

# Building A Legal Framework to Facilitate The Transformative Potential of Digital Economies

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## Introduction

Digital economies are regarded as offering great prospects of transformation for developing economies.<sup>2</sup> This is evident from the growth of national digital economy strategies in many countries, with stories of success and future potential in Bangladesh,<sup>3</sup> China,<sup>4</sup> India<sup>5</sup> and other countries,<sup>6</sup> and the variety of enhancements which they have brought or are expected to bring.<sup>7</sup> Literature has discussed the prospects for development of digital economies and how benefits can more equitably be distributed among communities,<sup>8</sup> however studies have also highlighted that digital economies can be mixed blessings and not all will benefit from, or will welcome digital economies. Inequalities can be compounded by patchy provision of services<sup>9</sup> and there

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<sup>2</sup> The transformative potential of digital economies has been a focus for many governments in developing countries. International organisations have paid attention to this and the work of the United Nations Conference on Trade and Development, 'UNCTAD' and the World Bank has considered how digital economies can be built. An example is the World Bank's 'Digital Economy Initiative for Africa' and the African Union's 'Digital Transformation Strategy for Africa', <<https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030>> accessed 15 March 2022.

<sup>3</sup> See e.g. Azaz Zaman, 'How the Digital Economy is Shaping a new Bangladesh' (*World Economic Forum*, 19 June 2019), <https://www.weforum.org/agenda/2019/06/how-the-digital-economy-is-shaping-a-new-bangladesh/>, accessed 16 March 2022.

<sup>4</sup> See e.g. McKinsey Global Institute, *China's Digital Economy, A Leading Global Force*, (McKinsey Discussion Paper, August 2017) <<https://www.mckinsey.com/~media/mckinsey/featured%20insights/China/Chinas%20digital%20economy%20A%20leading%20global%20force/MGI-Chinas-digital-economy-A-leading-global-force.ashx>> accessed 15 March 2022; Jonathan Liebenau, 'How Chinese Digital Economy Companies Became Innovators' (*LSE Blogs* 10 September 2020) <<https://blogs.lse.ac.uk/cff/2020/09/10/how-chinese-digital-economy-companies-became-innovators/>> accessed 15 March 2022.

<sup>5</sup> See e.g. McKinsey Global Institute, *Digital India: Technology to Transform a Connected Nation* (McKinsey, 27 March 2019) <<https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/digital-india-technology-to-transform-a-connected-nation>> accessed 15 March 2022; NT Arunkumar, 'The future looks bright for India's human-centric digital economy' 10 April 2021, available at: [https://economictimes.indiatimes.com/tech/information-tech/the-future-looks-bright-for-indias-human-centric-digital-](https://economictimes.indiatimes.com/tech/information-tech/the-future-looks-bright-for-indias-human-centric-digital-economy/articleshow/81996268.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)

[economy/articleshow/81996268.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/tech/information-tech/the-future-looks-bright-for-indias-human-centric-digital-economy/articleshow/81996268.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst).  
<sup>6</sup> Bhaskar Chakravorti, Ajay Bhalla, and Ravi Shankar Chaturvedi, 'Which Economies Showed the Most Digital Progress in 2020?' (*Harvard Business Review*, 18 December 2020) <<https://hbr.org/2020/12/which-economies-showed-the-most-digital-progress-in-2020>> accessed 15 March 2022.

<sup>7</sup> See e.g. Carl Dahlman, Sam Mealy and Martin Wermelinger, (2016), 'Harnessing the Digital Economy for Developing Countries', OECD Development Centre Working Papers, No. 334, OECD Publishing, Paris, <https://doi.org/10.1787/4adffb24-en>.

<sup>8</sup> Ibid.

<sup>9</sup> See e.g. Edith Ofwona Adera, Timothy M. Waema, Julian May, Ophelia Mascarenhas, and Kathleen Diga, *ICT Pathways to Poverty Reduction: Empirical Evidence from East and Southern Africa*. (Practical Action Publishing, 2014).

are difficulties for many in adjusting to the changes that digital economies can bring.<sup>10</sup> There has therefore been discussion as to improvements in technical infrastructure that are needed if digital economies are to benefit all who wish to be benefited, as well as aspects of legal regulation that are required to support these economies.<sup>11</sup> Yet an important dimension that has often been overlooked is that digital services are often provided by, or supported by, companies, both domestic and international.

This article considers this under-discussed corporate aspect from two dimensions. Attention is paid to the laws that are needed to foster entrepreneurship and proactive best practices that will enable sustainable businesses, including domestic businesses, to prosper.<sup>12</sup> This aspect is important as it has been noted that an enabling environment for creativity is a key challenge in digital economies and excessive reliance on foreign enterprises can present risks.<sup>13</sup> Best practices can also limit disruption from financial distress and other problems, as effective management can help to avert a financial crisis for a company.<sup>14</sup> The second aspect considered in this paper is related to the first, as even well run companies are not invincible<sup>15</sup> and problems of wide public impact can be caused in the event of disruption to supply of digital services on which communities may depend, worse still if there is failure of a company in this sector.<sup>16</sup> The article will consider laws that can protect the public interest in cases where businesses in the digital economy get into financial difficulties, as such instances, although rare, have the potential to be catastrophic.<sup>17</sup> Rather than these businesses suddenly shutting down it will consider how the closure of digital service suppliers can be managed in a way that limits the public impact, both in terms of access to services and also in terms of integrity of data. A dimension that will also be highlighted is the supranational nature of many businesses in this sector, which brings difficulties of regulation.

The article begins with a discussion of national digital economy strategies, alongside both the advantages to be gained from this, in particular for businesses, and potential challenges. It then considers the supporting infrastructure needed to support these strategies, including the role of law alongside a need for technical upgrading. In the discussion of law, the focus is on company law and insolvency law as these areas have not previously gained significant attention. Finally,

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<sup>10</sup> For example, a change towards a digital economy can bring job disruption. An illustration is the ‘cages for birds’ restructuring approach discussed in Rebecca Parry and Jingchen Zhao, ‘Zombie Companies in China: Policies of Creative Destruction and their Implementation’ (2021) *Corporate and Business Law Journal* 371-409 [https://cablj.org/wp-content/uploads/2021/06/CABLJ\\_Summer2021\\_Parry\\_Zhao\\_ZOMBIE-COMPANIES-IN-CHINA.pdf](https://cablj.org/wp-content/uploads/2021/06/CABLJ_Summer2021_Parry_Zhao_ZOMBIE-COMPANIES-IN-CHINA.pdf)

<sup>11</sup> See e.g. Nagy K. Hanna, (2020) 9 *Journal of Innovation and Entrepreneurship* 16, <https://doi.org/10.1186/s13731-020-00129-1>

<sup>12</sup> Good corporate governance standards and adoption of best practices is important for both domestic and international companies within the digital economy.

<sup>13</sup> Olufunmilayo B Arewa, *Disrupting Africa: Technology, Law and Development* (Cambridge University Press, 2021), 161.

<sup>14</sup> Alice Belcher perceptively noted in *Corporate Rescue: A Conceptual Approach to Insolvency Law* (Sweet and Maxwell, 2007) that almost all corporate activity can be regarded as being towards the prevention of failure.

<sup>15</sup> Some notable illustrations are discussed in Krish Bhaskar & John Flower, *Financial Failures and Scandals: From Enron to Carillion* (Routledge, 2019) <https://doi.org/10.4324/9780429270635>

<sup>16</sup> Relevant issues in a cloud computing context are discussed in Rebecca Parry and Roger Bisson, ‘Legal Approaches to Management of the Risk of Cloud Computing Insolvencies’ (2020) 20 *Journal of Corporate Law Studies* 421. Cloud computing is one of the main technologies that offers benefits in digital economies.

<sup>17</sup> At its worst there is the potential for a ‘too big to fail’ scenario: Lloyd’s. ‘Cloud Down, Impacts on the US Economy, Emerging Risk Report 2018’ <<https://www.lloyds.com/clouddown>>; Rana Faroohar, ‘How big tech is dragging us towards the next financial crash’ (*The Guardian*, 8 November 2019); Rana Faroohar, *Don’t Be Evil: the Case Against Big Tech* (Penguin, 2019), Chapter 10.

the article will examine the complications brought by the involvement of international and what may even be regarded as supranational businesses.<sup>18</sup>

Growth of national digital economy strategies

Part of the fourth industrial revolution,<sup>19</sup> digital economies<sup>20</sup> have potential both for industrial and consumer markets. A digital economy can be internally transformative, contributing to the achievement of Sustainable Development Goals,<sup>21</sup> and there are hopes that developing countries can benefit. Digital technologies can enable improved devices and services, such as more efficient processes, as well as intangible benefits, such as enabling the promotion of philosophical concepts such as democracy and ethics.<sup>22</sup> For example, citizens who have previously been marginalised can potentially be brought into an e-governance system<sup>23</sup> and through greater availability of financial services. There are prospects of improvements to agricultural and medical processes, as well as a broadening of education<sup>24</sup> that can improve lives and job prospects and smart cities that can improve the living environments of many through efficiency and safety.<sup>25</sup> A digital economy offers the potential for rapid, inclusive and sustainable development, potentially enabling rural areas to play a more active role in the economy<sup>26</sup> and also potentially diversifying the workforce by providing opportunities that can equally be taken by female workers<sup>27</sup> and disabled workers<sup>28</sup> who may have been marginalized by existing labour opportunities.

Central to many of these initiatives are companies, including large global organisations. Existing literature has highlighted questions about the control of corporate power in this

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<sup>18</sup> Although the term ‘supranational’ is commonly used in the context of multinational organisations such as the World Bank or European Stability Fund, it has also been used in the context of powerful international businesses which national states find difficult to hold in check, for example in Laura Westra, *The Supranational Corporation, Beyond the Multinationals* (Brill, 2013).

<sup>19</sup> K. Schwab, *The Fourth Industrial Revolution* (Crown Business, 2016).

<sup>20</sup> See e.g. Rumana Bukht and Richard Heeks, ‘Conceptualising and Measuring the Digital Economy’ (August 3, 2017) Development Informatics Working Paper no. 68, Available at SSRN: <https://ssrn.com/abstract=3431732> or <http://dx.doi.org/10.2139/ssrn.3431732>

<sup>21</sup> It can contribute to all of the SDGs, e.g. SDG 4 by offering quality educational opportunities; SDG 8, by enabling decent work and economic growth; SDG 9 through improvements in infrastructure. See e.g. Unlocking Public and Private Finance for the Poor, *Inclusive Digital Economies for the SDGs* (2021) <<https://www.uncdf.org/ide4sdg>>.

<sup>22</sup> Garrick E. Louis, Neda Nazemi, and Scott Remer, ‘Innovation for Development: Africa’ in Clapperton Chakanetsa Mavhunga (ed), *What Do Science, Technology, and Innovation Mean from Africa?* (MIT Press, 2017), 157-162.

<sup>23</sup> A noted example is India’s Aadhar system, discussed in Amiya Bhatia & Jacqueline Bhabha, ‘India’s Aadhaar Scheme and the Promise of Inclusive Social Protection’ (2017) 45 Oxford Development Studies 64, DOI: 10.1080/13600818.2016.1263726. However, the benefits of this type of approach can be patchy and many will have reservations about its benefits. See also Nixon O Muganda, ‘Emergence of the e-Government Artifact in an Environment of Social Exclusion in Kenya’ (2008) 1 The African Journal of Information Systems 18-43;

<sup>24</sup> For example, through platforms of edX and Coursera which offer MOOCs.

<sup>25</sup> See the examples discussed in Ademola A Adenle, Marian R Chertow, Ellen HM Moors and David J Pannell (eds) *Science Technology and Innovation for Sustainable Development Goals*, (2020).

<sup>26</sup> Vujica Lazović and Tamara Duričković, ‘The Digital Economy in Developing Countries-Challenges and Opportunities,’ 2014 37th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO), Opatija, 2014, pp. 1580-1585, doi: 10.1109/MIPRO.2014.6859817.

<sup>27</sup> Note however possible reluctances: OECD, *Bridging the Digital Gender Divide, Include, Upskill, Innovate* (2018) 23 <https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf>.

<sup>28</sup> An example in the farming context is Dineshkumar Singh et al, ‘Digital Inclusion for the Differently-abled Farmers,’ 2016 IEEE International Symposium on Technology and Society (ISTAS), 2016, pp. 1-6, doi: 10.1109/ISTAS.2016.7764279.

context, including the potential for exploitation by multinational enterprises of a dominant position.<sup>29</sup> It has also highlighted problems if projects are led by foreign workers and domestic capacity building does not occur.<sup>30</sup> Some countries, which have historically been exploited for raw materials may find that this pattern continues in the digital age, and other countries may become ‘dumping grounds for digital economy waste’.<sup>31</sup> Problems in a lack of a suitable legal framework have also been highlighted and the company law aspects of this are the focus of this article, examining the role that these aspects of law can play in the sustainability of businesses. Before turning to this theme there follows an explanation of some of the key technologies that can benefit developing countries, together with examples of each demonstrating how companies are central to the development of digital economies and so their resilience is important to these economies.

### Potential Benefits of Key Technologies for Developing Countries

The following technologies are examples that have been identified as potentially bringing about beneficial changes in developing countries, but all have also been noted as presenting significant challenges.<sup>32</sup> The key role played by companies, including large foreign companies, in bringing these technologies to developing countries, is highlighted as it is important to the discussion in this paper.

- Smart cities offer prospects for improved living conditions and are exemplified by the proposed new administrative capital for Egypt,<sup>33</sup> managed by Middle Eastern group Dar, and enclaves in Cairo<sup>34</sup> and Nairobi and they have been identified as offering the potential to resolve traffic congestion in Kinshasa, DRC.<sup>35</sup> These ambitious projects have been led by international companies and organisations and domestic startups have been supported and there have also been developments using public-private partnerships.<sup>36</sup> Smart cities can utilise Internet of Things, ‘IoT’,<sup>37</sup> technology which enables objects to

<sup>29</sup> A problem that major economic players including the US and EU are grappling with, including through the European Commission’s Digital Markets Act (2021) and President Biden’s July 9, 2021 executive order. Relevant themes are discussed in Martin Moore and Damian Tambini (eds), *Digital Dominance, the Power of Google, Amazon, Facebook and Apple* (Oxford University Press, 2018).

<sup>30</sup> Garrick E. Louis, Neda Nazemi, and Scott Remer, ‘Innovation for Development: Africa’ in Clapperton Chakanetsa Mavhunga (ed), *What Do Science, Technology, and Innovation Mean from Africa?* (MIT Press, 2017), 157.

<sup>31</sup> Olufunmilayo B Arewa, *Disrupting Africa: Technology, Law and Development* (Cambridge University Press, 2021), 166.

<sup>32</sup> See Timothy J. Sturgeon, ‘Upgrading Strategies for the Digital Economy’, (2019) 9 *Global Strategy Journal* 1. <https://doi.org/10.1002/gsj.1364> for a good review of what a digital economy entails.

<sup>33</sup> <http://www.acud.eg/>

<sup>34</sup> Safa Ashoub & Mohamed Elkhateeb, ‘Enclaving the City; New Models of Containing the Urban Populations: A Case Study of Cairo’ (2021) 6 *Urban Planning* 202-217. 10.17645/up.v6i2.3880.

<sup>35</sup> Certainly, the reality of smart cities may not match the glossy image, as discussed in Vanessa Watson, ‘The allure of ‘smart city’ rhetoric: India and Africa’ (2015) 5 *Dialogues in Human Geography* 36. doi:10.1177/2043820614565868 The proposed smart city island at La Cité du Fleuve would have been an illustration that such projects do not lift the fortunes of those nearby and it ran into delays and many difficulties. BatInfo, ‘La Cité du Fleuve, the real estate dream of an elite taking water in Kinshasa in the Democratic Republic of the Congo’ (*BatInfo.com*, 19 April 2021) <[https://batinfo.com/en/actuality/the-city-of-the-river-the-real-estate-dream-of-an-elite-taking-water-in-kinshasa-in-the-democratic-republic-of-the-congo\\_18037](https://batinfo.com/en/actuality/the-city-of-the-river-the-real-estate-dream-of-an-elite-taking-water-in-kinshasa-in-the-democratic-republic-of-the-congo_18037)> accessed 15 March 2022.

<sup>36</sup> Finbarr Toesland, ‘Realising the Potential of Smart Cities in Africa’ (*Raconteur*, 29 September 2021) <<https://www.raconteur.net/urbanisation/smart-cities/realising-the-potential-of-smart-cities-in-africa/>>.

<sup>37</sup> IoT technology has been used in India, for example, to develop a collision-avoidance system for the high-speed Vande Bharat Express train. Gabor Fodor, Bastian Cellerius, David Rothbaum and Keerthi Kumar Nagalapur, ‘At the Speeding Edge: How railway Digitalization is on the Rise in India’ (*Ericsson Blog*, 18 November 2020) <<https://www.ericsson.com/en/blog/2020/11/railway-digitalization>> accessed 15 March 2022.

be embedded with sensors, software and other technologies and which has various applications to improve life in cities. There are however risks that there might be misalignment between the plans of developers and local needs.<sup>38</sup>

- Blockchain technologies have been identified as useful for generating operational efficiencies through the elimination of intermediaries of a type who would normally be involved in financial transactions, whom we can term ‘traditional intermediaries’. A well-known application is in smart contracts, which enable transactions to be automatically triggered in cases where specific conditions are met. Decentralised finance, ‘De-Fi’ transactions, which mostly use the Ethereum blockchain, are also of interest in that they enable transactions to be made in circumstances that would normally otherwise involve traditional intermediaries.<sup>39</sup> From a developing country perspective, De-Fi has been identified as a way to cut the cost of sending remittances, improving access to capital for small and medium sized enterprises, and enabling greater financial inclusion.<sup>40</sup> Blockchain has been identified in a report as having potential to improve processes including those for land registration, pharmaceutical drugs supply and verification of educational certificates.<sup>41</sup> While verification processes are unlikely to eliminate a need for trusted intermediaries<sup>42</sup> there is the prospect that these intermediaries will not accumulate power in the way that traditional intermediaries have. An example of how De-Fi can offer new opportunities is its role in enabling young artists to profit from NFTs.<sup>43</sup> Cryptocurrencies are presently unregulated and they have been noted to create risks including the potential for rash speculation in volatile assets, threats to domestic fiat currencies and environmental considerations within a more regulated framework also however they also offer potential for addressing financial exclusion in developing countries.<sup>44</sup>
- Artificial intelligence, ‘AI’, where human intelligence is simulated by machines,<sup>45</sup> can perform a wide range of functions, such as pattern recognition, customer service, personalisation of internet adverts and searches.<sup>46</sup> For example, there are many excellent

<sup>38</sup> Carey Baraka, ‘The Failed Promise of Kenya’s Smart City’ (*Rest of World*, 1 June 2021), <https://restofworld.org/2021/the-failed-promise-of-kenyas-smart-city/>.

<sup>39</sup> See generally Campbell R. Harvey, Ashwin Ramachandran and Joseph Santoro, *DeFi and the Future of Finance* (Wiley, 2021).

<sup>40</sup> Mark Leon Goldberg, ‘Cryptocurrency Isn’t All Bad’ (*Foreign Policy*, 22 June 2021).

<sup>41</sup> NITI Aayog, *Blockchain the India Strategy Part 1* (January 2020) <[https://niti.gov.in/sites/default/files/2020-01/Blockchain\\_The\\_India\\_Strategy\\_Part\\_I.pdf](https://niti.gov.in/sites/default/files/2020-01/Blockchain_The_India_Strategy_Part_I.pdf)>.

<sup>42</sup> Cory Doctorow, ‘The Inevitability of Trusted Third Parties’ (*Medium*, 30 January 2021)

<<https://doctorow.medium.com/the-inevitability-of-trusted-third-parties-a51cbcffc4e2>>; EJ Spode, ‘The Great Cryptocurrency Heist’, (*Aeon*, February 2017) <<https://aeon.co/essays/trust-the-inside-story-of-the-rise-and-fall-of-ethereum>> accessed 15 March 2022.

<sup>43</sup> Fikayo Owoeye and Nneka Chile, ‘African Artists Embrace NFTs for Better Rewards’ (*Reuters*, 8 November 2021) <<https://www.reuters.com/lifestyle/african-artists-embrace-nfts-better-rewards-2021-11-08/>>; Ayodeji Rotinwa, ‘Art X Lagos puts NFTs by African artists in the limelight’ (*The Art Newspaper*, 5 November 2021), <https://www.theartnewspaper.com/2021/11/05/art-x-lagos-puts-nfts-by-african-artists-in-the-limelight>.

<sup>44</sup> For example, a central bank digital currency is being proposed in Jamaica as a solution to widespread financial exclusion in the country: Kate Chappell, ‘Jamaica Digital Currency Due for National Roll-out in Coming Months - Central Bank’, (*Reuters*, 31 January 2022). Issues of inequality can still arise e.g. in relation to older and poorer citizens: T. J. Gopane, ‘An Enquiry into Digital Inequality Implications for Central Bank Digital Currency,’ 2019 IST-Africa Week Conference (IST-Africa), 2019, pp. 1-9, doi: 10.23919/ISTAfrICA.2019.8764838.

<sup>45</sup> With programming, systems can be improved through machine learning, to identify patterns, study data and make decisions without human intervention beyond the programming stage.

<sup>46</sup> European Parliament, ‘What is artificial intelligence and how is it used?’ 29 March 2021 <<https://www.europarl.europa.eu/news/en/headlines/society/20200827STO85804/what-is-artificial-intelligence-and-how-is-it-used>> accessed 15 March 2022.

examples of improvements to medical procedures and agricultural techniques in India using AI.<sup>47</sup> While potentially offering improvements in production methods, artificial intelligence may however exemplify technologies that have the potential to widen the gap between developing countries and rich countries.<sup>48</sup>

- Cloud computing, which offers on-demand computing resources, can facilitate improved services and benefit businesses. It has been noted as offering the potential for outsourcing of services by companies, which can also obtain infrastructure, platforms and software more cheaply than could be achieved on-site and it has been noted as enabling businesses in developing countries to more cheaply gain access to ICT services.<sup>49</sup> It can therefore aid entrepreneurship and economic development although it is also notable that infrastructure in terms of data centres and broadband coverage presents challenges in many countries.<sup>50</sup> Many countries will be seen as marketplaces for existing large suppliers, with little local provision and what local suppliers there are may become targets for takeovers by large suppliers.

These are a few examples of how technologies both have the potential to offer transformative benefits but also contain possible pitfalls for developing countries, not least the reliance in many cases on foreign suppliers. Bearing in mind the potential risks, the potential benefits for businesses will next be considered.

#### Beneficial impacts on businesses

The digital economy can impact positively on businesses, for example by improving levels of education and enabling improvements to manufacturing methods.<sup>51</sup> Digital technologies can enable a diversification of a country's manufacturing processes, so that domestic manufacturers are no longer reliant on manufacturing of goods designed elsewhere, typified by the approach of Apple, as well as enabling improvements to means of production. A digital economy can also potentially boost external trade prospects for domestic tech firms, enabling services to be offered globally and potentially there are outsourcing opportunities, as tasks can be performed more cheaply than in developed countries. The private sector is notable as a driver of change, through individual entrepreneurship, sometimes enabled by government sponsorship and procurement and public-private partnerships. Initiatives such as mobile payment systems, notably the M-Pesa system of Kenya, which developed through a partnership between a telecommunications company and a bank,<sup>52</sup> illustrate ways in which entrepreneurs can bring

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<sup>47</sup> Abhishek Singh, 'Artificial Intelligence Solutions Built in India Can Serve the World' (*The India Express*, October 8 2020) <https://indianexpress.com/article/opinion/columns/artificial-intelligence-raise-2020-summit-indian-economy-6708678/>.

<sup>48</sup> Cristian Alonso et al, 'Will the AI Revolution Cause a Great Divergence?' IMF Working Paper, 11 September 2020 available at: <https://www.imf.org/en/Publications/WP/Issues/2020/09/11/Will-the-AI-Revolution-Cause-a-Great-Divergence-49734>.

<sup>49</sup> Peter Cowhey and Michael Kleeman, 'Unlocking the Benefits of Cloud Computing for Emerging Economies-A Policy Overview' (October 2012) available at [https://www.researchgate.net/publication/256041798\\_Unlocking\\_the\\_Benefits\\_of\\_Cloud\\_Computing\\_for\\_Emerging\\_Economies--A\\_Policy\\_Overview](https://www.researchgate.net/publication/256041798_Unlocking_the_Benefits_of_Cloud_Computing_for_Emerging_Economies--A_Policy_Overview).

<sup>50</sup> UNCTAD, 'The Cloud Economy and Developing Countries', Information Economy Report 2013, UNCTAD/IER/2013, available at [https://unctad.org/system/files/official-document/ier2013\\_en.pdf](https://unctad.org/system/files/official-document/ier2013_en.pdf).

<sup>51</sup> United Nations Conference on Trade and Development. (2017). The 'New' Digital Economy and Development. Technical note no. 8, UNCTAD Division on Technology and Logistics, ICT Analysis Section. New York and Geneva.

<sup>52</sup> Njuguna Ndung'u, 'M-Pesa – a Success Story of Digital Financial Inclusion', <<https://www.bsg.ox.ac.uk/sites/default/files/2018-06/2017-07-M-Pesa-Practitioners-Insight.pdf>> accessed 15 March 2022.

about beneficial transformations in developing economies.<sup>53</sup> However it is notable that the legislation to support companies in developing countries can present difficulties, as will next be considered.

### Laws needed to support the digital economy

The laws needed to support the digital economy have been part of the evaluations by international organisations, notably the United Nations Conference on Trade and Development, ‘UNCTAD’ and the World Bank. As part of these evaluations these organisations have considered the range of factors that are important in the establishment of a digital economy. Relevant factors can be broadly grouped into technical improvements, such as increased availability of broadband and internet exchange points, and legal improvements, both hard and soft law. Figure 1 illustrates how these factors can aid a digital economy strategy, as well as the benefits that digital economies are expected to bring.

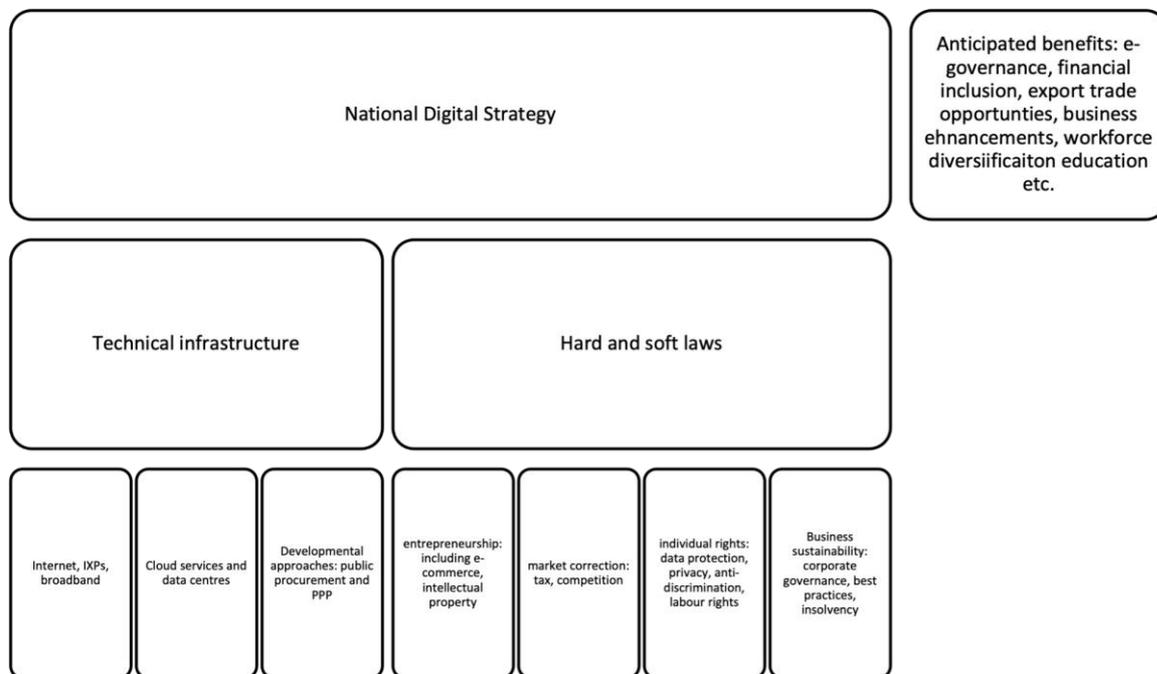


Figure 1: Digital Strategy Elements and Anticipated Benefits

In wide-ranging reports UNCTAD has conducted a holistic evaluation of digital economy development and highlighted several areas of law as demanding attention as a priority, including those to protect the labour market, intellectual property rights to protect and reward creativity, taxation, competition and laws to protect data rights, including safeguards for minorities so that personal information is not used to facilitate persecution. These aspects of law relate mostly to the operational stage of digital economy businesses, rather than the start and end stages. Such laws can reassure users that a country is a safe place to entrust their business and their data. Some matters will inevitably be beyond what an individual state will be able to effectively control through legislation. For example, effective control of cybercrimes

<sup>53</sup> Paralleling Schumpeter’s analysis of entrepreneurship and innovation generating a process of creative destruction that is a driver of growth. Joseph Schumpeter, *The Theory of Economic Development: an Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* Harvard Economic Studies, Cambridge (English edition 1934, German original 1911); Joseph Schumpeter, *Capitalism, Socialism and Democracy* (Harper & Row, New York, 1942).

may require attention at international levels.<sup>54</sup> In addition, companies need sound systems for the protection of customer data to avoid damaging scandals.

Whilst the above aspects are important elements for any digital economy, attention needs to be paid to the broader legal framework for the companies that operate in the digital economy. For reasons that will be outlined a broader approach to these laws is important at three stages of the company's life cycle: 1) opening, 2) operation and 3) closure.<sup>55</sup> Naturally the second stage, operation, is the most important aspect for the support of a sustainable digital economy with resilient businesses and an examination of corporate governance can help in this regard. Sustainability is a flexible concept<sup>56</sup> and in the context of this paper it refers to mechanisms to enhance business longevity in the digital economy.<sup>57</sup> A proactive approach to failure prevention at this stage is important to the resilience and sustainability of digital service providers. In the event of businesses experiencing financial difficulties, supportive laws at the third, closure, stage can enable reorganisation and recovery as an alternative to liquidation of a company but more often the productive elements of the company will be the subject of a business sale, with the company itself being dissolved.<sup>58</sup> In the digital economy context continuity of service is particularly important, for reasons to be outlined, and insolvency laws can be shaped to enable this.

This third aspect is important as firms operating in the context of the digital economy will not be immune to risks that can lead to financial difficulties, such as poor strategy, an economic downturn, an incident such as a pandemic or hacking. It is notable that some businesses will face financial difficulties and some will fail. At that point, if the business has significant levels of operation, there can be wider public impact. Key services on which countless people will depend will be provided by companies, which can be vulnerable to market forces as well as incidents such as cyberattacks. Mechanisms are needed to limit the impact on individuals in such cases. The interruption to digital services in the event of financial difficulties will be disruptive to businesses and it will potentially be difficult to resolve.<sup>59</sup> Customers may face not only harm to productivity, but they could lose access to services and data permanently, without the possibility of replacement, which can be economically damaging. Even a temporary outage is economically costly for those using digital services and an insolvency would be potentially catastrophic. This is a possibility that has hitherto received limited attention and even in advanced commercial economies, few jurisdictions have yet enacted

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<sup>54</sup> Andreja Mihailović; Neli Rašović, 'Cybersecurity in the New Reality: Systematic Review in the Context of COVID-19' (2020) 5 International Journal of Innovative Science and Research Technology 1088.

<sup>55</sup> Following the discreditation of the World Bank's Doing Business Reports these three indicators are used as measures of the business environment in economies. <<https://www.worldbank.org/en/programs/business-enabling-environment/alternative-existing-indicators#2>> accessed 15 March 2022.

<sup>56</sup> See e.g. Elena Giovannoni and Giacomo Fabietti G. (2013) 'What Is Sustainability? A Review of the Concept and Its Applications' in Cristiano Busco, Mark L. Frigo, Angelo Riccaboni and Paolo Quattrone (eds) *Integrated Reporting* (Springer, 2013); Justin Bateh, Camille Heaton, Gordon W Arbogast, & Ardell Broadbent, 'Defining Sustainability In The Business Setting' (2014) 1 Journal of Sustainability Management, 1–4. <https://doi.org/10.19030/jsm.v1i1.8386>

<sup>57</sup> Deborah Doane & Alex MacGillivray, 'Economic Sustainability The Business of Staying in Business' (*The Sigma Project*, 2001) <[https://www.researchgate.net/profile/Deborah-Doane/publication/237302235\\_Economic\\_Sustainability\\_The\\_business\\_of\\_staying\\_in\\_business/links/5440f98d0cf2a6a049a356ff/Economic-Sustainability-The-business-of-staying-in-business.pdf](https://www.researchgate.net/profile/Deborah-Doane/publication/237302235_Economic_Sustainability_The_business_of_staying_in_business/links/5440f98d0cf2a6a049a356ff/Economic-Sustainability-The-business-of-staying-in-business.pdf)>.

<sup>58</sup> See e.g. Jassmine Girgis, 'The Evolution of Corporate Rescue in Canada and the United States' in Paul Omar and Jennifer LL Gant, *Research Handbook on Corporate Restructuring* (Elgar, 2021), 40.

<sup>59</sup> European Telecommunications Standards Institute, 'Special Report: Cloud Standards Coordination Phase 2; Interoperability and Security in Cloud Computing' (2016), 5.3.

suitable laws in place to handle insolvencies in the digital economy and so any jurisdiction that has developed suitable laws could potentially gain an advantage as an international hub for digital services, as well as a place for the sustainable development of local businesses. A lack of suitable legislation could present a risk to the sustainability of digital economies, including in developing countries, as it could lead to a loss of confidence in a jurisdiction's digital economy. The sustainability and transformative potential of digital economies will therefore depend in part on minimization of insolvency risks at the operational stage, through effective corporate governance and insolvency regulation.<sup>60</sup> A combination of proactive and reactive steps is needed to ensure that digital economies are sustainable both so that the risk of failure of digital service providers can be minimized and also that failures can be handled effectively, avoiding significant disruption to users.<sup>61</sup>

#### Companies legal framework

This section will consider the three stages of a company's lifecycle: opening, operation and closure and the role of law within these. The main focus will be on the second stage, particularly approaches to business growth and failure prevention, and on the third stage, examining how insolvencies in this context can be handled.

##### a) Opening and the encouragement of domestic businesses

As noted, innovation can drive economic development through processes of creative destruction and it is therefore important to consider barriers to entrepreneurship, which can hamper formation of new enterprises at the first, opening, stage. The ease of setting up businesses is a key aspect, since if there are barriers to setting up a company<sup>62</sup> in one country it may be easier to incorporate elsewhere.<sup>63</sup> This is particularly a concern in relation to tech companies, which may find it much easier than many other types of business to engage in regulatory arbitrage: the process of structuring business affairs to take advantage of gaps or differences in regulations.<sup>64</sup> Naturally these barriers may arise from factors other than law, such as the availability of financing<sup>65</sup> or the likely level of administrative costs but these factors lie outside the scope of this paper. Law can also be a barrier, as in many countries the company laws are outdated, often based on colonial legislation or laws of another country, that are a bad fit for local conditions and for the digital economy context.<sup>66</sup> While many countries have

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<sup>60</sup> Rebecca Parry, 'An Assessment of the Risk of Service Supplier Bankruptcies as a Cybersecurity Threat' in M Sarfraz (ed) *Cybersecurity Threats with New Perspectives* (IntechOpen, 2021) DOI: 10.5772/intechopen.95852.

<sup>61</sup> See in relation to the UK position Rebecca Parry and Roger Bisson, 'Legal Approaches to Management of the Risk of Cloud Computing Insolvencies' (2020) 20 *Journal of Corporate Law Studies* 421.

<sup>62</sup> The focus here is on companies given the advantages of separate legal personality and potential for limited liability but there are of course other types of business such as partnerships.

<sup>63</sup> There is anecdotal evidence that Nigeria's digital economy has been impacted by uncertainties regarding the application of law and investors have preferred to use holding companies incorporated in jurisdictions such as Mauritius and the UK: Abubakar Idris, 'Why Your Favourite African Startups are Incorporating Abroad' (Techcabal, 12 December 2019) <<https://techcabal.com/2019/12/12/why-your-favourite-african-startups-are-incorporating-abroad/>> accessed 15 March 2022. Similarly, some Indian tech businesses have been reported to have sought registrations abroad. See Aditi Shrivastava, 'Queue of Startups Rushing to Register Abroad Gets Longer' (*Economic Times*, 12 February 2020) <<https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/queue-of-startups-rushing-to-register-abroad-gets-longer/articleshow/74091926.cms>> accessed 15 March 2022

<sup>64</sup> Elizabeth Pollman, 'Tech, Regulatory Arbitrage, and Limits' (2019) 20 *Eur Bus Org Law Rev* 567–590. <https://doi.org/10.1007/s40804-019-00155-x>

<sup>65</sup> See e.g. the OECD data on Starting a Business <<https://data.oecd.org/entrepreneur/starting-a-business.htm>> accessed 15 March 2022.

<sup>66</sup> Olufunmilayo B Arewa, *Disrupting Africa: Technology, Law and Development* (Cambridge University Press, 2021), 167.

updated their laws in recent years common approaches to reform have been to update the laws in line with reform processes in the countries from which the laws were developed<sup>67</sup> and this will not necessarily be a good fit without adaptation for the local context as well as the development of supporting institutions of courts, judges and legal professionals. Other countries will not have suitable laws to encourage incorporations and these areas of law may also not be priorities in some countries and reforms require significant political will. In the absence of suitable legislation in these and other areas, the motivations of entrepreneurs can be damaged and processes of creative destruction, where innovation drives development,<sup>68</sup> are either stifled or take place elsewhere due to regulatory arbitrage.

b) Operation. Supporting economic development and resilience of businesses

As well as entrepreneurship talent and availability of workers and infrastructure, an enabling legal environment is important for the sustainability of digital economies.<sup>69</sup> It is important therefore to have a regulatory system that supports entrepreneurs, enabling businesses to operate without excessive costs, as otherwise the problem of regulatory arbitrage can arise and the domestic digital economy will be damaged. Naturally there are many areas of law that will impact on the operation of businesses in digital economies, including intellectual property for the protection of inventions and concepts,<sup>70</sup> laws to enable fair competition in the marketplace and tax laws to incentivise innovation.<sup>71</sup> There may also be specifications for suppliers of services to governments, stipulating requirements for service and supervision of critical sectors.<sup>72</sup> There are many examples of jurisdictions that have enacted reforms with a view to supporting the digital economy, although reforms to company law and corporate governance do not tend to be included in such discussions.

Good corporate governance, commonly focused on mechanisms of accountability and disclosure, can aid business longevity. Corporate governance can be addressed both by hard laws enacted through state legislatures as well as through soft laws and best practices from within industry sectors and individual companies. In particular, corporate governance, ‘the system by which companies are directed and controlled’<sup>73</sup> is largely a matter for soft law: these

<sup>67</sup> Rebecca Parry, ‘Introduction’ in Katarzyna Gromek Broc and Rebecca Parry (eds), *Corporate Rescue, An Overview of Recent Developments* (Kluwer, 2006), 15.

<sup>68</sup> Joseph Schumpeter, *The Theory of Economic Development: an Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* Harvard Economic Studies, (English edition 1934, German original 1911); Joseph Schumpeter, *Capitalism, Socialism and Democracy* (1942).

<sup>69</sup> For a detailed review of relevant factors and their presence in different countries see Arturo Bris and Christos Cabolis, *IMD World Digital Competitiveness Ranking 2020* <<https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/>> accessed 15 March 2022.

<sup>70</sup> Yongmin Chen, ‘Improving Market Performance in the Digital Economy’, (2020) 62 *China Economic Review* 101482. It is noted, however, that aspects of intellectual property protection, such as the granting of patents, can be complex and expensive for states to implement. It has also been argued that intellectual property operates to the disadvantage of developing countries: Elhanan Helpman, ‘Innovation, Imitation, and Intellectual Property Rights’ (1993) 61 *Econometrica* 1247. <https://doi.org/10.2307/2951642>

<sup>71</sup> A focus in some developing countries has been taxation of income from digital services earned by non residents: see e.g. the approach to VAT in Mauritius, discussed in Ambareen Beebeejaun, ‘VAT on Foreign Digital Services in Mauritius; a Comparative Study with South Africa’, (2021) 63 *International Journal of Law and Management* 239-250; and Nigeria’s Companies Income Tax Order On Significant Economic Presence 2020, discussed in Bassey Edet Jr, ‘Digital Tax: Significant Economic Presence in Nigeria and The ‘Ahmed Order’ (June 16, 2020). Available at SSRN: <https://ssrn.com/abstract=3630299> or <http://dx.doi.org/10.2139/ssrn.3630299>.

<sup>72</sup> A particularly well-developed approach is the EU’s Network and Information Security Directive SI 2016/1148.

<sup>73</sup> Report of the Committee on Financial Aspects of Corporate Governance (1982)

voluntary forms of civil regulations can provide an effective alternative to governmental authority and may be particularly suitable in the globalization era.<sup>74</sup> This area has given rise to a vast multi-disciplinary literature discussing internal and external drivers of corporate governance and can only be briefly touched upon here, as far as it relates to digital economies.<sup>75</sup> Literature that has identified how technology can aid business resilience<sup>76</sup> will often focus on approaches such as the use of artificial intelligence to improve decision making have been identified as offering possible enhancements to boardroom decisions. Such approaches are likely to be expensive and are therefore not considered in depth in this article. Rather the focus is on sound information governance as an important aspect of corporate governance approaches for digital service providers. This paper will consider how soft law can aid the information governance of companies in the digital economy context. Specifically, it considers the use of preventive protocols, which enable expertise and best practices to be shared and adapted for local contexts. For example, information security will be crucial and will include ethical standards and security policies for employees.<sup>77</sup>

These best practices should be a central part of corporate governance approaches to companies operating in digital economies. For long term sustainability, such companies need to be both proactive, to anticipate and avert the possibility of failure, as well as reactive, so that if failure occurs it can be swiftly handled. Proactive approaches would primarily depend on good internal processes within companies. As well as the usual processes for accounts and audit there is a need for good cybersecurity, maintenance standards and record keeping. Various preventive protocols can be developed for this purpose and the following examples are suggested.

Protocol on cybersecurity	Cybersecurity is crucial for the minimisation of risks presented by hackers to business information and intellectual property. <sup>78</sup> The general nature of the cybersecurity risks presented to businesses of all types and sectors has been acknowledged in the United States through the development of a well-regarded Cybersecurity Framework that can help owners and operators of critical infrastructure to manage risks. <sup>79</sup> It offers voluntary guidance based on existing standards, guidelines and practices to enable
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<sup>74</sup> Kevin T. Jackson, *Global Corporate Governance: Soft Law and Reputational Accountability*, (2010) 35 *Brook. J. Int'l L.* 41.

<sup>75</sup> Niamh M. Brennan, Nava Subramaniam, Chris J. van Staden, *Corporate Governance Implications of Disruptive Technology: An Overview* (2019) 51(6) *The British Accounting Review*, <https://doi.org/10.1016/j.bar.2019.100860>.

<sup>76</sup> Irene Fulco, Antonio La Sala & Francesca Loia, (2019). 'The Role of Technology for Building Resilience Thinking in Corporate Governance' in Salvatore Esposito De Falco, Federico Alvino, & Alexander Kostyuk (Eds.), *New Challenges in Corporate Governance: Theory and Practice* 206-219. [https://doi.org/10.22495/ncpr\\_36](https://doi.org/10.22495/ncpr_36)

<sup>77</sup> W. Alec Cram, Jeffrey G. Proudfoot & John D'Arcy, 'Organizational Information Security Policies: a Review and Research Framework', (2017) 26 *European Journal of Information Systems* 605-641, DOI: 10.1057/s41303-017-0059-9

<sup>78</sup> James Kaplan, Shantnu Sharma, and Allen Weinberg, 'Meeting the Cybersecurity Challenge' (*McKinsey Quarterly*, June 2011).

<sup>79</sup> National Institute of Standards and Technology, 'NIST' Cybersecurity Framework <<https://www.nist.gov/cyberframework>>.

	<p>management of cybersecurity risks and it arguably provides a model that can be adapted. It assists companies to identify their essential activities that must keep going, as well as information flows and locations, inventory, policies and roles and risk management processes. The framework has at its core best practices for management of cybersecurity risks, the establishment of an appropriate level of rigour to a company's approach as well as the identification and prioritisation of opportunities to improve cybersecurity.</p>
<p>Protocol on staffing</p>	<p>Suitable staff training in best practices regarding cybersecurity is essential, since employees can be the easiest way for hackers to gain entry to a well-protected system. Two-factor authentication can play a strong role in preventing unwanted parties from accessing systems. Staff should also be aware of their roles and responsibilities in respect of cybersecurity.</p>
<p>Protocol on maintenance standards</p>	<p>Good practices should be established in relation to security measures such as firewalls, as well as backups and regular updates. There will be regularly emerging cybersecurity threats and these can be addressed through patches which make adaptations to code that will address vulnerabilities and there should be a regular approach to updates.</p>
<p>Protocol on record keeping</p>	<p>It is advisable for companies to have clear records of processes. For example, the involvement of technology companies in service provision can be complex and interlinked and there can be difficulties in identifying these structures and addressing faults in the event of difficulties. Record keeping can help to identify the structure, which may not be straightforward. For example, where a customer uses a restaurant company's website to order a meal for delivery, the customer might think that there was only one direct transaction between them and the restaurant there might well be intermediaries providing different aspects of infrastructure – the payment for the meal might involve different companies and the website might use a content delivery</p>

	network. This is a simplified example and digital services can have many layers. Record keeping can assist in addressing the problem so that problems are swiftly dealt with. Record keeping can also be important to minimise the dependency of any line of activity on one staff member, since there may be a tendency for some employees to build a ‘walled garden’ around their work so that they are indispensable. There is an underlying tension between the extensiveness of safeguards and a need for costs to be minimised.
Protocol on incident identification and response	Processes should be set up to enable threats to be detected. Logs can enable anomalies to be detected. There should be a process for the reporting of incidents by employees as well as a plan of appropriate action that can be taken when incidents occur.

Effective information governance enhances the reputation of digital economies as well as enhancing business values and minimizing risks and costs.<sup>80</sup> The development of preventive protocols, towards failure prevention, is important. It is also essential for reactive protocols to be developed to respond to cybersecurity risks. A need for reactive protocols arises in the event of financial crisis, as this can enable financial distress to be swiftly addressed and this will be the focus on the next section. Best practices embodied in these protocols can work alongside hard laws to aid the knowledge-based economy to become more sustainable.

c) Crisis and closure. Managing continuity of service by digital service firms

Behind services offered in the digital economy sector lie companies and these service providers can and do get into difficulties. For example, in the USA, Nirvanix, filed for US Chapter 11 bankruptcy protection in 2013 and gave customers two weeks’ notice and in the UK the data centre 2e2 collapsed in 2013 and the insolvency administrator demanded £1 million from customers to keep the business going while their data was preserved.<sup>81</sup> Reasons why companies in digital economies can get into difficulties include a downturn in economic conditions, mismanagement, reputational damage, hacking, terrorism and natural disasters leading to financial difficulties and insolvency.<sup>82</sup> There is also potential for damage to reputations of suppliers from service problems and for these to have a spiralling effect and as

<sup>80</sup>Michael A Adams and Susan Bennett, ‘Corporate Governance in the Digital Economy: The Critical Importance of Information Governance’ (2018) 70:10 *Governance Directions* <<https://www.governanceinstitute.com.au/resources/governance-directions/volume-70-number-10/corporate-governance-in-the-digital-economy-the-critical-importance-of-information-governance/>> accessed 15 March 2022.

<sup>81</sup> Discussed in W Kuan Hon and Christopher Millard, ‘Banking in the Cloud: Part 3 - Contractual Issues’ (2018) 34 *Computer Law & Security Review* 595, 600 and ‘2e2 Datacentre Administrators Hold Customers’ Data to £1m Ransom’ (*ComputerWeekly.com*, 8 February 2013) <<https://www.computerweekly.com/news/2240177744/2e2-datacentre-administrators-holdcustomers-data-to-1m-ransom>>.

<sup>82</sup> Morrow T, Pender K, Lee C, Faatz D. Overview of Risks, ‘Threats, and Vulnerabilities Faced in Moving to the Cloud’ Technical Report CMU/SEI-2019-TR-004 (Carnegie Mellon University, 2019), 14.

confidence in the business is damaged further and further there is the potential for a ‘run on the banks’ scenario.<sup>83</sup> This would entail a widespread loss of confidence by customers and a rush to withdraw their data, dealing a fatal blow to the business.

A service provider which is insolvent will not be able to pay its creditors in full and liquidation laws provide rules for the orderly distribution of assets among creditors. In this context the possibility of ongoing trading is limited by law in order that costs are minimised. However, a tension arises with the interests of users of services as they may have data stored remotely that they will want to retrieve and this can take an amount of time that many would find surprising: in the 2e2 case noted above the administrator had estimated a period of 16 weeks for retrieval of customer data. Examples of cases where customers might wish for services to continue being provided temporarily include to enable the recovery of data stored in cloud services<sup>84</sup> and data produced from IoT activities.<sup>85</sup> Customers may also need ongoing services to process their data as the software that they access through the cloud may be bespoke or otherwise not readily replaceable. Delays may also arise if there are uncertainties regarding the ownership of digital property held by the insolvent service provider. Preferably ownership entitlements would be the subject of agreement between the user and the service provider to avoid uncertainty and the potential costs of establishing implied ownership so that the user’s property does not end up as part of the bankruptcy estate.<sup>86</sup>

Keeping the business running while customer data is preserved and uncertainties are clarified will be potentially costly in a circumstance where there will be limited funds. There may be prospects of ongoing trading in cases where the service provider has underlying viability. In some instances, restructuring laws are available and in others it may be possible to address the company’s difficulties through a workout with creditors. In other cases, the company may lack funds to keep going and may only be a candidate for liquidation. The sudden closure of a cloud service business in these circumstances can leave customers without access to their data, infrastructure, platform or software, causing significant difficulties. A preferable approach in such circumstances is for there to be a limited period of ongoing trading to enable customers to make alternative arrangements. These bankruptcies therefore present a tension between the interests of creditors, who already face the loss of most, or all, of what they are owed, and will object to further costs being incurred from ongoing operation and the interests of service users who will expect that the service provider continues to operate temporarily while they source alternative arrangements.

As yet, few jurisdictions have addressed the problems presented by service provider insolvencies. One example of existing provision for digital economy insolvencies is in the cloud computing sector. Art 567 of the Luxembourg Code de Commerce, as adapted, enables the recovery of intangible property, such as software, entrusted to a debtor, in recognition of

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<sup>83</sup> European Network and Information Security Agency, ‘Cloud Computing, Benefits, Risks and Recommendations for Information Security’ (December 2012), 19.

<sup>84</sup> Rebecca Parry, ‘An Assessment of the Risk of Service Supplier Bankruptcies as a Cybersecurity Threat’ in M Sarfraz (ed) *Cybersecurity Threats with New Perspectives* (IntechOpen, 2021) DOI: 10.5772/intechopen.95852.

<sup>85</sup> Satoshi Hashimoto, ‘A Study on Responsibilities to Data Subjects for Administrators in Bankruptcy for IoT Stage from the Point of View of Data Protection’, *IEEJ Transactions on Electronics, Information and Systems* Vol. 137 No. 7 967-973.

<sup>86</sup> Cesare Bartolini, Cristiana Santos and Carsten Ullrich, ‘Property and the Cloud’ (2018) 34 *Computer Law & Security Review* 358.

the growing importance of cloud computing.<sup>87</sup> Such a law would not suffice in itself, since having an entitlement to recover content in the event of the insolvency of a cloud service provider is only one problem and temporary continuity of service to enable recovery of the content is also needed. It is also recognised that much of what has been written in this part is aspirational as in many developing countries effective insolvency laws have yet to be developed and they are not likely to be a legislative priority, and it also is a long process to establish suitable supporting institutions such as courts, judges and practitioners with relevant expertise.

#### Multinational nature

The potential problems caused by service supplier bankruptcies are further complicated by potential uncertainties as to which jurisdiction proceedings should be opened in. The procedures that apply in the event of insolvency are not normally international and they will vary depending on the country in which the proceedings are opened. This presents a complication in the case of digital economy service providers, which may have multinational affairs. The proper venue in which to open insolvency proceedings may be unclear, although both the US and UK are jurisdictions with well-developed insolvency frameworks, and which both take fairly expansive approaches to jurisdiction to open insolvency proceedings and it may be that these will be favoured as venues in cases where there is some connection with the cloud service provider but inevitably significant extra costs of the proceedings would be required. Again, there is the potential for advance planning protocols to be developed that will identify the approach to be taken in the event of a bankruptcy of a service supplier in a digital economy.

Insolvencies are of course not the only circumstance in which the multinational nature of digital service suppliers will make a difference. As noted, many of the companies that will provide digital services, or contribute to their supply can potentially engage in regulatory arbitrage, factors that make these enterprises difficult to regulate. There is also a possibility that hubs of technology will develop in countries with developed legal systems which are designed to attract tech incorporations and this may make it difficult for other countries to regulate, including through taxation.

#### Conclusion

This article has considered how digital economies can benefit developing countries, as well as how such economies can be supported. The focus has particularly been on corporate governance and corporate insolvency aspects as this is a feature of the environment for digital economies that has not previously received detailed attention. Soft law approaches to corporate governance were discussed and the problems of digital service provider insolvencies were highlighted. These laws can support companies in the digital economy to be formed and operated and there can be approaches to address insolvencies in a manner that will limit the impact on customers, while enabling economic progress through creative destruction. These are only two relevant aspects and improvements in these and other areas will depend on political will. There is also the danger of regulatory arbitrage as many digital service suppliers are multinational in nature. This can lead to jurisdictions developing as hubs for incorporations

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<sup>87</sup> Vincent Wellens, 'New Right to Reclaim Data from Bankrupt Cloud Computing Providers'. International Law Office (Internet) 2013 Jun 28 <<https://www.internationallawoffice.com/Newsletters/Insolvency-Restructuring/Luxembourg/NautaDutilh-Avocats-Luxembourg/New-right-to-reclaim-data-from-bankrupt-cloud-computing-providers>> accessed 15 March 2022.

and opportunities for exports of digital services, for example through outsourcing, may become concentrated in these jurisdictions as a result. Countries such as India and China may therefore be the main beneficiaries.