EMERGING TECHNOLOGIES IN CREDIT INSURANCE

The rapid growth and diffusion of new digital technologies have brought about radical transformations in business sectors, with credit insurance being no exception. For industry stakeholders, understanding the latest technologies is crucial for future-proofing and preparing themselves for the upcoming wave of change. This report outlines the modern tools which are increasingly being used in the trade credit insurance sector. These tools are examined from the point of view of the impact that they have on the core insurance operations such as underwriting, risk assessment, etc. A section on real-world case studies serves as a guide for strategic technological implementation and the expected returns of the same.

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1. INTRODUCTION

Trade credit insurance, also known as export credit insurance, is a risk management product offered by private insurance companies and governmental export credit agencies. Its primary purpose is to protect businesses engaging in international trade against the risk of non-payment for products or services due to credit risks such as protracted default, insolvency, bankruptcy or political events.

Trade credit insurance mitigates the risk of non-payment/default by counterparties by compensating policyholders for unpaid financial commitments up to the applicable coverage limits. Essentially, if a buyer/counterparty fails to pay due to bankruptcy, insolvency, or other issues, the policy reimburses a percentage of the outstanding debt. This enables small and medium companies to explore foreign markets and engage in cross-border transactions with confidence.

The key parties involved are the following:

1. Insured Businesses (Policyholders): These are the entities that purchase export credit insurance policies to safeguard their financial receivables and payment obligations.
2. Insurers: Private insurance companies and governmental export credit agencies that provide credit insurance services.
3. Buyers (Customers): These are the commercial customers of the insured businesses who owe payments for goods or services.

Due to the multiple stakeholders involved, a typical trade credit insurance operation consists of a high amount of monetary and informational flows. Fund transfers take the form of regular premium payments, renewal charges, claim settlements, recoveries from defaulting entities, etc. Informational flows are higher in magnitude and complexity as data is exchanged on credit histories, company financials, credit and political risks, shipment contents, regulations, transportation details and status.

Almost every contemporary professional field is undergoing an extensive transformation due to the introduction of modern technologies and trade insurance is no exception.

Improvements have been driven by digitalization, increased data collection and analytics, algorithmic models and artificial intelligence (AI). Efficiency, speed and accuracy have risen as processes have been improved through automation and wider technological integration.

The importance of technological change and its effects on business activity has been established in economic theory. An economist from the 20th century, JA Schumpeter put forward a theory of innovation that explains the relationship between technical developments and economic activity. Schumpeter's theory states that technological innovations are the main catalysts of economic growth. This is especially applicable to the business sector, where technological advancements regularly drive significant, often disruptive changes. New processes of product development and service provision contribute to greater business volume, efficiency and profitability. Additionally, upgrades in existing tools and frameworks improve employee effectiveness and lead to skill development amongst users and clients. They can also result in the discovery of new markets, products and business processes.

Another important point in Schumpeter's innovation theory is the difference between invention and diffusion of innovations. The growth brought about by an innovation materializes only through widespread adoption by business entities and economic agents. Thus, companies that will swiftly develop expertise in upcoming technologies and incorporate them into their current systems are the ones that will maintain their competitive edge in the market.

This report outlines new developments in the insurance sector and their impact on core operations in export credit insurance. It builds upon the article "Domestic Credit Insurance in India: Exploring New Avenues" by Mr. Swadesh Deepak (Manager) and Mr. Ankit Pathak (Assistant Manager). The article details the impact of AI and insurance technologies from the perspective of domestic credit insurance. This report serves as an extension by individually examining the main subsectors of the insurance industry and the effects of new technologies therein. New facets of credit insurance such as automation and risk assessment have also been analysed. Consequently, the

operations that will experience the most change due to technological integration are the following –

- Underwriting
- Automation
- Commercial and political risk assessment
- Trade finance and cross-border payments

The report has been divided into sections containing further information on each of the above. A separate section contains real-world case studies of export credit agencies (ECAs) and their experiences of technological transformation. From a forward-looking perspective, this report will inform industry professionals of the latest developments and help them prepare for the eventual disruptions and changes in the field of export credit insurance.

2. UNDERWRITING

Credit insurance underwriting consists of 2 main pillars – risk assessment and premium pricing. Risk assessment involves conducting an in-depth analysis of a business entity to understand its current risk profile and the probability of those risks materializing. In the case of export credit insurance, this assessment is conducted on exporting firms, foreign buyers, banks and other related foreign counterparties. An accurate risk assessment leads to precise pricing of premiums. These functions are crucial for the construction of a portfolio that balances financial viability with risk minimization.

Technological advancements have brought major changes to the underwriting process. Data analytics is a major tool being used to manage and modify distribution techniques. Specifically, credit insurance firms are using data on client financial performance, debt positions, sales history, etc. to optimize broker-client relationships. The trends and related data are provided to third-party brokers and distribution partners to increase the value obtained from client engagements. This data is also utilized by algorithms to pinpoint market sectors with low volume and high potential. These sectors are targeted to grow the firm's overall portfolio and reduce risk through diversification.

2.1 CASE STUDY: PING AN FINANCIAL SERVICES

The advantages of greater utilisation of modern technologies can be best explained through a business example. Ping An is a Chinese retail financial services organisation with 227 million customers and assets of USD 1.5 trillion. It offers integrated financial services including insurance, banking, investment, fintech and financial advisory. The company undertook an initiative to incorporate digital tools in their business. The aim was to reform their agent planning and sales operations.

The project involved redesigning the company's internal resource management system around business specific domains. The new domains are representations of actual insurance concepts. This made their use intuitive and clear to employees across divisions and business functions. The work of the technical support team was rationalized and information transfer across divisions was made faster and more efficient. Moreover, development of the overall structure and new modules was enhanced by identifying common functionalities and replicating them across domains. This digital transformation project has led to significant benefits. It has resulted in a reduction in sales development time by 30% and has increased product uptake and re-use by 25%.

3. AUTOMATION

Automation has the potential to drive industry-wide transformations for the insurance field. Some of the benefits that automation can lead to are –

1. Enhancement of client engagement and experience
2. Data-driven underwriting and credit analysis
3. Faster claims processing and resolution
4. Better adaptation to shifting market dynamics and regulatory requirements.

A study by McKinsey and Company found that the insurance industry is capable of automating 25% of its processes by 2025. Service industry automation takes two forms, namely robotic process automation (RPA) and robotic cognitive automation (RCA). RCA refers to the modification of workplace technology to give it business support functionalities such as data gathering, pattern identification and application of processes based on certain conditions. RCA utilises modern advancements in computing such as natural language processing, machine learning, speech recognition, etc.

This will enable companies to increase operational efficiency, streamline business processes and maintain their competitive edge in an increasingly technology-driven arena. Automation techniques give companies the ability to generate, analyse and draw actionable conclusions from large volumes of data. Some common use cases of automation in an insurance-based workflow are as follows –

1. **Claims Processing -** Claims processing requires data collection and processing from many sources. Automation will accelerate this process primarily through reducing data transfer between multiple sources and internal silos.

   Natural language processing (NLP) and Optical Character Recognition (OCR) can be leveraged to extract data, process documents, and verify fraudulent claims. Automation thus, would reduce the complexity of a process by reducing multiple touchpoints.

2. **Compliance** – The insurance sector is governed by stringent regulations. Digital tools and automation can facilitate compliance and reduce regulatory breaches. This is even more relevant in the modern professional era where organizations have a high volume of data and records to maintain. Automation can successfully handle large datasets with minimal errors. It will ensure full adherence to pre-defined rules and protocols when managing big databases. Additionally, automation also provides the facility of a transparent and complete log of changes.

3. **Policy administration –** Automation can speed up activities related to policy administration like credit control, premium calculation, tax, regulatory compliances, and accounting settlements. RPA software manages this by accessing multiple applications and data sources simultaneously and minimizing any processing errors. Machine learning features in RCA have the capabilities to undertake regular process appraisals and consistently deal with inefficiencies.

4. **Upgrading legacy systems –** The introduction and integration of new Enterprise Resource Planning (ERP) or Business Process Management (BPM) systems involve long transition projects. Legacy systems might not communicate or connect efficiently with new technologies. This leads to delays or losses of efficiency, processes or even critical data during system migration.

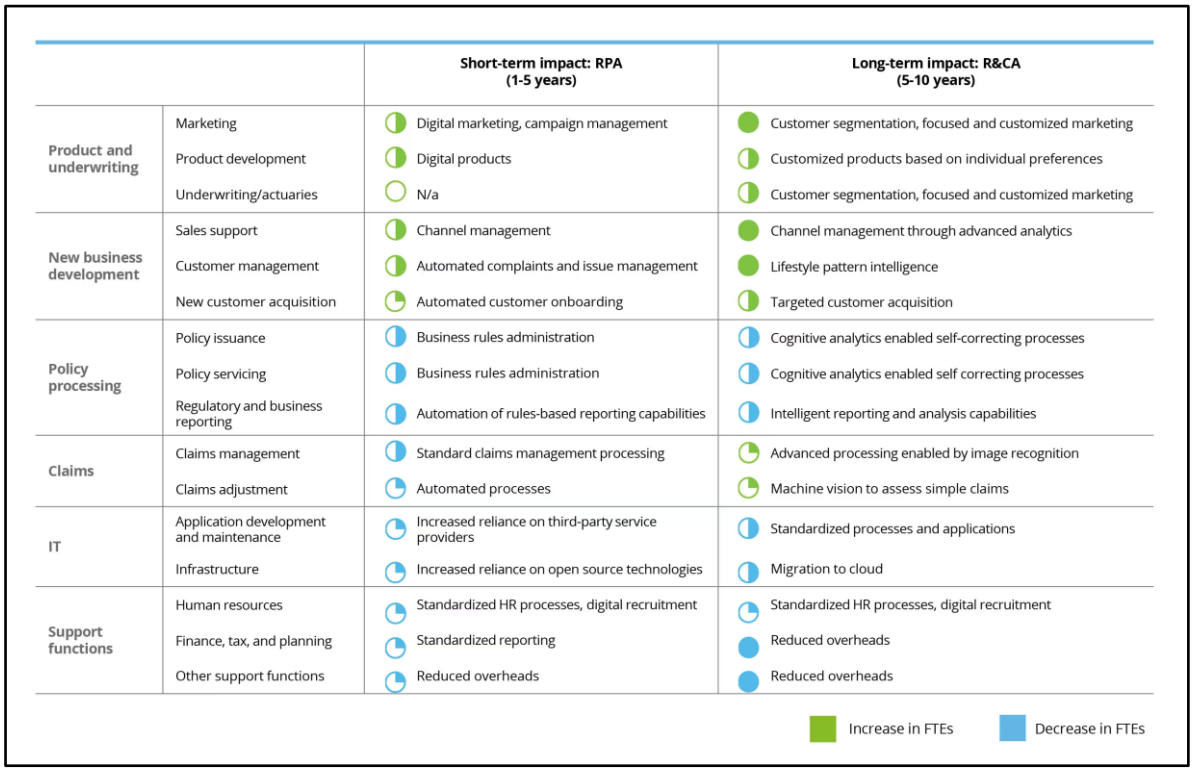
   Automation offers an effective and quick communication channel, connecting legacy applications to new ERP/BRM systems. Moreover, RCA tools can unify disaggregated data sources; this will enable better access to all relevant stakeholders and lead to the origination of practical insights from across the organization. It also drives improvements in business processes and productivity of back office applications.

5. **Query resolution –** Customer relations is one of the main business spheres where automation – especially in the form of AI – has generated rapid developments and productivity gains. Customer request management is a defining characteristic of the insurance sector. Firms must handle a high volume

of queries regarding policies, claims filing and other processes. Thus, insurance companies can benefit a lot from the technology-driven advancements in customer relations. By using preprogrammed technologies and natural language processing, firms can resolve and close standard queries faster. The rate of decision-making and execution on individual claims is improved. Automation can also help redirect complex issues to human agents for management and resolution.

3.1 Impacts of automation on employee strength in firms

Greater utilisation of technological tools will cause changes to the resource composition of firms. Automation is expected to have multifaceted effects on deployment of full-time employees (FTEs) in the financial services sector. New jobs with vastly distinct job descriptions will be created as a result of this large-scale transformation. To gain the most, organizations will need to strike a balance between transitioning to digital technologies in insurance and making required FTE adjustments and up-skilling their existing workforce. The chart below shows how RPA and RCA are expected to impact FTE resources in an organisation. FTE resources are expected to increase in product and business development divisions. Support functions such as operations, IT among others are forecasted to see a reduction in FTEs due to greater scope for workflow automation and process streamlining.



		Short-term impact: RPA (1-5 years)	Long-term impact: R&CA (5-10 years)
Product and underwriting	Marketing	Digital marketing, campaign management	Customer segmentation, focused and customized marketing
	Product development	Digital products	Customized products based on individual preferences
	Underwriting/actuaries	N/a	Customer segmentation, focused and customized marketing
New business development	Sales support	Channel management	Channel management through advanced analytics
	Customer management	Automated complaints and issue management	Lifestyle pattern intelligence
	New customer acquisition	Automated customer onboarding	Targeted customer acquisition
Policy processing	Policy issuance	Business rules administration	Cognitive analytics enabled self-correcting processes
	Policy servicing	Business rules administration	Cognitive analytics enabled self correcting processes
	Regulatory and business reporting	Automation of rules-based reporting capabilities	Intelligent reporting and analysis capabilities
Claims	Claims management	Standard claims management processing	Advanced processing enabled by image recognition
	Claims adjustment	Automated processes	Machine vision to assess simple claims
IT	Application development and maintenance	Increased reliance on third-party service providers	Standardized processes and applications
	Infrastructure	Increased reliance on open source technologies	Migration to cloud
Support functions	Human resources	Standardized HR processes, digital recruitment	Standardized HR processes, digital recruitment
	Finance, tax, and planning	Standardized reporting	Reduced overheads
	Other support functions	Reduced overheads	Reduced overheads

Increase in FTEs Decrease in FTEs

Source: Robotic process automation and cognitive technologies in insurance – Deloitte

4. COMMERCIAL AND POLITICAL RISK ASSESSMENT

Risk identification, quantification and analysis are vital aspects of the insurance business. In trade credit insurance, counterparty commercial risk and geo-political risks are the most impactful and relevant. Export credit agencies constantly monitor data points and developments related to these. Timely and accurate risk monitoring contributes to optimal policy structure, premium pricing, underwriting and claim management.

The progress in business technologies has greatly improved insurance risk management processes. Data analytics has had the greatest impact in this field. It has unlocked the capability to not only assess risks more accurately but also discover new sources of uncertainty – both commercial and political. Firms can categorize & group risks along the lines of industry, geography, controlling entity, etc. This gives trade insurance firms and their clients (exporters and financial institutions) a clearer picture on the global business environment and trade outlook.

New processes in risk assessment and the technologies used include the following –

1. Compilation of business data from multiple sources including portfolio data, international transactions, financial records and geopolitical developments.
2. Pattern identification through machine learning and algorithmic pricing models for specific industries and geographies.
3. Monitoring and early flagging of risks through language, sentiment and text analytics of news updates and media reports
4. Real time portfolio risk monitoring through dashboards. These dashboards consist of modules that track concentrations, defaults, claims, etc.
5. Collaboration between trade finance institutions and export credit agencies have led to positive outcomes for both parties. Risk management infrastructure has improved through sharing of data on international trade trends, risk predictor variables and markers of potential credit distress/default. JP Morgan's trade finance division is a good case study in how such partnerships can be mutually beneficial in business and capacity development.

6. Robust risk tracking and simultaneous policy modifications are made possible through interconnected systems. Artificial intelligence and machine learning technologies enable the monitoring of complex risks and consequent revision of policy structure and terms.

5. TRADE FINANCE AND CROSS-BORDER PAYMENTS

International trade activities involve long, complex processes of shipping, documentation transfer and payments. Small and medium enterprises (SMEs) might lack the funding and financial expertise to undertake international exports, despite the presence of prospective markets and tangible demand. Moreover, most trade contracts include payment on credit terms. This means that the seller/exporter receives the funds from the buyer post shipment and after a specific period has passed. This puts smaller exporters at a disadvantage since they do not have high working capital liquidity. Trade finance is used in such cases as a tool to facilitate foreign exports, reduce non-payment risks and increase cash flows of exporters.

Traditional trade finance has given way to the integration of the latest technological advancements which are set to bring about transformative changes to these manual procedures. This in turn will benefit entities on both sides of the table i.e., SME exporters availing of trade finance and the trade finance providers themselves. The main advantages are –

- Development of new products
- Increased credit coverage amongst SME firms
- Lower financing costs
- Faster processing timelines for applications and transactions
- Provision of consistent cash flows

Improvements in trade finance services are being powered by technologies such as blockchain systems, electronic documentation and AI-driven data analytics. AI and data analytics are helping organisations process large volumes of data for risk assessment, compliance and due diligence.

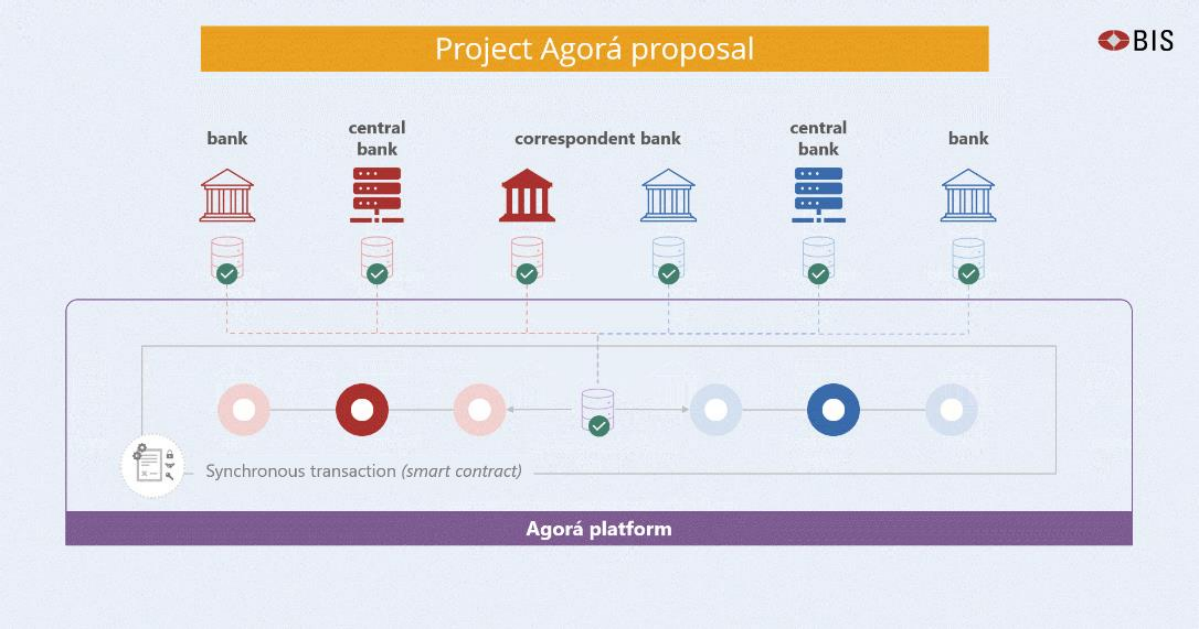
Blockchain technology, meanwhile, has multiple applications in international trade and insurance operations. Blockchain systems consist of digital ledgers where each transaction is recorded. This ledger is visible to all system participants. Furthermore, the ledger data cannot be altered without approval from all participants. This system would enable greater transparency among exporters, importers, banks and other institutional

stakeholders. Transparency is an important benefit as international transactions involve multiple parties that might not have prior business experience or sufficient information on each other. It reduces uncertainty and strengthens business relationships for future interactions.

Blockchain is also an integral part of smart contracts. Smart contracts are a digital method of structuring transactions. They consist of online identity verification, KYC compliance and automated payments. Smart contracts enable frictionless and swift execution of cross-border transactions.

5.1 CASE STUDY: PROJECT AGORA

Launched by the Bank of International Settlements in partnership with 7 national central banks, the Institution of International Finance and private financial firms, Project Agora is an effort to improve cross border payment mechanisms. The methods to bring about the said improvements involve tokenisation of bank deposits and an international unified ledger, with the latter being built using blockchain software. The project intends to overcome certain barriers in the present payment structure. These barriers include complex – sometimes conflicting - regulatory and legal requirements, long processing durations, repetitive compliance activities related to money laundering and illicit funding rules, etc. The BIS has previously released a paper on the unified ledger concept and its potential uses; Project Agora is one instance of a real-world application that would have a positive effect on the international financial system.



5.2 ALTERNATIVE FINANCE PROVIDERS (AFPs)

Trade finance is supplied mainly by banks or designated export finance agencies. As with other sectors, however, technological developments have led to the rise of new providers of trade financing. These are known as alternative finance providers (AFP).

AFPs are non-bank financial companies that provide trade finance to exporters. AFPs do not accept deposits to build up their base of funds. Instead, their funding is sourced from public markets and private investments. These institutions are not subject to statutory rules on capital ratios and reserves that banks have to adhere to. Hence, AFPs offer a faster, more flexible option for availing trade finance. These financial firms operate to fill a gap of almost USD 1.6 trillion in international trade funding according to an estimate by the International Finance Corporation (IFC).

Due to their operational versatility, AFPs are at the forefront of leveraging new technologies in the provision of trade finance services. Their business models are defined by online platforms, direct outreach to exporters, collecting and processing large data volumes, etc. Alternatives to traditional institutions also increase credit availability for small and medium firms, contributing to greater financial inclusion.

Some notable AFPs in the international market have been listed below.

- **Stenn** – Stenn is a British fintech firm that provides trade credit, supply chain financing and related digital services to firms engaged in international trade. It utilises a digital platform supported with advanced technologies for assessment, KYC/AML compliance, risk management and funds transfer. Till date, it has disbursed funds approximately equal to USD 12 billion. Its commercial partners and investors include HSBC, Barclays and Goldman Sachs.
- **Tradeteq** – Tradeteq is a London-based financial services company that uses digital infrastructure and analytical capabilities to provide innovative trade finance services. Its main operations consist of lending, refinancing and market-making for trade finance and working capital instruments. Tradeteq achieves this through the securitization of trade assets, increasing their marketability and liquidity. It has also developed a digital marketplace that connects third-party

investors with asset sellers. Tradeteq's clients include exporters, factoring companies and banks seeking funding related to international transactions.

- **Orbian** – This is a multinational organisation involved in supply chain financing and payables solutions. Orbian was founded through a joint project between SAP and Citibank in 1999. Orbian operates to improve payment terms, funds transfer and liquidity for its clients. Its customer base includes both buyers and suppliers involved in international transactions. The company offers funding backed by multi-bank consortiums through its network of international and regional bank partnerships. This offers exporters efficient financing options at competitive prices

ECA CASE STUDIES

6. ECA CASE STUDIES

This section takes a look at business case studies wherein export credit agencies (ECA) have developed and incorporated modern technologies into their organisation. It contains details on the systems used, the business processes that were improved and the broad impact on the operations of the organisation. Multiple insights can be taken from these case studies, especially by insurance firms (such as ECGC) planning to undertake a similar digitalization project.

6.1 Euler Hermes – Institutional Digital Transformation

A leading player in the European market, Euler Hermes is Germany's official trade credit insurance agency. Its products and services include trade insurance, surety, structured trade credit and political risk insurance. Their vantage point in the European trade credit space has helped them anticipate and prepare for the trend of technological, data-driven business models. Euler Hermes began its digital transformation in 2010 intending to enhance core functions of underwriting, policy management, claims processing and risk management.

Modern technologies and algorithmic data analysis were used to improve the underwriting process. Online policy applications replaced the existing manual, paper-based system. The new, online system includes advanced cloud architecture – this pulls important data points from a submitted application and uses that data to assign an initial risk score. This score and the raw data points are provided to the employee conducting the manual review of the application to improve speed and efficiency. Additionally, historical policy and claims records from the last 50 years were digitized. NLP (natural language processing tools) processed these records to uncover trends and patterns in key variables. Based on these results, the organisation developed predictive underwriting models that conduct initial analysis and risk assessment of new policy applications.

Claims processing operations witnessed improvements in mapping and resolution times. Incoming claims are redirected to relevant departments based on geography, business sector and counterparty. Optical Character Recognition (OCR) is used to

extract and summarise critical information on the claim before a full human review. These tools have fast-tracked policy decisions and pay-out determinations. Additionally, smart contracts are seeing greater use in international trade deals. These contracts automatically file claims with the insurer in cases of non-delivery, non-acceptance, payment default, etc. Several fintech companies are developing technologies like smart contracts, shipment tracking APIs, etc. that are expected to revolutionize this sector further.

Euler Hermes' digital transformation project has led to major timing, efficiency and financial improvements. More than 95% of the underwriting and claim management workflows are now fully digital. Consequently, processing and turnaround times have been reduced by 60%. Productivity has doubled, mostly due to the reallocation of employees from manual tasks to more complex projects. Predictive risk assessment and data-driven dynamic pricing has increased policy retention rates by 10% and have supported the construction of a more diverse product portfolio.

A strategic and focused approach to technological integration has helped Euler Hermes reap the benefits of this upgrade. It identified its core business functions and applied relevant transformations to each one. The importance given to data refining and analytics is a vital quality of this initiative. The Euler Hermes transformation is a guiding example for any ECA or business looking to plan a similar initiative.

6.2 Export Finance Australia – Enhancement of Client Management and Analytics Infrastructure

Export Finance Australia (EFA) is Australia's official government export credit agency. Its primary offerings are export credit insurance that safeguards against commercial and political risks. It also provides financing support to companies oriented towards exports and foreign investments.

EFA undertook an enterprise-wide technological transition project in 2017. The objectives of the project were to upgrade main internal divisions such as underwriting, customer relations, and claims management. Another objective was to develop

analytics capabilities to collect, organise and leverage the high volume of data that newly introduced digital processes would generate.

Underwriting systems now include the automatic inclusion of key financial records and credit reports in the counterparty's profile. This has helped enhance and speed up the human review process. Moreover, the aforementioned data analytics tools are used to compare the risk metrics of a single case versus the historical, sectoral and geographical benchmarks. Digitization and standardisation of records have also increased cross-divisional information sharing, reducing the inefficiencies caused by organisational silos.

The project led to the construction of a new client relationship management platform with a single, interconnected database. It collates client, transaction and policy data. It provides access to all available data related to a single client. This enhances the quality of service provided by client engagement teams as they can easily access all of the background data that EFA has on the client. Clients are also given the ability to monitor their coverage and claims settlement status through online portals. The new system has increased client satisfaction score to over 90% and engagement duration has been reduced to below 30 minutes per client.

EFA's well-planned transformation project has been built on two main pillars – data-driven efficiency and customer-centricity. The result is a swift improvement of its operational processes and a tangible increase in client satisfaction and retention.

6.3 African Trade and Investment Development Insurance – Risk Assessment Modernisation

African Trade and Investment Development Insurance (ATIDI) is a multilateral trade insurance agency that works to promote commercial activities and investment in Africa. Founded in 2001, its members include 21 African nations, 1 Non-African country (India) and 11 private sector organisations. Its mission is to support the growth of trade as well as public and private investment into African nations. It aims to achieve this through the provision of insurance, guarantees and related financial services. The products and services that it offers to potential investors are –

1) Political Risk Insurance

2) Credit Risk Insurance
3) Surety Bonds
4) Reinsurance
5) Claims Management Support
6) Foreign Investment Insurance

Political risk is ATIDI's main area of operational focus. Given that it is headquartered in Africa and a high proportion of its members are African nations, it has significant expertise on the local political landscape and the risks arising therein. Timely and effective risk assessment is a crucial business functionality for the organisation.

Through consistent investment and the introduction of the latest technologies, ATIDI has built robust risk-monitoring capabilities. High-volume analytics and alternative data sources are key features. An example of the latter is the increasing use of satellite imagery and geospatial data analysis. This augments traditional forms of political risk tracking such as field reports and media coverage.

Political risks are volatile in nature with frequent changes and fluctuations in a given situation. The use of modern tools such as satellite images provides insurance agencies with consistent, real-time updates. By combining these with data analytics, ATIDI has constructed models that study changes in ground-level infrastructure and land usage in an area which are potential signals of social/political distress. Militia operations might lead to rapid construction/destruction of buildings which is picked up and flagged by these image tracking models. Hence, in addition to real-time monitoring, forward-looking risk analysis is made possible through these capabilities.

The agency can today effectively anticipate potential risk events and quantify their impact on the trade and operations of insured clients. Comprehensive analysis by both data-driven models and on-the-ground reports assist in political claims management. Moreover, client organisations can confidently undertake larger and more diverse investments into new markets with the presence of such advanced risk mitigation techniques. Therefore, ATIDI is a testament to the benefits of integrating modern resources into the core operations of an insurance agency.

REFERENCES

Top tech trends in insurance | McKinsey

Redefining Insurance – Deloitte and CII (Confederation of Indian Industry)

Trade Finance Guide (2022) – US Department of Commerce International Trade Administration

Project Agorá moves to next phase and opens up call for private sector participation (bis.org)

ICC 2023 Trade Report: A fragmenting world – ICC (International Chamber of Commerce)

https://www.exportfinance.gov.au/

https://www.agaportal.de/en

https://www.atidi.africa/

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