLOYMENT AND MAINTENANCE COSTS

Evidence and data. The interviewee from CMOS Shandong noted that they had to spend time and effort in the initial platform selection, testing, and installation as well as continuous maintenance over the years.

Modeling and assumptions. Forrester made the following assumption:

- The composite involves 60 FTEs in the initial platform selection, backend preparation, and platform installation. Each devotes 14% of their time.

- Twenty FTEs are responsible for continuous maintenance of the platform. Each devotes 36% of their time

Risks. Internal deployment and maintenance costs vary depending on the following:

- The size, scope, and complexities of deployment.

- The available capacity and skill sets of teams.

- Differing annual rates across levels of seniority in IT functions. The annual rate used will also vary based on industry and location.

Results. To account for these risks, Forrester adjusted this cost upward by 25%, yielding a three-year, risk-adjusted total PV of $691,000.

Internal Deployment And Maintenance Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
F1	Number of FTEs involved in platform selection, backend preparation, and platform installation	Interview	60			
F2	Percentage of time each FTE dedicates for platform selection, backend preparation, and platform installation	Interview	14%			
F3	Average annual salary	TEI standard	$21,000			
F4	Subtotal: Internal deployment costs	F1*F2*F3	$176,400			
F5	Number of FTEs responsible for maintenance	Interview		20	20	20
F6	Percentage of time each FTE dedicates for maintenance	Interview		36%	36%	36%
F7	Average annual salary for maintenance team	TEI standard		$21,000	$21,000	$21,000
F8	Subtotal: Internal maintenance costs	F5*F6*F7		$151,200	$151,200	$151,200
Ft	Internal deployment and maintenance costs	F4+F8	$176,400	$151,200	$151,200	$151,200
	Risk adjustment	↑25%				
Ftr	Internal deployment and maintenance costs (risk-adjusted)		$220,500	$189,000	$189,000	$189,000
	Three-year total: $787,500			**Three-year present value: $690,515**		

PROCESS DEVELOPMENT AND OPTIMIZATION COSTS

Evidence and data. Following the success of initial automations, CMOS Shandong built a center of excellence (COE) comprising of FTEs who were interested in scaling up intelligent automation within the organization. The team has since added more self-developed processes onto the Laiye platform and continued to optimize existing processes.

Modeling and assumptions. Twenty FTEs are involved in process development and optimization. Each devotes 54% of their time.

Risks. Process deployment and optimization costs vary depending on the following:

- The size, scope, and complexities of deployment.

- The available capacity and skill sets of IT teams working to develop and optimize processes.

- Differing annual rates across levels of seniority in IT functions. The annual rate used will also vary based on industry and location.
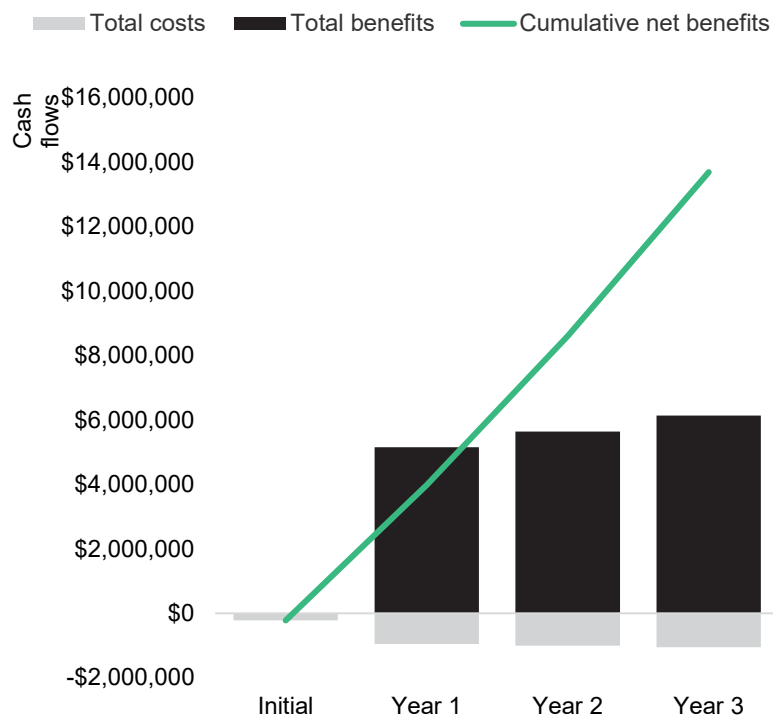
Results. To account for these risks, Forrester adjusted this cost upward by 30%, yielding a three-year, risk-adjusted total PV of $733,000.

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
	Process Development And Optimization Costs					
G1	Number of FTEs responsible for process development and optimization within IA CoE	Interview		20	20	20
G2	Percentage of time each FTE dedicates for process development and optimization	Interview		54%	54%	54%
G3	Average annual salary for maintenance team	TEI standard		$21,000	$21,000	$21,000
Gt	Process development and optimization costs	G1*G2*G3	$0	$226,800	$226,800	$226,800
	Risk adjustment	↑30%				
Gtr	Process development and optimization costs (risk-adjusted)		$0	$294,840	$294,840	$294,840
	Three-year total: $884,520			**Three-year present value: $733,223**		

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 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	($220,500)	($957,040)	($1,004,360)	($1,056,412)	($3,238,312)	($2,714,284)
Total benefits	$0	$5,156,813	$5,638,106	$6,137,132	$16,932,051	$13,958,521
Net benefits	($220,500)	$4,199,773	$4,633,746	$5,080,720	$13,693,739	$11,244,237
ROI						414%
Payback period (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: Supplemental Material

Related Forrester Research
"Automation Can Solve The Service Worker Shortage," Forrester Research, Inc., February 10, 2022.

Appendix C: Endnotes

[1] Source: "Predictions 2022: Automation," Forrester Research, Inc., October 28, 2021.
[2] Source: "The Path To The Automation Fabric," Forrester Research, Inc., May 4, 2022.
[3] Source: "The Future Of Work Starts Now," Forrester research, Inc., August 2, 2021.
[4] Source: "Forrester Infographic: Intelligent Automation's Value Spreads Beyond Cost Savings," Forrester Research, Inc., October 29, 2021.
[5] 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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