



Technology

Deloitte and the National Payroll Institute
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This report is part of the Beyond Paydays: The Evolution of Payroll in Canada research series, developed by the National Payroll Institute in collaboration with Deloitte (June 2026). While the original report provides a comprehensive view of payroll in Canada, this theme-based version highlights key insights on a specific topic area.

It is designed to be read independently, while serving as a companion to the full report for those seeking a broader perspective.





Technology

Technology has fundamentally reshaped and revolutionized payroll over the years, shifting it from a largely transactional, back-office function to an enabler of efficiency, compliance, and employee experience. Modern payroll systems now serve as a cornerstone of organizational operations, thanks to rapid advancements in cloud computing, automation, and AI. These innovations, together with emerging tools such as EWA, AI, and blockchain, have streamlined processes, strengthened compliance, and enhanced the employee experience.

The foundation of modern payroll

One of the most significant changes has been the widespread migration to cloud-based payroll platforms. Unlike traditional on-premise systems, cloud solutions offer scalability, real-time access, and robust security features. They support integration with HR and accounting systems, creating a unified ecosystem for workforce management. Cloud adoption also supports remote work and global payroll operations, which became critical during the pandemic and remains essential in today's distributed workforce environment. For organizations, this shift reduces infrastructure costs, improves agility, and ensures continuous updates to meet evolving compliance requirements.

Payroll transformations, particularly from on-premise to cloud solutions, have seen significant traction in Canada in recent years. When asked if their organization has changed payroll software in the last five years, 39 percent of survey respondents indicated that their organization has undergone a payroll transformation. *Figure 19* indicates that 19

The Bottom Line



Executive: Payroll technology is no longer optional infrastructure—it is a strategic enabler of governance, analytics, and employee trust.

Payroll professional: Modern systems support accuracy and insight but require new competencies to interpret and govern outputs.

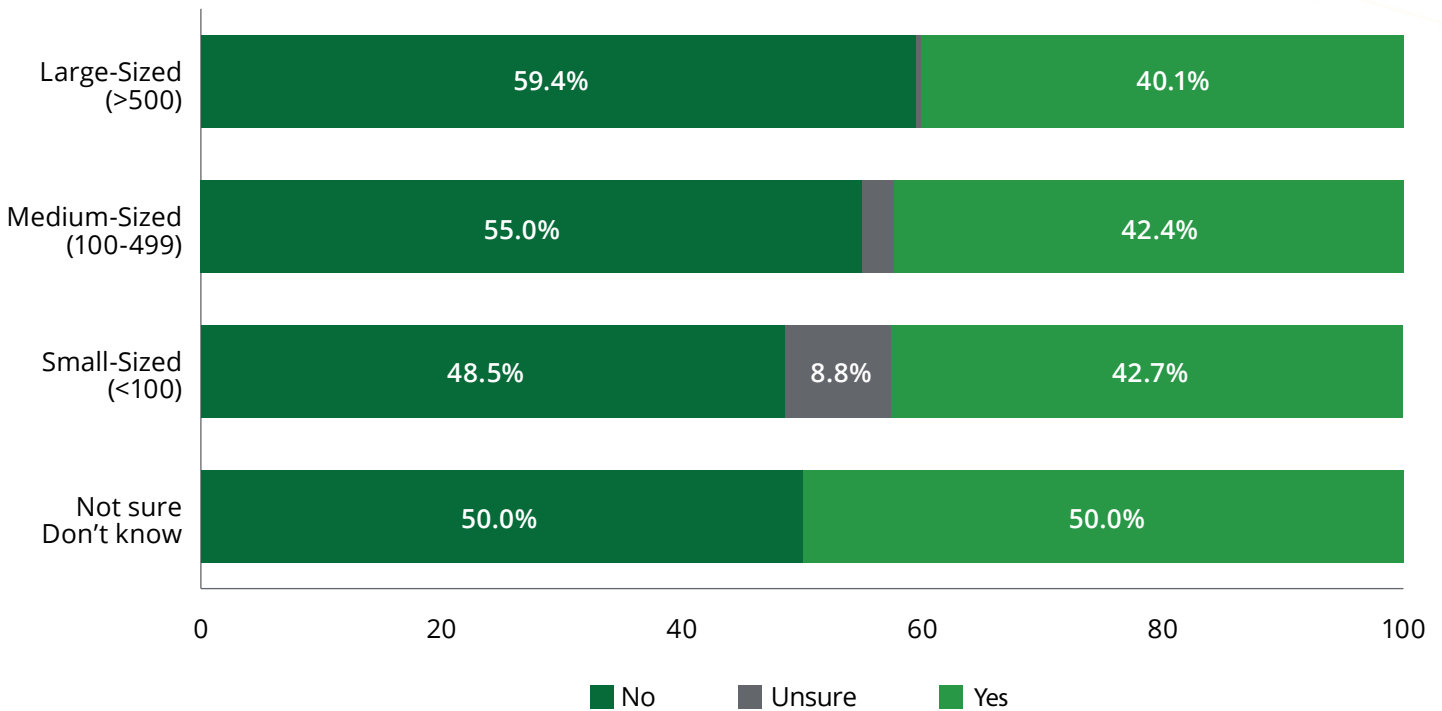
Technology: AI and automation are moving from experimentation to embedded capability, requiring strong controls and data quality.

percent of large organizations, 15 percent of medium organizations, and 7 percent of small organizations have transformed their payroll software in the last 5 years. This indicates that the shift to cloud solutions is widespread, and not necessarily something that is restricted to larger organizations with more resources, as one might assume. Of the respondents who indicated that their organizations have not undergone a payroll technology transformation in the last five years or that weren't sure if they had, 28 percent responded that their organization is planning for a payroll transformation in the next five years. It is clear that the shift to cloud technology is trending in Canada and will likely continue for years to come.

In practice, the decision to transition to cloud-based payroll is rarely driven by a



Figure 19. Payroll software transformations in the last 5 years



single factor, but rather by a convergence of operational, regulatory, and workforce pressures. As payroll environments grow more complex, many organizations find that legacy, on-premise solutions struggle to scale without introducing manual workarounds and heightened risk. Cloud platforms offer a more sustainable operating model by shifting system maintenance, legislative updates, and security enhancements to vendor-managed environments, allowing payroll teams to focus less on system upkeep and more on accuracy, governance, and value-added activities. For organizations already undergoing broader HR or finance transformations, cloud payroll also serves as a foundational enabler, supporting tighter integration, improved data quality, and more timely workforce insights.

The next frontier

Payroll technology is no longer limited to calculating wages and deductions. ESS portals,

mobile applications, and predictive analytics have become standard practice within most organizations, allowing employees to access pay information and manage personal data, and providing organizations with actionable insights into labour costs and workforce trends. Survey results indicate that financial technology (FinTech) innovations, such as EWA, are beginning to gain traction through interest in Canada, allowing employees to access earned wages prior to their regularly scheduled payday, though adoption remains cautious. These tools enhance employee engagement and help to position payroll as a driver of overall employee experience. Meanwhile, blockchain technology, while well established, remains experimental in payroll contexts. It has the potential to support transparency, auditability, and data integrity through tamper-evident records; however, practical payroll applications remain limited and would require robust governance and human oversight.



Perhaps the most transformative development is the rise of automation and AI in payroll. Automation has streamlined repetitive tasks such as data entry and compliance checks, reducing errors and freeing payroll professionals to focus on strategic initiatives. AI is beginning to play a role in predictive analytics, anomaly detection, and even conversational support for employee inquiries through chatbots. From focus groups with payroll professionals, many of the participants indicated that AI is beginning to be incorporated in their organizations, though these organizations are still working to formalize the use of AI with the appropriate policies.

Sentiments around AI adoption in Canada are mixed, balancing optimism with concerns about job displacement and data privacy. Advances in AI also heighten existing concerns, as many payroll professionals remain cautious about AI driven tools from a privacy and compliance perspective. When polled, practitioners frequently cited uncertainty around whether current AI capabilities provide sufficient safeguards, auditability, and transparency—particularly given their accountability for strict adherence to privacy legislation. Though feelings around AI incorporation into payroll may vary, industry experts predict that AI will become deeply embedded in payroll systems. Future applications may include real-time compliance monitoring, intelligent forecasting of labour costs, and personalized employee experiences through adaptive pay models.

AI adoption and integration priorities

As organizations plan for the future of payroll, technology adoption typically follows a phased strategic approach. The first priority is completing the migration to cloud-based

platforms, which provide scalability, security and seamless integration with HR and finance systems. Alongside cloud migration, organizations will need to also establish and understand audit rules to enable the automation of these steps. Once these actions have been completed, automating core processes, such as data validation, tax calculations and compliance reporting (e.g., Record of Employments), can significantly reduce errors and administrative burden.

Once these foundational steps are in place, the next phase involves introducing advanced analytics and AI capabilities. These tools enable predictive insights, anomaly detection and real-time compliance monitoring, helping organizations move from reactive to proactive payroll management. Longer-term priorities include expanding employee centric innovations, such as EWA and financial wellness tools, exploring blockchain technology for secure, auditable transactions, and global payroll operations. It is critical to note that while AI can support functions within payroll such as reducing administrative burden, it is not yet at a stage where it can provide payroll compliance guidance or best practices. In these cases, professionals are recommended to contact reliable sources for support.

Throughout the journey described above, maintaining strong data privacy and cybersecurity measures is essential to safeguard sensitive employee information and uphold regulatory compliance. By following this progression, organizations can position payroll as a fully integrated, technology-driven function that supports both operational efficiency and informed strategic decision-making.



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Glossary

AI	Artificial Intelligence
Altinn	Norwegian government digital portal
CBA	Collective Bargaining Agreement
CPP	Canada Pension Plan
CRA	Canada Revenue Agency
DATEV	German statutory/compliance platform
DSN	Déclaration Sociale Nominative—France’s unified social reporting
EI	Employment Insurance
ERP	Enterprise Resource Planning
eSocial	Brazil’s unified digital reporting system
ESS	Employee Self-Service
EWA	Earned Wage Access
FinTech	Financial Technology
FTE	Full-Time Equivalent
HCM	Human Capital Management
HRIS	Human Resources Information System
ISV	Independent Software Vendors
The Institute	The National Payroll Institute
KPI	Key Performance Indicator
PCP	Payroll Compliance Professional
PLP	Payroll Leadership Professional
PwC	PricewaterhouseCoopers
Real-time reporting	Previously known as e-payroll
ROE	Record of Employment
SMB	Small-Medium Business
SME	Subject Matter Expert
SOP	Standard Operating Procedure



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