RETURN ON INVEST

16,203+
7,410+
4,991+
2,007+

Measuring the Full Value of Robotic Automation

AI advances, labor shortages and other drivers necessitate new ROI calculations

FIZYR

Table of Contents

FIZYR

Measuring the Full Value of Robotic Automation

Fizyr proposes an updated ROI model that addresses not only financial returns, but also worker safety, ESG impacts, supply chain resilience and risk mitigation.

Executive summary

Robotic automation has seen significant adoption across various industries recently, driven by advancements in computer vision and artificial intelligence, persistent labor shortages, directives to put new efficiencies in place, and other factors. When deploying these new systems, a clear theme has emerged: organizations increasingly seek to automate the **dull, dirty and dangerous jobs** that challenge their operations and efficiency most.

When weighing automation investments like these, companies are used to making calculations and projections to understand the return on such an investment. These calculations have traditionally factored in metrics that include investment amount, output per hour, direct cost elements and others, but recent advances driving the integration of robots into manufacturing and service sectors promise new levels of efficiency, accuracy and scalability.

These heightened benefits necessitate a shift away from traditional ROI calculations in favor of more complete models that consider broader output projections. This paper highlights the limitations of traditional ROI calculations in capturing the full value of these technologies and proposes an updated ROI model that includes output projections that address not only financial returns but also factors like worker safety; environmental, social and governance (ESG) impacts; supply chain resilience; and risk mitigation.

While legacy calculations underestimate returns, limit the optimization of business processes, increase risk and

FIZYR

reduce flexibility of the supply chain, this new approach more effectively aligns with business goals and modern challenges, such as supply chain disruptions and labor shortages. Organizations using more complete ROI calculations gain a more thorough understanding of the return they can expect when investing in next-generation automation.
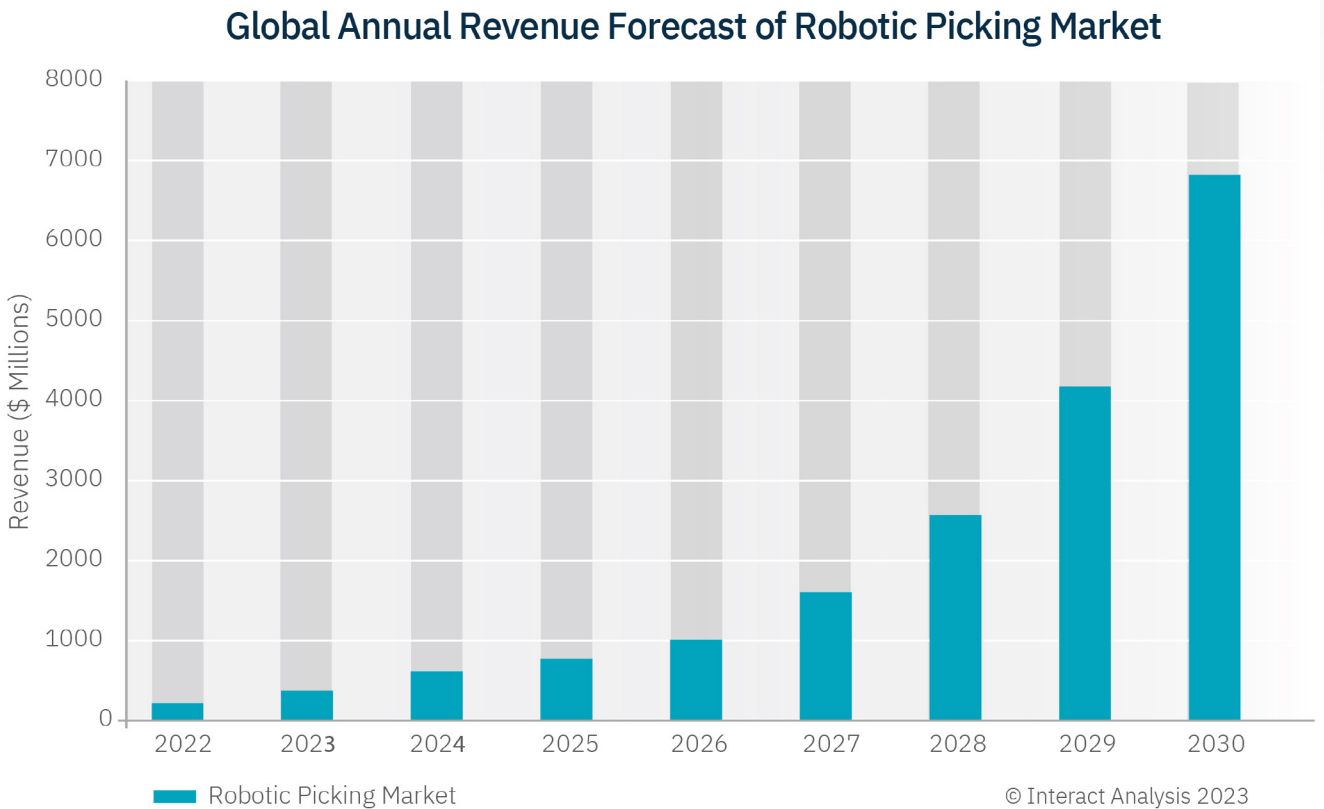
An array of emerging investment options offer organizations more flexibility to finance advanced automation. They no longer have to purchase, own and maintain their automation solutions thanks to a variety of new business models that make advanced automation available to more organizations than ever before. For those seeking to automate the dull, dirty and dangerous jobs that present so many staffing challenges, this paper includes overviews of these new models, as well as key recommendations and an ROI calculation checklist to help them get started.

The robotic picking market alone, for example, is projected to grow to $6.8 billion annually by 2030, up from $236 million in 2022.

Automating the dull, dirty and dangerous

In warehousing, manufacturing, fulfillment, logistics and many other sectors, businesses increasingly set their automation sights on the dull, dirty and dangerous jobs that are difficult to staff and contribute mightily to workforce shortages and efficiency breakdowns. New advances in machine vision are raising the bar for what's possible and driving big increases in the adoption of automation. The robotic picking market alone, for example, is projected to grow to $6.8 billion annually by 2030, up from $236 million in 2022, and this represents just a fraction of the dull, dirty and dangerous jobs many organizations want to automate.

New business models make advanced automation solutions available, helping automate dull, dirty and dangerous jobs.

With leading integrators Vanderlande and AWL deploying Fizyr Panoptic™ computer vision, DHL automated the picking and placing of parcels from randomly mixed pallets onto conveyor belts at DHL Parcel Benelux, eliminating

FIZYR

problematic bottlenecks at the sorting facility. The custom solution it deployed lifts up to 31.5 kg (69 pounds), processes up to 800 parcels per hour with 99.99% accuracy and utilizes two integrated pallet stations to maximize efficiency.

Global Annual Revenue Forecast of Robotic Picking Market

Revenue ($ Millions)

■ Robotic Picking Market

© Interact Analysis 2023

AVT Europe NV - owned by Vinci Group - built and deployed a heavy bag depalletizing solution for multiple end users. It picks and places heavy bags exceeding 25 kg (55 pounds) from variable pallet stacks at a rate of more than 400 bags per hour. These robotic cells automate one of the most difficult, dangerous and hard-to-staff jobs in the supply chain and provide a critical competitive advantage to food manufacturers and other dry goods processors.

These are just two examples of the many dull, dirty and dangerous jobs long thought to be impractical to automate that are now being managed with great accuracy and efficiency. Thanks in large part to advanced computer vision, everything from industrial kitchen loading and inspection to trailer and container unloading and cold

FIZYR

warehouse packing can now be automated with great success to relieve labor shortages and clear bottlenecks. The commitment to innovation of top integrators, equipment manufacturers and end users, like those in Fizyr's partner program, continues to propel these and other automation and detection efforts.
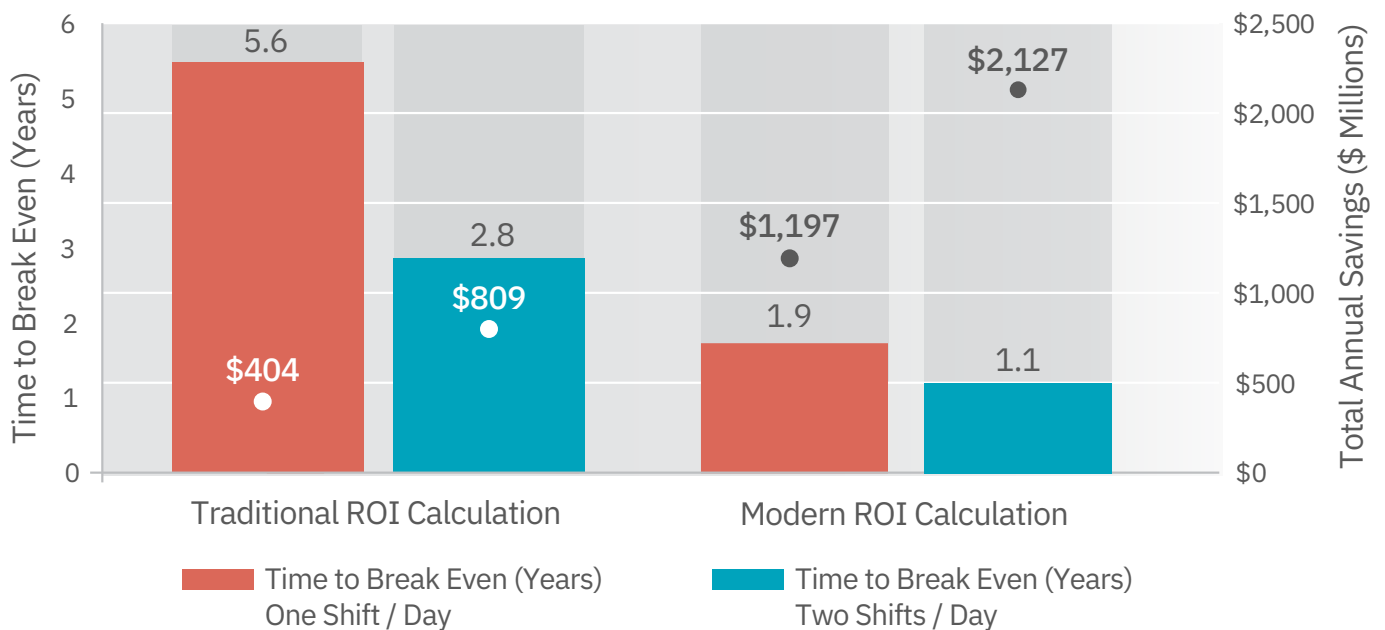
As some organizations roll out these competitive advantages in the form of game-changing automation, others continue to face the same long-standing labor and business challenges, with old and outdated analyses clouding their views of what's possible and profitable today. While companies are used to calculating and projecting the return on major investments, the heightened benefits now available to organizations necessitate using more complete models that consider not only direct financial returns but also projected gains in worker safety, ESG progress, risk mitigation and supply chain resilience. Automating a wide range of high-variance tasks can turn major challenges into competitive advantage, but these trajectory-altering achievements require a modern view of investment and ROI to implement.

A more accurate business case

Although the ROI of every automation effort requires unique consideration and must account for several important variables, in many cases, a more complete view of ROI helps to highlight a wide range of overlooked benefits and costs. Often, with this more complete view, these significant investments pay for themselves much faster than expected, delivering positive returns in less than half the time projected by legacy ROI analyses. Depending on variables that include the number of shifts, the number of robots and many other considerations, advanced automation systems often deliver more than twice the annual savings that organizations expect.

These robotic cells automate one of the most difficult and hard to staff jobs in the supply chain and provide a critical competitive advantage to food manufacturers and other dry goods processors.

FIZYR

The following example highlights the major difference in ROI projections when considering one shift/day versus two, even when all other factors stay consistent. Forecast total annual savings more than double with legacy ROI projections and nearly double through a lens that considers more modern output projections. The solution reaches its break-even point in half the time using legacy ROI projections and 42% faster with a more robust, modern calculation.

Parcel Induction ROI Projections
(One Shift vs. Two Shifts)

Legend:
- Time to Break Even (Years) One Shift / Day
- Time to Break Even (Years) Two Shifts / Day

Chart values:
- Traditional ROI Calculation: 5.6 years ($404), 2.8 years ($809)
- Modern ROI Calculation: 1.9 years ($1,197), 1.1 years ($2,127)

Thanks to the consistency and performance of new automation and detection systems that deploy advanced computer vision, major performance gains are being made in important areas that include improving worker safety and ensuring sustainable and resilient operations. These are among the most important goals for many organizations.

Despite widespread agreement on the importance of these and similar goals, they have long been missing from most organizations' ROI calculations as they consider which projects to implement or reject. As organizations

FIZYR

Those organizations unsure of where to start should begin with a workflow audit to identify bottlenecks and other problems and better understand the best places to deploy advanced automation.

Fizyr Panoptic™ computer vision automates the picking and placing of parcels from randomly mixed pallets onto conveyor belts, eliminating bottlenecks at sorting facilities.

consider investing to automate their dull, dirty and dangerous jobs, each should audit their ROI calculations alongside business goals to ensure they account for the many ways these automation initiatives will contribute to organizational success.

Some organizations will know precisely where bottlenecks and other problems are creating inefficiencies and how to prioritize which challenges to address first. In other cases, organizations may be directed to adopt automation to create new efficiencies, directly address workforce shortages or further some other broad business goal.

Those organizations unsure of where to start should begin with a workflow audit to identify bottlenecks and other problems and better understand the best places to deploy advanced automation. This process helps to determine the specific dull, dirty or dangerous tasks that need to be automated most urgently. With specific tasks and goals in mind, organizations can then seek out the best solutions to address them.

With potential solutions in hand, it's time to begin building a business case. Consult Fizyr's Checklist for Preparing ROI Calculations, included at the end of this paper. Review the lists of traditional financial metrics. Add additional financial metrics that directly support the overall business goals of the organization, and factor in regional considerations, including the impact of all work limitations and regulations. To the extent possible, account for long-term benefits like heightened worker safety, satisfaction and fulfillment; projected increases in revenue or production; etc.

With a comprehensive set of metrics evaluated, assemble a calculation that accounts for all relevant value-added benefits, and use it to calculate the time to break-even point and total annual savings. With the cost/benefit analysis nearly complete, determine the best financing option available and make any necessary adjustments to these projections.

FIZYR

These steps, when executed in an orderly fashion, can help organizations arrive at a more accurate forecast for the returns they should expect from automation investments.

Building a Business Case for Automation

Define Your Automation Project

Start by defining your project if you and your team have not already identified a specific task or brownfield project to automate. Conduct a workflow audit to identify bottlenecks and potential problems and determine the specific tasks (often dull, dirty and dangerous) that need to be automated most urgently to alleviate production, staffing, safety and other challenges. Prioritize these tasks and begin with the first.

BUILD YOUR BUSINESS CASE

01
Identify the best automation solutions and partners

- Align vendors with your project goals
- Determine capabilities, costs and resource availability
- Choose vendors that will be full partners in design, implementation and operations

02
Calculate thorough ROI projections, utilizing the Fizyr checklist

- Incorporate traditional financial metrics and metrics that address broad business goals and output projections
- Factor in regional considerations, labor constraints and regulations, as well as long-term worker safety and satisfaction
- Determine break-even point and total annual savings

03
Determine financing options

- Align with your internal finance team to clarify funding options and costs of capital
- Consider flexible financing options (CapEx, RaaS, Usage-Based, Performance-Based)

04
Finalize and present the business case

- Think cross-functionally
- Stress long-term benefits
- Strike the right balance between discussions of hard metrics and intangibles

FIZYR

Essential components of ROI

Given the dynamic nature of contemporary geopolitical events and other modern challenges, supply chain disruptions, demographic changes, and stringent ESG regulations, basic ROI modeling falls short in today's complex world. It fails to capture the full potential and broader impact of robotic automation and detection, and businesses need a more nuanced approach that includes output projections.

Organizations considering output projections are more likely to understand the true value of automating the dull, dirty and dangerous jobs that cause persistent labor shortages. They're also far less likely to be left behind as more organizations modernize their approach and consider many often-overlooked benefits as part of a more contemporary, comprehensive and accurate ROI analysis.

Given the dynamic nature of contemporary geopolitical events and other modern challenges, basic ROI modeling falls short in today's complex world. It fails to capture the full potential and broader impact of robotic automation and detection.

ASSESS BROAD BUSINESS IMPACT

To capture the full value of investments in robotic automation, modern ROI calculations should consider the impact of investments on a wide range of factors that contribute to business goals. For a more accurate and comprehensive ROI calculation, Fizyr proposes the following factors, beyond the more traditional metrics most commonly included:

Expected Productivity Gains (EPG)	the increase in output due to automation
Improved Accuracy and Reduced Waste (IARW)	cost savings resulting from fewer errors and less material waste
Enhanced Scalability and Flexibility (ESF)	the ability to scale operations efficiently
Labor Cost Savings (LCS)	reduced workforce and/or strategic redeployment to higher-value tasks
Switching Cost of Hiring/Training (SC)	costs associated with hiring and training new staff and unscheduled downtime
Peak Season Hiring Costs (PSHC)	additional costs during high-demand periods
Environmental, Social and Governance (ESG) Impact	benefits related to environmental, social and governance factors, such as reduced carbon footprint and improved workplace safety
Other Estimated Savings (OES)	additional cost savings from improved processes

These commonly overlooked metrics should be considered for inclusion in any ROI calculations designed to measure the potential and project the impact of initiatives to automate tasks in high-variance environments. They help tell a more complete story about automation investments paying off for businesses and should complement the more basic considerations that have long been used to project ROI.

RETAIN LONG-ESTABLISHED METRICS

More typical financial metrics, long accepted as part of the ROI projection process should remain a core part of calculations going forward. These should include the following:

Total System Cost (TSC)	the overall investment required to implement the robotic system
Number of Robots (N)	the quantity of robots deployed
Operational Intensity	shifts per day (S) and days per week (D)
Electricity Cost (EC) per hour	the cost of electricity required to operate the robots
Annual Labor Costs (ALC) per Operator	the yearly labor cost per human operator replaced by robots
Number of Operators Replaced per shift (OR)	total human operators replaced for each shift
Percentage of Labor Retained (PLR)	the proportion of labor retained for system operations
Labor Cost Increase (LCI)	the expected increase in labor costs over time

☑ *A checklist of considerations for effective ROI calculations can be found at the end of this paper.*

FIZYR

The Labour Inspectorate pointed to "robotization and automation" as a way to help alleviate the need for heavy lifting among employees. At Fizyr, many of our customers have already deployed these automation solutions to both protect workers and reduce facility-clogging bottlenecks.

RODE (RObotic DEpalletizer): an Arvato / AWL project with Fizyr Panoptic™ vision

One scenario, two projections

To illustrate the different projections these two approaches will produce, Fizyr used both models to evaluate an investment to automate parcel induction for a major parcel handler. Decisions similar to this are being considered by many organizations to automate other dull, dirty and dangerous jobs. While each of these ROI calculations should be uniquely tailored to each organization and investment, running legacy and modern calculations on one example scenario helps illustrate how different these projections turn out to be.

Parcel induction provides a particularly timely example following a recent development out of the office of the Netherlands' Labour Inspectorate that Fizyr expects will further accelerate the adoption of automation to streamline dull, dirty and dangerous jobs throughout Europe and North America. According to the Labour Inspectorate's new directive, the six largest Dutch parcel handlers must immediately do more to protect workers. After conducting a year of research across 35 locations, the Labour Inspectorate gave the country's six largest parcel delivery companies one year to make significant improvements but insists those improvements must start immediately.

A spokesperson from the Labour Inspectorate pointed to "robotization and automation" as a way to help alleviate the need for heavy lifting among employees. At Fizyr, many of our customers have already deployed these automation solutions to both protect workers and reduce facility-clogging bottlenecks.

This real-world parcel induction example demonstrates how incorporating additional, modern output projections can more effectively capture the diverse benefits that robotic automation and detection systems offer to today's enterprises. This more inclusive approach produces a more accurate prediction of financial performance while also aligning with broader societal and environmental objectives, making a strong case for investing in advanced automation and ensuring operations are sustainable and resilient in an increasingly unpredictable world.
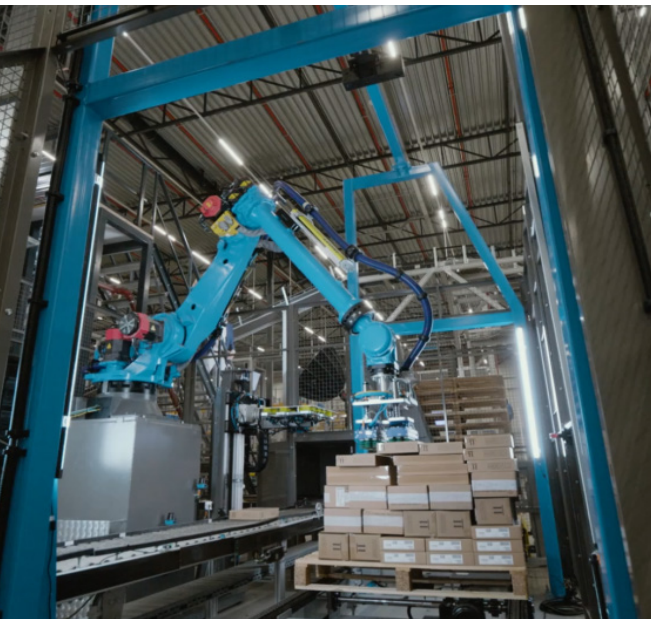
FIZYR

For a more traditional view, the ROI calculation factored in labor cost savings, accounted for both replaced and retained labor, and compared these savings against TSC and operational expenses to determine the net financial benefits. To a lesser extent, this assessment also revealed the positive financial and organizational impact of advanced automation solutions on long-standing supply chain bottlenecks, making a compelling case in its own right for their economic advantages.

Considering current geopolitical events, recent supply chain disruptions, the push for companies to comply with ESG requirements and more, our revised calculation presents a more comprehensive model, factoring in a wide variety of output projections. This calculation highlights the importance of optimizing financial performance while aligning with a wide range of important business goals, proposing an advanced model that accounts for the value created through productivity gains, cost savings and ESG impacts.

Parcel Induction:
Traditional vs. full value capture ROI calculations

In this analysis, we conducted an ROI calculation for a parcel induction system, using a detailed model that incorporates a variety of input parameters and production data.

The key parameters used include:
- **Throughput per Month:** Based on a two-shift operation
- **Operational Days:** 365 days a year
- **Labor:** 10 operators per shift

Our data sources include a mix of real-world production data from existing parcel induction robotic cells, input from domain experts and key assumptions.

Variables and assumptions include:
- **Error Rates:** The percentage of errors in the process and associated costs
- **Downtime:** Rates and costs due to operational downtime
- **Peak Season Requirements:** Adjustments for increased throughput during peak seasons
- **Employee Turnover:** The impact of turnover on labor costs
- **Training Costs:** Costs associated with training new employees
- **Labor Cost Increase:** Anticipated increases in labor costs over time
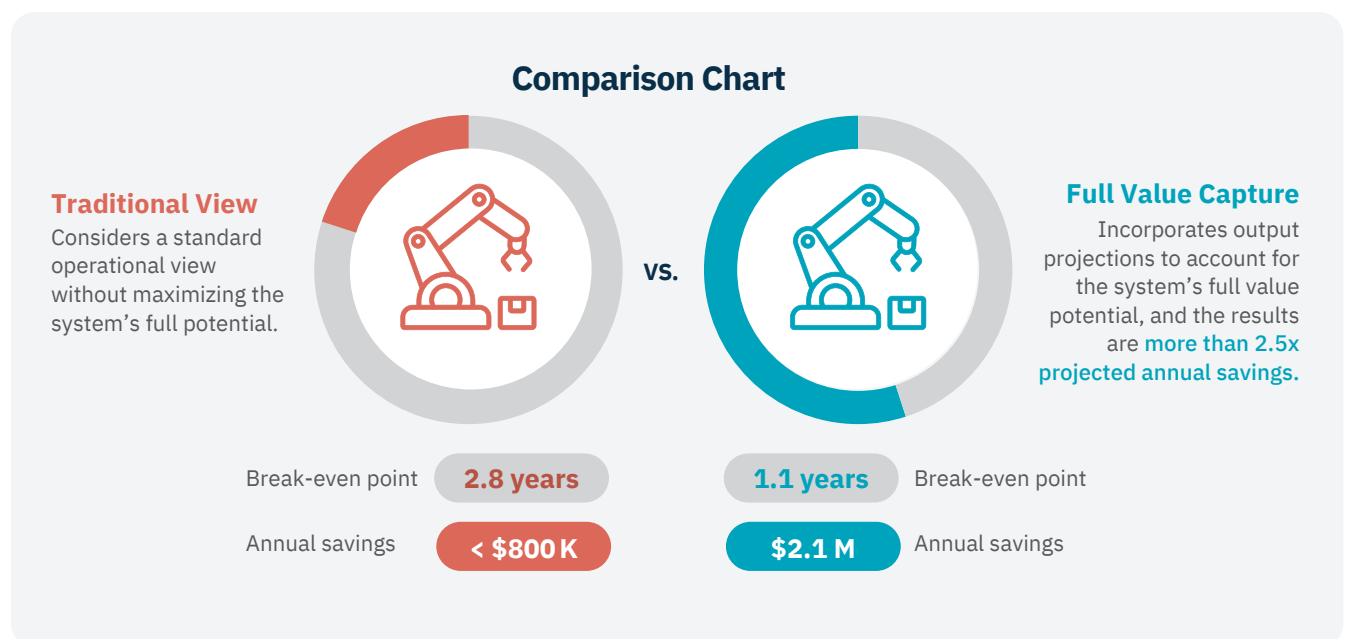
More than 2.5x projected annual savings

1. Traditional view: considers a standard operational view without maximizing the system's full potential. It results in:

    a. Break-even point - **2.8 years**

    b. Annual savings - **more than $800,000**

2. Full value capture: incorporates output projections to account for the system's full value potential, and the results are more favorable:

    a. Break-even point - **1.1 years**

    b. Annual savings - **$2.1 million**

This comparison highlights the significant financial benefits of optimizing the parcel induction system by capturing its full operational value with a more accurate ROI calculation. Blending traditional financial metrics with modern considerations clarifies how much faster the solution pays for itself.

Comparison Chart

Traditional View
Considers a standard operational view without maximizing the system's full potential.

vs.

Full Value Capture
Incorporates output projections to account for the system's full value potential, and the results are **more than 2.5x projected annual savings.**

| Break-even point | **2.8 years** | **1.1 years** | Break-even point |
| Annual savings | **< $800 K** | **$2.1 M** | Annual savings |

The updated factors contributing the most added value to this analysis include:

- Improved accuracy and reduced waste
- Enhanced scalability and flexibility
- Labor cost savings and redeployment to higher-value tasks
- Switching costs, including staff turnover and unscheduled downtime
- Peak season hiring costs
- ESG improvements, especially environmental
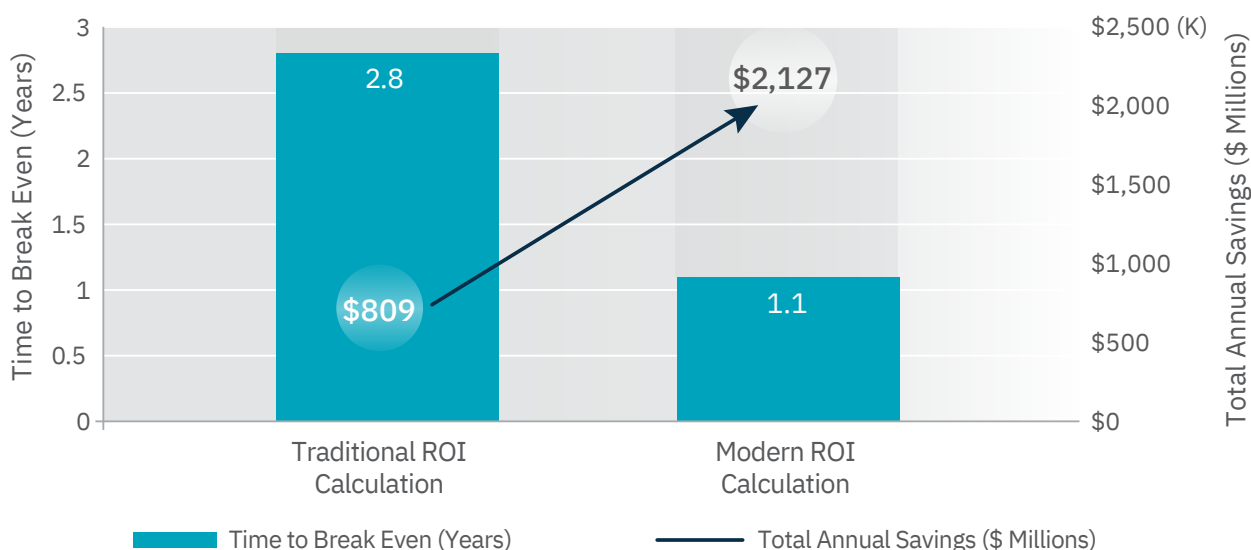
FIZYR

Other big gains harder to quantify

Even with a much more thorough ROI projection in place, these projections still undersell the impact these investments will return for organizations. Many long-term benefits are too variable and difficult to quantify. Many of these important factors are excluded from our analysis, but organizations investing in automation still reap the rewards of:

- Improved worker safety
- More fulfilled employees enjoying an improved quality of work
- Turnkey, low-cost scalability as revenue or production increase
- Expected productivity gains as performance and accuracy reach optimal levels
- Regional regulations: many workers can only lift for four hours each day, for example

Although difficult to quantify in an analysis like this that applies to organizations universally, considerations like these can make significant contributions to ROI calculations. Each organization needs to evaluate its own situation, business goals and governance to develop the ROI calculation that best suits its specific situation and best serves the interests of its leadership, employees, customers, investors and other stakeholders.

The Impact of Output Projections on Automation ROI (Two Shifts / Day)

Protecting workers is great for business, and parcel handlers worldwide can expect impressive returns on investment when they work with Fizyr and its partner network to automate dull, dirty and dangerous jobs to improve their operations. Parcel handlers in the Netherlands must improve immediately due to the recent government mandate, but they can rest easy knowing that today's advanced automation solutions perform with accuracy and boost bottom lines. Because these

FIZYR

automation investments make great business sense, automation momentum accelerated throughout Europe and North America in 2023 and 2024, and it is expected to continue to gain steam.

Fizyr CEO Ken Fleming sees this change in regulation having a significant impact well beyond the borders of the Netherlands as regulators and parcel handlers ramp up automation elsewhere. Once the carriers implement automated solutions at their Netherlands locations, they will be more likely to accelerate their roll out globally. Dull, dirty and dangerous jobs are the hardest on workers and thus the most difficult to staff.

Ken Fleming, Fizyr CEO

New commercial models for automation investment

One major cost not factored into these ROI analyses is the cost of capital. Purchasing advanced robotic automation and detection systems outright represents significant investment for most organizations, and many need to first secure capital before they can do so. Fortunately, new commercial models have emerged, and they provide other, more flexible options for organizations in need of advanced automation.

When considering the cost of capital, businesses should examine at least four different investment models available in today's market and choose the one that's most advantageous for their specific situation. As these new models boost access for organizations seeking to automate their dull, dirty and dangerous jobs, they will methodically optimize and future proof our global supply chains over time.

How will organizations invest in automation and detection systems going forward?

- **Capital Expenditure (CapEx) |** Requires upfront investment in equipment. Data insights optimize utilization, maintenance and ROI. Customers should insist on 24/7 support, maintenance and updates. Agreements should include flexibility and options to upgrade to ensure long-term viability, adaptability and enhancements.

- **Robotics-as-a-Service (RaaS) |** Customers rent robotic solutions with support. Data insights enhance performance and ROI. Agreements should contain all-inclusive support and specific guarantees related to ROI and performance.

- **Usage-Based |** Customers pay per usage. Data insights track usage and performance compliance. Agreements should include flexibility, upgrades, the ability to reconfigure, 24/7 support, maintenance and updates.

- **Performance-Based |** Customers pay for, and data insights verify, performance. Agreements should include performance guarantees, and customers should investigate performance-related subscription fees, 24/7 support, maintenance and updates.

Each of these business models offers distinct advantages and drawbacks, depending on a company's specific financial situation, risk tolerance and operational flexibility. Organizations should carefully consider the pros and cons of each to determine which model aligns best with their long-term strategies and operational needs.

Financial Model	PROS	CONS
CapEx	• **Control and full ownership:** allows for complete control over usage and maintenance • **Customization:** can be fully customized to specific business needs without restrictions • **Long-term cost effectiveness:** potentially more cost-effective in the long-term, without recurring fees	• **High initial cost:** requires a significant upfront capital expenditure, which can be a barrier for small businesses • **Maintenance and updates:** owner handles all maintenance, updates and upgrades, which can be costly and complex; the complexity and significance of software alone continues to grow relative to features, fixes and security updates • **Obsolescence risk:** technology could become outdated, with the burden of upgrading or replacing resting on the owner

Financial Model	PROS	CONS
Robotics-as-a-Service (RaaS)	• **Lower initial costs:** reduces the need for high initial capital investment, spreading costs over time • **Scalability:** easier to scale operations up or down or return the solution altogether based on current needs without a significant financial burden • **Inclusive support and upgrades:** typically includes maintenance, support and upgrades, reducing operational hassle	• **Ongoing costs:** though initial costs are lower, the ongoing subscription fees can accumulate and eventually surpass the cost of ownership • **Limited control:** less control over the equipment, which is owned by the service provider • **Dependency on provider:** reliance on the provider for timely updates, support and maintenance
Usage-based	• **Pay-per-pick/shift:** costs are tied directly to the usage of the equipment, which can optimize expenses based on actual needs • **Flexibility:** can adapt usage without fixed costs or even return the solution altogether, beneficial for businesses with fluctuating demands	• **Variable costs:** monthly costs often vary, making budgeting more challenging • **Limited control:** limited control over the equipment and a dependency on the provider's terms and conditions
Performance-based	• **Alignment of interests:** costs are tied to performance outcomes, ensuring the provider is incentivized to maintain high standards • **Easy to reverse course** by returning solutions that underperform or are not being used • **Reduced risk:** reduces the financial risk associated with equipment underperformance or downtime	• **Complex contracts:** can be difficult to negotiate and require clear definitions of performance metrics • **Potential for higher costs:** if performance metrics are consistently exceeded, costs could be higher than traditional leasing/ownership

FIZYR

How we got here

One cannot manage what is not measured, and what one chooses to measure determines its management.

Adoption of AI in the fourth industrial revolution

In domains where digital technologies have been integrated, technology has changed the domain in unanticipated ways. Initially, technology accelerates, but deeper change follows quickly. Consider how information and communication have been altered in 20 years. Not only does news travel faster, in politics and business and among family and friends, the content, nature and impact of how we communicate with one another have profoundly changed. Similarly, in commerce, digital doesn't just make transactions faster; it changes what we buy, how we consume, how distribution happens and even business models themselves.

As the Fourth Industrial Revolution unfolds, the same kind of impact lies ahead for manufacturing and logistics supply chains as more digital technologies take hold.

First, digital transformation enables the simple act of measurement. One cannot manage what is not measured, and what one chooses to measure determines its management. For decades, manufacturers and logistics operations have organized work, measured performance and tackled hard problems with tools based on what could be seen and known at the time. The impact of AI is accelerating, and technologies such as computer vision in logistics automation and manufacturing stand as pivotal solutions to counteract relentless labor shortages, particularly by taking over tasks that are dull, dirty or dangerous. These technologies in turn enable logistics companies and manufacturers to measure and manage new dimensions of their work.

Companies can now understand efficiency and optimization across supply chains with previously inconceivable depth, span and speed. Decisions that were previously local and opaque can now be made with understanding about the effects on resource and ESG requirements, as well as the

FIZYR

> **The evolution of functionality, available information and measurement creates profound changes, and organizations should update their ROI calculations to keep pace.**

long-term impacts on the entire business process. Consider two examples of how vision technology supports new forms of measurement and performance for manufacturers and logistics operations:

1. Vision technology applied to robotic automation (e.g. singulation, item picking, depalletizing, etc.) secures output capacity, superior performance, higher throughput and flexibility while handling a diverse range of products and materials for substantially less cost and waste.

2. Vision technology applied to detection use cases (e.g. inspection of goods flow on conveyors, detecting quality of objects, counting objects in an order carton, etc.) empowers companies to move from measuring a process step to measuring total output, a more desirable metric that measures efficiency.

The evolution of functionality, available information and measurement creates profound changes, and organizations should update their ROI calculations to keep pace. When evaluating investment proposals, businesses should consider the availability of resources, ESG requirements, usage of a robot, output per hour, quality of the output, and reputational damage due to error rates and delays that will impact setup and launch.

Drivers for Robotic Automation in logistics and manufacturing

The acceleration of artificial intelligence:
The World Economic Forum's Lighthouse Platform concluded that the impact and adoption of AI is accelerating, and this trend will continue to have an outsized impact on automation in logistics and manufacturing. AI-based computer vision for logistics automation, which makes use of neural networks, provides a great use case. Robots require cognitive skills to take over human tasks, which in many cases are dull, dirty and dangerous. AI makes this possible by delivering robust visual inputs to drive automation.

FIZYR

Persistent labor shortages:

Another accelerator of robotic automation is the ever-increasing labor shortage. At Fizyr, many of our customers embrace the potential of computer vision to counteract this crippling and persistent problem. Automating dull, dirty and dangerous tasks helps them protect workers and secure long-term operational performance.

By deploying advanced computer vision systems to either provide cognitive skills to robots or take over process monitoring or quality control tasks, companies ensure continuous, efficient operations around the clock. Their organizations handle repetitive and monotonous tasks such as sorting, inspecting, packing and transporting goods with unparalleled precision and speed.

This not only mitigates the risks associated with hazardous work environments, it also allows the existing workforce to focus on more complex and rewarding tasks. This enhances productivity and sustainability in the face of demographic shifts and a shrinking labor pool.

Three recommendations:

Adopt an Advanced ROI Model: Transition from traditional ROI metrics to a comprehensive model that includes output projections. This model should account for productivity gains, improved accuracy, reduced waste and enhanced scalability, alongside direct cost savings.

Incorporate ESG Metrics: Include ESG factors in the ROI calculations to assess the broader impact of robotic automation. This includes evaluating carbon footprint reduction, workplace safety improvements and overall sustainability contributions that align with business goals.

Utilize Flexible Financial Models: Explore different financial models such as CapEx, RaaS, Usage-Based and Performance-Based models to optimize the financial planning and investment in robotic automation. Choose the model that best aligns with the company's long-term strategic goals and operational flexibility.

FIZYR

Conclusion

Removing production bottlenecks, driving down costs, keeping workers safe, reducing waste and improving accuracy are just some of the benefits organizations realize when they decide to invest in robotic automation and detection solutions, but the outdated calculations used by many when considering investments, building a business case and calculating ROI undervalue what these solutions can deliver. Calculating the full value of robotic automation and detection solutions requires a new, more comprehensive approach.

Supply chain complexities, geopolitical tensions, demographic shifts and ESG efforts are a few of the developments that changed the game for businesses in recent decades, but each of these matters to varying degrees for organizations worldwide. When considering an investment in robotic automation and detection solutions, businesses should look inward and weigh a comprehensive set of these and other factors to devise the best ROI calculations for their unique situations. A comprehensive set of traditional financial metrics, broad business goals and initiatives, regional considerations, and long-term benefits provides an array of factors to consider incorporating, and businesses should map these factors against their own business challenges and goals to determine which matter, to what degree and how they ought to be measured.

By incorporating a wider range of output projections, organizations can better capture the multifaceted value that robotic automation and detection systems bring to modern enterprises.

Contact Fizyr at info@fizyr.com for more information.

By incorporating a wider range of output projections, organizations can better capture the multifaceted value that robotic automation and detection systems bring to modern enterprises. This new approach not only optimizes financial performance but also aligns with broader societal and environmental goals, ensuring sustainable and resilient operations in an increasingly unpredictable world.

Fizyr consults with the world's top integrators and a wide range of end users to project the impact of advanced automation on many types of organizations. On the next page, **we've included a checklist for preparing ROI calculations to help organizations start planning.** We also provide guidance on the process of evaluating how today's advanced computer vision and sophisticated automation can deliver unexpected returns for organizations. **Contact us at** info@fizyr.com **for more information.**

Checklist for preparing ROI calculations

ROI calculations should incorporate traditional financial metrics, broad business goals and initiatives, regional considerations, and long-term benefits to capture a more complete understanding of how robotic automation and detection solutions can help their businesses, deliver value and make investments worthwhile.

Some factors ought to be in every organization's ROI calculations; others impact some organizations more than others. Businesses need to decide which factors belong in their own calculations, how they contribute to success, and how they ought to be weighted. The checklist below can guide organizations through this process as they weigh a wide variety of factors to determine which should or should not be incorporated into their own calculations to project ROI and build the best possible business case to weigh the value of their potential automation investment.

Forecasting the ROI of Automation, A Checklist

Traditional financial metrics:

- [ ] **Total System Cost:** the overall investment required to implement the robotic system
- [ ] **Number of Robots:** the quantity of robots deployed
- [ ] **Operational Intensity:** the number of shifts/day and days/week the robots will operate
- [ ] **Electricity Costs:** the cost of electricity required to operate the robots
- [ ] **Annual Operator Labor Costs:** yearly labor cost per human operator replaced by robots
- [ ] **Number of Operators Replaced** per shift
- [ ] **Percentage of Labor Retained** to operate the system
- [ ] **Labor Cost Increase:** the expected increase in labor costs over time

Broad business goals and initiatives:

- [ ] **Expected Productivity Gains:** the increase in output due to automation
- [ ] **Other Estimated Savings:** additional cost savings from improved processes
- [ ] **Improved Accuracy and Reduced Waste:** cost savings resulting from fewer errors and less material waste
- [ ] **Enhanced Scalability and Flexibility:** the ability to scale operations efficiently
- [ ] **Labor Cost Savings:** reduced workforce and/or redeployment to higher-value tasks
- [ ] **Switching Cost of Hiring/Training** new staff and unscheduled downtime
- [ ] **Peak Season Hiring Costs**
- [ ] **Downtime Costs:** financial impact of system downtime
- [ ] **Environmental, Social and Governance Impact:** benefits related to environmental, social and governance factors, such as reduced carbon footprint and improved workplace safety

Regional considerations:

- [ ] **Work limit regulations:** the impact of robotic automation not being subject to the physical labor limitations that keep employees safe

Long-term benefits:

- [ ] **Improved worker safety**
- [ ] **Heightened employee satisfaction** and fulfillment
- [ ] **Expecting long-term increases in revenue or production?** Turnkey, low-cost scalability makes adapting simple.
- [ ] **Automating high variance tasks?** Productivity increases as performance and accuracy reach optimal levels.

About the author
Tibor van Melsem Kocsis, Chief Commercial Officer

Tibor leads strategic partnerships for Fizyr, contributing to the company's North American and European expansion. He helps organizations around the world build business cases to adopt game-changing automation, protect workers, and increase the resilience of their supply chains and operations.

A husband, father, entrepreneur, digital transformation expert and executive, Tibor founded DiManEx prior to joining Fizyr. He served as CEO for nearly seven years and continues as an advisory board member. Prior to that he served in a variety of roles at Angst+Pfister, Emtelle, MCI Worldcom and Vodafone.

When he's not helping the world's leading systems and robotics integrators automate the world's dull, dirty and dangerous jobs, Tibor enjoys winter sports, family time, travel and a host of other adventures. He and his family reside in the Netherlands.

Tibor van Melsem Kocsis, CCO

Fizyr Corporate Headquarters:

Molengraaffsingel 10

2629 JD Delft

The Netherlands

Contact:

https://fizyr.com

+31 157 601 686

info@fizyr.com

Media:

media@fizyr.com

FIZYR

About Fizyr

Fizyr provides advanced vision software for highly dynamic automation and detection. Fizyr PanopticTM is the smartest, fastest and most effective vision software available, maximizing automation capabilities. Hardware agnostic, Fizyr PanopticTM enables robots to see, perceive, account for variances, learn and perform more successfully than any other AI-enabled vision. Fizyr partners with top integrators to ensure the highest levels of accuracy and performance. https://fizyr.com