
**Regulatory
Technology
Landscape
Review**

February 2025

Firetail
Strategy for social progress



matrix.

**Northern Ireland
Science Industry Panel**

Foreword

The emergence of regulatory technology, or Regtech, marks a significant evolution in the financial and compliance sectors, particularly in the context of Northern Ireland. As the landscape of regulation becomes increasingly complex, the need for innovative solutions to streamline compliance processes, enhance transparency, and mitigate risk has never been more pressing. This report delves into the current state of Regtech in Northern Ireland, highlighting its potential to transform the way businesses navigate regulatory requirements.

In recent years, Northern Ireland has positioned itself as a burgeoning hub for technology and innovation. The unique blend of a skilled workforce, strong academic institutions, and a supportive business environment has fostered a culture ripe for the development of Regtech solutions. This report aims to explore the key players in the Regtech space, assess the challenges they face, and outline the opportunities that lie ahead.

As we embark on this examination, it is essential to recognise that the success of Regtech is not solely dependent on technological advancements. Collaboration between regulators, industry stakeholders, and technology providers is crucial to creating an ecosystem that supports innovation while ensuring compliance and security.

We hope this report serves as a valuable resource for policymakers, industry leaders, and entrepreneurs alike, igniting discussions that will drive the future of Regtech in Northern Ireland. Together, we can harness the power of technology to build a more resilient and efficient regulatory framework that benefits all stakeholders.



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1. Introduction

1.1. Project background

Matrix, the Northern Ireland Science and Industry Panel, was established to inform government on the development of science and technology strategies and policy that will ensure Northern Ireland's sustainable competitiveness in the global economy.

Northern Ireland has a unique position in global markets, with direct access to EU and UK markets along with a strong relationship with America.

RegTech (Regulatory Technology) is the application of emerging technology to improve the way businesses manage regulatory compliance. Though relatively young, RegTech is maturing rapidly. RegTech companies are now engaging machine learning, natural language processing, blockchain, AI, and other technologies in order to bring the power of digital transformation to the world of regulatory compliance.

Matrix, on behalf of the Northern Ireland Department for the Economy, commissioned this study to build an evidence base on the landscape of Regulatory Technology (RegTech), assess Northern Ireland's current RegTech capability, and identify opportunities for Northern Ireland's economy or society that investment in, or adoption of, RegTech may present.

1.2. Objectives

This study has four objectives:

- Build an understanding of the technology, policy, and regulatory landscape related to RegTech, including the implications of Northern Ireland's dual market context.
- Build an understanding of Northern Ireland's RegTech context, including current capabilities, the all-Ireland perspective, ongoing initiatives, and planned investments.
- Deliver a qualitative market review of NI's R&D capabilities related to RegTech, assessing NI's strengths and challenges, and identifying future threats and opportunities.
- Deliver a set of practical and actionable recommendations for how government, industry, and academia can best position Northern Ireland to exploit opportunities and overcome barriers for RegTech growth.

1. Introduction

1.3. Definitions

For this study, RegTech is defined as

New or novel applications of technology to solve regulatory and compliance requirements more effectively and efficiently.

This definition is adapted from a definition first used by the Institute of International Finance in 2015 [1]. The adaptation is to focus on “new or novel applications of technology”, where the original definition focused on “the use of new technologies”. The rationale for this change is that innovative RegTech solutions can be delivered through novel applications of existing technologies and is not predicated on the technology itself being new.

There are three other characteristics that drove the decision to use this definition:

- Sector agnostic. Whilst RegTech is most associated with FinTech and financial services, the applications of RegTech are of relevance to regulated entities and regulators in other sectors.
- Technology agnostic. Regulatory Technology is not a specific technology, but rather an umbrella term for a set of functions which are delivered through a varied and diverse range of technologies.
- User agnostic. In some definitions, RegTech is specifically linked with applications for regulated entities, with Supervisory Technology (SupTech) covering use by regulators. However, many of the applications apply to both regulated entities and regulators, and this definition remains agnostic to the specific type of user. In this report, SupTech is considered a subset of RegTech, and both regulated entity and regulator applications will be explored.

1.4. Scope

The scope of this study is to explore developments in technologies which support regulated entities and regulators in achieving more effective and efficient compliance with regulations.

This scope includes organisations which play a role in supporting regulated entities and regulators through enabling offerings such as training or knowledge services.

The study is focused on the specific context of, and opportunities for, Northern Ireland. However, the study will also include a view of the wider UK, all-Ireland, and international market context.

1. Introduction

1.5. Contributors

The project team would like to thank the following individuals who contributed significant time, expertise, and guidance through their participation on the project's steering group:

Name	Role
Nicola Anderson	CEO at FinTech Scotland
Stuart Anderson	Head of Public Affairs at NI Chamber of Commerce
Tim Brundle	Director of Research and Impact at Ulster University
Stephanie Maher	Director at Eagry Consulting, Matrix Panel Member
Liam Maguire	Pro-Vice-Chancellor at Ulster University, Matrix Panel Member
Patricia O'Hagan	Co-Founder at Core Systems, Matrix Panel Member
Natasha O'Hea	Innovation Lead at Catalyst

Additional thanks go to the wide range of stakeholders from across industry, academia, and government who contributed by making time available for interviews.

2. Policy and regulatory landscape

2.1. The role of regulation

The importance of regulation

Effective, efficient, and proportionate regulation is a critical mechanism for protecting and safeguarding businesses, individuals, and communities by ensuring compliance with law, promoting ethical practices, and preventing harm.

The purpose of regulation

In its 2020–21 Departmental Overview of Regulation [2], the National Audit Office (NAO) notes that “regulation is used for a variety of purposes, such as to protect and benefit people, businesses and the environment, and to support economic growth. Without regulation, some service providers or markets can fail to meet the needs of citizens or public policy objectives.” The below figure outlines some examples of what is regulated and why.

Examples of what is regulated and why

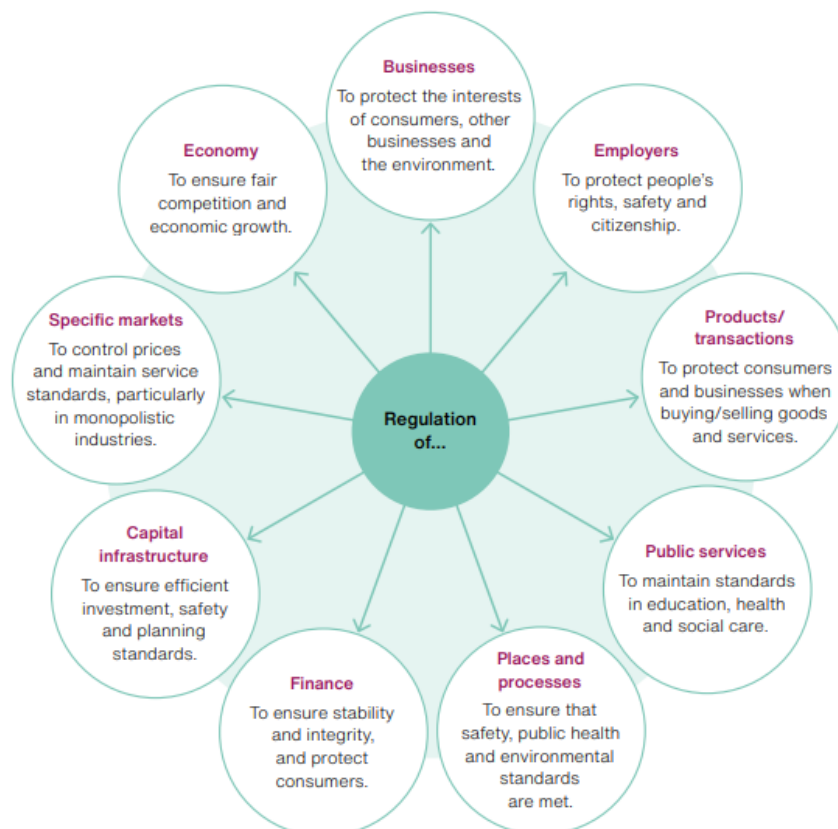


Figure 1: Examples of regulatory purposes [2]

2. Policy and regulatory landscape

2.2. Principles of effective regulation

The National Audit Office outlines a range of principles to apply across the regulatory lifecycle to ensure effective regulation. These are captured in the below table.

Lifecycle stage	Summary	Principles
1. Design	These principles are to help translate the policy intent and purpose of regulation into the design of an overall regulatory framework.	<ul style="list-style-type: none"> — Defining the overall purpose of regulation — Setting regulatory objectives — Ensuring accountability — Determining the degree of regulatory independence — Deciding on powers — Determining a funding model — Designing organisational structure and culture
2. Analyse	These principles are to help regulators and policymakers analyse the market or issue being regulated and identify and assess where problems are occurring that may require intervention.	<ul style="list-style-type: none"> — Using information and data — Embedding the citizen perspective — Monitoring service provider compliance and incentives — Engaging with stakeholders — Ensuring capacity and capability — Adopting a forward-looking approach
3. Intervene	Where regulators identify problems, these principles are to help them understand what impact they might have, prioritise actions, and consider how best to respond.	<ul style="list-style-type: none"> — Developing a theory of change — Prioritising interventions — Drawing on a range of regulatory tools — Embedding consistency and predictability — Ensuring interventions are proportionate — Being responsive
4. Learn	These principles are to help regulators and policymakers maximise their effectiveness in future by learning from experience and working in a joined-up way with other organisations.	<ul style="list-style-type: none"> — Establishing governance processes — Measuring performance — Evaluating impact and outcomes — Engendering cooperation and coordination — Ensuring transparency

Table 1: NAO Principles of Effective Regulation [3]

2. Policy and regulatory landscape

2.3. UK regulators

The NAO states that there are “around 90 regulatory bodies in the UK, not including local authorities”. They range significantly in expenditure, with the smallest regulatory bodies having an annual spend of c. £100,000 in 2020-21 and the largest, the Financial Conduct Authority (FCA), having an annual spend of £585 million in the same period. [2]

Some regulators have responsibility for the UK as a whole, such as the FCA and the Medicines and Healthcare products Regulatory Agency (MHRA). Others are specific to nations and regions. For example, whilst Ofgem is the regulator for gas and electricity in Great Britain, the Utility Regulator is responsible for regulating the electricity, gas, water, and sewerage industries in Northern Ireland.

Sectors also have multiple regulators for different purposes. For example, within the health and social care sector in Northern Ireland, regulators include:

- The Regulation and Quality Improvement Authority [4] which regulates the quality of health and social care services.
- The UK-wide MHRA [5], which regulate medicines, medical devices, and blood components for transfusion.
- The regulators for regulated professions, some of which are UK wide, such as the General Medical Council [6], and some of which are NI-specific, such as the Pharmaceutical Society of Northern Ireland [7].

2.4. Strengths of the UK regulatory system

The UK’s regulatory system is “recognised globally as an example of best practice” and ranks first globally in two of the OECD’s indicators of Regulatory Policy and Governance. The UK is ranked 15th in the World Bank’s Worldwide Governance Indicators data for 2023. [8]

The UK has also been seen as a leader and innovator for regulation in a number of areas. For example, the UK outlined a principles-based, pro-innovation approach to AI regulation and the UK [9]. The UK has also been a leader in financial technology regulation, including the FCA Innovation Hub’s Regulatory Sandbox [10].

The UK’s approach to financial regulation is known as ‘management-based regulation’, where regulators do not prescribe how regulated entities should comply, but instead require regulated entities to develop their own systems of compliance and then to demonstrate that these systems deliver the required compliance [11]. In practice, the FCA and Prudential Regulation Authority (PRA) have focussed on the outcomes of firms’ management of financial and non-financial risk, instead of prescribing systems or processes to be used.

Key to this approach is the concept of ‘technology neutrality’ [12]. This means that the same regulatory principles should apply regardless of the technology used, and regulators leave companies to determine the appropriate technologies and activities to deliver against those principles.

2. Policy and regulatory landscape

2.5. Developments in the UK regulatory system

The Smarter Regulation white paper from the UK Department for Business and Trade estimates that, since 2010, the annual net direct cost of regulatory compliance to businesses has increased by £6bn. It also estimates that the administrative cost of regulation could be “as high as 3-4% of GDP, which would equate to around £70bn in red tape costs in 2023 prices”. [13]

In 2023, Dame Angela McLean, the Government Chief Scientific Adviser, conducted a review [14] into how the government can best support pro-innovation regulation. This review looked across various sectors of the economy, and found “five major challenges which are common to many sectors”, these were:

- Fragmentation. The cross-sectoral nature of many technologies can lead to gaps, overlaps, duplication, and inconsistency.
- Pacing. Technological developments can often outpace the speed at which regulatory systems can respond, but regulating too early can stifle development of emerging technologies.
- Skills. Regulators report challenges in attracting relevant skills and talent, especially for digital, data, and technology.
- Incentives. Regulations are subject to a complex set of incentives, with limited reward for taking risks to support innovative products.
- Capacity. Pro-innovation programmes like sandboxes and innovation hubs are resource-intensive and regulators face challenges in sustaining these with existing resources.

The previous UK Government had a range of initiatives around smarter and better regulation for the UK to help unlock growth, and it is highly likely that the incoming Government will continue with regulatory reform as a strategic priority to unlock economic growth. In the King’s Speech in July 2024 [15], it was announced that the Government will create a new Regulatory Innovation Office (RIO), with an initial focus on the regulation of AI. On the 8th of October 2024, the Government announced the launch of the RIO [16], initially supporting “four fast-growing areas of technology”. These are engineering biology, space, AI and digital in healthcare, and connected and autonomous technology.

2.6. Windsor Framework

The Windsor Framework creates a unique position for Northern Ireland in the post-EU exit landscape, with NI being the “only place entitled to trade goods into both the EU and Great Britain without border checks, tariffs, or customs declarations”. This market access is likely to be of particular interest to market participants who produce highly regulated goods and wish to sell those goods in both UK and EU markets. One area of challenge is “the extent to which goods traders rely on GB supply chains, where frictions remain”. [17]

An additional challenge is the requirement set out in the Windsor Framework for NI to maintain regulatory alignment with the Single Market in areas such as technical standards, environmental regulations, and state aid. This regulatory alignment is also ‘dynamic’, in that “any new EU acts that fall within the scope of the Protocol may be added to those that apply in Northern Ireland” as well as requiring that “amendments or replacements to these acts apply in Northern Ireland” [18]. Whilst the Windsor Framework includes a number of provisions and protections to limit the potential impacts of dynamic regulatory alignment, “aspects of EU law continue to apply in Northern Ireland and do so ‘dynamically’ under the Protocol/Windsor Framework” and whilst “regular minor amendments and technical updates to EU implementing legislation” might have “little to no impact to Northern Ireland in terms of policy, some do have implications for industry and stakeholders” [18].

3. RegTech technologies and functions

3.1. Technologies

There are a wide and diverse range of technologies which support delivering RegTech capabilities. Due to the breadth of technologies, this study does not aim to provide a comprehensive overview of each specific technology, but this section provides a non-exhaustive list of example technologies and their relevance to RegTech.

- Cloud computing. Cloud computing technology and services have been key enablers for the development and adoption of RegTech. Cloud computing allows regulated entities and regulators to store, process, and analyse large datasets with greater efficiency, flexibility and scalability. The availability of cloud services has greatly increased the accessibility of more advanced data storage and analytics capabilities for businesses, who would not have the financial or human resources for advanced, on-premises data analytics infrastructure.
- Artificial Intelligence (AI) and Machine Learning (ML). AI and ML support RegTech by helping to detect patterns, spot anomalous data, identify complex risks, and help automate the processing and analysis of very large datasets. This ability to perform complex analysis across diverse data allows regulated entities and regulators to spot regulatory and compliance risks earlier and helps to prevent those risks from becoming issues.
- Predictive data analytics. Predictive data analytics includes a range of techniques and methodologies which can use historic trends, real-time data, and forecasts to help make forecasts and predictions. In RegTech, this supports regulated entities and regulators to identify and mitigate emerging regulatory and compliance risks.
- Natural Language Processing (NLP). NLP is a technique which supports the processing, analysis, and interpretation of large volumes of unstructured data. NLP is a critical underpinning technology for RegTech, as it allows for the large volumes of unstructured data, such as regulatory texts and legal documents, to be processed and analysed efficiently and effectively.
- **Semantics / Graph Analytics.** Semantic and graph analytics are methods which help to identify and map relationships within large datasets. Within RegTech, this helps to identify connections between key datasets and elements of compliance, for example transactions, entities, and compliance requirements.
- **Robotic Process Automation (RPA).** RPA uses software automation to help perform repetitive, predictable, rule-based tasks. In RegTech, RPA tools can execute these tasks with speed and high levels of accuracy. This reduces the likelihood of human error and increases consistency of compliance, whilst also freeing up expert human resource to focus on higher value, higher complexity compliance tasks.
- **Image recognition and visual analytics.** These technologies allow for the automated processing and analysis of visual data, such as scanned documents and photographs. RegTech utilises these technologies to analysis for risk and compliance management, for example matching IDs, detecting fraudulent documents, and authenticating visual records.
- **Distributed Ledger Technology (DLT).** DLT, of which Blockchain is the most well-known example, provide a secure and transparent digital record of transactions between parties. These can be utilised in RegTech to create traceable, transparent, immutable records of compliance activity. This can reduce the risk of fraudulent activity and increase the trust, transparency and integrity of compliance.
- **Biometric technologies.** Biometrics are a family of technologies which use measurements and characteristics of the human body to identify and authenticate individuals. For RegTech, biometrics provide a fast, secure, accurate, and reliable means for user identification, verification, and authentication.

3. RegTech technologies and functions

- **Privacy Enhancing Technologies (PETs).** PETs are a family of technologies which “can help maximise the use of data by reducing risks inherent to data use” [19] and protect against risks to privacy [20]. These technologies include areas like differential privacy, synthetic data, homomorphic encryption, zero-knowledge proofs, and secure multiparty computation [20]. PETs are especially important in sectors and contexts which involves the use of sensitive information about individuals and organisations. This makes them key to RegTech, which often involves the collection, processing, analysis, and dissemination of sensitive and personal data.
- **Low code / no code.** These technologies allow for the creation of programmes and platforms without the need for computer programming expertise, by providing modular, templated, drag and drop methods for creating widgets, tools, and programmes. For RegTech, this can provide flexible solutions which can be adapted to the changing regulatory environment and context within an organisation, without the need for costly redesigns and rebuilds.

3.2. RegTech functions

Due to the range of technologies that can support RegTech, this study has sought to create a more generalised picture of the functions that RegTech can provide. Those identified within this study are:

Knowledge management	Understand and monitor the changing regulatory environment within a sector and across adjacent sectors. Aggregating information from across multiple sources of regulatory information and continuously monitoring and horizon scanning for updates and changes to obligations.
Obligation management	Understand, track, and manage the specific regulatory obligations that apply to a regulated entity or sector. Helping regulated entities to map regulatory requirements to their business information and processes for regulated entities. Providing a centralised, consistent, and coherent library of regulatory obligations.
Risk Management	Identify, assess, and manage compliance risks. This includes continuously monitoring for potential compliance threats and vulnerabilities, as well as assessing the likelihood and impact of risks. Helping organisations to proactively manage risks through predictive analytics, prioritisation, and preventative action.
Compliance Management	Execute compliance against regulatory obligations. Implementing processes, procedures, and controls to ensure compliance with relevant obligations. Helping to automate compliance tasks to increase efficiency and consistency and reduce the risk of human error.
Reporting Management	Produce and provide accurate and timely reporting of regulatory obligations. Helping regulated entities and regulators to automate the production, provision, and collation of regulatory reporting. Supporting increased consistency, efficiency, and transparency of regulatory reporting.
Integrated platforms	Platforms which can integrate multiple compliance capabilities, data flows, and workflows. As well as integration of various compliance functions, these platforms can also help integrate with existing business systems.

Table 2: RegTech Functions

4. RegTech applications and use cases

4.1. Introduction

RegTech originated from the growth in FinTech and the financial services sector. As such, RegTech development and adoption is much more mature in this sector of economy than any others. One 2022 review of the RegTech market found that only 1% of RegTech products directly targeted an industry outside of financial services [21]. A study from the City of London Corporation also noted that only 2% of RegTech products were “focusing on other industry sectors than financial services” [22].

However, there is a wide recognition, both from the available literature and from stakeholders interviewed for this study, that the functions of RegTech can offer significant value to sectors beyond financial services, and over recent years there is a growing body of research and testing for applications in other sectors.

4.2. Financial, professional, and legal services

Financial services is the most mature sector of application for RegTech, with a number of established and widely adopted application areas. These include:

- Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) compliance. “Effective AML/CFT policies and measures are key to the integrity and stability of the international financial system” [23]. RegTech has become an important tool for financial institutions in supporting them to deliver effective and efficient AML/CFT compliance. These solutions leverage technologies like AI, ML, robotic process automation, data analytics, and natural language processing to help analyse large volumes of data, identify anomalous patterns, and flag suspicious behaviours [24]. RegTech tools can also help to improve the accuracy of information and reduce false positives, thus leading to greater effectiveness in AML/CFT controls, such as customer risk assessment and transaction monitoring [25].
- Know Your Customer (KYC). KYC requirements are a critical protection within the financial system, ensuring that financial institutions verify the identity and risk level of those they are providing services to. This helps to “prevent fraud, money laundering, and other financial crimes” [26]. RegTech tools can support compliance with KYC requirements through automated data collection, identity resolution and verification, biological and behavioural biometric analysis, and data analytics. As well as supporting regulated entities by reducing the need for resource-intensive, manual checks; RegTech tools also support improved customer experience by reducing onboarding times for accessing services.

4. RegTech applications and use cases

- Scenario analysis and stress testing. Scenario analysis and stress-testing allow regulators and central banks to test the operational resilience of financial institutions to adverse external events and shocks, and to assess the impacts on financial institutions sustainability, solvency, and liquidity [27] [28]. RegTech solutions, especially those that help automate data collection and aggregation across multiple streams of data from a financial institution, can be an important enabler of scenario analysis and stress testing. Additionally, some RegTech solutions have specific scenario analysis and stress testing capabilities built in, helping to increase the efficiency and effectiveness of the process for financial institutions.
- Transaction monitoring. Transaction monitoring helps to improve the “efficiency of monitoring and identifying anomalous transactions using configurable rules, AI, and ML algorithms” [29]. As well as supporting financial institutions in managing compliance with AML/CFT requirements, transaction monitoring also allows financial institutions to identify, investigate, and report on suspicious transactions. RegTech solutions allow financial institutions to monitor and track large volumes of transaction data with much greater effectiveness and efficiency than manual transaction analysis [30].
- Regulatory horizon scanning and knowledge management. Regulated entities within this sector are often subject to a diverse range of regulations, from across multiple regulators, and often across multiple jurisdictions. This, coupled with the ever changing and evolving nature of regulations, means that regulated entities need to understand how regulations are changing, the anticipated future changes, and how changes relate to their obligations. RegTech solutions can help to automate this scanning and collation of regulatory changes, reducing the burden on regulated entities.
- Trade surveillance and market monitoring. Investment firms are mandated to monitor all trading activity for “signs of potential market manipulation” [31] and for signs of fraudulent trading. RegTech can support organisations through processing large volumes of structured and unstructured data to spot patterns and anomalies in trade data. This can help increase the efficiency and effectiveness of compliance and allow compliance teams to prioritise their effort and expertise.
- Fraud detection and prevention. Fraud accounts for around 40% of all crime in the UK with an estimated cost to society of £6.8 billion in England and Wales [32]. Regulated entities in this sector play a key role in helping to detect and prevent fraud. RegTech can support in these efforts through identifying anomalous patterns or data points, identifying potential risk areas, and helping to prioritise areas for targeting prevention efforts.
- Risk management. Regulated entities in this sector face a diverse range of risks, including cyber, fraud, liquidity and capital, third-party vendors, market, ESG, operational, conduct, and reputational risks. RegTech can support organisations in managing these range of risks by supporting more effective identification, assessment, management, and mitigation of risk. [33]
- Insurance compliance monitoring. The use of RegTech for insurance compliance is closely related to, and sometimes included under, ‘InsurTech’. The RegTech definition used in this study covers its use for regulatory compliance in the insurance industry, hence its inclusion here. RegTech can support regulated entities in the insurance sector through automating processes in areas such as due diligence and supplier management. [34] [35]

4. RegTech applications and use cases

4.3. Health and social care

Healthcare is another sector where regulation is a critical element to help ensure safety, privacy, and protection for patients. This is an emerging area of RegTech development and adoption, especially in the areas of data management, pharmaceuticals, and medical devices. This is also an area that the UK Medicines and Healthcare products Regulatory Agency (MHRA) has been exploring. Some of the applications in this sector include:

- Management and submission of regulatory documentation. Regulated entities in this sector looking to deliver products or services are subject to a range of regulatory requirements to help ensure user safety. RegTech can support these organisations by helping to streamline the identification, production, and submission of regulatory documentation such as trial data, service delivery data, and product performance data.
- Management and reporting of compliance data. Health and social care providers also face a number of compliance requirements to demonstrate that the right protections are in place and that the right outcomes are being achieved for patients. This often requires the collection, collation, analysis, and synthesis of diverse and disparate data from across multiple locations and services. RegTech can support organisations by automating compliance management and reporting, reducing the administrative burden on staff and reducing the likelihood of human error.
- Management of regulatory approval pathways. New products or services in this sector require regulatory approval before introduction to the market [36]. RegTech can help organisations to manage the complex workflows involved in these regulatory approvals, including the collection and collation of data related to safety and efficacy. It can also support organisations to identify which regulatory requirements are likely to be relevant and how this is likely to impact approval pathways. [37]
- Regulatory obligation identification and management. Beyond regulatory approval pathways, regulated entities in this sector face a number of ongoing regulatory requirements. This can be especially complex where providers are looking to work across multiple jurisdictions. RegTech solutions can help organisations to identify and manage regulatory obligations and also to do so dynamically as the regulatory environment evolves.
- Digital identity, personal data, and privacy compliance. A key application area for RegTech is data protection and privacy protection [21]. The health and social care sector is one where robust data and privacy protections are especially important, due to the wide range of personal and private data that needs to be stored and shared.
- RegTech capabilities embedded within medical devices. Embedded sensors in medical sensors can support real-time monitoring, diagnostics, and automated reporting [38]. This presents an opportunity for streamlining the collection and reporting of compliance data for medical devices.

4. RegTech applications and use cases

4.4. Gambling and gaming

This sector shares many similar compliance requirements with the financial services sector, especially around customer risk assessment, but this is a less mature area of RegTech development and adoption. Some application areas, such as KYC, AML and CFT, from financial services; and digital identity and privacy from health and social care, are directly relevant to the gambling and gaming sector. Additional areas of application include:

- Automate and manage licence assessments and applications. RegTech solutions can help to manage the licence assessment and application by identifying relevant obligations, document and data collection and collation, and managing multi-jurisdictional submission processes.
- Multi-jurisdictional obligation scanning and management. Managing gambling and gaming compliance across multiple jurisdictions can be complex due to the range of legislative and regulatory requirements. RegTech can help to automate the monitoring and updating of compliance obligations, increasing efficiency and reducing the risk of errors.
- Automated self-exclusion compliance management. RegTech can support regulated entities in this sector with more automated compliance solutions, reducing the risk of self-excluded individuals from still accessing services and enhancing player safety.
- Gaming audit management. Gaming services are subject to rigorous and robust audit processes to support player safety and reduce the risk of criminal activity. RegTech can help to automate the audit process and to provide continuous monitoring of gaming data to flag potentially suspicious or problematic activity.
- Gaming fraud detection and prevention. RegTech can support regulated entities through analysing gaming data and identifying anomalous patterns and “use Machine Learning algorithms to partially automate systems that flag potentially criminal or socially harmful behaviour” [39].

4. RegTech applications and use cases

4.5. Manufacturing, construction, and logistics

At present, RegTech is not widely adopted within this sector, but the sector's strict and comprehensive regulatory requirements makes this another area with significant potential for RegTech application. However, more than one stakeholder noted that due to privacy concerns, firms are cautious with solutions that require sharing the details of their production processes. There are also a number of solutions in this sector utilising Distributed Ledger Technology (DLT) to support traceability across manufacturing and logistics supply chains. Some potential areas of RegTech application include:

- Supply chain compliance monitoring and reporting. Transparency in supply chains is an important element of regulation, to help protect against harms such as modern slavery [40]. RegTech solutions streamline compliance by providing end-to-end visibility across the supply chain, tracking adherence to regulations related to sourcing, production, labour practices, and environmental impact. This can help regulated identities to identify and mitigate supply chain risks early and support dynamic, multi-jurisdictional tracking and reporting of obligations.
- Real-time compliance monitoring of operations. Maintaining compliance in real-time is essential for operations within these sectors, where regulations around safety, the environment, supply chains, and product standards are strict. RegTech can provide real-time monitoring capabilities that track operational data, flagging potential compliance issues as they arise. This allows organisations to have a more proactive stance to compliance, allowing for early identification of emerging risks, allowing for preventative action to be taken.
- Automation of product testing and quality control. Product safety is a critical protection for consumers and an important area of regulation [41]. RegTech can support the product safety approval, assessment and monitoring process. This can support manufacturers in more efficiently and effectively ensuring that products consistently meet regulatory requirements across their lifecycle and across regulatory regimes in different markets.
- Supplier due diligence assessment. Conducting due diligence on suppliers is essential to meet regulatory standards on ethical sourcing and labour practices. RegTech tools streamline the due diligence process by automating the collection and analysis of data for due diligence checks on individuals and businesses and supports ongoing monitoring. This helps companies to ensure they have robust due diligence in place across their supply chains, and with greater speed and efficiency than manual processes, which can reduce supplier onboarding times. [42]
- Compliance with environmental regulations. Environmental regulations in manufacturing, construction, and logistics require careful tracking of emissions, waste, and resource use. Regulatory requirements will increase when the UK's Carbon Border Adjustment Mechanism is introduced, currently expected to be in 2027 [43]. RegTech solutions can help to automate environmental monitoring and reporting, across supply chains and jurisdictions.
- Compliance with safety regulations. Safety regulations are critical in high-risk sectors like manufacturing and construction, where health and safety risks must be closely monitored and managed. RegTech solutions support compliance with safety standards by automating safety checks, risk assessments, tracking incident reports, and generating compliance reporting. This proactive approach to safety management ensures that organisations consistently deliver against standards and meet regulatory requirements, helping increase worker safety.

4. RegTech applications and use cases

4.6. Energy, utilities, and green-tech

This sector can also benefit from RegTech applications to digital and data privacy, supply chain traceability, and compliance with environmental regulations all captured within earlier sectors.

Other areas of potential application include:

- Smart grid consumer protection compliance. With the expansion of smart grids, utility providers are subject to stringent consumer protection regulations. Proposals from the UK government in 2024 included minimum requirements for cyber security, grid stability, and minimum product standards for appliances [44]. RegTech solutions can support through automated monitoring and reporting tools that can track compliance with consumer protection standards and regulations.
- Automated carbon and emissions reporting. In recent years, there has been an increasing push for emissions monitoring and management. RegTech can support regulated entities by allowing for real-time, dynamic tracking and management of emissions information [45]. This automation is especially beneficial for regulated entities that have operations across jurisdictions and with complex supply chains, as RegTech solutions can streamline reporting processes across different regulatory and legislative regimes.

4. RegTech applications and use cases

4.7. Agri-food

In the UK there has been little application of RegTech in this sector to date. However, a number of potential applications and use cases have been identified, and there has been some international R&D, most notably in Australia [46], on the development and adoption of RegTech within the agri-food sector. As with the manufacturing, construction, and logistics sector, the agri-food sector also has a number of technology solutions which utilise Distributed Ledger Technology (DLT) to support traceability of agri-food products through the agri-food supply chain.

- Application and approval of agricultural devices, materials, products, and chemicals. The agri-food sector requires stringent approvals for devices, materials, and chemicals to ensure they are safe and effective [47] [48] [49]. RegTech solutions streamline this application process by automating documentation, tracking regulatory standards, and expediting approval workflows. This helps companies meet regional and international regulatory requirements efficiently, reducing delays and ensuring that products meet safety and quality standards.
- Compliance with environmental regulations. Environmental regulations in agriculture focus on managing the impact of farming practices, including water, soil and carbon stock, biodiversity, and landscape maintenance [50]. RegTech solutions enable real-time tracking and reporting of environmental data, helping farms monitor their impact and adjust practices to meet regulatory requirements. For agri-food entities that cover multiple geographic locations, or multiple jurisdictions, RegTech can also help with dynamic tracking and management of compliance requirements.
- Visual classification and analytics of farmland for fraud avoidance. RegTech, through the use of visual analytics, can analyse land use from imagery to verify crop planting, health, and yield, ensuring compliance with land use regulations and avoiding fraud. This technology can also assist regulatory bodies in compliance verification.
- Compliance monitoring for agri-food supply chains. In agri-food supply chains, maintaining compliance is crucial from initial production to final use, covering aspects like ethical sourcing, safety, welfare, sustainability, and product quality. RegTech solutions automate compliance checks and generate traceable documentation throughout the supply chain [46], ensuring that all stages meet regulatory standards and that there is a robust audit trail available to demonstrate compliance.
- Monitoring the traceability and transparency of agri-food products. Ensuring traceability across the agri-food supply chain is essential for food safety and consumer trust. RegTech can offer end-to-end traceability tools that track products from 'paddock to plate' [51]. This traceability helps to provide a transparent audit trail across the agri-food production chain, helping to ensure compliance with safety, welfare, and environmental regulations.

4. RegTech applications and use cases

4.8. Cross-sectoral applications

Beyond sectoral applications, there are a number of areas which cut across many sectors of the economy where RegTech can also support more effective and efficient regulation. These include.

- Cyber. With the continuing prevalence of cyber threats, vulnerabilities, and attacks, compliance with cybersecurity regulations and requirements is critical across all sectors of the economy to protect businesses, consumers, and citizens. RegTech functions can support businesses to increase their cybersecurity and resilience through use cases and applications such as digital identity monitoring and resolution; cybersecurity regulatory obligation management and reporting; cyber regulatory horizon scanning; integrated cybersecurity audit management and reporting; supplier cyber risk assessment and monitoring; and threat risk monitoring and incident reporting.
- Artificial Intelligence. The rapid growth of, and interest in, Artificial Intelligence in recent years has led to a push to explore what effective regulation looks like in this space. It is anticipated that AI could lead to transformative change to the shape of sectors across all economic sectors. Whilst there is still a great deal of uncertainty as to how the regulation of AI will play out across the economy, or within particular sectors, it is likely that RegTech will play a critical part in supporting the effective and efficient regulation of AI use. Whilst this is an emerging and rapidly developing area, some of the potential areas of application for RegTech may include traceability of data and decisions; risk monitoring for bias and ethics; data privacy and protection compliance; safety testing and compliance monitoring; and product assessment and licensing.
- Environmental, Social, and Governance. This is another growing area of regulation which impacts widely across sectors of the economy. RegTech can support businesses to comply with ESG regulations through automated monitoring and reporting of environmental metrics; traceability and transparency of supply chain compliance; multi-jurisdictional obligation management and horizon scanning; integrated ESG monitoring and reporting; ESG risk monitoring and management;

5. Clusters

and ESG data traceability and audit management. [52]

5.1. Characteristics of successful clusters

A cluster can be defined as a geographic concentration of interconnected companies and institutions in a particular field, including suppliers, universities, think tanks and trade associations [53]. Clusters are believed to increase productivity and innovation, as well as support the development of new businesses in the sector. Research has shown that clusters enable stakeholders in a particular field to grow faster than the mainstream economy, employ more people and pay those employees average salaries of up to 11% higher, and gain more international recognition [54].

Whilst these benefits make the formation of clusters appealing to policymakers, most successful clusters throughout the world have at least some shared, underlying characteristics. [55] [56]

- **Core competency.** An economic rationale for the cluster, with a clear vision and proposition for the cluster's focus area.
- **Access to private and public funding.** To support start-ups, as well as investment in infrastructure. Stakeholders report the importance of sustainable funding, to provide multi-year certainty to allow clusters to become established and to increase the attractiveness of co-investment.
- **Strong leadership.** A strong leader or leadership group is essential, but case studies range in whether this came from academia, industry, government or a combination.
- **Skilled workforce.** This includes strong, highly qualified researchers, and a skilled workforce with expertise across the core competency and general business practice.
- **Demand.** There must be a market for the innovative products and services in the cluster's area of focus.
- **Supportive culture.** This includes a business and research culture that supports the sharing of

5.2. London

Of the 620 RegTech firms in the UK, an estimated 400 are headquartered in London. A key factor in London's position as a global leader in RegTech has been its two major financial regulators, the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA), both being progressive supporters of technology innovation in meeting compliance and reporting requirements.

In 2016, the FCA launched a world-first Regulatory Sandbox which enabled RegTech firms to trial solutions without being subject to regulatory sanctions [57]. The sandbox provides a space for those who wish to trial new products. As of May 2024, the sandbox has received over 630 applications since its launch [58]. The sandbox has been extended from running in time-limited windows to a rolling basis and been replicated by regulators in over 50 jurisdictions around the world (including Australia, as mentioned below) [59]. According to a global survey of 111 RegTech providers, roughly 20% had applied to a regulatory sandbox [4].

- **Core competency.** London has consistently been one of the largest financial services centres in the world [60].
- **Access to private and public funding.** In 2019, UK financial services firm spent just under £100 billion on technology [54].
- **Demand.** Around 50,000 businesses are subject to FCA regulations, and a further 1,500 are subject to PRA regulations.
- **Skilled workforce.** There are an estimated 860,000 employees working across financial services in London [61]. Several London universities offer post-graduate courses in Financial Technology and FinTech Law.
- **Supportive culture.** The FCA have been world-leading in nurturing RegTech solutions through the range of interventions described above.
- **Strong leadership.** The City of London has been a champion for the sector, raising awareness

5. Clusters

ideas, as well as a supportive regulatory environment.

amongst financial services firms about the benefits of RegTech solutions through multiple reports and events [11].

5.3. Australia

As with London, the support of the regulators has been crucial in driving forward Australia's RegTech sector. In 2015, the Australian Securities & Investments Commission (ASIC) launched its Innovation Hub to help innovate FinTech and RegTech businesses navigate the Australian regulatory framework, as well as provide a platform for engagement [62]. This was followed by the introduction of the Enhanced Regulatory Sandbox which allows for testing certain innovative financial services without first obtaining a licence. By 2020, Australia had the third largest RegTech sector in the world (behind the US and the UK) and was home to 10% of all global RegTech companies [46].

ASIC has also launched several funding rounds as part of its Business Research Innovation Initiative. The programme is sponsored by the Department of Industry, Science and Resources to provide funding for small-to-medium sized RegTech businesses to help develop innovative solutions to regulatory challenges in government [63]. After a successful feasibility study, applicant can receive further funding for a proof-of-concept phase.

There is also support for RegTech innovations that aim to assist with reporting requirements with regards to anti-money laundering and counter-terrorist financing (AML/CTF). The Australian Transaction Reports and Analysis Centre (AUSTRAC) conducts RegTech Engagement (ARTE) sessions with RegTech providers to give them an opportunity to engage with the regulator [64].

In addition to financial services, the Albanese Government has been a frontrunner in supporting the development of RegTech solutions in the agriculture sector by providing grants totalling nearly £6 million [65]. Approximately £3.2 million was split between 15 successful applicant projects aiming to generate innovative solutions to help agri-businesses comply with regulatory requirements. The projects varied from digital traceability of carbon emissions in crops, to eliminating illegitimate plant derived products from global supply chains [66]. The projects are all due for completion by the end of June 2025.

The remaining £2.8 million grant was to the Food Agility Co-operative Research Centre and was designed to drive industry-led innovation to streamline and modernise Australia's food data. This grant is part of the more than £50 million that the Albanese Government has committed to its ten-year National Agricultural Traceability Strategy [51].

- Access to public funding. As detailed, several government interventions have helped fund and scale up RegTech businesses across different sectors.
- Strong leadership. The RegTech Association is a global, independent non-profit organisation based in Australia, which has helped drive adoption and innovation in RegTech by educating and mobilising policymakers, regulators, and RegTech providers and consumers. They hold regular meetings with the regulators and host events to recognise and promote successful RegTech solutions.
- Supportive culture. As mentioned, ASIC and regional government bodies have supported innovation in the sector.
- Core competency – financial services account for 7.4% of national output (compared to 9% in the UK) [67] [68].

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5.4. Singapore

Singapore is the largest RegTech centre in Asia, and one of the latest in the world [19]. In 2016, the Monetary Authority of Singapore (MAS) developed a Financial Services Industry Transformation Roadmap, which included a focus on harnessing technology to reduce the regulatory compliance burden for regulated entities [46]. As part of this scheme, Regulatory Technology Grants are awarded to Singapore-based financial institutions with less than 200 employees [69].

- Core competency. Singapore is another of the major financial centres in the world [60].
- Skilled workforce. The strength and size of Singapore's financial services sector means it is home to over 1,300 FinTech firms [10].
- Strong leadership. The Singapore FinTech Association launched a RegTech Subcommittee with the mission to promote the invention and adoption of technologies to achieve better regulatory outcomes [70].
- Supportive culture. In addition to the interventions described above, the MAS also launched a sandbox shortly after London.

5.5. Ireland

Enterprise Ireland is the Irish government's enterprise development agency, who invest in and support the development of Irish-owned companies. FinTech and RegTech have been a focus area for Enterprise Ireland in recent years, supporting organisations ranging from start-ups to multinationals. The agency has provided £10 million in funding for FinTech and RegTech startups in recent years and has recently invested another £10 million to create a funding pool solely for investing in the Irish FinTech and RegTech sector [71].

- Core competency. Over 40% of global hedge fund assets are serviced in Ireland, the highest for anywhere in the world [72].
- Access to private and public funding. Enterprise Ireland has supported several RegTech providers, including funding and assisting with product development and internationalisation [46].
- Skilled workforce. An estimated 7,000 people are employed in the FinTech sector, whilst a total of 40,000 people work in the wider financial services sector [73].

5.6. Scotland

The Edinburgh-Glasgow corridor is home to the third largest volume of FinTech firms in the UK. This is a distance by road about three-quarters of the length between Belfast and Derry, and half the distance between Belfast and Dublin. The cluster has specialisms in RegTech and Open Finance and is currently an ecosystem of over 150 FinTech firms [54].

- Core competency. These cities were home to large financial institutions such as the Royal Bank of Scotland, NatWest Group, and Scottish Widows. There is also a large Financial Conduct Authority office in Edinburgh.
- Skilled workforce. The universities of Glasgow and Strathclyde provide high quality research that has been utilised in projects such as the Financial Regulation Innovation Lab [74].
- Supportive culture. FinTech Scotland has been a crucial factor driving the success of the cluster. A public/private partnership supported local businesses with the specific, localised needs of the Scottish cluster for some time [54].
- Access to private and public funding. FinTech Scotland was founded in 2018 with seed funding from the Scottish Enterprise and from strategic partners including Lloyds and HSBC and has continued to secure UK Government funding over the following years [75].

6. Northern Ireland RegTech assessment

6.1. Strengths and opportunities

Multi-jurisdictional. Dual market access is NI's unique selling point in the RegTech space. It creates an opportunity for NI to act as a testbed for multijurisdictional RegTech solutions, including exporting across regulatory regimes and tracking and tracing of goods. The Windsor framework providing free movement of goods between NI and the EU could also be relevant for some RegTech use cases, such as in life and health sciences. Cross-border RegTech initiatives also have the potential to attract additional funding sources from across Ireland and the wider EU. A strong understanding of both UK and EU frameworks, and UK-EU trade is also an opportunity for NI to leverage in the RegTech space.

Sectoral alignment. There is a natural alignment between NI's leading sectors and those most applicable for RegTech. The most mature RegTech market is financial services. NI has a strong financial services sector, with regional offices for several multinational firms as well as a strong base of FinTech start-ups. The Kalifa Review of UK FinTech identified NI as a FinTech cluster with particular specialisms in RegTech, InsurTech, and WealthTech [54]. Life and health sciences is the second most mature sector in terms of RegTech readiness, which is another of NI's most important sectors, supporting 19,500 jobs and creating £1.2 billion in Gross Value Added for the region's economy [76].

Technology expertise. NI is also a leader in adjacent technologies, with AI expertise being particularly important and relevant for RegTech. The Artificial Intelligence Collaboration Centre (AICC) is a £16.3 million investment between Invest NI and the Department for the Economy, that aims to harness the power of AI technology for the benefit of business. The centre will look at cross-sectoral applications of AI including financial services, life and health sciences, manufacturing, logistics, and Agri-Tech. There are also several City and Growth Deals that are focussed on AI, including two of the Derry & Strabane City Deals – the Centre for Industrial Digitalisation, Robotics and Automation and the Cognitive Analytics Research Laboratory. Cyber security and software development are also important adjacent technologies and skills for

Ease of convening stakeholders. Whilst there are multinational firms located in NI, there are relatively few compared to London and other regions in the UK. This can be an advantage for driving RegTech forward as NI is able to leverage their expertise more quickly and feasibly than a more crowded market. This is also the case for research, with NI's two world-class further education institutions, Queen's University Belfast and the Ulster University. In addition, both universities have a strong history of collaboration with each other, as well as government and industry.

Strategic geographic position. Linked to the multijurisdictional point, NI's location is a strength it can use to its advantage in RegTech. The only UK region to border the EU is a significant opportunity, as is its relative proximity to the US compared to other potential locations in Europe. Project Kelvin also provides a direct fibre optic submarine cable between NI and the US.

Increasing complexity and burden of regulations. The number of regulations in the financial services sector has been continuously growing since the financial crisis. These include MiFID II, EMIR, SFTR, SFDR, Basel III, and Solvency II. Other areas of regulations, such as ESG and data privacy, apply to companies across all sectors. For example, in 2023, the EU launched the first batch of European Sustainability Reporting Standards (ESRS), which requires companies to report up to 1,100 data points as part of their financial submissions [78]. Anti-money laundering regulations have also stepped up in recent years, especially for the financial services and gambling and gaming sectors [79]. This increasing complexity creates an opportunity for RegTech solutions that can ease this burden and aid compliance with all these regulations.

6. Northern Ireland RegTech assessment

RegTech. NI is the number one international investment location for US cyber security firms [77].

6.2. Challenges and concerns

Lack of clarity over Windsor framework. Despite highlighting dual market access as NI's biggest strength for growth in the RegTech sector, a shared lack of understanding on its specific benefits remains a challenge. There was a consensus amongst stakeholders interviewed for this study that there was a general lack of awareness of the specific opportunities presented by dual market access, preventing NI businesses from taking full advantage of dual market access.

RegTech skills gap. Another key challenge facing the sector is a lack of necessary skills within organisations. Regulated firms being unsure or unable to use RegTech solutions has been a major barrier to RegTech deployment. This skills shortage is compounded by firms not knowing what skills they are missing, making filling those gaps impossible. In 2018, the North West Tertiary Education Cluster (NWTEC) was set up as a cross-border strategic alliance of the four publicly funded tertiary education providers in the region: Atlantic Technology University, Ulster University, North West Regional College, and the Donegal Education and Training Board. RegTech is one of the NWTEC's current focus areas, with the cluster currently analysing what training the local population will need to support the development of the RegTech sector in the region [80]. This covers courses across the spectrum from basic digital literacy, through to post-graduate studies.

RegTech readiness is low outside of financial services. As mentioned earlier, currently only 2% of RegTech products are directly aimed at sectors other than financial services [81]. For NI to make the most of the RegTech opportunity, there will need to be an increased awareness among RegTech providers and regulated entities about the potential benefits from use cases in other sectors.

Risks to regulated entities. There is likely to be some reticence from regulated firms to adopt RegTech solutions whilst the sector is still in its nascent stages. This is due to the heavy financial and reputational penalties that could arise from non-compliance. This will affect small and medium-sized RegTech providers the most, rather than multinational financial firms who have developed RegTech solutions. There is also the challenge of regulators being risk-averse by nature, and whilst the FCA are supportive of RegTech innovation, the same may not necessarily be the case in other sectors.

Regulator perceptions and attitudes towards RegTech. By their nature, all regulatory bodies are risk averse to different extents in different sectors. Whilst the FCA have shown strong support for RegTech solutions, regulators in other sectors may be more cautious. This is particularly likely to be an issue in life and health sciences, which could prevent the progression of RegTech solutions in the sector.

7. Conclusions

7.1. Does RegTech offer a potential economic growth opportunity for NI?

Northern Ireland is already seen as an emerging hub of RegTech expertise. The UK is a leading RegTech region, and the industry attracted £4.7bn of investment funding in 2023. Much of the industry is based in London, but Belfast is seen as one of the emerging hubs outside of London, alongside the North-West and Scotland. Belfast is noted as having more people employed in RegTech per capita than London, with strong expertise in FinTech and cybersecurity [82].

Global projections for the RegTech market show significant growth potential. The global RegTech market was valued as \$10.8bn in 2022 and projected to grow to \$35.2bn by 2028. This projected growth is driven by the potential of RegTech to reduce compliance costs, increase the effectiveness and efficiency of regulatory compliance, and more effectively support organisations to manage and mitigate business-critical compliance risks.

Northern Ireland has strong expertise in RegTech-relevant sectors and specialisms. Northern Ireland has a strong FinTech sector, world-leading cyber cluster, and expertise in AI. This is strongly aligned with the sectors and skills most necessary for a successful RegTech cluster.

As well as continuing development and diffusion in financial services, there is growing interest in how RegTech could be applied in other sectors. These include applications in healthcare, ESG, supply-chain management, and agriculture. These are sectors where NI has existing clusters or strengths. In the logistics sector, there is also a culture of innovation driven by the need to deal with the complex and lengthy regulatory requirements.

The conclusion of this study is that RegTech does offer a potential economic growth opportunity for NI. The shape and scale of this opportunity would need to be further assessed against a specific NI proposition and strategy for RegTech, but the combination of NI's existing position and strengths, RegTech growth projections, and sectoral alignment provide good evidence that RegTech offers a growth opportunity for NI. Stakeholders report NI has a first mover advantage in the space, but that there is a risk this opportunity could become "overripe" if it is not acted upon.

7. Conclusions

7.2. Are there gaps in the RegTech R&D and investment environment that are relevant to NI?

Outside of financial services, RegTech research, development, and adoption is still in its emergent stage.

Additionally, no centre or hub for RegTech with an explicit cross-sectoral focus are currently operating, although some initiatives—such as the RegTech Platform established by the City of London and Innovative Finance—have sought to build multi-stakeholder fora to help increase adoption and strengthen the voice of the sector. Beyond RegTech, there is also a gap around cross-sector sharing and learning about the growing implications of ESG regulation, and the rapidly developing regulatory implications of AI.

Stakeholders also report a low level of awareness of RegTech and its benefits across the business community, as well as limited knowledge more generally on regulatory obligations and implications. With businesses continuing to see regulation as a significant barrier to growth and innovation, addressing this awareness and knowledge gap will be an important part of helping increase adoption and increase productivity and competitiveness.

Whilst it is still unknown how the regulation of AI will play out; it is expected that technology will be a critical part of the regulatory regime. It is almost certain that RegTech will offer significant benefits to effective and efficient regulation of AI within businesses, and this is likely to be a fast growing area of research and development.

The conclusion of this study is that there are gaps in the RegTech R&D and investment environment which are relevant to NI. These include no identified fora, hub, or centre that explicitly has a cross-sectoral focus on RegTech and regulatory learning, the emergent nature of application in many sectors, and the early stage of research for RegTech's potential role in supporting AI regulation.

7. Conclusions

7.3. Does NI have any competitive advantage in RegTech?

This study has identified three characteristics of Northern Ireland that combine to provide Northern Ireland with a potential competitive advantage that it could leverage to help provide a leadership role in the research, development, and growth of RegTech.

<p>Northern Ireland has strong leadership from industry and academia in RegTech relevant sectors and technologies</p>	<p>Queen's University Belfast and Ulster University are at the forefront of global research into AI, cybersecurity, and data analytics. Both Queen's University Belfast and Ulster University have research specialisms in RegTech-relevant sectors and technologies, such as life and health sciences, cyber, and AI. RegTech is also relevant to a number of NI's existing research hubs, networks, and clusters; these include the AI Collaboration Centre, the Centre for Secure Information Technologies, the Intelligent Systems Research Centre, the Advanced Manufacturing Innovation Centre, and the Health Innovation Research Alliance Northern Ireland. Both universities also have a strong history and links with key industry players. Stakeholders also report the strength of cross-border research connections and industry links and strengths in financial services.</p>
<p>There is a strong alignment between RegTech sectors and Northern Ireland's economic strengths and priorities</p>	<p>As mentioned above, Northern Ireland's strengths in FinTech, AI and cybersecurity give the region a head start for developing a strong RegTech sector. This sectoral alignment can also be seen through the portfolio of City Deals investments across NI. Although RegTech may not yet be a part of the agenda for these projects, there is a diverse range of potential RegTech applications. These include, but are not limited to, the Cognitive Analytics Research Laboratory; the Centre for Industrial Digitalisation, Robotics and Automation; the Centre for Digital Healthcare Technology; iREACH Health; Personalised Medicine Innovation Centre; and the Centre for Food and Drug Discovery.</p>
<p>Northern Ireland is a unique regulatory environment which creates an opportunity for a multijurisdictional testbed</p>	<p>Stakeholders still report a lack of clarity on the specific benefits that dual market access and the Windsor Framework can offer to businesses in NI across the economy, and that more work is required to help clarify this. However, some of the potential areas of benefit identified in this study include the opportunity for Northern Ireland to function as a testbed for multijurisdictional RegTech solutions, the ability for RegTech to support more effective and efficient multijurisdictional regulatory compliance, and the potential attractiveness for international research collaborations.</p> <p>Dual market access is seen as being particularly beneficial for companies producing highly regulated goods who are looking to sell into both UK and EU markets. RegTech can help these companies more effectively and efficiently comply with multijurisdictional regulatory requirements. From the EU perspective, there is a strong focus on protection of the single market, and difficulties in navigating trade between NI and the EU will make a testbed appealing.</p>

Table 3: NI's potential competitive advantage in RegTech

8. Recommendations

Recommendation 1

DfE to support the establishment of a cross-sector regulatory learning, collaboration, and innovation centre, where government, regulators, industry, and academia can come together to share learnings, showcase successes, and discuss challenges in RegTech exploration and adoption.

In implementing this recommendation, first consideration should be given to any existing or proposed entities which could deliver this recommendation, such as the current North-West RegTech Supercluster proposal and previous G-SIRT proposals.

Other elements that should be reflected in the implementation of this recommendation include:

- **Focus.** This should go beyond solely RegTech, and instead have a broader focus on sharing insights and knowledge on regulation and compliance, recognising that the application of technology is one way of increasing effectiveness and efficiency of regulation, but there is a broader set of capability learnings and lessons that can be shared.

This centre should have a cross-sector focus, with the aim of eventually supporting all regulated sectors. It should help to identify and test emerging use cases and expand the RegTech opportunity in emerging sectors. The Centre should also provide a space to share specialist knowledge, intelligence and insight on regulatory areas that apply across many economic sectors such as cyber, AI, and ESG.

- **Collaboration and co-investment.** This Centre should bring together collaboration between academia, industry, and regulators to solve regulatory challenges, with challenges sponsored by regulated entities. In establishing this Centre, NI should explore co-investment or partnering opportunities, including building on its cross-border research connections, connections through industry, and connections with other FinTech / RegTech stakeholders across the UK and ROI. The Centre should also monitor potential opportunities to dock into initiatives launched by the UK government, including the new Regulatory Innovation Office.

The Centre should leverage existing RegTech relevant expertise from NI in FinTech, Cyber, and AI. It should also leverage existing investment from the City Deals project and aim to build links with other research and innovation centres across NI, supporting these other centres and clusters with specific regulatory expertise and insight.

- **Sustainability.** Consideration should be given for what sustainment model this Centre would have, with stakeholders recognising the importance of sustained funding for clusters, hubs, and centres to help provide certainty for participants and co-investors.

8. Recommendations

Recommendation 2

In collaboration with the Centre from recommendation one, a RegTech Taskforce should be established to shape NI's RegTech proposition and identify initial steps to position NI as a leader in the space.

This taskforce should consider representation from across government, regulators, industry, and academia. There should be a clear proposal and terms of reference for the taskforce, including time limits.

This proposition is broader than the Centre from recommendation one, as it is a more comprehensive exploration of how NI can shape its RegTech proposition to generate economic growth and competitive advantage for NI.

Elements this proposition and positioning should consider:

- Setting out a clear vision and aim, with short and medium term opportunities for NI businesses and citizens clearly defined.
- A direct link to NI's areas of potential competitive advantage—dual market access / industry & academia leadership / sectoral alignment.
- How to maximise the usage of NI's dual market access and clarify what specific benefits dual market access offers to businesses.
- Building on the existing foundation of all-island collaboration to explore a collaborative proposition.
- Being a leader in shaping and securing international research funding and partnerships for RegTech applications.
- How to leverage NI's existing strengths and clusters in AI, Cyber, and FinTech.
- Prioritise taking decisions and making progress on occupying space as a leader in RegTech research, development, and application.
- Explore opportunities for targeted use of FDI to help scale the opportunity for NI.

8. Recommendations

Recommendation 3

DfE to collaborate with the RegTech Taskforce to develop a RegTech strategy for NI in response to the RegTech proposition.

Areas this strategy should consider include:

- Outline the medium and long-term benefits to NI's economy and citizens from NI RegTech leadership
- Develop the strategy in parallel with progress on the other recommendations, so that NI can begin occupying a leadership space with RegTech, not waiting to have all the answers from the strategy before beginning other work.
- Look at how NI can best partner with, and leverage, other national and international fora, clusters, and networks that are relevant to RegTech.
- Explore the possibilities of all-island collaboration in developing RegTech leadership, building on the existing strength of research and industry relationships.
- Further explore the opportunities offered by the Windsor framework - this is wider than RegTech.
- Ensure close collaboration between RegTech strategy and any ongoing skills strategy work.

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Recommendation 4

The Centre from recommendation one should explore an education and awareness building programme for business about the practicalities and benefits of RegTech adoption.

First consideration should again be given to any existing or proposed entities which could lead on this education and awareness building.

This programme should have a focus on real-world case studies and benefits, helping to demonstrate how RegTech can increase productivity and competitiveness.

Demystifying and building the skills and capabilities required within a business for successful RegTech adoption.

Look at leveraging existing education funds from other NI initiatives and investments.

As part of this programme of engagement could also look to develop an 'adoption toolkit' for businesses, as is being developed by the team at Innovation City Belfast for advanced wireless adoption.

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