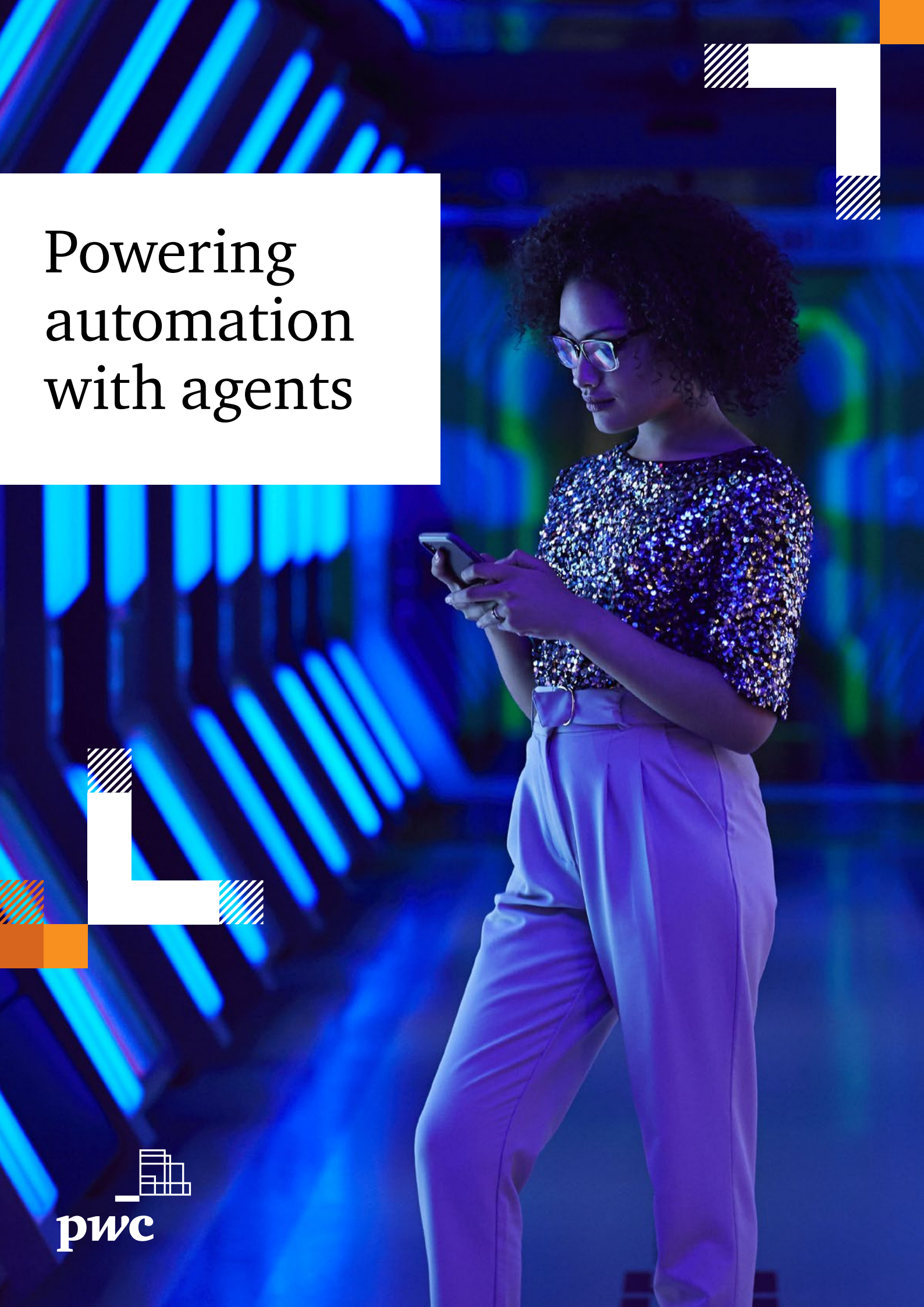
Powering automation with agents



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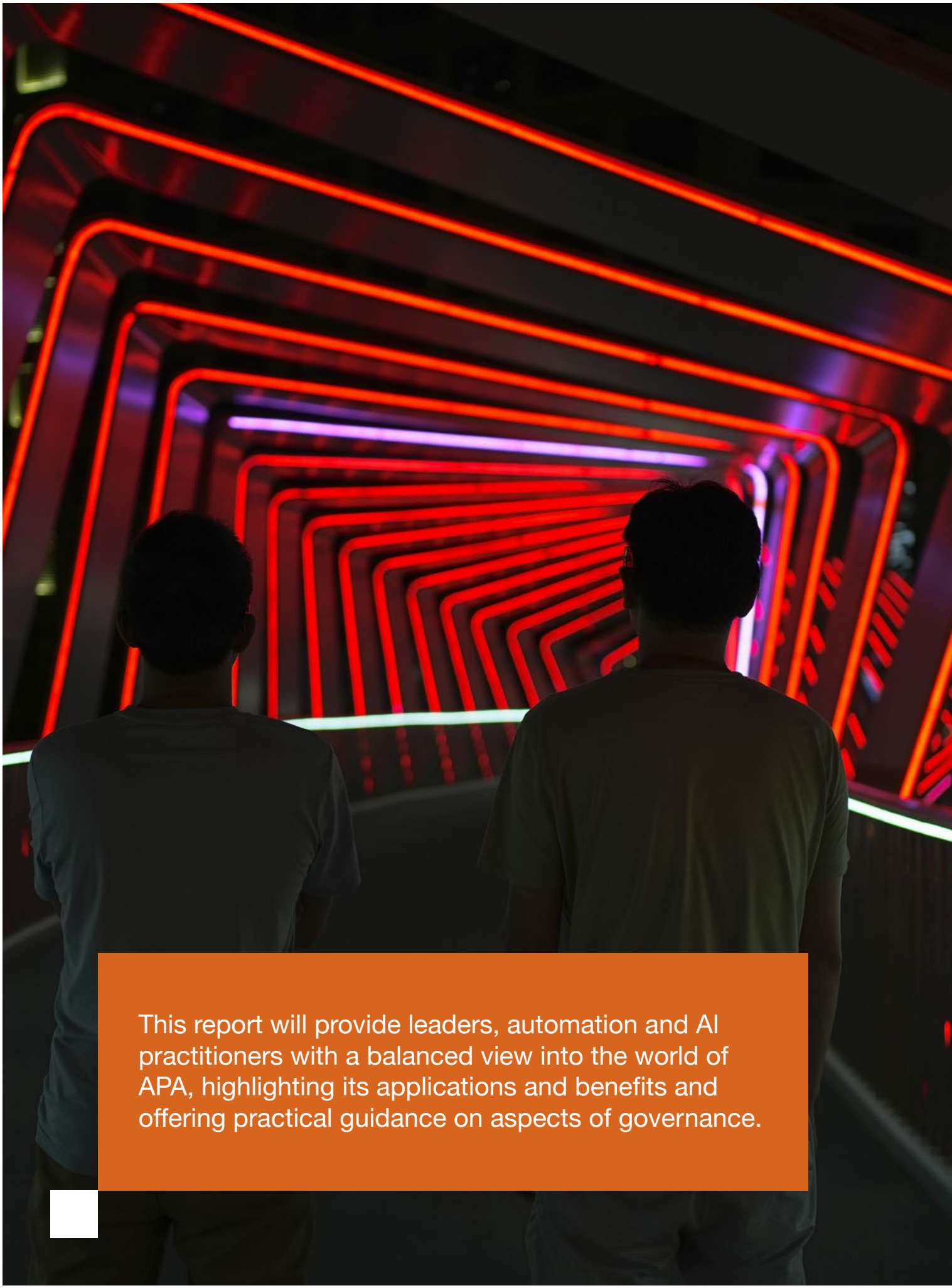

This report will provide leaders, automation and AI practitioners with a balanced view into the world of APA, highlighting its applications and benefits and offering practical guidance on aspects of governance.

Foreword

Vivek Prasad
Markets Leader
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Throughout human history, there have been various turning points that have reshaped the world around us. Just like the Industrial Revolution and the Information Age permanently changed the way the world works, we find ourselves pivoting into an age that can transform our future. This is the dawn of a new era and a novel approach to automation called agentic powered automation (APA). This innovation is all set to transform industries and revolutionise the future of work as it will lead to the deployment of intelligent agents alongside the human workforce.

The transformative power of these digital workers comes from their ability to understand their environment and make autonomous decisions, with minimal human supervision. This enables them to not only handle routine rule-based tasks, but also learn, adapt and make complex decisions easily. At the same time, they have the ability to offer human-like responses, thus bringing greater efficiency to existing processes. Given the current economic and other significant challenges that modern organisations are faced with, there is a heightened need for efficiency and sustainable growth.

Hence, these artificial intelligence (AI) agents are emerging as catalysts of change since they leverage large language models (LLMs) that give them the unique ability to gain contextual understanding and offer better solutions.

The Government of India's strategy highlights the shift towards AI, with its plan for developing its own graphics processing unit (GPU), building a domestic foundational AI model and establishing a Centre of Excellence in Artificial Intelligence, underscoring its commitment to advancing AI capabilities as a bedrock for Viksit Bharat 2047. Furthermore, PwC's 28th Annual Global CEO Survey: India perspective reveals that a majority of Indian CEOs are poised to integrate AI into their technology platforms and business processes, highlighting AI's critical role in business transformation and increased profitability.[1]

Based on our extensive experience of working with various global organisations, we have put together this white paper to help organisations who wish to harness the power of APA.

1 https://www.pwc.in/assets/pdfs/publications/ceo-survey/2025/28th-annual-global-ceo-survey-india-perspective.pdf

Introduction

Defining agentic powered automation (APA)

As AI-powered automation technologies continue to evolve, we are seeing a paradigm shift from mere task automation to innovative systems. The intelligent automation landscape today consists of the robotic process automation (RPA), intelligent document processing (IDP), conversational AI and chatbots, analytics, and data integration through AI. With these capabilities, organisations have been able to automate complex workflows with human in the loop for decision making. Intelligent automation has unlocked productivity and efficiency at scale with next-gen integrated solutions.

At the same time, the advent of generative AI (GenAI) and large language models (LLMs) has enabled the democratisation of AI capabilities. With its enhanced decision-making capabilities, contextual understanding, localised data training and ability to transform customer experience, GenAI has been identified as a game changer for driving innovation in organisations.

The transformative potential of GenAI, particularly in enhancing productivity, streamlining business processes, and reshaping value chains across industries, is reflected through increased organisational spending on GenAI.[2]

APA marries the capabilities of intelligent automation and the GenAI-powered agents. Within this framework, the agents act as the brain of the system, understanding user requests and planning a set of actions to fulfil the request. Tools such as intelligent automation, APIs and automation scripts act as the hands, executing the actions through an orchestration layer. The APA framework is able to leverage multiple goal-oriented agents through multi-agent orchestration, unlocking complex workflows. The agents also validate the output at each stage and have the ability to reflect on the output, learn from feedback and heal. By leveraging GenAI agents and automation, APA can deliver end-to-end, context-aware, scalable automation which is adaptable to dynamic user needs.

APA can…	Lever	Overview
Understand goals Plan actions	User interaction	• Communicate through chat, audio and video for versatile user engagement. • Perform sentiment and context analysis to provide empathetic and context-aware responses. • Tailor interactions to individual user preferences.
Shortlist tools Create workflows Take decisions	Planning and action	• Understand the goal and plan the set of actions to achieve it. • Map the skills/tools required to complete these actions. • Orchestrate and execute individual actions using skills/tools. • Fulfil complex goals through multi-agent orchestration.
Execute actions Collaborate	Reflection and self-healing	• Review the output against the set goals. • Refine actions based on user feedback on the generated output. • Review workflows and find areas of improvement.

Source: PwC analysis

2 https://www.weforum.org/stories/2024/01/genai-will-be-worth-trillions-heres-a-roadmap-for-harnessing-it/

Mohib Yousufani
Partner, Global Leader
Transformation and Digital
Strategy&
PwC US

Agentic automation represents a significant breakthrough in the space of digitisation. Powered by AI and with human-like cognitive abilities, autonomous agents are designed to act independently while learning from their actions and improving decision making over time, enabling end-to-end value chains and processes that to continue to be reimagined. Hence, as organisations deploy agents work alongside their human workforce and disrupt value chains, we are looking at an era that can revolutionise industries and forever change the way humans interact with technology.

Key features of Agents

The agents, differentiated by their advanced human-like reasoning and interaction capabilities, are transforming the retail, finance, manufacturing, healthcare, transportation and energy sectors, among others.[3] Their key standout features are as follows:

Autonomy
Execute operations independently by leveraging programming, learning ability and user inputs to make informed decisions and carry out tasks without any human or external intervention.

Goal-oriented behaviour
Achieve outcomes and specific objectives by optimisng the actions and decision-making processes involved for task execution.

Environment interaction
Ensure tasks are executed in alignment with goals and environment conditions by interacting with surroundings, track changes in real time and adapt accordingly.

Learning capability
Bring efficiency and accuracy in responses by utilising intelligence, self-reflection and self-improvement capabilities.

Workflow orchestration and execution
Centrally orchestrate the actions required to achieve goals. These actions may utilise different skills and tools to execute a workflow.

Multi-agent and system conversation
Coordinate frictionlessly between multiple agents through integration with external tools such as email, search engine, code and script executors.

Source: PwC analysis

3 https://www.pwc.com/m1/en/publications/documents/2024/agentic-ai-the-new-frontier-in-genai-an-executive-playbook.pdf

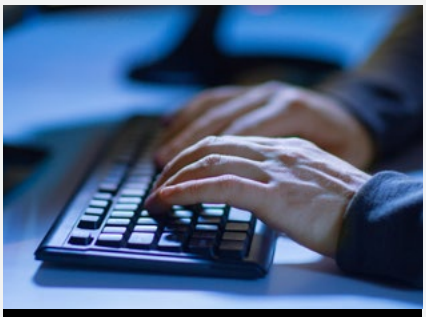
Augmenting human capabilities with agents

Traditionally, repetitive processes were passed on from humans to bots for automation, making it a human-led, bot-driven process. But the emergence of LLMs and large multimodal models (LMMs) has paved the way for AI agents with a deeper understanding of context, substantially improving the effectiveness of performing natural language processing tasks. AI models have thus enabled better engagement with natural language, leading to a state where AI agents will work alongside humans given that they possess similar capabilities.

People, agents and bots in the APA landscape

People

- Make faster and more informed decisions by working alongside agents
- Agents take on repetitive, mundane tasks to allow humans to focus on value-add activities
- Exception handling for cases which cannot be resolved by agents
- Provide feedback on the outputs produced by agents and enable them to learn
- Carry out a supervisory role, being decision makers and organisational leaders



Agents

- Independent workers powered by GenAI to reduce dependency on humans
- Goal-oriented behaviour and context aware decision making
- Most suited for tasks which involve frequent environment changes, thus requiring adaptability
- Utilise the tools and skills at their disposal through context and action to accomplish goals
- Agentic guardrails and orchestration will govern the agents' autonomy and access to systems and environment.

Automation/bots

- Pre-defined actions for rule-based and predictable processes
- Complete routine tasks with high reliability and efficiency
- Triggered by agents for completion of the individual actions
- Act as hands of the agent to interact with enterprise applications
- Plug-and-play capabilities to operate with multiple agents

Source: PwC analysis

While APA aims to reduce the need for human intervention in routine tasks, the future will emphasise a symbiotic relationship between humans and AI. This collaboration will leverage the strengths of both, with AI handling data-intensive, repetitive tasks and humans focusing on strategic, creative, and interpersonal activities. AI will augment human capabilities, providing insights and recommendations that aid decision making. This partnership will not only enhance productivity but also ensure that automation serves to amplify human potential rather than replace it.

Let's have a quick look at the skills of these agents:

While humans posses **creativity**, **emotional intelligence**, contextual and situational **adaptability**, **empathy** and ethical reasoning, social and cultural intuition, agentic AI brings **high-speed execution**, **scalability**, **accuracy** in repetitive tasks, **24/7 availability** without fatigue, and cost **efficiency@scale**.

Brain

Utilise experience, emotional intelligence and ethical judgment for nuanced decision making

Eyes and ears

Visual cues, body language, interpret emotions and respond to environmental cues

Speech

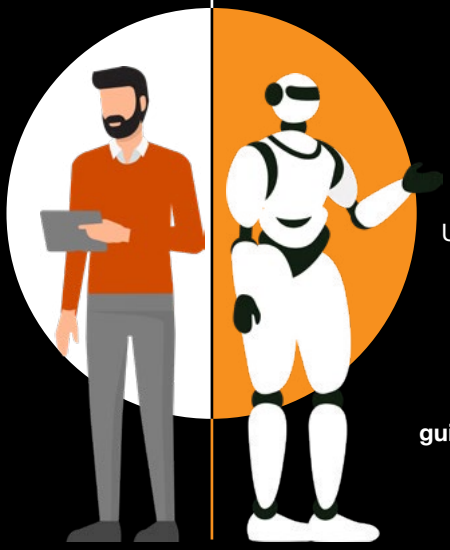
Empathetic communication through spoken and written language for relationship building

Heart

Moral reasoning and empathy to make decisions, considering individual circumstances and ethical implications

Hands

Physically perform tasks requiring manual intervention, adaptability and ability to deal with unforeseen challenges



Cognitive processing and decision making

Leverage **GenAI** to analyse data, identify patterns, gain insights and solve problems

Information perception and analysis

Use technologies like vision to extract and analyse information from text, docs, speech, image and videos

Interaction and Engagement

Use **multi-nodal models** for interaction with employees, instant response to queries and information dissemination

Ethical judgement and empathy

Operate within predefined **ethical guidelines** and **compliance frameworks**

Task execution and action skills

Employ **RPA**, **workflows**, automation **scripts**, **APIs**, etc., to execute tasks swiftly and accurately

"As the adoption of AI continues to progress rapidly and the future is headed towards a blended workforce, organisations must think about integrating agents as a fundamental part of their workforce strategy. Those who transform their operating model to manage a blended workforce are better positioned to capitalise on the potential of APA."

Shaun Ryan
Partner, Advisory, E2E Process Transformation Leader, PwC Australia

Key components of APA: Enterprise ecosystem and agentic workflow

APA represents a major leap towards greater autonomy and intelligence. Agents can foresee problems and take preventive measures and proactive actions without a need for human intervention. Agents also have self-monitoring capabilities, ensuring continuous process improvement. Advanced agents can analyse their own performance, learn and improve over time. In this new era of APA, organisations can progressively include innovation, efficiency and productivity at each step of a business process, with the goal of achieving autonomy in any workflow execution.

> Successful implementation of agentic AI depends on combining advanced technologies with human creativity and judgement. Effective data management is key, as it empowers AI to reach its full potential. Achieving true success relies on strategically blending these elements to transform business models and drive sustainable growth.

Mark Allderman
Partner, PwC South Africa

The functionalities of agents primarily consist of the following key components:

Orchestration

Orchestration is at the core of any agent workflow where multiple agents contribute to a series of actions and tasks that need to be stitched together. This begins with understanding the goal or objective of the workflow, followed by planning of all tasks and actions that need to be performed to achieve it. These tasks are then delegated amongst multiple agents as each of them will preserve a context of the task to be carried out. This is approach is similar to having specialised skills within a workstream.

Workflow construction

Workflow steps are constructed against the plan which is prepared as explained in the previous step. During this activity, pre-built tools such as API integration, RPA bots, vision capabilities and browser search are leveraged to frame actions, and this may involve specialised agents (skills). In case these agents do not exist, the intelligence from LLMs may enable the agents to generate them at runtime, be it for writing code, analysing data from documents, creating compliance reports, providing a recommendation, etc.

Agent execution

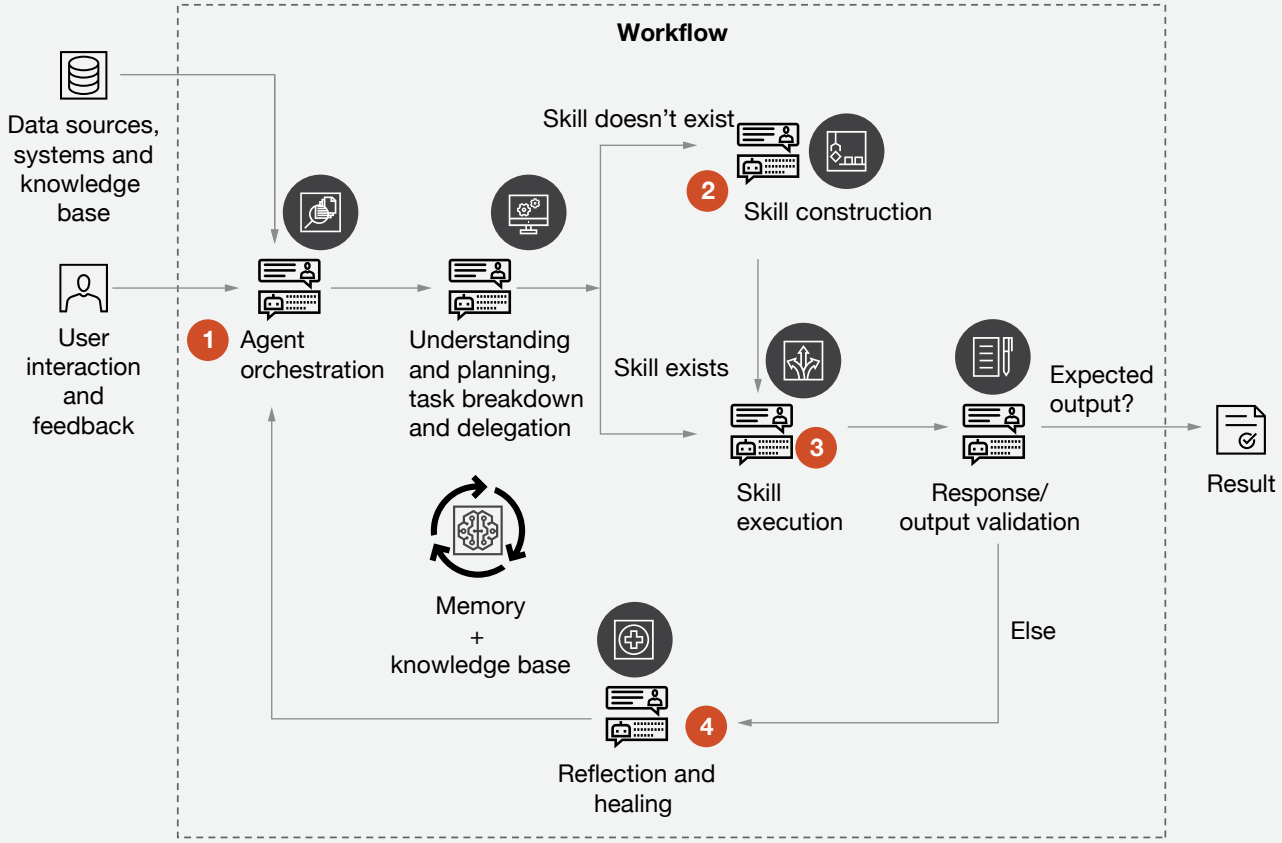
The sequence of steps in the plan are executed step by step, in a hierarchical manner, parallelly or a combination of both. There may also be some handshakes between agents that are interdependent on the output from the previous state. An important step during execution by the agents is human feedback or human in the loop to provide inputs. The execution can happen on a server or in a serverless application.

Reflection and healing

Agents in APA can exhibit self-learning and self-healing capabilities. These agents can work together to autonomously set goals, explore environments and refine actions based on feedback. They continuously monitor performance, using feedback loops and iterative mechanisms to resolve issues independently and adapt to process changes. By reviewing their workflows and finding areas for improvement, these agents get better and more efficient over time.

Source: PwC analysis

APA in action



Source: PwC analysis

Real-world use cases

APA has unlocked advanced capabilities for achieving end-to-end automation and driving transformation across business functions. By leveraging GenAI, APA can deliver enhanced decision making and business insights, drive efficiency, and transform user experience. Agents are driving productivity and efficiency gains across functions, right from streamlining repetitive tasks in finance or supply chain operations to delivering personalised experiences in sales and marketing. The ability of agents to adapt, learn and manage complex workflows makes them critical for any business to solve modern business problems through innovation.

AI agents are set to transform industry landscapes faster than ever. With agentic automation, we will see significant advancements in quality, accuracy and productivity across sectors, especially as AI agents will begin to play a crucial role in filling the gaps in areas where human expertise is either lacking or in high demand.

Katrin Hamann
Partner, PwC Germany

Sample use cases across business functions

Finance and accounting

Invoice processing agent

- Extract and validate data from invoices, and then post it automatically into ERP systems.
- Handle errors through workflows, ensuring speed and accuracy in invoice processing.

Expense reconciliation agent

- Check employee expenses against company policies and flag any discrepancies for review.
- Automate approval workflows and prepare detailed reconciliation reports for review and action.

Accounts payable agent

- Track unpaid invoices and send automated reminders to vendors. Escalate overdue payments to respective teams.
- Generate comprehensive ageing reports, improving visibility and timely follow-ups by the agent.

Cash flow management agent

- Track incoming and outgoing cash flows to ensure sufficient liquidity for business operations and thresholds.
- Forecast cash flow trends and provide actionable insights to aid financial planning and budgeting.

Supply chain

Demand forecasting agent

- Collect and analyse historical sales, customer trends, seasonality, etc., to forecast demand.
- Share actionable insights through continuous monitoring and refining predictions to improve accuracy.

Supplier onboarding agent

- Automate the collection and verification of supplier information, including contracts and legal documents.
- Streamline the onboarding process by integrating suppliers into master data/procurement systems efficiently.

Inventory visibility agent

- Provide real-time visibility of inventory across warehouses and in transit through interactive conversational agent.
- Provide critical inventory alerts and interactive dashboards view for stockouts or excess inventory.

Returns processing agent

- Manage returns process and addition back to inventory, flag any issues and track resolutions.
- Automate quality checks alerts, refund approvals and restocking processes to enhance efficiency.

Source: PwC analysis

Sales and marketing

Sales development agent

- Fetch potential leads from databases and enrich leads by analysing company size and valid contact details.
- Send personalised automated outreach communications and create follow-up tasks in CRM for non-responding leads.

SEO optimisation agent

- Analyse website content for keywords and performance. Recommend improvements to meta tags, backlinks and structure.
- Track rankings and provide reports on SEO performance to improve search engine visibility and drive organic traffic.

Brand monitoring agent

- Suggest keywords for monitoring (brand, product) and gather mentions across selected platforms.
- Automate triggers for cases with keywords ‘scam’ or ‘fraud’ and visual summaries of sentiment trends, mentions and issues.

Customer feedback agent

- Gather data from surveys, reviews and social media mentions. Perform sentiment analysis to gauge customer intent.
- Provide pointed insights for improving products and services to enhance customer retention and brand reputation.

IT department

Service desk agent

- Automate sentiment analysis and service ticket creation for user queries with appropriate priority levels.
- Generate query responses for FAQs, trigger automated workflows or loop human in for unresolved requests.

Asset management agent

- Track IT assets throughout their lifecycle, managing inventory, allocation and compliance with organisational policies.
- Provide maintenance schedules for IT assets and application licences.

System monitoring agent

- Continuously monitor IT infrastructure (servers, networks, applications) for anomalies, performance issues and downtime.
- Alert the team to take corrective actions and suggest proactive actions and disaster recovery plans.

Disaster recovery agent

- Monitor systems for potential disasters, trigger recovery protocols and minimise impact by automating failover processes.
- Regularly test and update disaster recovery plans to address risks and ensure readiness.

Source: PwC analysis

Human resources

Talent search agent

- Help recruiters find the best resumes by automating job description (JD) creation process and smart sourcing from internal portals and external websites.
- Rank candidates by relevance, considering skills, experience and location.

Background verification agent

- Collect and validate documents such as ID proofs, educational certificates and employment history.
- Initiate background checks, send notifications and follow up with BGV team.

Employee experience agent

- Act as a virtual HR assistant to address employee queries on policies, benefits, leave balances and other HR-related processes.
- Send reminders for upcoming deadlines (e.g. benefits enrolment, training sessions) to enhance employee engagement.

Full and final settlement agent

- Automate final clearance, including salary, bonuses, leave encashments, deductions, assets and IT system deactivation.
- Administer exit interview questionnaire, collect feedback and perform sentiment analysis.

Source: PwC analysis

Talent search agent

Identifying the right candidate for a role is critical to successful position fulfilment. The hiring process starts from the creation of an accurate, organisation-specific and well-defined JD for the given role. Currently, the talent search process relies heavily on manual efforts, including creating JDs, sourcing and shortlisting candidates by screening resumes, and scheduling interviews. Key challenges during this process include:

High manual workload – creating JDs, sourcing candidate profiles and screening resumes requires extensive efforts

Inefficiency in matching – only keyword search may result in irrelevant candidates being sourced

Subjectivity in decision making – may result in inconsistent evaluations

Scalability challenge – for a mass recruitment drive, it can become very laborious to source correct profiles

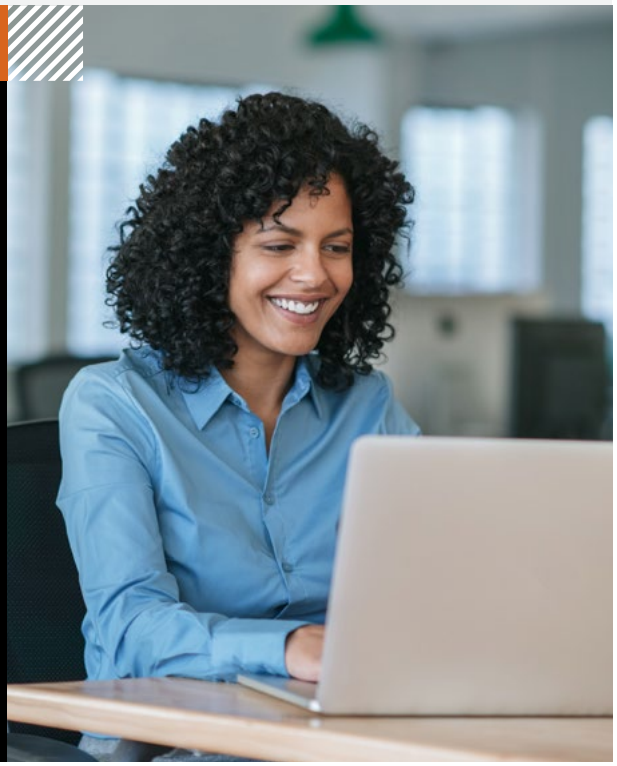
APA can transform this process by leveraging agents and automation and orchestration capabilities.

Action1:
JD creation – using pre-built templates, JD creator agent to draft JDs based on requisition details, role and required experience

Action2:
Candidate sourcing – RPA and API-based tools to post job openings on relevant portals

Action3:
Resume screening and comparative analysis – GenAI-based intelligence matching to identify most relevant profiles and perform comparative analysis

Action4:
End-to-end Automation – by orchestrating the entire process from JD creation to candidate shortlisting



As-is talent search flow

Hiring requisition to JD creation:

Collaborates with the hiring manager to define the role, responsibilities and qualifications, then drafts a JD.

The JD is refined for clarity and alignment with organisational standards before approval.

Smart sourcing:

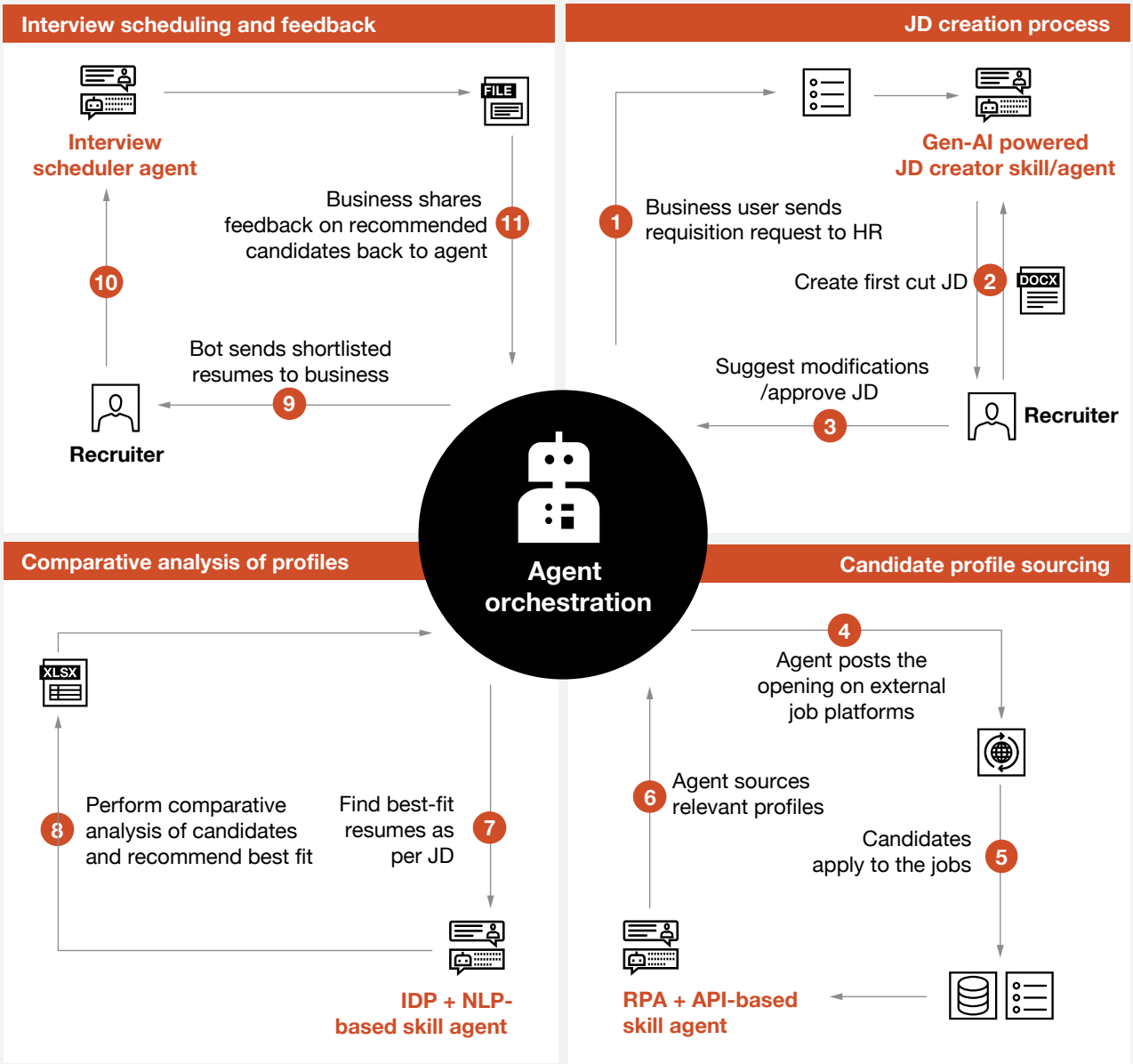
Uses tools like an application tracking system, internal job portals, and external job platforms to source potential candidates.

Optimises search criteria using keywords and filters to identify the best-fit resumes quickly.

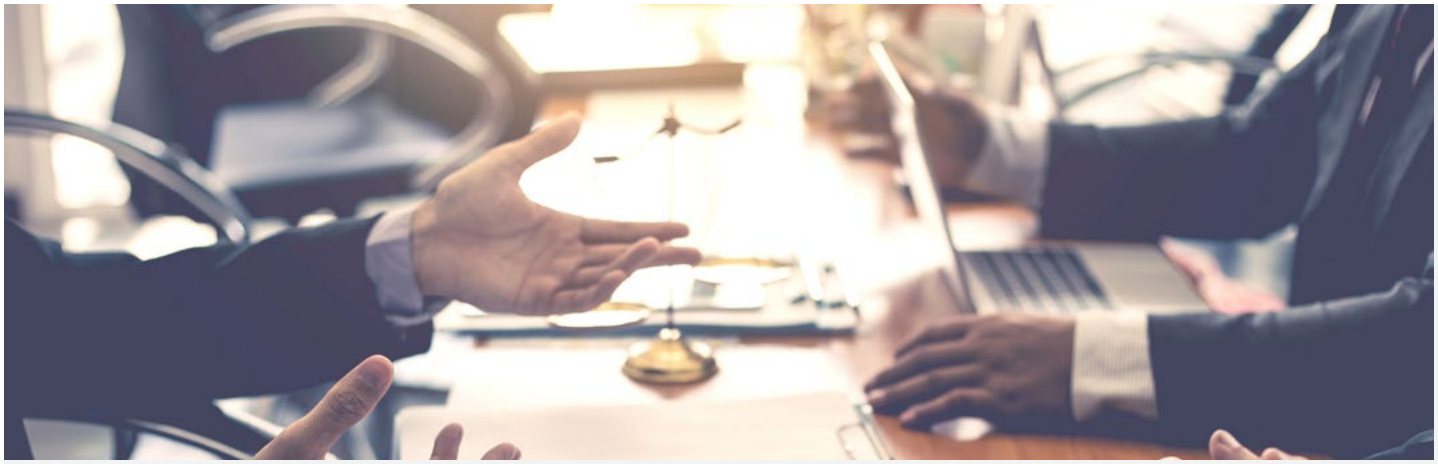
Screening and shortlisting:

Recruiter reviews the resumes, matching them against the JD, and shortlists candidates based on qualifications and experience for the next steps in the hiring process.

Agentic talent search workflow



The **talent search agent** accelerates the hiring process by improving speed, accuracy and scalability. This agent reduces the time-to-hire, enhancing recruiter productivity and ensuring consistent decision making without recruiter bias. Through automation, the agent allows recruiters to focus on strategic initiatives such as candidate engagement, resulting in an efficient talent acquisition process.



HR roles of today vs tomorrow

Human roles in HR today

Screening and recruitment
- Screen and identify talent.
- Schedule interviews and work on onboarding selected candidates.

Employee experience
- Plan employee engagement and team-building activities.
- Gather insights through employee surveys.

Employee performance management
- Define performance goals and evaluate employees against them.
- Define feedback structure.

HR administration and compliance
- Ensure compliance with local rules and laws.
- Establish processes for payroll and benefits management

Learning and development
- Plan employee training activities.
- Chart development plans across organisational levels.

Agent capabilities in HR tomorrow

Automated screening and onboarding
- Perform automated screening and shortlisting of candidates.
- Schedule and conduct initial assessments.

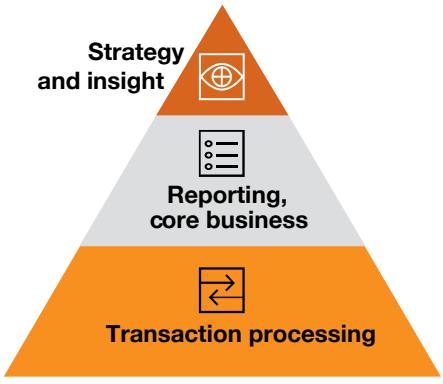
Personalised employee engagement
- Provide personalised 24/7 employee support and handle queries.

Effective performance management
- Track KPIs in real time.
- Automate feedback loop and goal-setting mechanism.

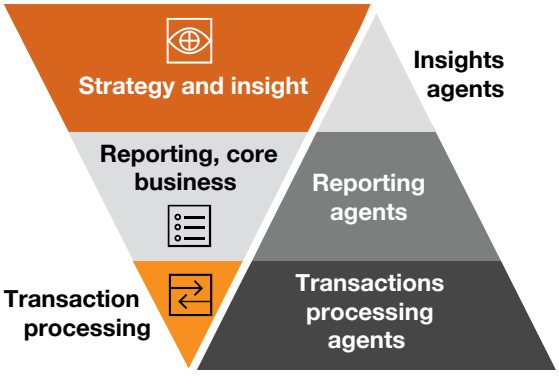
Automated HR administration and compliance
- Automate monitoring and reporting.
- Provide self-service payroll and benefits management portal.

Personalised learning and development
- Personalise training recommendations.
- Conduct interactive training sessions.

Traditional HR model (human workforce)



Future HR model (human workforce + agents)



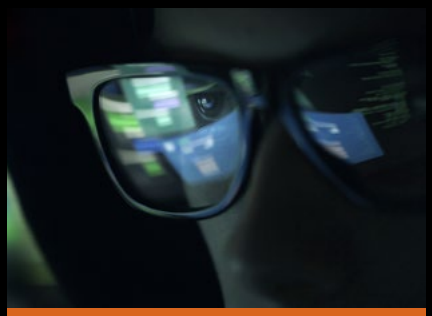
Governance in the agentic AI landscape

As more organisations turn to APA to enhance efficiency and drive innovation, it is crucial to address the associated risks and ethical considerations, to ensure responsible implementation and sustainable success. PwC emphasises that responsible AI practices are key to mitigating risks and building trust among stakeholders.[4] This means setting up robust governance frameworks, ensuring transparency and fairness, and aligning with regulatory requirements to navigate the complexities of adopting APA.

Here are the key risk and ethical considerations to keep in mind when implementing APA:

A robust governance framework enables ethical AI implementation

Establishing a robust governance framework for ethical AI implementation requires defining clear accountability and developing comprehensive ethical guidelines. Measures to safeguard data privacy include encryption, relevant access permissions and frequent inspection.



Transparency and explainability are essential for building trust in AI systems

Ensuring algorithm transparency involves maintaining comprehensive documentation of APA models and detailing the data sources, training processes, and decision-making criteria. This is essential for transparency and auditing purposes.

Regulatory compliance and adherence to industry standards can mitigate legal risks

Conducting regular compliance audits is essential to ensure that APA systems adhere to relevant data protection laws, industry-specific regulations and ethical guidelines, thereby mitigating legal risks.

For more information, refer to the risk, regulation and sustainability section of PwC's thought leadership on 'GenAI strategy: From ideation to adoption'.[5]

"In the race to the future, organisations need to find a balance between innovation and compliance. While AI agents can transform the way we work, they can also pose novel risks that humans may be unaware of. Hence, as we prepare for a possible world where AI agents will become a part of the larger workforce, we must tread with caution and consider not only the technical limitations but also the ethical concerns and wider societal impact often associated with the level of autonomy with which the AI agents are being designed."

Sudipta Ghosh
Data and Analytics Leader, PwC India

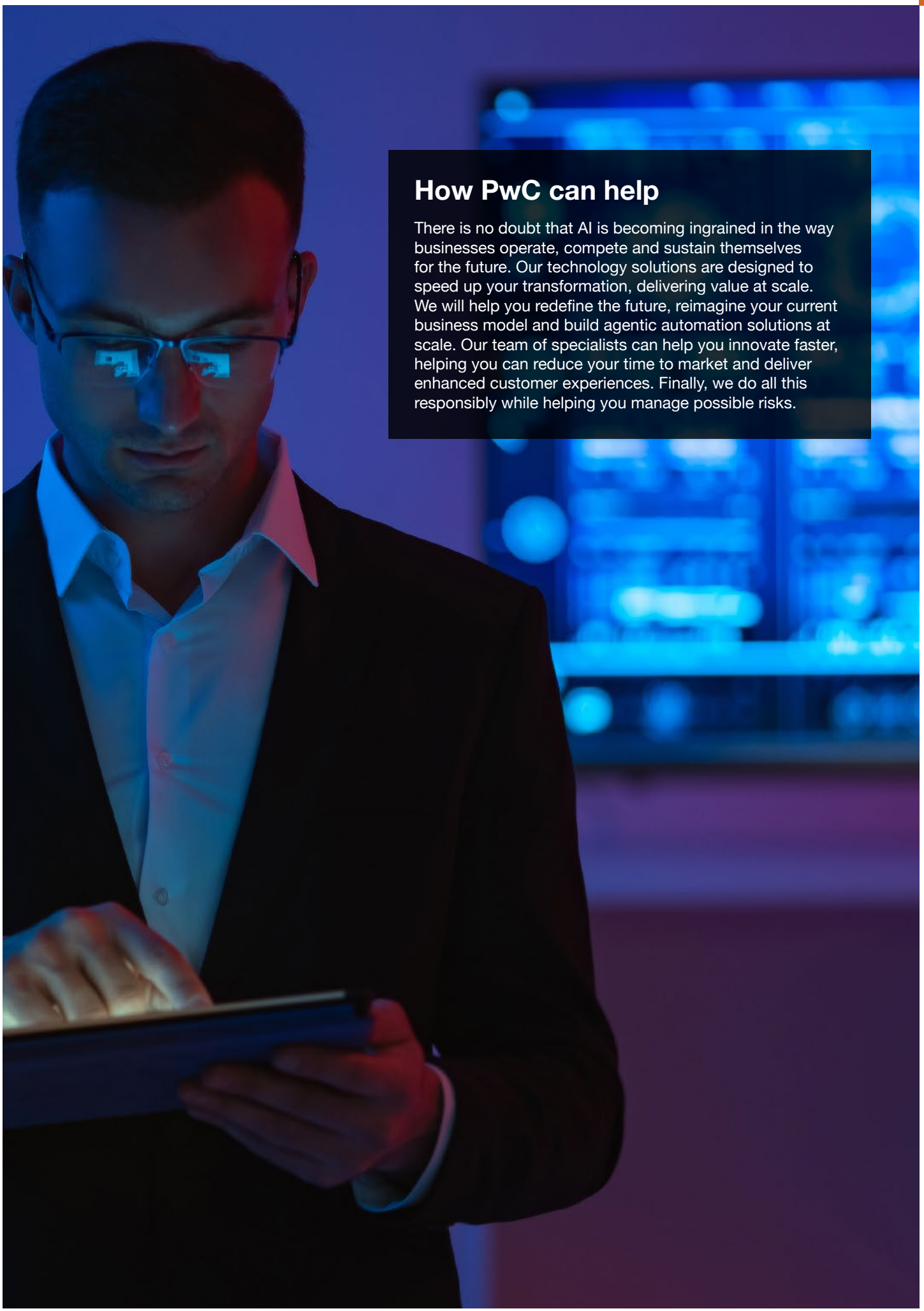
4&5 https://www.pwc.in/assets/pdfs/genai-strategy-from-ideation-to-adoption.pdf

Looking ahead

There is a definitive shift from human-led, manual processes to AI-powered systems where autonomous agents are handling tasks alongside their human counterparts with greater speed and precision. This transformation is not only expected to deliver cost benefits for businesses but also unlock newer revenue channels and growth opportunities that will allow businesses to deliver services faster and at a much larger scale.

However, as agents become increasingly autonomous in their decision making and actions, it can lead to newer risks and challenges that businesses will have to plan for. For instance, HR as a function will have to evolve as it goes on to manage a workforce that includes humans and agents. It will require a completely different set of skills to manage a blended workforce while devising methods to source, build and measure human talent. As agents autonomously carry out all routine and repetitive work, organisations will need to prepare humans to assume high-skill roles.

Additionally, since agents can be partly/fully autonomous, they require human supervision. Organisations will have to balance the need to innovate, the cost of innovation and the expected ROI as they deploy these agents. They will need to create both quantitative and qualitative methods to measure human-agent team performance. This will also need to be followed up with further development of governance models to manage organisational and societal risks. Hence, to enable continuous innovation, leaders need to develop a well-rounded responsible AI framework.



How PwC can help

There is no doubt that AI is becoming ingrained in the way businesses operate, compete and sustain themselves for the future. Our technology solutions are designed to speed up your transformation, delivering value at scale. We will help you redefine the future, reimagine your current business model and build agentic automation solutions at scale. Our team of specialists can help you innovate faster, helping you can reduce your time to market and deliver enhanced customer experiences. Finally, we do all this responsibly while helping you manage possible risks.

About PwC

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