

Impacts and benefits of Fintech in the Logistic Industry

Anurag Ingle¹, Adwait Oak²

¹Author, Student, Operations Management, MITWPU (PG), Maharashtra, India.

²Co-author, Assistant Professor, Operations Management, MITWPU (PG), Maharashtra, India.

DECLARATION: I AS AN AUTHOR OF THIS PAPER / ARTICLE, HEREBY DECLARE THAT THE PAPER SUBMITTED BY ME FOR PUBLICATION IN THIS JOURNAL IS COMPLETELY MY OWN PREPARED PAPER. I HAVE CHECKED MY PAPER THROUGH MY GUIDE/SUPERVISOR/EXPERT AND IF ANY ISSUE REGARDING COPYRIGHT/PATENT/ PLAGIARISM/ OTHER REAL AUTHOR ARISE, THE PUBLISHER WILL NOT BE LEGALLY RESPONSIBLE. . IF ANY OF SUCH MATTERS OCCUR PUBLISHER MAY REMOVE MY CONTENT FROM THE JOURNAL..

Abstract

The paper analyzes the current trends of financial technology in relation to the logistics Industry. By using the data from logistics companies' managers interviews, we assess the key trends in logistics Industry development over the past 3 years, reveal key technologies used by these companies and their evolution, and state the importance and relevance of financial technology issues for Logistics industry clients' satisfaction. The research indicates that for logistic Industry's client the ease of getting through the service (optimization of Artificial intelligence, Big data and blockchain) appears to be more important than other characteristics of the offered product. From the theoretical point of view, our research indicates, that besides key growth driving factors, outlined in existing literature, such as strategy, prerequisites for rapid growth, business model choice, international business networks, entrepreneur's characteristics, product development or theoretical frameworks for development, especially within the international market, the quality of fintech performance in logistic Industry. In this paper we examined the relationship between the fintech service with logistics industry. The indicator of the fintech or financial technology are Artificial Intelligence, Big data and Blockchain.

Keywords: Financial Technology, Logistics, client's satisfaction, Artificial Intelligence.

1. Introduction

In the early days of ICT-innovation, Venkatraman VII developed a model of ICT integration into business. This model distinguishes, degrees of business transformation ranging from small evolutionary changes in which ICT applications are used to improve existing business practices, to situations in which ICT results in revolutionary changes to core business. Placing this model in the context of logistics and fintech, we distinguish three approaches:

- Fintech application supporting existing business processes.
- Fintech expanding the service portfolio of logistics service providers.
- Fintech transforming supply chains.

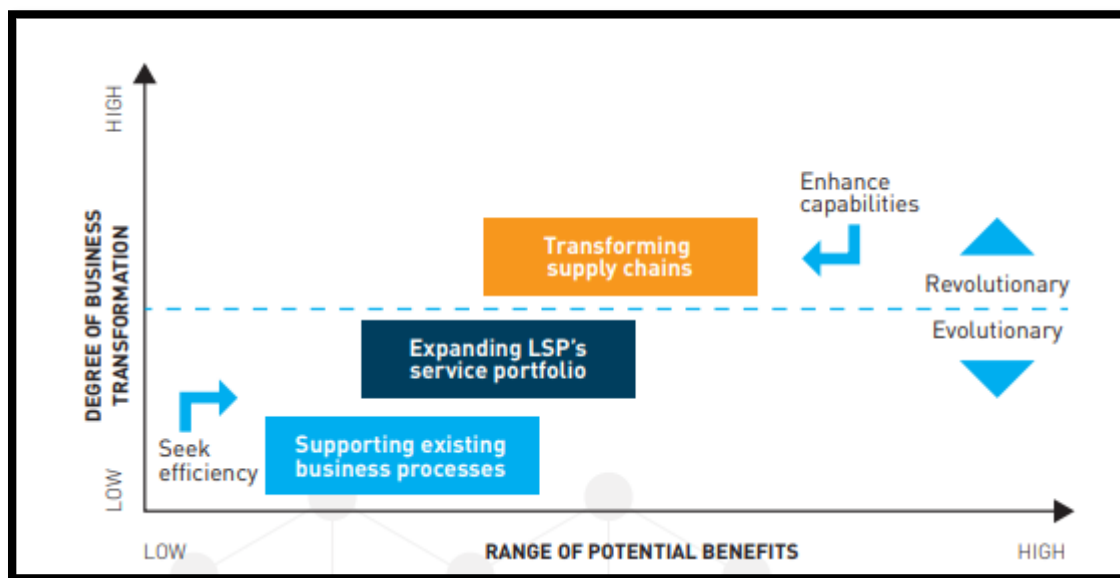


Figure: 1 Alternate approach to logistics innovation by fintech.

Source: Venkatraman

1.1. Fintech

Fintech stands for financial technology and encompasses innovation in the financial sector, including innovations in financial literacy and education, retail banking, investments and crypto currencies.

- The fintech industry consists of a range of companies; from large and established financial and technology companies to small startup companies. These try to replace or enhance the usage of (part of) the financial services process of incumbent companies by advanced technology solutions.
- Entrepreneurs in fintech know the limitations of existing financial processes and are aware of the opportunities of new technologies. They focus on specific financial services and offer innovative digital solutions to the financial industry, or independently offer financial services to consumers or organizations. Fintech offers opportunities for non financial service businesses and often entails ICT solutions building upon smart data gathering and processing. Fintech services may not be well known to the general public, but are already widely used and accepted.

1.2. Logistics –A Brief Introduction

The Netherlands is a worldwide leader in logistics, creating significant added value and employment. In logistics, an extensive chain of companies moves goods from one party to another, requiring information exchange and supply chain coordination. Global developments urge the Dutch sector to continuously innovate in order to remain competitive. Innovation is driven by logistics giants and startups with new perspectives and platforms. Traditionally, innovation used to focus on the optimization of physical goods flows and information flows. Today, the flow of transaction is recognized as an opportunity to add value in advanced logistics services.

1.3. Fintech Supporting Existing Business Operations

Logistics service providers face a variety of challenges in financing and managing assets, acquiring working capital, administrative processes and gathering the required operational data. A survey conducted among logistics service providers and additional interviews gives an impression of the most important challenges.

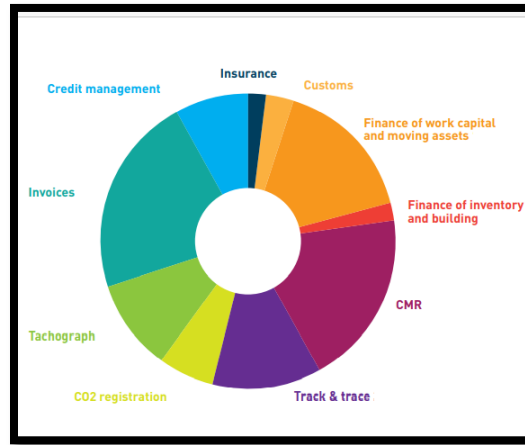


Figure: 2 challenges according to logistics service Providers

The process of order processing, billing and payments does not always run smoothly and efficiently. Cash flow management is a prominent challenge for logistics service providers. Logistics service providers can enhance their financial position by improving their order-to-cash process. When invoices are accurate and sent out quickly, payments can be received earlier and the costs of financing working capital can be reduced. In addition, an adequate order-to-cash process also requires effective registration and the collection of necessary data in logistics operations (e.g. collecting data from the CMR and tachograph or track & trace data to calculate costs, etc.). Invoicing to the specification of the client or self-billing complicates the order-to-cash process for logistics service providers.

2 Materials and Methods

2.1 An overview on Logistic companies' development

Basic analysis of digital companies' development indicates one can find several approaches towards theoretical and practical basement of startups development in the logistics sector. Some authors assume that startup development has to be evaluated alongside theoretical frameworks, such as resource-based theory [1, 2],

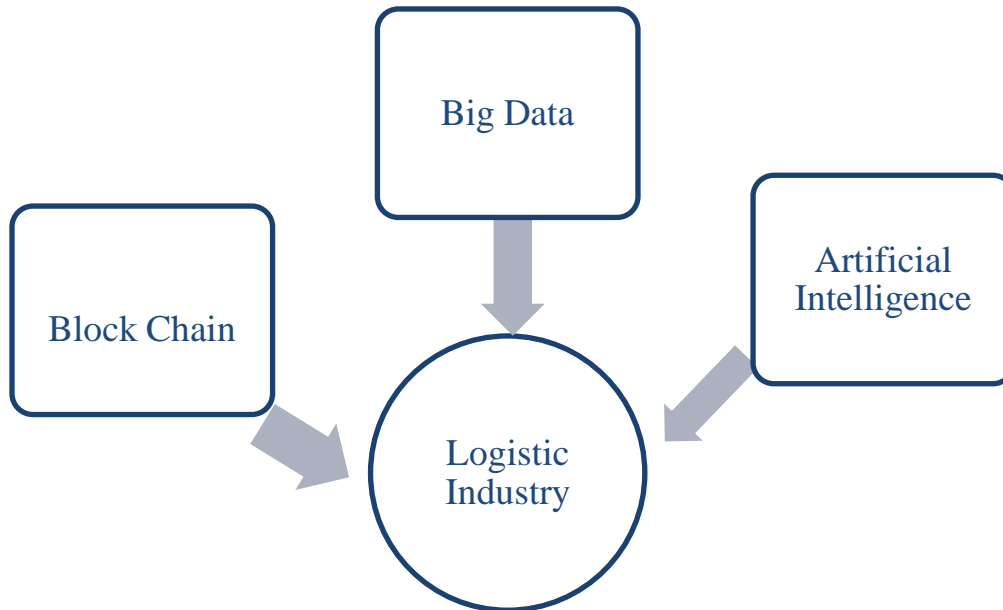


Figure: 3 Conceptual Frameworks

3. Literature Review

Fintech is an acronym of Financial Technology that describes an agency or a subsidiary that mixes a monetary carrier with technology. Every agency insisted to be labelled as fintech must provide Internet-primarily based totally merchandise with and applications (apps) established in system or smartphone. Generally, those modernized organization’s goal to draw the hobby of customers with merchandise, easy-to-use services, efficiency, and transparency in comparison to the traditional business.

Fintech might not be categorised primarily based totally on its use in authority’s guidelines or prison documents. Fintech agencies follow sure forms of prison duties and unique regulations due to their sort of enterprise. The distinction in enterprise is that services and products provide many things (Susilo et al., 2019). There are essential elements riding the evolution in economic generation innovation, namely (Bernanke & others, 2009); (Awrey, 2013); (De Haan et al., 2020); (Board, 2017b); and (Board, 2017a): the energy of call for (call for aspect) and the energy of supply (supply). aspect). Factors originating from the call for aspect include: First, moving purchaser alternatives that influence purchaser call for innovation.

4. Research Methodology

Questionnaire has been used for data collection and this is the Study of the 50 manager of an enterprise. The Tools for Data Analysis is used Reliability Test and Correlation.

4.1. Hypothesis

H0: The Impact of Artificial Intelligence in Logistic Industry.

H1: The Impact of Big data in Logistic Industry.

H2: The Impact of Blockchain in Logistic Industry.

5. Data Analysis

5.1. Reliability Test

| Cronbach's alpha | No. of items |
|------------------|--------------|
| 0.818 | 10 |

Table: 1 Reliability statistics

It is considered that the reliability value more than 0.818 is very good and it can be seen that almost the reliability methods applied here the reliability value of the Questionnaire is 0.818 which is higher than 0.7 so all the items of the Questionnaire are considered reliable.

Frequency of variables

| Artificial Intelligence, Big data, Block chain | | Frequency | Percent |
|--|---------------|-----------|---------|
| Valid | Not achieved | 4 | 8.0 |
| | Less achieved | 5 | 10.0 |
| | Neutral | 14 | 28.0 |
| | More achieved | 27 | 54.0 |
| | Total | 50 | 100.0 |
| Total | | 65 | 100.0 |
| Logistic Industries | | Frequency | Percent |
| | Very negative | 4 | 8.0 |
| | Negative | 5 | 10.0 |
| | Neutral | 19 | 38.0 |
| | Positive | 18 | 36.0 |
| | Very positive | 4 | 8.0 |

| | | | |
|--|-------|----|-------|
| | Total | 50 | 100.0 |
| | | | |

Table: 2 Frequency of items

Table 2 presents Out of all out 50 respondents, 8 % of respondents are not achieved Artificial Intelligence, Big data, Block chain in the logistic industry, 10% of respondents are less achieved, 28 % of respondents are neutral, and 54% are achieved Artificial Intelligence, Big data, Block chain in the logistic industry.

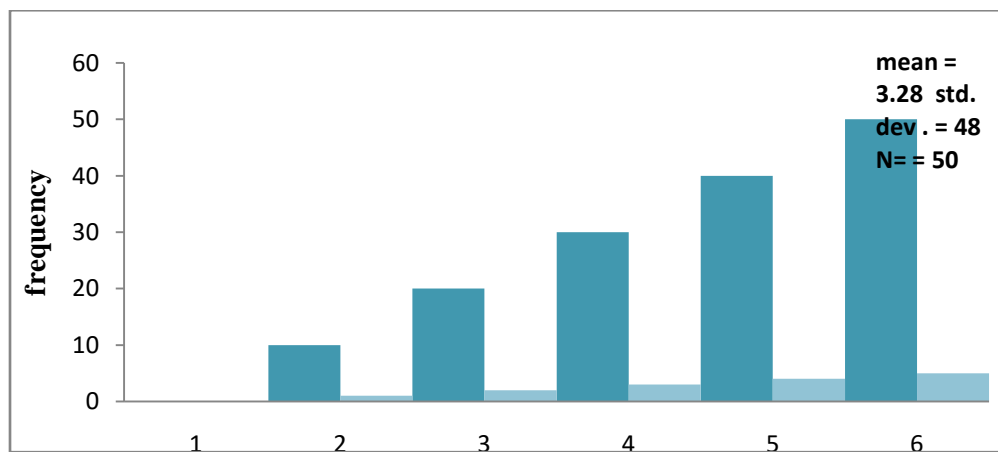
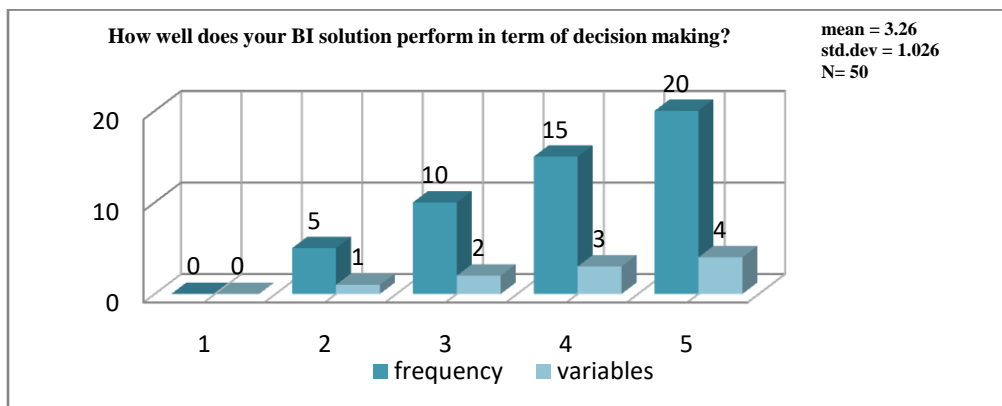


Table 2 presents Out of all out 50 respondents, 8 % of respondents are very negative regarding to Artificial Intelligence, Big data, Block chain in logistic industry, 10 % of respondents are negative, 38 % of respondents are neutral, 36% are positive and 8% are very positive Artificial Intelligence, Big data, Block chain in the logistic industry.

How well does your BI solution perform in term of decision making?



5.2. Correlations between the variables

| Correlations | | Artificial Intelligence | Big Data | Blockchain | Logistic Industry |
|---|---------------------|-------------------------|----------|------------|-------------------|
| Artificial Intelligence | Pearson Correlation | 1 | .327* | .787* | .725* |
| | Sig. (2-tailed) | | .000 | .000 | .000 |
| | N | 100 | 100 | 100 | 100 |
| Big Data | Pearson Correlation | .327* | 1 | .728** | .552* |
| | Sig. (2-tailed) | .000 | | .000 | .015 |
| | N | 100 | 100 | 100 | 100 |
| Block Chain | Pearson Correlation | .787** | .728** | 1 | .758* |
| | Sig. (2-tailed) | .000 | .000 | | .020 |
| | N | 100 | 100 | 100 | 100 |
| Logistics Industry | Pearson Correlation | .725* | .552* | .758* | 1 |
| | Sig. (2-tailed) | .000 | .015 | .020 | .000 |
| | N | 100 | 100 | 100 | 100 |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | |

Table :3 Correlation table

Independent variable: Artificial Intelligence, Big data, Block chain.

Dependent Variable: Logistic Industry

As one can drive from the Table above, Artificial Intelligence is associated with Logistics Industry positively ($r = 0.725$). Block Chain is associated with Logistics Industry positively ($r = 0.758$). Big data is associated with Logistics Industry positively ($r = 0.552$).\

6 Result & Discussion

The purpose of the study was to measure the relationship between the Artificial Intelligence, Big data, and Block chain and Logistic Industry in the current situation. As our research had indicated, optimization of fintech becomes a key factor to acquire Artificial intelligence, Big

data, and Blockchain in the logistic industry and also the fintech is a significantly influential factor in Logistic Industries. From the manager's point, it is the number of steps he has to undertake to acquire desired result from fintech service that indicates in the logistic industry. Thus, our research revealed that managers use the availability of fintech in logistic Industry. After analyzing the correlation on the data we can say there is a positive relationship between the dependent variable (Artificial Intelligence, Big data, Block chain) and independent variable (Logistic Industry) or our hypothesis H01 is rejected and H02 and H03 are accepted.

7. Conclusion

Focusing on FinTech as a concept is almost undoable, meaning that the concept is changing rapidly, resulting in fast outdated definitions. Many aspects in the FinTech environment are evolving simultaneously, resulting in many new methods for traditional finance-related activities. However, ignoring FinTech companies and applications is even worse. The applications developed in this era are not only disrupting but also changing traditional institutions in many different industries. Not only financial institutions are heavily being influenced but also logistics providers see opportunities to integrate FinTech applications in their activities. In all cases it is advisable, for traditional firms, to collaborate with FinTech companies instead of being a competitor. Again, this is both the case for financial and logistics organizations. For most FinTech applications the actual value is undiscovered, due to rapidly changing revenue streams and decreasing costs. Some applications, such as supply chain finance, are currently becoming more mature. These applications are already renewed at least once. Therefore, these applications are easier to further analyze and value. In this paper we analyzed the relationship between independent variable (artificial intelligence, Big Data, Blockchain) and dependent variable (Logistic Industry) and proved the hypothesis through correlation test.

8. Reference.

1. S. Alvarez, L. Busenitz, *Journal of Management* 27(6), 755–775 (2001)
2. P. Westhead, M. Wright, D. Ucbasaran, *J. Bus. Ventur.* 16, 333–358 (2001)
3. S. Laghzaoui, *Journal of Innovation Economics & Management* 7(1), 181-196 (2011)

4. G.O. Oparaocha, *Int. Bus. Rev.* 24, 861–873 (2015)
5. European Commission Supporting the internationalization of SMEs — Good practice selection (DG Enterprise and Industry, Luxembourg, 2008)
6. European Commission and EIM Business & Policy Research Internationalization of European SMEs, final report (DG Enterprise and Industry, Brussels, 2010)
7. W.-T.T. Hsu, H.-L.L. Chen, C.-Y.Y. Cheng, *J. World Bus.* 48, 1–12 (2013)
8. B. Antoncic, D. Hisrich, M. Konecnik, M. Ruzzier, *Canadian Journal of Administrative Sciences: Human capital and SME internationalization: a structural equation modeling study* 24(1), 15-29 (2007)
9. M. Novak, S. Bojnec, *Managing Global Transitions* 3(2), 157–177 (2005)
10. R. Aidis, *Size matters: entrepreneurship and government. Small business economics* (2012)
11. R. Singh, M.H.B. Subrahmanya, *Asian J. Innov. Policy* 7, 461–488 (2018)
12. Y. Chandra, I.F. Wilkinson, *J. World Bus.* 52, 691–701 (2017).
13. R. Alas, *E-World Entrepreneurship research* (2015).
14. N. Dominguez, U. Mayrhofer, *Int. Bus. Rev.* 26, 1051–1063 (2017)
15. E. Galdeano-Gómez, J.C. Pérez-Mesa, J.A. Aznar-Sánchez, *J. Bus. Econ. Manag.* 17, 1114–1132 (2016)
16. I. Kalinic, C. Forza, *Int. Bus. Rev.* 21, 694–707 (2012)
17. J. Bell, D. Crick, S. Young, *Int. Small Bus. J.* 22, 23–56 (2004)
18. H. Etemad, R.W. Wright, L.P. Dana, *Thunderbird Int. Bus. Rev.* 43, 481–499 (2001)
19. H.E. Guili, D. Ferhane, *Internationalization of SMEs and Effectuation: The Way Back and Forward. Proceedings* 2, 1422 (2018)
20. W. Kuemmerle, *A test for the faint-hearted* (Harvard Business Review, 2002)
21. M. Njima, S. Demeyer, *Evolution of software product development in startup companies* (2017) <http://ceur-ws.org/Vol-2047/BENEVOL2017paper3.pdf>
22. A. Schulz, T. Borghoff, S. Kraus, *International Journal of Business and Economics* 9(1) (2009)

23. A. Dubgorn, M.N. Abdelwahab, A. Borremans, I. Zaychenko, Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Innovation Management through Vision 2020 (2019)
24. V. Anjan, Journal of Financial Intermediation, <https://doi.org/10.1016/j.jfi.2019.100833>
25. A.V. Thakor, Journal of Financial Economics 102(1), 130-148 (2012)
26. D. Egorov, A. Levina, S. Kalyazina, P. Schuur, B. Gerrits, Lecture Notes in Networks and Systems 157, 201-209 (2021).
27. Abreu, D., & Brunnermeier, M. K. (2003). Bubbles and Crashes. *Econometrica*, 53(9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
28. ACCA. (2016). FinTech – transforming finance.
29. Accenture. (2015). The Future of Fintech and Banking. Accenture, 1–12.
30. Banker, S. (2016). Will Blockchain Technology Revolutionize Supply Chain Applications? Retrieved from <https://logisticsviewpoints.com/2016/06/20/will-blockchain-technology-revolutionize-supplychain-applications/>
31. Bell Pottinger. (2017). The 10 Hottest FinTech Trends for 2017.
32. Brieske, A., Dapp, T.-F., Garlan, K., & Dr. Sielecki, M. (2015). FinTech 2.0: Creating new opportunities through strategic alliance.
33. Deutsche Bank - Global Transaction Banking, 24.
34. Brunnermeier, M. K. (2009). Deciphering the Liquidity and Credit Crunch 2007–2008. *Journal of Economic Perspectives*, 23(1), 77–100. <https://doi.org/10.1257/jep.23.1.77>
35. CB Insights. (2017). The global FinTech Report: 2016 in review.
36. Chen, X., & Cai, G. (2011). Joint logistics and financial services by a 3PL firm. *European Journal of Operational Research*, 214(3), 579–587. <https://doi.org/10.1016/j.ejor.2011.05.010>
37. Chen, X., & Hu, C. (2012). The Value of Supply Chain Finance. Fudan University China.
38. De Jonghe, O. (2010). Back to the basics in banking? A micro-analysis of banking system stability. *Journal of Financial Intermediation*, 19(3), 387–417. <https://doi.org/10.1016/j.jfi.2009.04.001>
39. DHL. (2017). Value Added Services, 1–13.

40. Dinalog. (2011). Kansenvoor supply chain finance in Nederland. White Paper, 1–14.
41. EY. (2016). Capital Markets : innovation and the FinTech landscape.
42. Fintechnews Switzerland. (2017). Fintech Logistic Startups Seek to Provide Greater Efficiency in Supply Chain, 1–4.
43. Fong, B. A., & Walden, N. (2016). Strategies for Optimizing the Financial Supply Chain, (August), 1–7.
44. Freightos. (2016). The future of freight 2016.
45. Cowen, D. (2010). A geography of logistics: Market authority and the security of supply chains. *Annals of the Association of American Geographers*, 100(3), 600–620.
46. Cowen, D. (2014). *The deadly life of logistics: Mapping violence in global trade*. U of Minnesota Press.
47. Vitasek, K. (2013). Council of Supply Chain Management Professionals.(2013). Supply Chain Management Terms and Glossary. En *Supply Chain Management Terms and Glossary*, 222.
48. Folkers, A., & Stenmanns, J. (2019). Logistical resistance against operations of capital: Security and protest in supply chains and finance. *Geoforum*, 100, 199–208.
49. Restoy, F 2021 “Fintech regulation: achieving a level playing field” FSI Occasional Paper 17, February.
50. International Association of Insurance Supervisors (IAIS) 2017 “FinTech Developments in the Insurance Industry” February.