

# Closing the AI and Automation Skill Gap in Modern Enterprises with Outcome-Focused Training and Certification



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Automation and AI are crucial for digital transformation success, addressing a global skills shortage, and effective training and certification programs, alongside diverse talent sourcing approaches, are essential.

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## Key Stats

- ▶ 47% of North America enterprises identify a lack of necessary IT skills as a key impediment to successful automation implementation.
- ▶ 70% of global organizations have achieved less than 50% progress in fulfilling their front-office business automation objectives.
- ▶ 40% of enterprises worldwide reported having trouble reaching revenue objectives due to lack of key IT skills.

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## What's Important

Closing the skills gap in automation and AI is critical for organizations to thrive in the modern digital business era.

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## Key Takeaway

Addressing the demands of AI and automation talent requires a nuanced approach, where vendor-led automation training and certification initiatives emerge as a game-changer.

## Introduction

In an era where businesses worldwide are standing at the crossroads of their digitalization journey, one thing has become clear: Artificial Intelligence (AI) and automation have emerged as the catalysts of change, offering transformative opportunities. This evolution has been accelerated by a confluence of factors, notably the increased accessibility, ubiquity and perhaps more importantly the utility of AI and automation technologies in business processes.

However, this fortuitous juncture comes with its own challenges, chief among them being the global talent and skill shortages that impede businesses from extracting maximum value from their technology investments. Worse still, a wide range of skills shortages has significantly affected businesses worldwide. This impact includes product release delays, difficulties meeting revenue objectives, and setbacks in the digital transformation journey. Therefore, closing the skills gap has become a critical priority for organizations everywhere.

## Automation and AI: Key to Enterprise Digital Transformation

The world is on the threshold of a new wave of digital acceleration powered by AI/machine learning (ML) advances and the pervasiveness of automation technologies across the breadth of enterprise operations. IDC's Worldwide Enterprise Intelligence Services Survey 2023 reveals that the public launch of ChatGPT in November 2022 has more than doubled the proportion of enterprises actively working on use cases that leverage generative AI capabilities (16% pre-ChatGPT vs. 42% post-ChatGPT). IDC's research indicates that enterprises will experience the most significant benefits from using generative AI in IT and cloud operations, data analysis and management, cybersecurity and compliance, and code creation and DevOps.

source: <sup>1</sup> IDC Worldwide Future of Work Survey 2023

<sup>2</sup> IDC Future Enterprise Resiliency and Spending Survey, Wave 1, 2023

<sup>3</sup> Source: IDC Semiannual Software Tracker, 1H 2023

Likewise, automation is a key priority across a broad spectrum of enterprise operations. Consider the following insights gathered from IDC's research on enterprise priorities and challenges:

- 47% of North American enterprises identify a lack of necessary IT skills as a key impediment to successful automation implementation<sup>1</sup>.
- 70% of global organizations are less than 50% done with their automation goals for their front office businesses<sup>2</sup>.

Furthermore, worldwide software market segments related to AI and automation are projected to grow at a cumulative annual growth rate (CAGR) of over 35% over the next five years, compared to 12% for the broader software market<sup>3</sup>. Intelligence and automation are key to running a digital business at scale and are key foundational enablers across the breadth of operations of a future-ready enterprise.

## The Looming Global Skills Shortage and the Role of Automation Skills

As the world stands on the cusp of a new digital revolution, realizing the benefits of these technological advances is jeopardized by a global skills shortage. The consequences of these skills shortages are far-reaching and momentous. According to data from IDC's Global Skills Survey 2022, the wide-ranging skills shortages resulted in the following:

- 45% of global enterprises experience delays in new product releases.
- 40% reported having trouble reaching revenue objectives.
- 80% of respondents experienced three or more months of delay in their digital transformation (DX) journeys.

About 45% of IDC's Global Skills Survey 2022 respondents identified intelligent automation technologies as the most important technical skill for professional success.

IDC also predicts a four million worldwide shortage of full-time developers by 2025, posing a major challenge to organizations on their DX journey. The cumulative cost of these skill deficiencies, resulting in delayed product releases, diminished customer satisfaction and missed revenue targets, is projected to reach US\$6.5 trillion by 2026, according to IDC estimates. Lack of requisite skills is such a challenge that respondents in IDC's Future Enterprise Resiliency and Spending Survey, Wave 5 (June 2023) identified "investment in skill enhancement and digital training for employees" as the organizational investment most likely to endure even amidst current market challenges (recessionary expectations, geopolitical tensions, etc.).

Automation and AI hold the key to mitigating the skills shortage. In IDC's Future of Work Global Survey 2022, 38% of the respondents identified increased use of automation and augmentation technologies as a top priority. Additionally, "Task and Workflow Automation" and "AI Development and Training" were identified as crucial skills enterprises intend to hire or develop, underscoring their importance in the emerging workplace construct. The use of automation software technologies will also increase the need for staff with advanced digital skills, as findings from the IDC Digital Skills Survey 2023 reveal.

There is also widespread recognition among technology practitioners of the pivotal role that intelligent automation technologies play in career advancement. About 45% of IDC's Global Skills Survey 2022 respondents identified intelligent automation technologies as the most important technical skill for professional success. In short, intelligent automation technologies and associated skills are indispensable for success in the new digital-first world.

## The Importance of Sourcing, Training and Certifying Talent

Unfortunately, sourcing the right organizational skills and talent can be challenging. Businesses must increasingly be creative in scouting the right people at the right time and places. However, securing the talent is just the initial step, as significant work still needs to be done to develop and retain the talent pool within an organization. In these stages, leaders need to maximize available training and development resources.

According to IDC Global Skills Survey 2022,

- Offering robust learning and development opportunities is one of the top strategies for attracting and retaining IT professionals globally.
- Survey respondents overwhelmingly believe technology providers or their learning partners impart technology-related training most effectively.
- An investment of 35-40 hours of training correlates with a project success rate of 80% or more. However, the average training received by members working on an automation project is less than 25 hours, translating into a project success rate of less than 45%.

In addition to beefing up employee training hours, organizations should consider adding other means of reinforcing new learning. These include a structured vendor-led certification program, lab-based training and assessments, and digital adoption platforms (DAPs) that enable employees to learn in the flow of work while accessing the software tools they use daily. Offering diverse learning pathways and opportunities for practicing new material can significantly expedite the mastery of new skills. It is essential to recognize that job roles and the skills required for them are continuously evolving. Therefore, organizations should carefully assess how their current technologies, roles and skills will change in the foreseeable future, ensuring they remain adaptable and responsive to evolving demands.

## Planning the Talent Pipeline for Your AI/Automation Journey

Timing plays a crucial role in talent sourcing on an organization’s journey toward maturity. The initial stages should focus on acquiring mid- and senior-level automation practitioners to showcase initial value. As AI and automation practice matures, the emphasis shifts to establishing robust processes, policies, and governance. During this phase, an effective talent-sourcing strategy involves a balanced approach, combining experienced professionals with individuals aspiring to enter this field. Seasoned practitioners play a pivotal role by mentoring new talent, addressing the backlog of use cases, and playing a part in shaping governance frameworks. In the mature practice stage, where value delivery is scaled, a broader pool of aspiring practitioners, including students or those seeking to upskill or transition their careers, can be tapped into.

### Where Can AI and Automation Talent be Found?

While technical experts like developers and data scientists remain reliable sources for complex technical use cases, the accessibility of AI and automation

technologies and training is expanding the pool of potential candidates. These professionals might not have technical roles on their resumes but exhibit technical aptitude within their teams. They are eager to transition into technical roles and can evolve into proficient AI and automation experts with the right development approach.

For instance, consider business analysts, who traditionally identify inefficiencies in enterprise processes and propose solutions. With technological advancements, business analysts can now access new AI and automation skills that amplify their impact. They can independently uncover improvement opportunities, assess when AI or automation is a suitable solution, and guide process owners in training models for customer insights analysis or workflow automation. Additionally, grassroots talent sources like academic institutions are equipping students with the skills needed for current and future challenges in the AI and automation domain. This growing pool of emerging talent represents an untapped resource for enterprises seeking to bridge their skills gaps.

**FIGURE 1**  
Sourcing the Right Talent According to Enterprise Automation Maturity

	Persona	When to hire/skill
Practitioners	<ul style="list-style-type: none"> <li>Experienced automation practitioner.</li> </ul>	<ul style="list-style-type: none"> <li>Build an AI/Automation Center of Excellence. Hire experienced talent to drive first value quickly.</li> </ul>
Aspiring Practitioners	<ul style="list-style-type: none"> <li>Existing practitioner in a role, seeking to upskill for a full-time job in automation (e.g., A software developer becoming an automation developer).</li> <li>Existing practitioner seeking to make a lateral career move towards automation (e.g., A procurement specialist becoming an automation business analyst).</li> <li>Students/Graduates</li> </ul>	<ul style="list-style-type: none"> <li>Mature and AI/Automation Center of Excellence. Hire aspiring practitioners to expand value delivery and set-up governance policies.</li> </ul>
Enthusiasts	<ul style="list-style-type: none"> <li>Employees seeking to use automation skills on top of a different day-to-day job.</li> </ul>	<ul style="list-style-type: none"> <li>Democratize automation development outside of the Center of Excellence.</li> <li>Empower business users to propose and use AI/automation use cases.</li> <li>Nurture an AI/automation culture across the business.</li> </ul>

## Making the Most of Training and Certification Programs

A structured and meticulously designed automation training and certification initiative, with direct involvement from the automation technology provider, significantly enhances the prospects of achieving successful outcomes. Such a structured program imparts essential skills and cultivates a deeper understanding of automation technology's nuances, application, and integration within the enterprise ecosystem.

According to findings from the IDC Digital Skills Survey 2023 among European IT and HR leaders, collaboration with third-party IT vendors emerged as the highest-rated mechanism to develop advanced digital skills initiatives to better meet organizational talent demands and requirements. The same survey reveals that third-party vendor technology training and certifications are as important as university degrees and post-graduate diplomas for AI-related skills and functions. The lack of relevant professional qualifications such as industry certifications was cited as one of the top reasons recruiting for AI-related functions was difficult, as 31% of organizations surveyed believed university graduates they hired for AI functions lack the sufficient skills to perform the intended role.

The active participation of a technology provider brings valuable advantages to the training process. Their intricate knowledge of the technology's capabilities, updates, and potential challenges enriches the training content, making it more tailored and relevant. This direct involvement ensures that participants receive theoretical knowledge and practical insights gained from real-world implementations and experiences.

Furthermore, a close collaboration with the automation technology provider establishes a feedback loop invaluable for refining the training program over time. As the provider stays attuned to the evolving industry landscape and emerging trends, they can continuously enhance the curriculum to align with the most current and sought-after skills.

Ultimately, this kind of partnership between the automation technology provider and the training program adds a layer of credibility and authenticity. Participants can trust that they are learning from experts intimately familiar with the technology's intricacies, instilling confidence that the skills acquired will translate effectively into practical applications within the enterprise setting. This synergy between structured training, direct provider involvement, and ongoing collaboration is a potent formula for maximizing the potential of automation adoption and achieving successful, transformative outcomes.

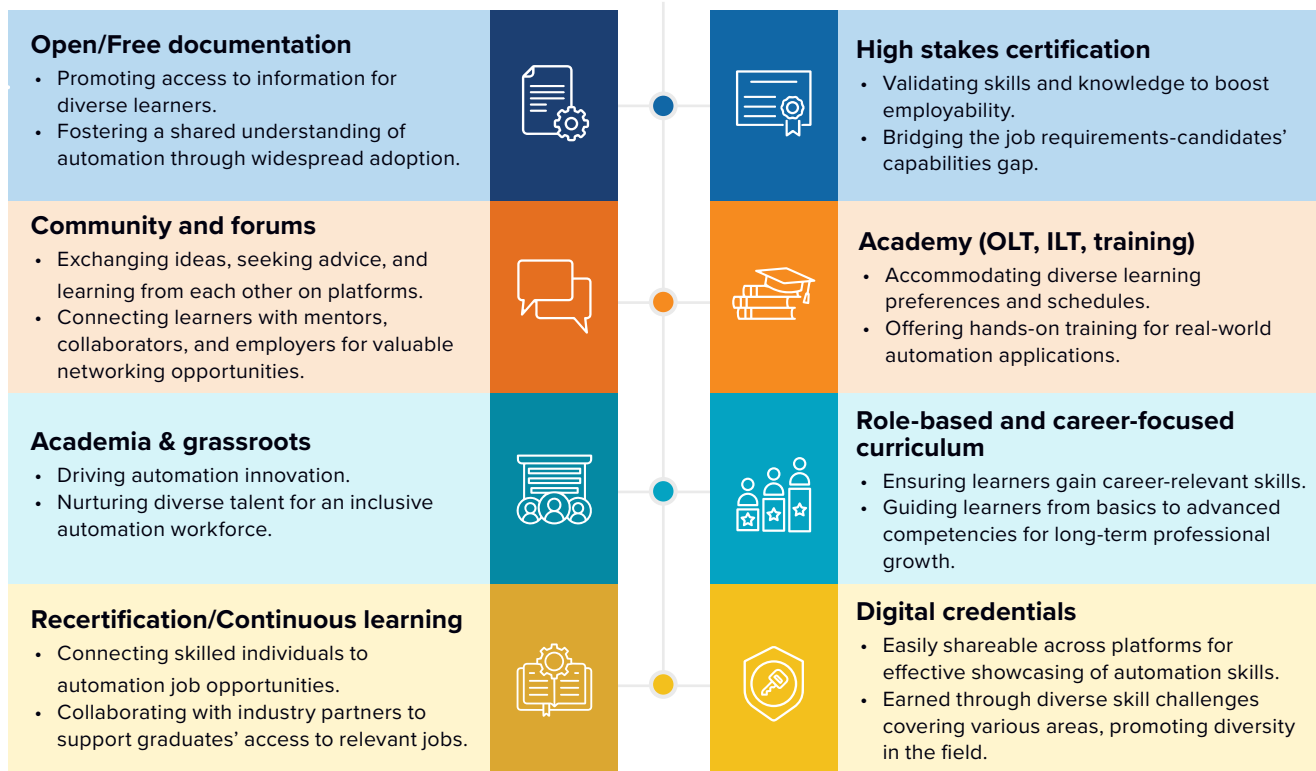
## Characteristics of an Effective Training/Certification Program

The typical vendor-led education offering includes a plethora of programs, assets, and services that guide the individual across all the stages on their way to mastery. To be most effective, the offerings need to be aligned with industry and market requirements (career guidance and job aggregation mechanisms, continually updated role/skill-based training and certifications), cater to diverse learning modalities and preferences (online/instructor-led, hands-on labs, hackathons and challenges), and provide the necessary engagement, encouragement and support framework (access of subject matter experts, communities, just-in-time support, digital credentials/skill badges, etc.). Presented below is a framework for educational ecosystem effectiveness that incorporates these elements.

FIGURE 2

### The Educational Ecosystem Necessary to Fill in the Skills Gap

Education is the Foundation of Innovation



## Considering UiPath

UiPath (NYSE: PATH) is on a mission to uplevel knowledge work so more people can work more creatively, collaboratively, and strategically. The AI-powered UiPath Business Automation Platform combines the leading robotic process automation (RPA) solution with a full suite of capabilities to understand, automate, and operate end-to-end processes, offering unprecedented time-to-value. For organizations that need to evolve to survive and thrive through increasingly changing times, UiPath is The Foundation of Innovation™.

### UiPath Academy

UiPath Academy made its debut back in 2017 and has since become the go-to platform for professionals

looking to enhance their UiPath automation skills. Its comprehensive collection of eLearning courses is not only free of charge but also custom-tailored to suit various automation roles and skills. These courses can be taken anytime from anywhere.







UiPath Academy training is developed in collaboration with top notch automation experts, and they incorporate the latest automation best practices and practical real-world scenarios. UiPath Academy's learning plans help build the skills and knowledge practitioners need to pass UiPath's certifications and pave the way for a successful career in automation.

## UiPath's Automation Career Paths Framework

UiPath's Automation Career Paths Framework is a collection of steps and resources that aims to help business leaders hire, train, and grow automation talent.

Learning is a journey. We have built our talent and educational offering to accompany the employer and individual at every step of that journey. Follow this process to ensure your talent growth efforts are spread across all of the stages for the best results. Maximize UiPath's free educational offering, but don't shy away from combining it with your own internal learning culture and learning programs and services.

**FIGURE 3**  
**UiPath's Automation Career Path Framework**

	UiPath Resources	Your Resources	Employee Benefits
 <b>Select</b> Select the right people for the right job	<ul style="list-style-type: none"> <li>Automation job descriptions</li> <li>Automation career guidance online tools</li> <li>Academic talent programs</li> <li>Connections to staffing firms</li> </ul>		<ul style="list-style-type: none"> <li>They ensure the right skills for personal growth and career pursuits are chosen</li> </ul>
 <b>Train</b> Help people train and practice in a safe environment	<ul style="list-style-type: none"> <li>Instructor-led training self-paced training (UiPath Academy)</li> <li>UiPath Labs</li> <li>UiPath Forum</li> <li>UiPath Docs</li> <li>UiPath Community</li> <li>UiPath Learning Partners</li> </ul>	<ul style="list-style-type: none"> <li>Peer learning</li> <li>Peer shadowing</li> </ul>	<ul style="list-style-type: none"> <li>They choose their preferred way to learn</li> <li>They practice in a safe space before undertaking real-life projects</li> </ul>
 <b>Transfer skill on the job</b> <ul style="list-style-type: none"> <li>Provide real-life project opportunities and support the transfer of skills on the job</li> <li>Provide just-in-time support</li> </ul>	<ul style="list-style-type: none"> <li>UiPath Toolkit (templates, job aids)</li> <li>UiPath Forum</li> <li>UiPath Docs</li> <li>Jobs Repository (UiPath Forum)</li> </ul>	<ul style="list-style-type: none"> <li>Real-life project implementations</li> <li>Peer coaching</li> </ul>	<ul style="list-style-type: none"> <li>They turn their learning effort into a return on investment, benefiting both themselves and the company</li> <li>They get the right support to transfer new skills to real-life projects</li> </ul>
 <b>Certify</b> Recognize and reward people's development efforts and milestones	<ul style="list-style-type: none"> <li>UiPath Certifications</li> <li>UiPath Digital Credentials</li> </ul>	<ul style="list-style-type: none"> <li>Connect UiPath Certification and digital credentials with your own recognition and performance processes</li> </ul>	<ul style="list-style-type: none"> <li>They receive industry recognition for their new skills</li> <li>They increase their credibility as automation practitioners</li> </ul>
 <b>Continuously skills</b> Encourage continuous education	<ul style="list-style-type: none"> <li>Self-paced training (UiPath Academy)</li> <li>UiPath Forum</li> <li>UiPath Docs</li> <li>UiPath Community</li> </ul>	<ul style="list-style-type: none"> <li>Connect UiPath Continuous Education with your own learning and performance processes</li> </ul>	<ul style="list-style-type: none"> <li>They ensure their skills remain relevant</li> <li>They keep up to date with rapidly changing skills and technologies</li> </ul>
 <b>Encourage mastery</b> Encourage skills mastery	<ul style="list-style-type: none"> <li>UiPath MVPs (Most Valued Professionals)</li> </ul>	<ul style="list-style-type: none"> <li>Provide access to projects growing in complexity</li> <li>Provide career progression clarity</li> <li>Build internal recognition programs</li> </ul>	<ul style="list-style-type: none"> <li>They emerge as thought leaders in their teams, company, and industry</li> </ul>

Source: UiPath, 2023

## Conclusion

The shortage of skills and talent in AI and automation is a significant hurdle to these technologies' widespread adoption. Organizations are grappling with the complexities of identifying, attracting, and retaining individuals with the right skills and expertise. Here, a crucial paradox emerges: the innovations designed to streamline operations and reduce human intervention ultimately require human expertise. Closing this skill gap has become an urgent imperative that cannot be overlooked.

One effective way to tackle this issue is by offering robust learning and development opportunities, particularly for IT professionals. In the context of AI and automation, it's crucial to establish a clear talent pipeline aligned with the organization's journey in these fields. Addressing the specific demands of AI and automation talent requires a more nuanced approach. It necessitates the construction of a clear talent pipeline that aligns seamlessly with an organization's AI and automation journey. Vendor-led certification and training programs emerge as potential game changers in this endeavor.

A structured and meticulously designed automation training and certification initiative, with direct involvement from the automation technology provider, significantly enhances the prospects of achieving successful outcomes. These vendor-led educational offerings encompass diverse programs, assets, and services. They serve as comprehensive guides, ushering individuals through every stage of their mastery journey, from initiation to expertise.

As businesses worldwide embark on this transformative journey into the heart of AI and automation, it is imperative to recognize learning and development's indispensable role. The path ahead is clear: By nurturing talent through vendor-led training and certification, organizations can effectively bridge the skills gap and secure their position at the forefront of the digital revolution. The time to act is now, as the digital future beckons, and those who embrace this opportunity will thrive in the era of automation and artificial intelligence.

## About the IDC Analysts



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Pushkaraksh Shanbhag is an associate research director with the Asia/Pacific Cloud and IT Services Research group and leads the Asia/Pacific Analytics and Intelligent Automation Services research. Pushkar's domain expertise and research interests span Managed Cloud Services, Robotic and Intelligent Automation services (RPA/IA), Digital Workplace Services and Next-generation Infrastructure Services (hybrid infrastructure and management).



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James Sivalingam is a senior research manager with IDC Asia/Pacific, IT services research group. James' focus and domain expertise include IT skills and education in enterprise IT. With over a decade of experience in the technology sector, he has been instrumental in analyzing the evolving landscape of digital transformation and its impact on businesses across the Asia/Pacific region.



## Message from the Sponsor



At UiPath, we are committed to accelerating the value our customers get from our solutions through effective education. Our educational framework equips leaders in automation practice with a wide array of tools, enabling them to steer their teams towards mastering AI and automation skills. Whether it's talent acquisition, skill enhancement, on-the-job skill application, or ongoing skill nurturing, our initiatives and resources provide you unwavering support.

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