Pearson

Pearson Skills Outlook: China

Solving the Tech Talent Gap from Within

Country Factsheet

Companies hold the key to solving their tech talent shortages

Technology is transforming work for millions. Organisations that don't act could leave their employees underutilised, undervalued, and unprepared for future challenges. This can stifle innovation, reduce productivity, and weaken profitability and competitiveness.

At the same time, we're seeing a global skills shortage, with predictions that 85 million jobs globally may be left unfilled by 2030 due to lack of skilled talent to take them (Korn Ferry 2023). Careers are no longer a single, linear trajectory but dynamic journeys with many pivots and routes. It's time to redesign skilling pathways making them more transparent, personalised, and responsive to the evolving world of work.

By 2029 those working in key tech roles could save **nearly a day a week** by using new technologies effectively

LLM Chatbots and RPA for Internal Processes (software robotics) hold the greatest potential to save time for the roles we analysed

Business leaders must think creatively about how to upskill and redeploy their existing talent

Pearson's latest Skills Outlook shows how businesses can unlock trapped value by automating and augmenting tasks. By thinking creatively and proactively about how to upskill and redeploy existing talent, redesigning roles from the ground up, business leaders can address urgent skills gaps and boost job security for valued employees.

For this report we focused on the tech sector, which is facing disruption from technology alongside a growing shortage of skilled workers. We found that those working in key tech roles could save nearly a day a week in 5 years' time. Large Language Model (LLM) Chatbots (an advanced software designed to handle complex and dynamic interactions, simulating human conversation) and Robotic Process Automation (RPA) for Internal Processes (a technology that uses software bots to automate repetitive, rule-based tasks and processes) hold the greatest potential to save time for the roles we analysed. This creates an opportunity to rethink how roles are structured and redefine what "core" tasks will remain with human employees.

[1] 16 of the top 100 'Jobs on the Rise' globally are Technology or IT related roles (1. Introduction: the global labour market landscape in 2023 - The Future of Jobs Report 2023 | World Economic Forum)

[2] The sector has an expected 'churn' rate (roles created or destroyed) of 29% over five years (WEF Future of Jobs Report 2023)

Redesigning jobs at a task level can unlock the hidden value in existing workforces

Employers have a real opportunity to reallocate saved time to more strategic, innovative and high-value work. The challenge is in identifying what those tasks are for each role, how they will help boost business performance, and how best to develop these skills to get the maximum value from their workforce. So it's not about reducing staff numbers, but rather:

- Increasing capacity – for example, helping 15 Engineers to go from responding to 20 projects to 40.
- Refocusing the role, for example:
    - A Computer System Architect can move from hands-on troubleshooting to more strategic responsibilities, such as long-term infrastructure planning.
    - A Computer Network Architect can shift from network maintenance to focusing on higher-level priorities such as cyber resilience planning.
    - A Computer Systems Analyst can do less routine user support activities and focus on more analytical work such as process improvement initiatives.
    - A Computer Programmer can do less routine coding and focus on ensuring the quality of AI generated code.
    - A Systems Software Developer can do less systems maintenance and focus more on collaboration with others on high level projects.

By automating routine tasks and focusing employees on what matters most, businesses can bridge talent gaps and create the capacity they need without relying solely on external hiring. Taking this approach can give employers a competitive edge and help to future-proof their workforce.

Saved time can be reallocated to more strategic, innovative or high-value work

Between 3.9 hours and 5.9 hours a week could be saved in 5 years' time

For this study, we focused on five popular and highly valued tech roles in China. We looked at how the tasks done by these sought-after employees will change in the next five years, due to 34 evolving technologies.

Looking at the impact on hours spent on tasks within a role in a working week, we found that:

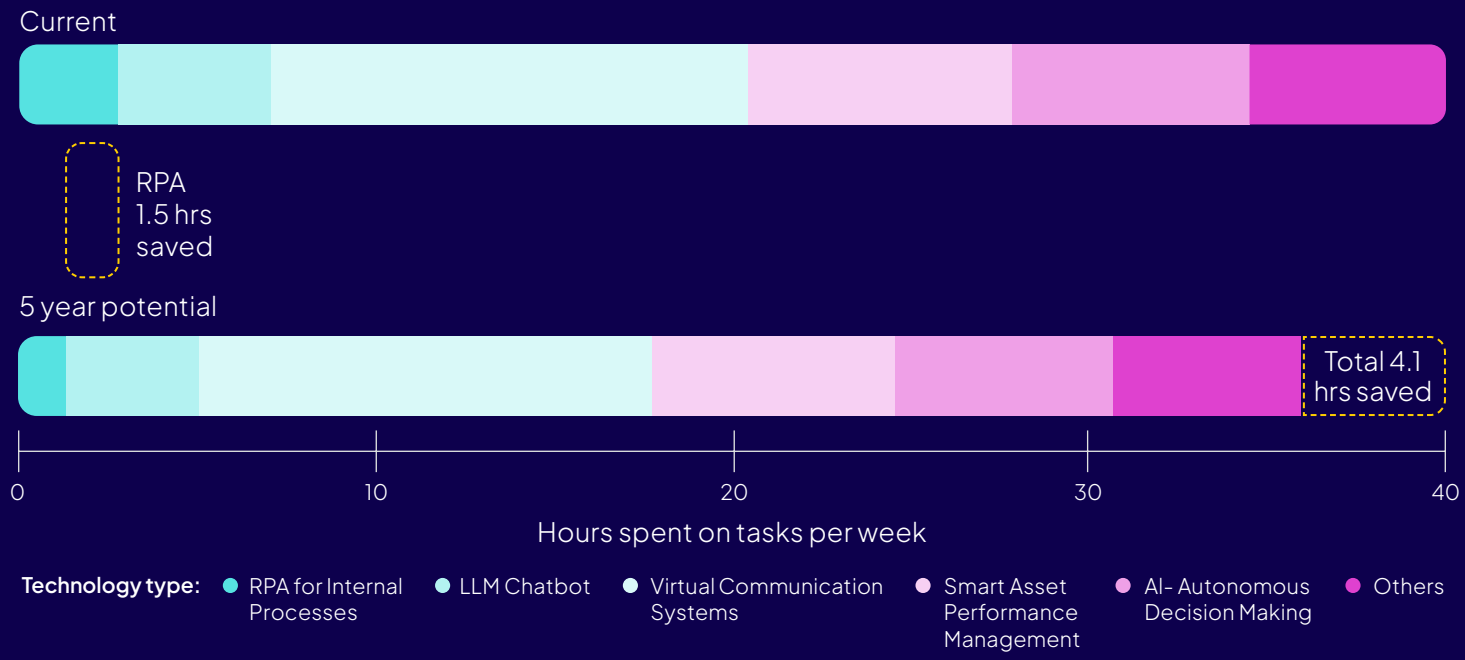
- Across the roles examined, **between 3.9 hours and 5.9 hours a week could be saved in 5 years' time** through effective use of technology – nearly one day in the working week.
- Of the 34 technologies analysed, **LLM Chatbots and RPA** hold the greatest potential to save time for the roles considered.
- All of the tasks within the five roles surveyed remain part of the job – none are completely removed by technology – however some tasks are impacted more than others:
  - Tasks focused on working with others, including supervision, training and project discussions will be the **least** impacted.
  - The tasks **most** transformed by tech are largely routine or repetitive: correcting errors, maintaining systems, rewriting programmes, updating software, or performing network backups.

Systems Software Developers

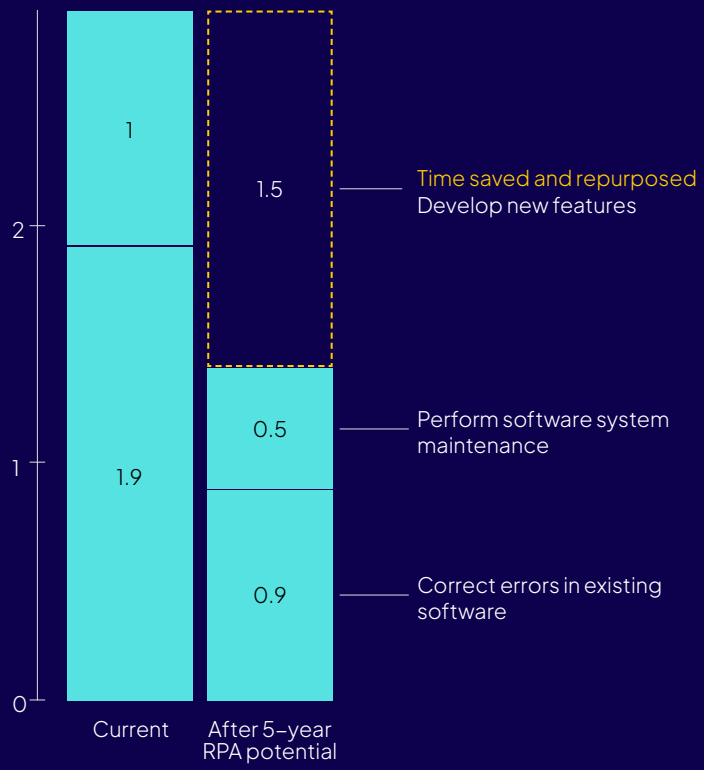
- **4.1 hours per week** could be saved with effective use of technology
- **RPA for Internal Processes** has the biggest potential impact on this role
- Tasks most automatable in this role with this technology are:
  - Correcting errors in existing software
  - Performing software system maintenance

Illustration of how a working week is likely to shift with technology adoption

5-year outlook – Breakdown of time spent on tasks in the role by emerging technology impact, demonstrating which technologies are driving the largest change



Zooming in on how Systems Software Developers can save and repurpose 1.5 hours a week through use of RPA



Role evolution

With the time saved through automation, Systems Software Developers can focus more on:

- designing innovative software solutions,
- improving user experience,
- integrating emerging technologies (eg AI-driven features).

Roles should evolve to emphasise more creative, strategic elements of development, such as architectural design, security enhancements, and collaboration with cross-functional teams on high-level project goals.

Computer Programmers

- **4.9 hours per week** could be saved with effective use of technology
- **LLM Chatbots** have the biggest potential impact on this role
- Tasks most automatable with this technology in this role are:
  - Rewriting programmes
  - Updating and maintaining computer programmes and software packages
  - Writing computer programmes and software packages

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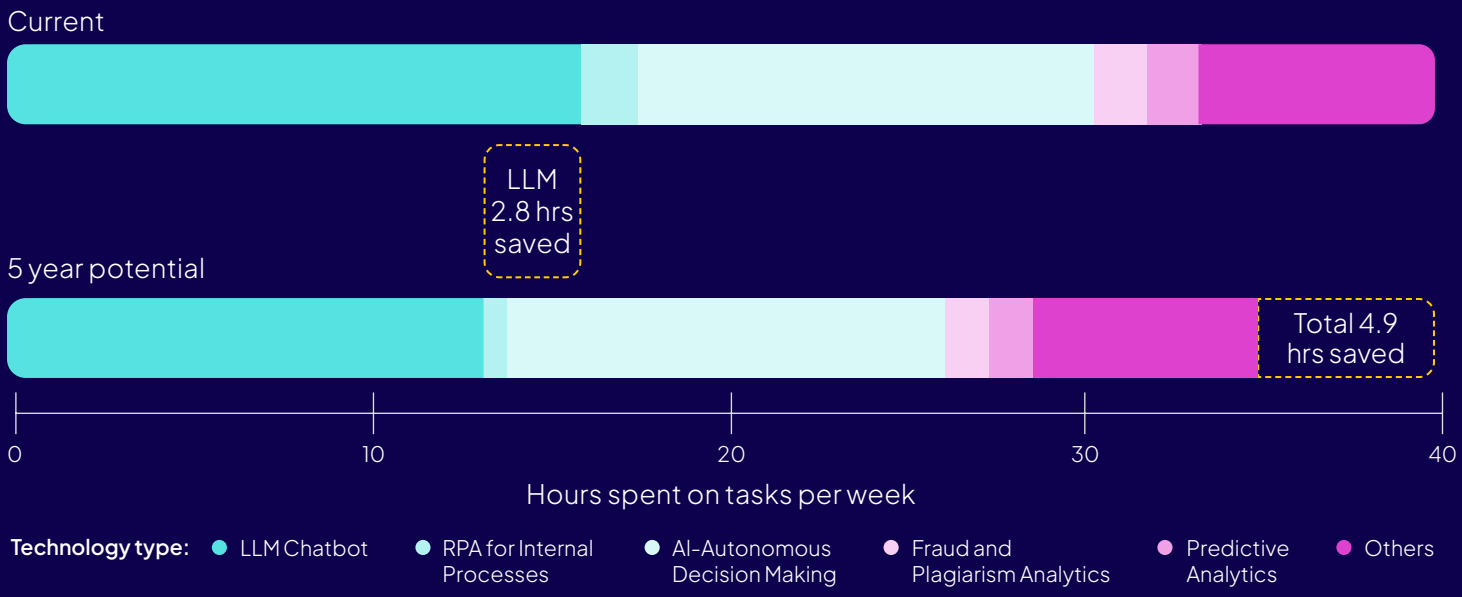
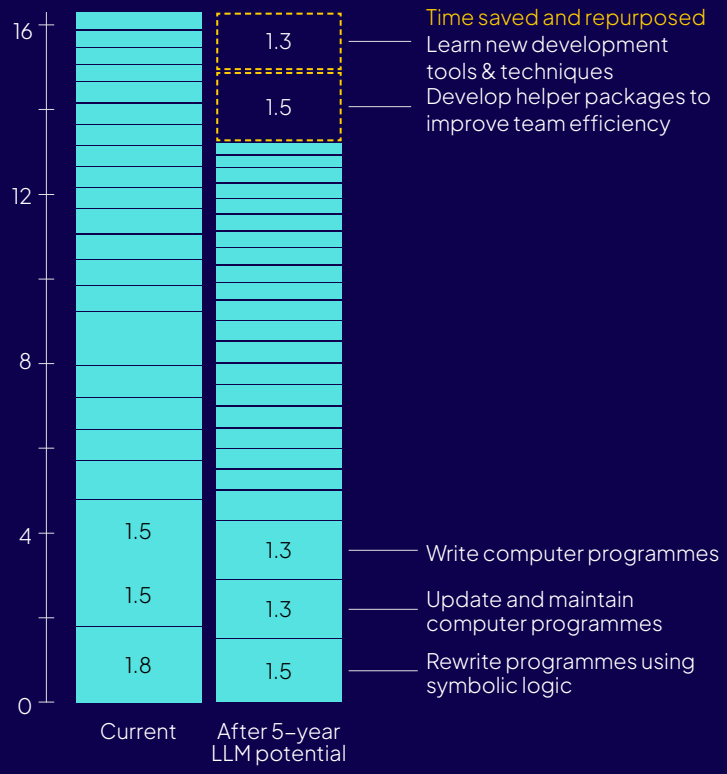
5–year outlook – Breakdown of time spent on tasks in the role by emerging technology impact, demonstrating which technologies are driving the largest change



Zooming in on how Computer Programmers can save and repurpose 2.8 hours a week through use of LLM



Role evolution

Programmers may shift from routine coding tasks toward:

- roles that oversee AI-generated code,
- optimize and refine chatbot outputs,
- ensure quality control of automated programming tasks.

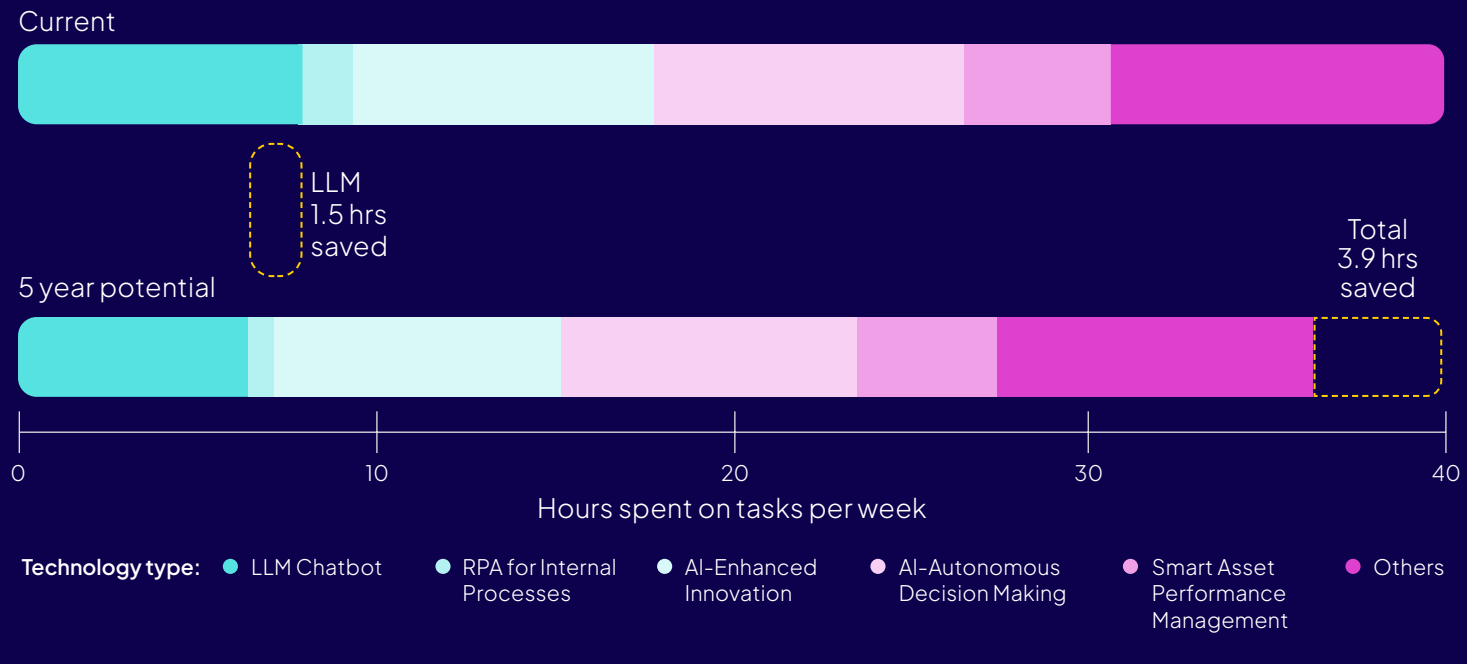
This role may be redefined to focus more on complex algorithm development, AI oversight, or system architecture, while automating routine coding work.

Computer Systems Engineers/ Architects

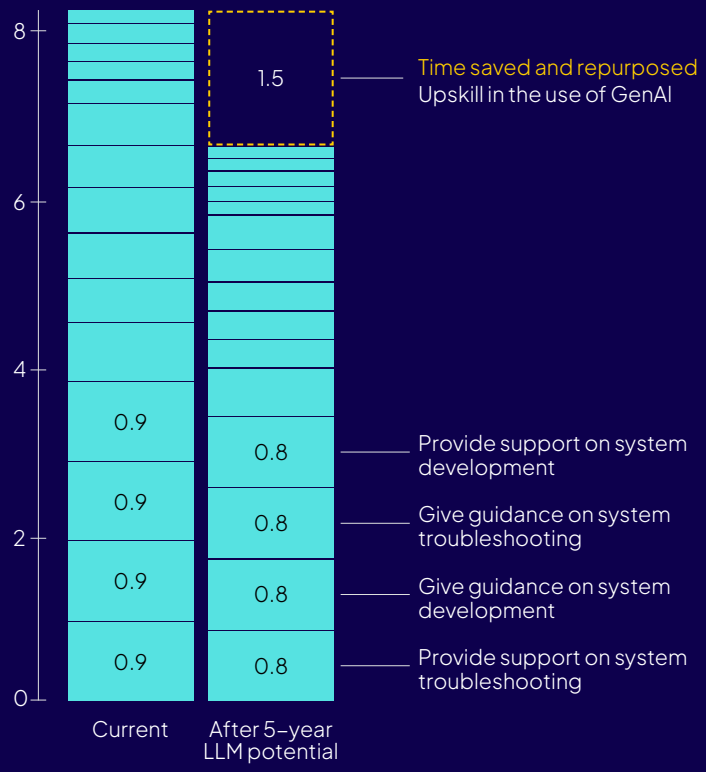
- **3.9 hours per week** could be saved with effective use of technology
- **LLM Chatbots** have the biggest potential impact on this role
- Tasks most automatable with this technology in this role are:
  - Providing technical guidance for the development of systems
  - Providing technical guidance for troubleshooting in systems
  - Advising on design concepts

Illustration of how a working week is likely to shift with technology adoption

5–year outlook – Breakdown of time spent on tasks in the role by emerging technology impact, demonstrating which technologies are driving the largest change



Zooming in on how Computer Systems Engineers/ Architects can save and repurpose 1.5 hours a week through use of LLM



Role evolution

LLM Chatbots will automate tasks like providing technical guidance and design advice, traditionally seen as requiring human expertise. The automation of these tasks suggests a shift in the role from hands-on troubleshooting to more strategic responsibilities, such as:

- overseeing system integration,
- long-term infrastructure planning,
- and ensuring compliance with industry standards.

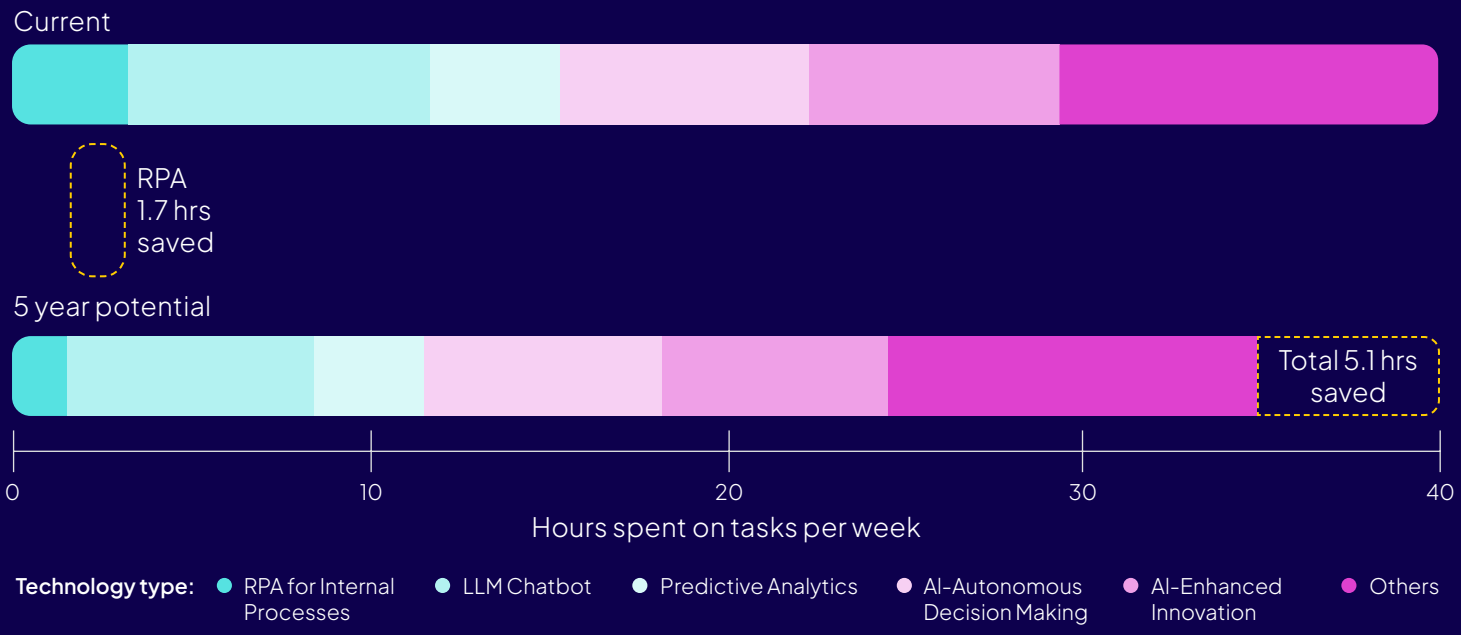
The role could also evolve to focus on the human-AI collaboration aspect, where engineers work alongside AI to provide final validation and ensure that AI-driven designs align with goals.

Computer Systems Analysts

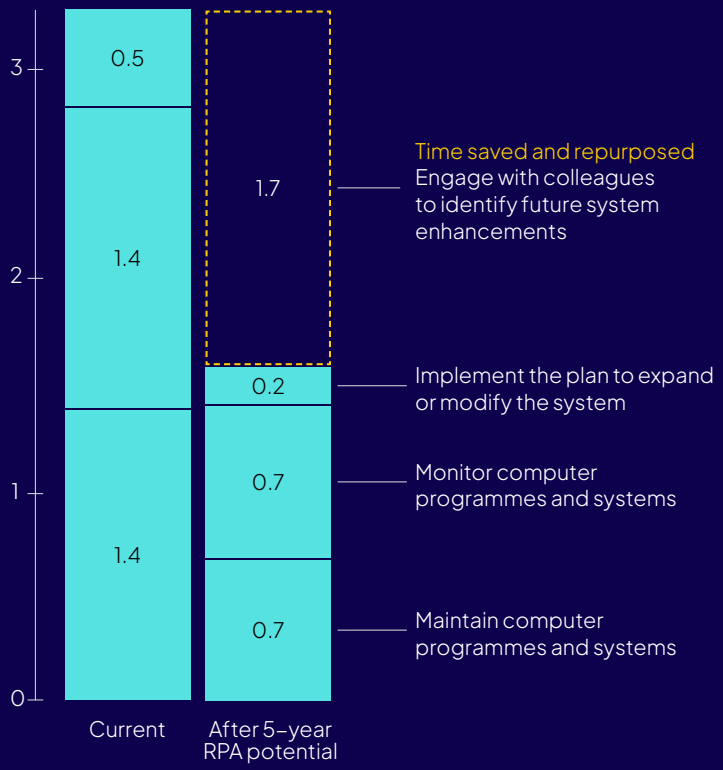
- **5.1 hours per week** could be saved with effective use of technology
- **RPA for Internal Processes** have the biggest potential impact on this role
- Tasks most automatable with this technology in this role are:
  - Maintaining and monitoring computer programmes and systems

Illustration of how a working week is likely to shift with technology adoption

5-year outlook – Breakdown of time spent on tasks in the role by emerging technology impact, demonstrating which technologies are driving the largest change



Zooming in on how Computer Systems Analysts can save and repurpose 1.7 hours a week through use of RPA



Role evolution

As RPA impacts routine tasks such as system maintenance, Computer Systems Analysts can focus on more advanced analytics, such as:

- predictive analysis,
- system optimisation,
- process improvement initiatives.

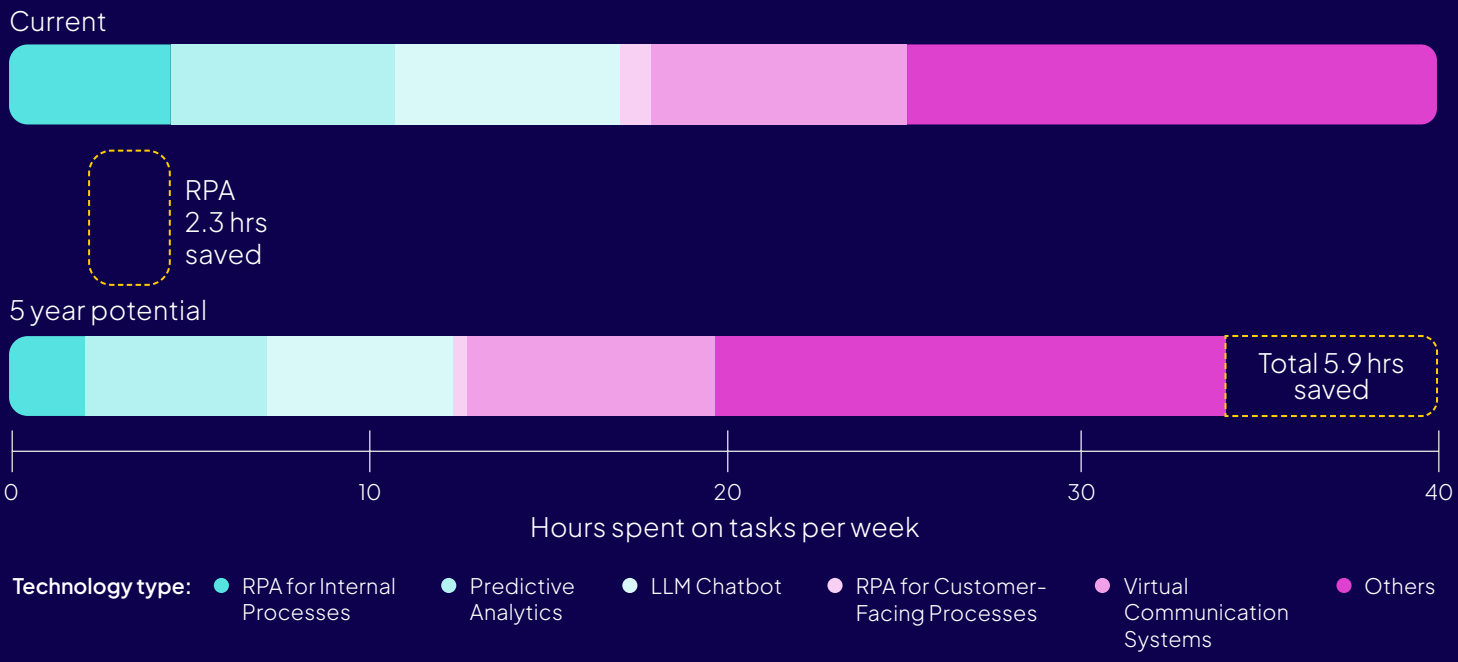
Their roles may evolve to emphasise the strategic application of data insights, aligning technology solutions with broader business needs, and facilitating the implementation of more complex, large-scale system changes.

Computer Network Architects

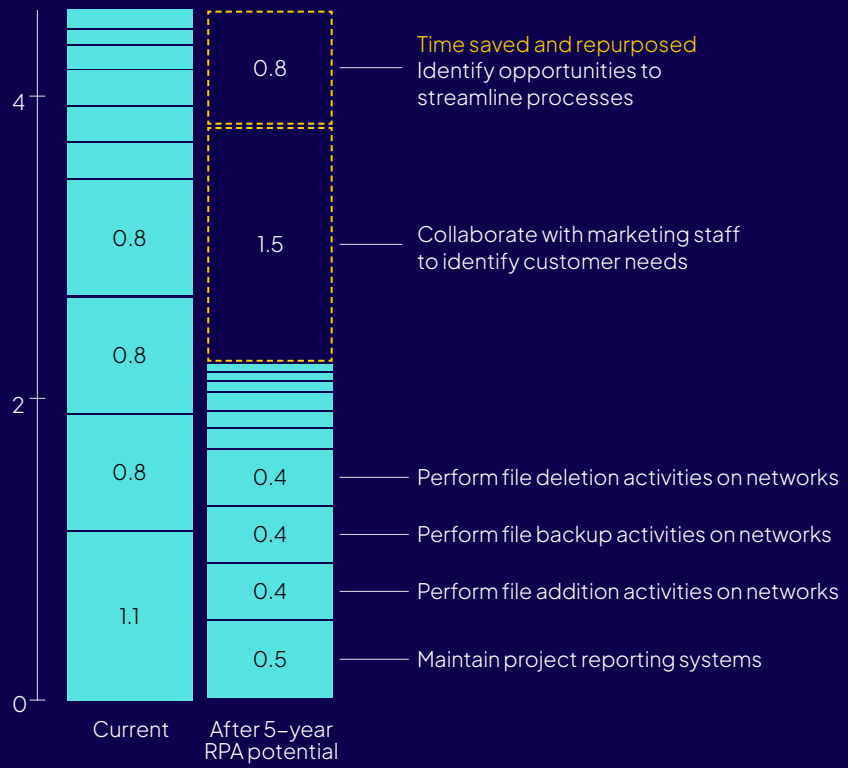
- **5.9 hours per week** could be saved with effective use of technology
- **RPA for Internal Processes** has the biggest potential impact on this role
- Tasks most automatable with this technology in this role are:
  - Maintaining project reporting systems
  - Performing file addition/backup/deletion activities on networks

Illustration of how a working week is likely to shift with technology adoption

5-year outlook – Breakdown of time spent on tasks in the role by emerging technology impact, demonstrating which technologies are driving the largest change



Zooming in on how Computer Network Architects can save and repurpose 2.3 hours a week through use of RPA

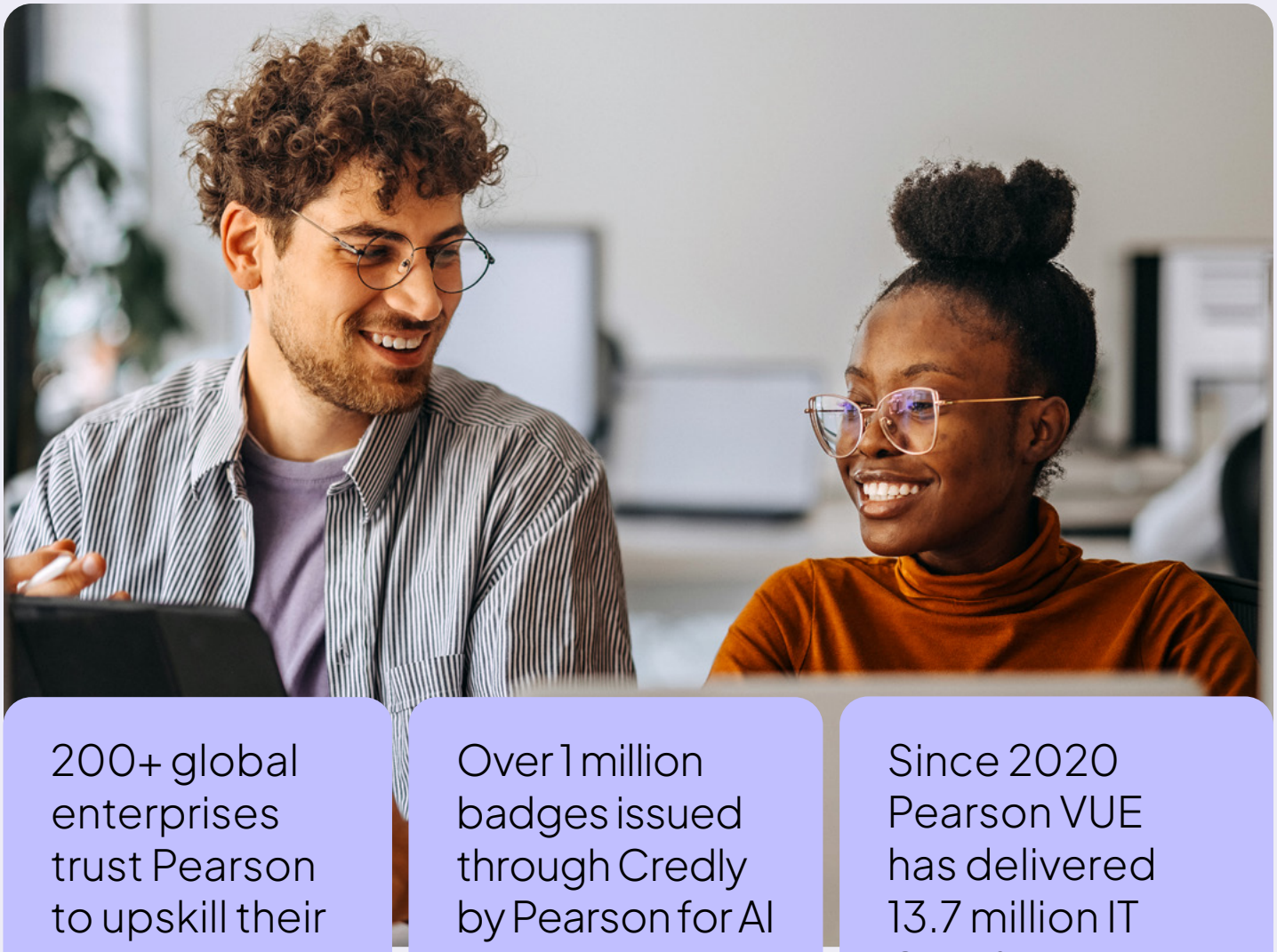


Role evolution

RPA for internal processes will streamline tasks such as maintaining reporting systems and managing network file activities. This role will likely move toward higher-level responsibilities, including:

- network design innovation,
- cyber resilience planning,
- future-proofing infrastructure to accommodate the rapid evolution of cloud technologies, AI, and IoT.

The focus will shift from network maintenance to innovation, resilience, and scalability, as routine administrative tasks are taken over by automation.



200+ global enterprises trust Pearson to upskill their workforce for the age of AI

Over 1 million badges issued through Credly by Pearson for AI related learning since 2017

Since 2020 Pearson VUE has delivered 13.7 million IT Certifications to workers globally

How Pearson can help

Organisations need to rethink their talent strategies with future-focused insights down to the task level, data-led talent planning, and tailored learning. They need actionable insights into future skill demands, the impact of AI, and alignment to current employee capabilities.

With Pearson's Ontology, employers can redesign their workforce to embrace AI, elevate productivity, and future-proof their organisation. It offers unparalleled depth in predicting how 34 emerging technologies, like LLM Chatbots and RPA, will affect individual tasks, roles, and organisations. This helps employers to reallocate time, repurpose talent, and increase employee capacity, not just automate.

Methodology

Five high-value tech roles were selected by finding the most common roles in the ICT job family which earn an above-average wage for ICT jobs.

Pearson's tech impact modeling was applied to these roles at a task level, modeling the future impact of 34 emerging technology types on each of 76,600 granular tasks. The tech impact shown is for a 5–year outlook from 2024, using projected adoption rates in China's ICT industry.

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