

CASE STUDY



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INTRODUCTION

The secure registration of property rights is a crucial component in modern economies, providing the stability needed to support resource mobilisation, attract investment, and enhance efficiency. In Australia alone, the title registration system underpins property markets worth over AUD\$11 trillion. When considered together with Australia's higher ranking in the International Property Rights Index (IPRI), this highlights the importance of the stability and efficiency of property systems to national economic growth. As other countries grapple with the digital transformation of critical infrastructure, Australia's transition from paper-based title registration to electronic conveyancing offers essential lessons on best practices, as well as the challenges of modernising traditional property rights institutions while maintaining security and public trust.

This case study examines Australia's digital transformation of the Torrens land title registration system ('Torrens system), and analyses how Australia has successfully balanced technological innovation with stringent security requirements, ensuring that core principles of the Torrens system, such as certainty of title and protection of property rights, are preserved. As one of the first major economies to implement a national electronic conveyancing system across several states in a federal system, the Australian experience offers insights into managing complex legal, technological, and policy changes in land administration. The experience provides a helpful reference for other jurisdictions considering similar digital transformations of property infrastructure, particularly for policymakers focused on secure property rights. However, the only caveat is that any similar implementation in other countries must consider whether local economic, social, and political conditions are conducive to this change.

Australia's Torrens title registration system, developed by Robert Torrens in South Australia in the 1850s, has been widely recognised as a pioneering model for the secure and efficient registration of titles. Despite all states transitioning to title registration in Australia, land administration continues to operate under individual state and territory frameworks, with jurisdictional variations that extend to land transfer and conveyancing regulations. The Torrens system represents one of the most successful legal innovations in land management systems, providing indefeasibility and state guarantee of title as its core foundation.

Prior to 2013, within the Torrens system, property settlements were conducted through a paperbased process, involving the manual preparation of documents, in-person meetings, and the physical exchange of cheques at settlement. While the Torrents title registration system has remained one of the best systems for securing property rights, the traditional paper-based approach was long considered time-consuming and inefficient, therefore prompting the shift toward electronic conveyancing in the late 2000s. Property conveyancing typically encompasses various transactions, including property sales, refinancing, lodging caveats, discharges, and mortgages. It requires coordination among buyers, sellers, lawyers, conveyancers, banks, and land title offices, and involves contract preparation, financial settlement, and the transfer of title.

The digital transformation of the conveyancing process through the Electronic Property Exchange Australia (PEXA) system was implemented across Australian states from 2013. By analysing implementation approaches across different states in Australia from 2010 to 2025, this case provides evidence-informed insights into how digital technologies can reduce transaction costs, enhance security, and improve accessibility while ensuring the core aspects of a reliable property rights regime.



THE RELEVANCE OF AUSTRALIA'S EXPERIENCE FOR GLOBAL POLICY AND PRACTICE

Australia's digital transformation of the Torrens system is particularly representative and relevant for several reasons. First, Australia operates multiple parallel Torrens systems across its states and territories, providing an ideal comparative framework for comparing different approaches to digital transformation. This federal diversity enables analysis of how various policy choices and implementation strategies affect outcomes.

Second, Australia's property markets are diverse, ranging from high-value urban markets in Sydney and Melbourne to remote rural properties across vast distances in remote Queensland. This diversity means that digital solutions must accommodate the varying needs, technological capabilities, and regulatory requirements of users. These are challenges that many other countries face.

Third, Australia's approach combines public sector oversight with private sector innovation, reflecting broader trends in digital government service delivery. The involvement of private companies, such as PEXA (Property Exchange Australia), in delivering critical infrastructure services offers insights into public-private partnerships in digital transformation.

Fourth, Australia's legal system, based on British common law but adapted for local conditions, shares characteristics with many other Commonwealth countries and former British colonies. This makes the Australian experiences more directly relevant to a broader range of jurisdictions than experiences from countries with fundamentally different legal systems.

Finally, Australia's digital transformation occurred during a period of rapid technological change and increasing cybersecurity threats, making it a contemporary case study that addresses current challenges rather than historical outcomes.

RESEARCH QUESTIONS

This case study addresses two questions: first, how has Australia balanced technological innovation with the security requirements of property registration during its digital transformation; and second, what measurable impacts has digital transformation had on transaction costs, fraud prevention, and accessibility of the property rights system. To facilitate a discussion focusing on the two research questions, this case is positioned within the broader scholarly discourse on the digital transformation of title registration and the historical context of the Torrens system in Australia. Second, the methodology section explains the data sources and analytical approach used in the study. This is followed by the main analysis, which examines policy frameworks, implementation strategies, security measures, and outcomes across Australian jurisdictions. The main body explores the digital transformation process in Australia, discussing the challenges and outcomes of implementation over the intervening years, and concludes with a summary.



METHODOLOGY

CONTEXTUAL OVERVIEW

The digitalisation of registration systems has emerged as a critical area of reform in legal and policy circles, with scholars highlighting its potential to enhance land governance, reduce transaction costs, and promote security of tenure (Deininger and Feder, 2009; World Bank, 2021). This has been analysed from multiple theoretical perspectives. New institutional economists, such as Coase (1960, 1998), North (1990), and de Soto (2000), have highlighted the importance of institutions and their role in influencing economic development, particularly in relation to property rights. More recently, Benito Arrunada explored how well-designed public registries for land can strengthen property rights and reduce transaction costs (2012).

Australia's Torrens system has served as a model for title registration, attracting significant academic attention (O'Connor, 2003; Raff, 2016). Its foundational principles include the mirror principle (the register accurately reflects all current interests), the curtain principle (parties are not required to investigate beyond the register), and the insurance principle (state guarantees against errors through a state compensation scheme), which have shown the capacity to adapt to technological change (Ruoff, 1957).

Literature on automation and electronic conveyancing highlights that security (Low, 2009; Christensen, 2020), technical integration, and stakeholder engagement are central to the digital transformation of the Torrens system. The electronic conveyancing literature (Low, 2005; Thomas et al, 2017) has documented global efforts to digitize property transactions, with Australia's PEXA system emerging as one of the most comprehensive approaches. These studies highlight tensions between efficiency gains and security concerns in digital transformation.

RESEARCH APPROACH

This case study employed multiple data sources to ensure a comprehensive analysis of Australia's digital transformation experience. Primary sources included government policy documents, legislation, implementation reports, and statistical data from PEXA and land registry agencies across all Australian states and territories. Key documents analysed included the Electronic Conveyancing National Law, annual reports from land registry agencies, and policy papers from the Council of Australian Governments.

Secondary sources included academic research on digital transformation and property registration, as well as industry reports from organizations such as the New South Wales Productivity Commission, the Reserve Bank, and the NSW Productivity Commission. Additionally, media coverage of implementation challenges and successes was examined. Parliamentary inquiry reports and audit office reviews provided additional insights into policy debates and implementation challenges. Where possible, data were collected for periods before, during, and after digital transformation, enabling comparison of outcomes. However, data availability varied across jurisdictions due to differences in reporting practices.

The analysis employed a mixed-method approach to capture technical and institutional dimensions of Australia's digital transformation. A comparative case study methodology was employed to examine how different Australian jurisdictions approached digital transformation and to compare their outcomes. This approach enabled the identification of best practices and common challenges while accounting for contextual differences between jurisdictions.

SCOPE AND LIMITATIONS

The temporal scope covers the period from 2010 to 2025, encompassing the primary phase of digital transformation across Australian jurisdictions. This timeframe encompasses both early pilot programs and mature system operations, allowing for the analysis of long-term impacts and sustainability.

Geographically, the study covers all Australian states and territories, though with varying levels of detail depending on data availability and the extent of digital transformation in each jurisdiction. Although all six States and the Northern Territory signed the Intergovernmental Agreement (IGA) in 2011-2012 for developing the regulatory framework for national e-conveyancing, and the Australian Capital Territory signed it in February 2020, the commencement timeline varies across jurisdictions. As the first three states to trial and implement the e-conveyancing system, this paper focuses primarily on New South Wales, Victoria, and Queensland, providing a sound basis for comparison. Insights from other states and territories will be incorporated to enhance the discussion further.

The unique characteristics of Australian federalism and legal systems may limit the extent to which these findings can be applied in other settings without first assessing the local conditions.

DISCUSSION AND ANALYSIS OF THE CASE

BACKGROUND

The electronic system in Australia emerged from a coordinated national initiative that began in the late 2000s. The transition to an electronic lodgment and settlement platform in Australia highlights a multi-pronged approach involving multiple stakeholders. The transformation began when the Council of Australian Governments (COAG)*— a key decision-making body in Australia that facilitated cooperation between the federal government and the state and territory governments considered modernising Australia's property transaction processes in June 2008. COAG brought together the Australian Prime Minister, state and territory Premiers and Chief Ministers of the Australian Capital Territory and Northern Territory to address national issues. *COAG was replaced by the National Cabinet in 2020, comprising the same members.

In 2008, recognising the potential benefits of an efficient electronic lodgment and settlement system, COAG introduced e-conveyancing as part of the Seamless National Economy deregulation agenda (Prime Minister of Australia, 2008). This led to the creation of the National Electronic Conveyancing Development Limited (NECDL) to develop a national e-conveyancing system.

The transition to an electronic platform in Australia highlights a multi-pronged approach involving multiple stakeholders. In January 2010, the state governments of Victoria, New South Wales and Queensland formed the National

Electronic Conveyancing Development Limited (NECDL) to create the National E-Conveyancing System. Other states became members in the latter half of 2010. In February 2011, NECDL was converted from a company limited by guarantee to a company limited by shares held by four major banks and state governments of New South Wales, Victoria, Queensland, and Western Australia. State governments held the majority share of the NECDL during the development of the national e-conveyancing system.

In 2011, the Australian Registrars' National Electronic Conveyancing Council (ARNECC) was formed under the Intergovernmental Agreement to coordinate a national legal and regulatory framework for e-conveyancing operators. ARNECC is also tasked with assessing Electronic Lodgement Network Operators (ELNOs) before registrars approve them to operate in specific states or territories.

The legislative framework for the e-conveyancing system commenced with the Electronic Conveyancing National Law (ECNL) being enacted in NSW in 2012, becoming effective from 2013, followed by other states. Historically, across all jurisdictions, property conveyancing under the old deed registration and the Torrens system has relied on in-person processes until electronic conveyancing was introduced. The system achieved mandatory status of e-conveyancing progressively across states (Figure 1).

(Figure 1) Appendix A: Comparative Timeline of e-conveyancing adoption by Australian States and Territories

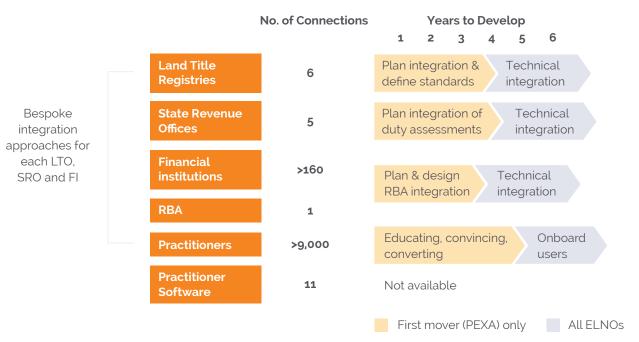
STATE	LEGISLATION COMMENCEMENT DATE	E-CONVEYANCING MANDATED
New South Wales (NSW)	1 January 2013	2019
Victoria (Vic)	14 March 2013	2018
Queensland (Qld)	17 May 2013	2023 (for certain transactions)
Western Australia (WA)	3 June 2014	2018
South Australia (SA)	21 January 2016	2018
Tasmania (Tas)	9 November 2013	Not mandatory
Northern Territory (NT)	17 July 2013	Not mandatory
Australian Capital Territory	13 May 2020	Not mandatory

NECDL was later rebranded as PEXA in 2013, becoming the first Electronic Lodgment Network Operator to provide a digital platform for conveyancing transactions. PEXA remained the only ELNO until 2018, when a competitor, Sympli Australia Pty Ltd (Sympli), entered the market. Although Sympli has been facilitating some transactions in New South Wales, Queensland, and South Australia, the monopoly remains with PEXA.

The journey to establish a nationwide e-conveyancing network highlights the immense time, effort, and commitment required to transition from a paper to a digital system.

PEXA's e-conveyancing network took 2-3 years of planning, testing, and technical integration. This involved liaising with over 160 financial institutions, more than 9,000 practitioners, 11 conveyancing software providers, and key bodies such as the Reserve Bank, State Revenue Offices (SROs), and Land Titles Offices (LTOs). The extensive input of these stakeholders covered key areas, including home loan lending activities, collaborative interfaces to facilitate the transfer of funds for financial settlements. verification of duty assessments, and registry instrument lodgment and access to registry data, all of which were necessary elements for the success of digitalisation (Figure 2).

(Figure 2) Appendix B: Stakeholder engagement by PEXA to transform paper conveyancing



Source: PEXA internal data as provided in the public version of PEXA's submission to the Independent Pricing and Regulatory Tribunal of NSW (IPART), August 2022, 7.

Alongside the legislative groundwork, the rollout began with the carefully planned pilot phases in NSW, Victoria, and Queensland. During the pilot phase in 2013, financial institutions and legal practitioners had the opportunity to test the platform's capabilities on a smaller scale before expanding to more complex property transactions. The law societies in each state served as a channel for gathering practitioner feedback, with PEXA staff conducting special sessions where practitioners could observe mock transactions and ask questions or provide feedback. Following the pilot phase, by mid-2015, all three states had launched online transfer transactions. In 2019, PEXA was sold to private investors.

The e-conveyancing framework consists of three fundamental elements: the Electronic Conveyancing National Law ('ECNL'), Model Operating Requirements (MORs), and Model Participation Rules MPRs) developed by ARNECC. State and Territory registrars establish their own operating requirements and Participation Rules for subscriber to the ELNO based on this framework. This structure was designed to enable seamless transactions across different jurisdictions, reduce processing and transaction costs in eligible property transactions by ensuring cross-jurisdictional compatibility within the same electronic lodgment platform. A unified legal framework was also established, allowing electronic documents to be submitted and processed under the land title legislation of each participating jurisdiction, despite differences in the types of documents and requirements across jurisdictions.

POLICY FRAMEWORKS FOR BALANCING INNOVATION **AND SECURITY**

Several key policy principles have characterised Australia's approach to balancing technological innovation with security requirements. First, the principle of "security by design" has been embedded in all digital transformation initiatives, requiring that security considerations be integrated from the initial design phase rather than added later.

Furthermore, the Electronic Conveyancing National Law establishes a comprehensive legislative framework for digital property transactions, while maintaining the fundamental principles of the Torrens system. This legislation addressed critical issues, including electronic signatures, digital document execution, identity verification requirements, and the maintenance of audit trails.

This comprehensive approach ensures that security does not depend on any single measure but rather on the interaction of multiple protective mechanisms.

Australia's digital transformation of the Torrens title system necessitated new, comprehensive security measures to maintain its credibility as a reliable property registration system. Australia's digital transformation has implemented comprehensive security measures across technical, procedural, and legal dimensions.

The comprehensive approach involves incorporating multi-layered protective mechanisms, combining technical measures (such as encryption, digital signatures, and access controls) with procedural safeguards (including identity verification, audit requirements, and professional liability) and legal protections (such as profes-

sional indemnity insurance, government guarantees, and dispute resolution mechanisms). Identity verification has been strengthened through integration with government databases and document verification services. Business continuity planning includes geographic redundancy of critical systems, automated backup and recovery processes, and detailed incident response procedures. Most jurisdictions maintain multiple data centres with real-time replication and related capabilities. These risk-based approaches to security have enabled systems to adapt security requirements to transaction risk levels, particularly enhancing protection measures to combat cyber fraud.

Pilot programs were extensively used to test new technologies and approaches before their full implementation. New South Wales, for example, conducted extensive pilot programs for electronic conveyancing before mandating its use. These programs enabled identification and resolution of technical and legal issues while building stakeholder confidence in new systems.

Notably, the law preserves the state guarantee principle, which is fundamental to the Torrens system, while enabling new digital processes. A state guarantee under the principle of indemnity in the Torrens title system, provided by each state and territory, ensures the accuracy of the land title register. If a registered owner is found to be wrongfully deprived of their property due to a mistake on the register or fraud, the state government compensates the rightful owner for their loss.

IMPLEMENTATION STRATEGIES ACROSS JURISDICTIONS

The implementation of e-conveyancing varied across Australian jurisdictions. The following analysis highlights some of the outcomes across the jurisdictions. Victoria was the first state in Australia to mandate electronic lodgment for most property transactions by 2018, a move that accelerated adoption but also created transition challenges. New South Wales, on the other hand, adopted a comprehensive approach to digital transformation, requiring electronic conveyancing for most property transactions through the PEXA platform. This strategy focused on efficiency and standardisation, with all stakeholders using standard digital processes. Extensive consultations with legal professionals, financial institutions, and other parties ensured that the system met practical needs. The rollout began with pilot programs in 2013, progressing to mandatory requirements.

Victoria took a more government-led approach, emphasising control over digital systems and integration with other government services, such as planning approvals and building permits, through the LANDATA system. This approach prioritized consumer protection, public sector control, and service efficiency, while still offering traditional options for users who were uncomfortable with digital processes. Other Australian states have adopted hybrid models, such as Queensland's focus on mobile accessibility and regional service delivery, and South Australia's exploration of blockchain for distributed ledger technology to improve system interoperability. These diverse approaches have enabled Australia to experiment with different models and identify best practices while ensuring overall system compatibility through common standards and frameworks.

MEASURABLE IMPACTS AND OUTCOMES

Efficiency in processing time — The time-consuming manual processes are now replaced with electronic settlement, and settlements are faster and more efficient in ELNO as the primary settlement processing occurs electronically. In addition, although the electronic system requires some extra time to ensure pre-settlement data and identity verification processes, this helps minimize the risk of settlements failing or being delayed.

Having all parties on an electronic workspace provides greater flexibility, certainty, and transparency in the settlement process. According to a report on benefits of the e-conveyancing system for the purchaser's lawyer or conveyancer, the time required to complete the process digitally after the exchange of contracts has reduced from approximately 6 hours to 1.75 hours (Figure 3). The seller's lawyer or conveyancer is estimated to save 3.25 hours by using the electronic process.

Figure 3: Efficiency comparison: Paper-based vs digital settlement for purchaser's lawyer or conveyancer*

	PRE-EXCHANGE CONTRACT PREPARATION, REGISTRATION AND EXCHANGE	PRE-SETTLEMENT SIGN-OFF TRANSFER DOCUMENTATION	SETTLEMENT FUNDS SETTLEMENT AND TITLE LODGMENT	POST- SETTLEMENT TITLE TRANSFER REGISTERED
Paper-based process	No change	4.5 hours	1 hour (In regional areas, est 2 hrs)	0.5 hours
Digital proce	ss No change	1.5 hours	Instantaneous	0.25 hours

Source: KPMG, Electronic Conveyancing: Analysis of the benefits of electronic conveyancing to conveyancers and lawyers in NSW

Transaction cost reductions — Digital transformation has delivered significant reductions in property transaction costs across multiple dimensions. The savings in costs include the reduction in bank cheque fees, typically an average of 7 cheques per transaction, travel, courier, and final title searches obtained by the purchaser before settlement, as well as other administrative expenses. According to PEXA, the e-conveyancing system has led to productivity savings of over \$290 million per annum, resulting in efficiency gains, with the majority of these benefits realized by conveyancers and financial institutions.

While settlement offers significant benefits, it also incurs financial costs for both practitioners and clients. For instance, PEXA transaction fees range from \$40 to \$120, and firms are required to invest in secure infrastructure and cybersecurity measures that increase costs. Compliance training for identity verification and digital signing adds a layer of operational expenses.

Fraud prevention and detection — Digital systems have improved fraud prevention capabilities through multiple mechanisms. Identity verification requirements have significantly reduced impersonation fraud in digital transactions, thanks to multi-factor authentication and document verification, which create substantial barriers for fraudulent actors. While fraud remains a concern, e-conveyancing systems like PEXA have been specifically designed to reduce the risks of fraud compared to paperbased systems. Unlike the paper system, the fraud cases in the e-conveyancing system involve cases where cybercriminals hack the email account of a party involved in the settlement, such as a conveyancer, lawyer, or real estate agent. The fraudsters then create an identical email address and, just prior to settlement, send emails to the buyer or their practitioner, redirecting funds to an account controlled by the scammers.



Measures to counteract incidents of fraud embedded in electronic platforms include automated transaction monitoring, which enables the detection of suspicious patterns that might have gone unnoticed in manual systems. Machine learning algorithms that analyse transaction patterns to identify potential fraud, with suspicious activities flagged for investigation. Audit trail capabilities have been significantly enhanced, with every system action recorded, including timestamps and digital signatures. This creates a comprehensive record of all activities that can be used for the investigation and prosecution of fraudulent activities. The digital systems within the electronic conveyancing platform enable faster freezing of fraudulent transactions and more effective tracing of misappropriated assets.

Accessibility improvements — Geographic accessibility has improved dramatically, with users in remote areas now having the same access to property information and services as those in major cities. This has been particularly important in Australia, given the vast distances and sparse population in many regions. Ease of accessibility via the electronic system enables professionals to work more efficiently and property owners to access information at their convenience. Mobile-optimised interfaces have further improved accessibility by enabling access from smartphones and tablets. However, digital divide issues remain a challenge, with some users lacking the digital literacy or internet access needed to utilise digital services fully.

KEY CHALLENGES

Despite the intention to foster competition through the ELNO licensing regime, alternatives like Sympli have not been widely adopted. The inability of the ELNO to communicate with each other is one of the barriers, referred to as interoperability. Interoperability remains one of the most significant unresolved challenges in Australia's digital transformation of the Torrens title registration system. The current requirements that parties to a transaction must use the same ELNO means that the buyer and seller are not able to use two different platforms. The underlying issue is the need for seamless integration across different jurisdictions, multiple stakeholders, and systems.

Despite the progress made by platforms like PEXA (Property Exchange Australia), issues related to data consistency, authentication, and system compatibility continue to impede full interoperability. As Australia transitions to a fully digital transaction system, ensuring realtime data exchange and verification among key participants, including financial institutions, conveyancers, government agencies, and service providers, remains a challenging task.

Recently, the Australian Competition and Consumer Commission emphasised the need for structuring privatisation efforts to prevent monopolies from forming.

Without safeguards, dominance can limit innovation and raise costs. On the grounds that privatised systems remain competitive, transparent, and serve the public interest, balancing efficiency with fair competition, state governments and the federal government are pushing for PEXA to open up its platform to link to other ELNOs.

PEXA remains the leading ELNO, dominating the market with approximately 99% of digital settlements in Australia. This dominance is due to a decade of experience PEXA gained while establishing the e-conveyancing system as part of a broader framework. Financial institutions integrated early with PEXA, leaving competitors with limited banking connections. Conveyancers and solicitors, facing tight deadlines, are reluctant to adopt less proven platforms, fearing settlement delays. Furthermore, competitors have struggled to match PEXA's maturity and reliability.

Despite criticism for creating a monopoly, PEXA's achievement should not be overshadowed. PEXA has successfully navigated the mammoth task of transforming a complex, paper-based process into a fully integrated digital platform, achieving efficiencies and laying the foundation for future advancement in the industry. Its expansion to the United Kingdom (UK) highlights PEXA's global growth and continuous innovation.

CONCLUSION

Australia serves as a case study in how strong property rights systems can be modernised while maintaining security, transparency, and accessibility. The digital transformation of Australia's Torrens title registration system offers lessons for both developing and developed economies seeking to modernise their property registration systems and strengthen property rights institutions in a fast-paced digital age. Australian example shows that the successful implementation of the National Electronic Conveyancing System (NECS) depends on the development of a robust legal framework, clear operating rules, effective management of operational risks, strong intergovernmental collaboration, engagement with key stakeholders, a state-by-state implementation approach ensuring comprehensive testing and refinement of the electronic systems in order to ensure its robustness before adoption. A key factor of the transition has been the emphasis on providing a secure system and building public trust regarding privacy concerns. Australian experience highlights the need for comprehensive agreements, protocols and safeguards to achieve the efficiency of an e-conveyancing system.

The case study provides insights for policymakers worldwide seeking to modernise property rights systems while preserving key aspects of a secure property rights system. The Australian experience demonstrates the economic benefits of digital transformation, including reduced processing times and operational costs, while highlighting the challenges encountered during implementation, particularly those concerning security, that must be addressed for successful reform.

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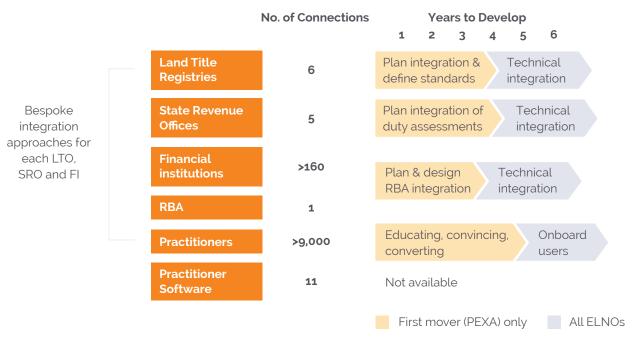
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APPENDICES

(Figure 1) Appendix A: Comparative Timeline of e-conveyancing adoption by Australian States and Territories

STATE	LEGISLATION COMMENCEMENT DATE	E-CONVEYANCING MANDATED
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(Figure 2) Appendix B: Stakeholder engagement by PEXA to transform paper conveyancing



Source: PEXA internal data as provided in the public version of PEXA's submission to the Independent Pricing and Regulatory Tribunal of NSW (IPART), August 2022, 7.

Figure 3: Efficiency comparison: Paper-based vs digital settlement for purchaser's lawyer or conveyancer*

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 $Source: \textit{KPMG}, \textit{Electronic Conveyancing: Analysis of the benefits of electronic conveyancing to conveyancers and lawyers in \textit{NSW}}$



INTERNATIONAL PROPERTY RIGHTS INDEX. ORG