Technical Paper 1.1

BigFintechs and their impacts on sustainable development

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The findings of the Dialogue on Global Digital Finance Governance are packaged into three thematic areas:

Theme 1

BigFintechs and their impacts on sustainable development

- Technical Paper 1.1 BigFintechs and their impacts on sustainable development
- Technical Paper 1.1B BigFintechs and their impacts on macroeconomic policies
- Technical Paper 1.2 Digital currencies and CBDC impacts on least developed countries

Theme 2

Corporate governance innovations

- Technical Paper 2.1 BigFintechs and the UN SDGs: the role of corporate governance innovations

Theme 3

BigFintechs and international governance, policymaking and the SDGs

- Technical Paper 3.1 Policymakers, BigFintechs and the United Nations Sustainable Development Goals
- Technical Paper 3.2 BigFintechs and international governance, policymaking and the UN Sustainable Development Goals: the SDGs in the international governance of finance
- Technical Paper 3.3 A principles-based approach to the governance of BigFintechs

Executive Summary

BigFintechs (BFTs) have become new giants of global finance bringing with them key new challenges,[1] particularly for emerging and developing economies.[2] The purpose of this Technical Paper is to garner a more robust understanding of the emerging impacts (positive and negative) of BFTs across the full spectrum of the Sustainable Development Goals (SDGs), to better inform the dialogue around a new generation of governance innovations to address such impacts, particularly with regard to least developed countries (LDCs).

The current focus of research and practical approaches to Fintech regulation, governance and supervision are viewed as the domain of the financial sector and, to a limited degree, the technology sector. These approaches relate to the implications of harnessing emerging technology in delivering financial services, with a global focus on issues of privacy, financial security, money laundering, taxonomy, benchmarks and overall financial integrity and stability.[3]

However, BFTs are playing an increasing role in shaping (in both positive and negative ways) a sustainable future,[4] including issues that have previously been considered as outside the realm of examination. To date, there has

1 Graham M, Hjorth I, Lehdonvirta V, 'Digital Labour and Development: Impacts of Global Digital Labour Platforms and the Gig Economy on Worker Livelihoods', *Transfer: European Review of Labour and Research,* vol. 23(2), 2017, <DOI: 10.1177/1024258916687250>; see also 'Fintech: Growth Versus Governance', Barclay Simpson, 2019, <www.barclaysimpson.com/>.

2 'BigTech Firms in Finance in Emerging Market and Developing Economies 2020', FSB, 2020, <www.fsb.org/wp-content/uploads/P121020-1.pdf>.

3 'Digital Economy Report 2019–Value Creation and Capture: Implications for Developing Countries', UNCTAD, 2019, <https://unctad.org/en/PublicationsLibrary/der2019_en.pdf>.

4 Mitha A, Zadek S, Arner D, 'Governing Global Digital Finance', HKUL Research Paper No. 2020/045, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3678518>.

The Dialogue on Global Digital Finance Governance was established by the UN Secretary General's Task Force on Digital Financing of the SDGs. During its investigations, the Task Force recognized that digitalization is not only reshaping the world of finance; it is also driving the emergence of a new generation of global, dominant digital finance platforms (BigFintechs) with increasing cross-border spillover effects on many areas of sustainable development across the world, particularly in developing economies.

The potential impacts of these platforms are both positive and negative, and one of the main challenges in addressing them is that existing policy approaches to BigFintechs have mostly focused on narrow, although important, financial stability, consumer protection and market integrity issues, and some aspects of data, Internet and competition regulation, but have remained largely disconnected from the broader SDG/ESG debate. Another issue is that the governing arrangements of such platforms have seldom involved developing economies, where their impacts are often strongest, and the potential for transformation is greatest.

The Dialogue was established to explore the nexus of BigFintechs and sustainable development. Its goal is to catalyse governance innovations that take greater account of the SDG impacts of BigFintechs and are more inclusive of the voices of developing nations. To this end, the Dialogue has produced a series of Technical Papers that bring new, complementary perspectives on these issues. The papers have been drafted by commanding experts in the field and have been peer-reviewed by leading institutions and academics.

The following paper is Technical Paper 1.1 under Theme 1.

The Dialogue on Global Digital Finance Governance is hosted by the Swiss and Kenyan Governments and stewarded jointly by the United Nations Development Programme (UNDP) and United Nations Capital Development Fund (UNCDF).

been no holistic examination of all the activities in which BFTs are involved.[5] Therefore, the understanding of their cross-cutting impacts across the SDGs, policy, regulatory and corporate governance is equally limited. The current narrative of the 'Fourth Industrial Revolution' and the digital economy in terms of ensuring the transformative nature of digital technologies are harnessed for sustainable economic development and that developing countries and especially LDCs are not left further behind.[6] The narrative is premised on the notion that Fintech has an enabling capacity and that there are certain risks largely related to data governance, consumer protection and operational risk management that must be addressed.

Furthermore, BFTs are examined largely within subsets of activities related to their financial service offerings rather than across their evolving ecosystem of activities and the implications of these across the full spectrum of the SDGs and for LDCs. This paper begins with the premise that the nature and scale of BFT activities carries different emerging trends, risks and vulnerabilities in LDCs. This paper broadens the examination in three key aspects: (i) it covers a fuller spectrum of BFT activities, brought into the scope of this paper through their connection to the Fintech element employed; (ii) it engages an impact lens developed to capture a fuller range of the environmental, social and economic SDGs; and (iii) the paper presents a case study and landscape analysis with a view to advancing the collective understanding of emerging trends and their impacts, particularly on LDCs.

BFTs are further expanding their service offerings, strengthening their ecosystem models, resulting in diversification and amplification of SDG impacts across business verticals with key implications for LDCs. Based on the tabulated data from case studies, research and landscape analysis, we found impacts (intentional and unintentional and both positive and negative) across a range of environmental, social and economic SDGs for the LDCs. The greatest SDG impacts, both positive and negative, were found in relation to decent work, economic growth and SMEs (SDG 8), inequalities (SDG 10) and poverty (SDG 1), but with a strong relative showing of impacts on institutions' peace and justice (SDG 16), climate (SDG 13), environment (SDGs 14 and 15), gender (SDG 5), responsible production (SDG 12) and clean energy (SDG 7).

Through our analysis we determined that there are three tiers of impacts of BFTs on SDGs: (i) from direct service offerings; (ii) from integrated services, operations, infrastructure and processes; and (iii) from business model, value chain and overall ecosystem (vertical and horizontal integration) including cumulative and systemic impacts. This tiered categorization is a descriptive rather

5 Ibid., note 3.
6 Ibid.

than a normative or prescriptive framework, to help better understand the intended and unintended as well as positive and negative impacts on LDCs of BFTs' services and operations and those of their broader ecosystem and value chains. We believe this approach warrants further examination and a tiered framework such as that currently used to define Scope 1, 2 and 3 climate emissions, could serve to better understand the scope of SDG impacts on LDCs as well as the fluid regulatory implications of these impacts.

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Summary of tiered impacts of BFT and SDGs

Tier 1 Impacts: From direct service offerings
Impacts relate to the direct intended goals and the direct unintended impacts (positive and negative).

- Access to BFTs financial services, platforms, e-markets etc. has a positive impact in addressing poverty (SDG 1) and in reducing inequalities based on gender and other minorities or segments of LDC populations (SDGs 5 and 10).
- BFTs including their financial services, micropayments and remote payment facilitation, positively impact SMEs, employment and economic growth (SDG 8) and improvements to industry, innovation and infrastructure (SDG 9).
- Individual or SME loans, including partnership with local or national banks, enable financial inclusion and economic growth (SDG 8).
- Alternative job opportunities (SDG 8) and economic activities (gig economy) can also help reduce inequalities (SDGs 5 and 10).
- Digital finance could bolster emerging economies' overall economic growth and increase their GDP by as much as 6 per cent by 2025.
- Increased access to debt by lowering barriers and encouraging credit can create a systemic default/liquidity crisis, negatively impacting both individuals and financial institutions (SDG 1 and SDG 16).
- Issues of data privacy and security as well as algorithm bias, can negatively impact individual consumers, SMEs, as well as peace, justice and strong institutions (SDG 16). Furthermore, data privacy, security and algorithm-bias negatively impact gender and other inequalities (SDGs 5 and 10).

Tier 2 Impacts: From services, operations, infrastructure and processes
Impacts include positive and negative individual and institutional effects.

- Access to technology bolsters industry, infrastructure, economic growth and jobs (SDG 8 and 9) in LDCs but 'bricks and mortar' SMEs are being displaced.
- While integration of financial services and payment infrastructure is providing financial inclusion (SDGs 1), gender and other inequalities (SDGs 5 and 10) can increase through lack of access to technology in regions or by specific segments of the population (i.e. women or visible minorities).
- Gig economy platforms have a negative impact on decent work (SDG 8) because of long work hours, low wages, no job security and lack of employment benefits.
- There are cases of discrimination, sexual harassment and violence against women and other minorities (SDGs 5 and 10) and few means to address these.
- BFTs are often not subject to the same prudential regulation as traditional financial services providers. In their effort to 'move fast and break things', these players may take a more lax approach to enterprise risk management, exposing vulnerable groups to instability in the financial sector.
- While credit and loan access for individuals and SMEs has bolstered economic activity, assets (data, products and services) are locked in (SDG 1). Furthermore, prices for vendors are being depressed or products blocked by market algorithms, increasing poverty and inequalities (SDG 1 and 10) for some, and negatively impacting economic growth (SDG 8). Price manipulation and fraudulent activities occur, impacting individuals, SMEs and institutions (SDG 16).
- Defaults on auto or other loans or leases because of the COVID-19 crisis are impacting individuals, increasing poverty (SDG 1) and negatively impacting credit ratings (SDG 8). The defaults also affect partner financial institutions (SDGs 9 and 16) as well as the services in communities (SDG 11).
- Key partnerships and initiatives across BFT categories positively impact good health and well-being (SDG 3), responsible consumption (SDG 12) as well as environment (SDGs 14 and 15) and climate initiatives (SDG 13).
- Climate (SDG 13), environment (SDG 15) and labour rights (SDG 8) are covered by some CSR initiatives with positive impact, specifically on core operations and goods.
- However, there is a two-tiered approach emerging where core brand operations and initiatives are the focus of positive impacts but where third-party users, marketplaces and business model impacts are not considered and are in fact widening.
- Lack of traceability of vendors, suppliers, goods negatively impact the environment (SDG 14 and 15), employment conditions, human rights, gender issues and other inequalities (SDG 5, 8 and 10) particularly in LDCs where goods are manufactured.

Tier 3 Impacts: From business model, value chain and ecosystem (vertical and horizontal integration) including cumulative and systemic impacts
Impacts relate to activities stemming from inherent business models and ecosystems (across regulatory sectors and SDGs).

- BFTs across categories generally have some positive impacts on work and economic growth (SDG 8) as well as on industry, innovation, and infrastructure (SDG 9) for LDCs, but a diminishing tax base is weakening funding for infrastructure and public institutions (SDG 16) and leading to decreases in public transportation and affordable housing (SDG 11) among other services.
- Combined business models and reach are exacerbating inequalities for some population segments or regions especially for women and rural populations (SDGs 5 and 10) and that negatively impact jobs and economic growth (SDG 8) as well as industry, innovation, and infrastructure (SDG 9).
- Increased consumerism and the enabling of fraud, gambling, illicit or illegal activities can result in economic losses and poverty (SDG 1) deterioration of health and well-being (SDG 3) excessive consumption (SDG 12).
- Tech platforms' data centres are providing access to tech infrastructure for innovation and economic growth (SDG 8 and 9) and are more energy efficient than locally hosted or proprietary servers (SDG 13) and are generally located outside of LDCs. However, electricity usage for server farms for processing data, for cloud storage of unnecessary data or for training of AI models; and water usage in cooling centres is not fully accounted for nor disclosed. Where disclosure and related offsetting are in place these are rife with challenges including in measuring impact and the potential to do harm (biodiversity, land change, water etc.) particularly where offset projects are located in LDCs.
- Some BFT investments and activities are linked to deforestation (SDGs 13 and 15).
- Other BFTs underpin and enable a growing number of clean energy, environmental and climate initiatives (SDGs 7, 13, 14 and 15) globally including in LDCs.
- However, measurement of environmental impact of BFTs is limited (largely to Tier 1 impacts of CSR activities).
- Growing invisible and unregulated third-party value chains have negative impacts across labour (SDG 8), sustainable consumption and production (SDG 12), environment (SDGs 14 and 15), and climate (SDG 13) (comprising almost 50 per cent of the market) are bypassing regulatory and CSR standards. There is little transparency and moreover few structures in place for data collection and measurement of impacts.
- Counterfeit items on e-commerce sites fuel activities that undermine democracy, peace, justice and strong institutions (SDG 16) as well as gender (SDG 5) and inequalities (SDG 10). As BFTs are not paying benefits nor taxes within LDCs there are diminishing oversight and resources available to address these.
- BFTs business models and the gig economy in particular are creating ecosystems of interdependence with single points of failure. These points of failure are now being tested by COVID-19. Defaults on auto and other loans due to diminished users, is negatively impacting some LDC economies, banking sectors and national banks (SDGs 8 and 16).
- BFT Monopolies can lock entire regions and populations into what some are calling "Digital colonialism." Integrated payment platforms are becoming so systemically important that they can impact not only LDC economies but also the global economy.
- Unlike banks, which are strictly regulated, required to report on liquidity, constrained to supervised activities, prevented from monopolistic growth and obliged to give customers some visibility of how their data are used, BFTs have been allowed to grow to massive scale through data models that monetize customer data in non-transparent ways. Where regulators are constraining activities in their home countries, they do not protect foreign interests, least of all those of LDCs, so fail to address lack of transparency in value chains or business models, while the scale of BFTs gives them near-automatic market dominance (SDGs 8, 12, 14, 15 and 16).
- Social media integration with stablecoins such as the Diem US$, and new digital currencies could impact financial infrastructure with encroaching dollarization and reduced control of domestic taxation on fintech held wallets, with implications for LDCs' monetary policies and for global financial stability.

A full tiered table by BFT categories is available in Annex 1. An overview of findings, case studies of market examples, the methodology and tools developed and employed, and background materials including relevant literature and data collected are available in Annexes 2–6.

Understanding the impacts of BigFintechs on sustainable development

The expansion of BigFintech (BFT) firms into financial services in emerging markets and developing economies (EMDEs) has generally been more rapid than that in advanced economies (AEs). The range of financial services provided by firms in EMDEs is also broader than in AEs.[7] The expansion has been enabled by increasing availability of mobile phones and Internet connectivity, access to vast amounts of data, technological advances in associated areas such as for example Big Data, cloud computing and artificial intelligence, as well as the promise of lower cost financial services, particularly the tailored services in high demand (such as incoming remittances) among low-income or marginalized populations, in rural areas where populations are underserved by traditional financial institutions[8] and in least developed countries (LDCs). As the nature and scale of BFT activities in LDCs differs from those in advanced economies,[9] it follows that they have given rise to different emerging risks and vulnerabilities in these countries including across a broad range of development outcomes.

For example, while BFTs provide consumers access to financial services, from payments through to credit and investment opportunities, the systematic and unrestrained collection of consumers' data gives rise to issues of consumer protection, data privacy and good data governance. These are further exacerbated by the fact that BFTs' innovative business models are built around accumulation of large amounts of data, which in turn exposes personal records to additional risks and vulnerabilities. In many jurisdictions, the customer currently does not 'own' their data and, moreover, has little control and even transparency as to control over the use of that data let alone any direct share in the revenues resulting from the use of such data. BFT firms themselves are vulnerable to security breaches and cyberhacks, putting millions of customers' personally identifiable information at risk.[10] Such risk not only impacts the customers, but also the overall integrity and stability of the financial sector.[11]

BFTs' use of Big Data and machine learning also carries the potential for discriminatory results impeding the goal of financial inclusion but which might also affect a SME's ability to access credit and thrive because of biases built into machine learning (being built largely on data from white and male subjects and leading to poor performance in facial recognition for non-whites[12] and low credit scores for females, for example).[13] Although these discriminatory results could be controlled to a certain extent by AI that explicitly checks for bias, design incentives would have to be in place to ensure regulations are not overstepped. As the demographic bias of historical data used to train algorithms is the underlying cause of these biases, such incentives would need to demonstrate collection or use of unbiased or balancing data and to build balanced data for future generations. This presents significant challenges to technology companies but will likely become increasingly required by regulators in regulated sectors. The accumulation of data might also lead to new forms of data monopolies driving more personalized services but also higher switching costs, with customers being locked into a specific provider's platform and having reduced choices, being at the mercy of a particular provider's policies. This is often observed with e-commerce platforms where SMEs access credit against the assets that they trade, but are locked-in because of a lack of interchangeability of these assets. As such, SMEs face a dual pressure to reduce the prices of their products in terms of competition from the e-commerce platform's own products.

These are examples of the types of impacts that BFTs already have, and which are examined in terms of lack of choices, weakened competition, discriminatory pricing and practices, loss of privacy, etc., but which also ultimately impact livelihood, income and sustainability. More generally, BFTs are also having broader effects on sustainable development through increasing financialization of non-financial business models, which in and of themselves have SDG impacts. In question, for example, is the climate impact of extended and often opaque supply chains (particularly of third-party platform or market users), which might increase as they scale through the combined effects of accelerated digitalization and growing market concentration, or which might decrease as new digital technologies are harnessed to increased direct supply chain efficiency. BFT, and specifically platform BFTs, have an opportunity to seize their position at the nexus of global e-commerce. High profitability through the platform model should be used to incentivize an increase in supply chain transparency through distributed ledger technology (DLT) source certification and carbon offset certificates, etc.

7 For broader discussion, see Walker J, Pekmezovic A, Walker G (eds.), *Sustainable Development Goals: Harnessing Business to Achieve the SDGs through Finance, Technology and Law Reform,* Wiley 2019.

8 Ibid., note 2.

9 Ibid.

10 Catinas D, et al., 'Data Privacy, Security, and Regulation in Financial Technology', JSIS, June 2019, <https://jsis.washington.edu/news/data-privacy-security-and-regulation-in-financial-technology/>.

11 Hong N, Hoffman L, Andriotis AM, 'Capital One Reports Data Breach Affecting 100 Million Customers, Applicants', *The Wall Street Journal*, July 2019, <www.wsj.com/articles/capital-one-reports-data-breach-11564443355?mod=article_inline&mod=article_inline>.

12 Simonite T, 'The Best Algorithms Struggle to Recognize Black Faces Equally', The Wired, July 2019, <www.wired.com/story/best-algorithms-struggle-recognize-black-faces-equally/>.

13 Tarkowski D, 'Is There Really A Problem with Bias in Algorithms and AI in FinTech, or Is the Real Culprit Biased Data?', Medium, January 2020, <https://medium.com/datadriveninvestor/is-there-really-a-problem-with-bias-in-algorithms-and-ai-in-fintech-or-is-the-real-culprit-biased-c788d2d54349>.

With this, SDG leadership is within reach for BFTs.

In many ways, SDG impacts of BFTs are the outcome of a combination of complex business models, the use of innovative digital technologies, and diversification into financial services. As a result, existing policy and regulatory frameworks suffer many weaknesses and limitations in the face of this new reality. For example, existing legal frameworks regarding data regulation such as the European Union's General Data Protection Regulation (GDPR) and the California Privacy Act are primarily focused on data privacy but remain fragmented, region-specific and do not reflect other benefits that come with the availability of that data.[14] Countries might benefit from access to rich data amassed by BFTs in advancing data-driven national policies. While the role of data in informing financing decisions across financial and capital markets is well understood, the broader SDG impacts of data monopolies are seldom understood beyond traditional competition risks. As such, new governance approaches are needed that take all these elements into consideration.

BFT categorization

BFT category	Examples of organizations active in this category
Payment platforms *Regional mobile money providers and global payment platforms—including alternative currencies, CBDC (along with synthetic CBDCs), stablecoins, bank cash on ledger, credit card companies*	*Alipay (Ant technology group), Apple Pay, Fnality, Facebook, Google Pay, JPM Coin, MTN, Paytm, People's Bank of China, Safaricom, Tencent (WeChatPay)*
e-commerce/marketplace platforms *Online platforms for marketplaces, connecting sellers with buyers (products or services) B2B, B2C, C2C*	*Amazon, Alibaba, eBay, Fiverr, Jio, Jumia, Reliance, Upwork, Mercado, Facebook Diem*
Social media platforms *Venturing into payments and social commerce*	*Facebook Marketplace, Facebook Pay, Diem, SME Grants, WeChat*
BigTech cloud services *Providing data and infrastructure services to financial players*	*Amazon Web Services, Alibaba Cloud Services, Azure, Google Cloud, Ethereum, Microsoft, Next Gen DLT*
Techfin platforms *Originating from tech players venturing into financial services and digital livelihoods.*	*Airbnb, Amazon, Apple, Binance, Grab, Mechanical Turk, Uber, including cryptocurrency exchanges*
Incumbents/mature 'Fintechs' *Digitalizing global banks and financial actors, in retail or wholesale*	*Blackrock, JP Morgan, Mastercard, SaxoBank, Swift, Visa*

For the purpose of our research and paper we use definitions of BFT categories as given with full rationale and description in Annex 1.

14 Morrow S, 'Ultimate Guide to International Data Protection and Privacy Laws', INFOSEC, September 2020, <https://resources.infosecinstitute.com/topic/ultimate-guide-to-international-data-protection-and-privacy-laws/>.

Another notable issue is that even though BFTs often originate from non-financial industries, BFT firms that offer financial services are examined as ‘subsets of Fintech activities and firms’ (which are generally smaller than BFT firms). As such, BFT impacts are also examined in terms of related component parts, financial services and activities,[15] rather than holistically. Therefore, we often lack a full picture of their reach and emerging impacts not only in relation to their direct financial services offerings but also of their evolving ecosystem of activities and their implications for the full spectrum of the SDGs and on LDCs.

Moreover, the impact of Fintech, and therefore BFT as a ‘subset’, is generally examined in terms of the role that digitalization will have as an enabler of financing for sustainable development. The combined digital economy and Fourth Industrial Revolution narrative focuses on achieving the SDGs through the harnessing of various emerging technologies (such as artificial intelligence, Internet of things, Big Data, Fintech and blockchain) to unlock finance for the initiatives. While Fintech and digital financing are a core part of the narrative, the purpose is not to examine the full impacts on SDGs (positive and negative as well as intentional and unintentional) nor specifically for LDCs. Rather, the narrative regarding LDCs focuses on financial inclusion and increasing economic opportunities towards reaching the SDGs.[16] Examinations regarding BFT governance are likewise conducted within this narrow perspective of enabling financing for SDGs with a particular emphasis on increasing robust public policy and frameworks focused on data governance, consumer protection and operational risk management.[17]

Nonetheless, key inquiries, initiatives and cases are emerging, which necessitate the broadening of the lens to a wider scope of the 17 SDGs—to include for example, climate, energy, water and sanitation, innovation, sustainable cities and institutions—as well as investigations into the need for governance on these impacts that are also inclusive of the voices of developing nations.[18]

The 17 SDGs

The SDGs were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. There are 17 goals and 169 targets across environmental, economic, social and governance themes.[19]

15 ‘BigTech in Finance: Market Developments and Potential Financial Stability Implications’, FSB, December 2019, <www.fsb.org/2019/12/bigtech-in-finance-market-developments-and-potential-financial-stability-implications/>.

16 Inter-agency Task force on Financing for Development, ‘Financing for Sustainable Development Report 2020’, United Nations, 2020, <https://developmentfinance.un.org/sites/developmentfinance.un.org/files/FSDR_2020.pdf>.

17 Ibid., note 2.

18 Zadek S, ‘Financing Sustainable Development: Is FinTech the Solution, Problem, or Irrelevant?’, The Brookings, February 2019, <www.brookings.edu/blog/future-development/2019/02/11/financing-sustainable-development-is-fintech-the-solution-problem-or-irrelevant/>.

19 United Nations Development Program, ‘Sustainable Development Goals’, <www.undp.org/content/undp/en/home/sustainable-development-goals.html>.

The challenge of identifying and evaluating the SDG impacts of BFTs on LDCs

As noted above, the current capacity to identify and understand BFTs' impact on sustainable development is limited to specific sectors and frameworks which do not provide a holistic and systemic perspective of BFT business models, activities and potential impacts across the SDGs (full analysis in Annex 4) nor on LDCs. Moreover, the SDGs are formulated as positive goals to be achieved by 2030 by countries and the 169 targets and related indicators are set out in terms of determining progress towards the goals and not on direct measurement of business impacts (intended and unintended, positive and negative).

Through the development of two initial tools and methodologies (outlined in Annex 2), a meta-level landscape overview analysis[20] of key BFT companies, their activities and potential SDG impacts were undertaken. Impacts were identified, tabulated and illuminated by case studies (available in Annex 5), and examples of real-life impacts across the SDGs are briefly presented here to illustrate the range of emerging issues for LDCs. While the analysis focused on examining potential SDG impacts across the range of BFT categories, the overall findings see a blurring of categories of BFTs as they are active across a range of sectors, offerings and services (such as the activities and offerings of Amazon, Facebook, Alibaba and Ant Financial and Uber), which can lead to confusion around regulatory oversight and business vertical impacts. The following sections provide an overview of our findings across key themes and issues that emerged through the analysis.

Payment platforms and mobile money impacts beyond financial inclusion and gender equality

Payment platforms and mobile money providers have driven the reduction in the gender gap for account ownership in sub-Saharan Africa, including in several LDCs where mobile money adoption is growing.[21] Moreover, payment-driven Fintech services have been found to have had a disproportionate and largely positive impact on women, especially African women entrepreneurs in LDCs, with more women using mobile money accounts than men in a growing number of countries.[22]

For example, when M-Pesa was rolled out in Kenya, it was deemed to have a positive impact on women for a number of reasons including enabling savings outside the household and improving their relative empowerment in relation to men. M-Pesa now has 42 million active customers across seven countries and is bringing these benefits to scale[23] in Democratic Republic of Congo, Egypt, Ghana, Lesotho, Mozambique, Tanzania and Kenya with a 99 per cent market share in the latter.[24] Furthermore, M-Pesa has catalysed new services that impact many areas of sustainable development, from access to credit to access to clean energy through pay-as-you-go models underpinning the distribution of solar home systems.

However, some negative implications were also identified. For example, a negative impact on SMEs is the potential for the reduction in quality control of goods delivered when "sending payments directly to their suppliers instead of travelling to Nairobi or another city"[25] or algorithmic biases that might exclude some SMEs/individuals from accessing financing. The role of uncontrolled nano-lending practices resulting in the blacklisting of 2.7 million Kenyans in the national credit bureau has also been largely debated.[26] Data privacy concerns are starting to mount. Thousands of mobile money agents, whose livelihoods solely depend on the volumes of mobile money transactions, are also subjected to commission decisions made by such platforms. The uncontrolled rise of the online gambling market (US$40 million in 2019), propelled by mobile payments, is raising concerns.[27]

To conclude, these cases point to the fact that despite the benefits regarding financial inclusion, the increasing power that payment platforms are gathering over lives and their unintended effects create downsides that need to be mitigated.

20 This approach leveraged the landscape analysis method previously developed for understanding Fintech readiness under the Green Digital Finance Alliance in collaboration with the UN Task Force. See Holland Fintech and Sustainable Digital Finance Alliance, 'A Green and Sustainable Digital Finance Landscape: Market Analysis for the Netherlands', Report, 2019, <https://greendigitalfinancealliance.org/wp-content/uploads/2019/11/Green-and-Sustainable-Landscape.pdf>.

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22 Scharwatt C, 'Mobile Money: A Product of Choice for Women to Send and Receive Remittance', IFAD, November 2019, <www.ifad.org/en/web/latest/blog/asset/41410919#:~:text=With%20mobile%20money%2C%20people%20send,and%20decision%2Dmaking%20for%20women>.

23 Suri T, Jack W, 'The Long-Run Poverty and Gender Impacts of Mobile Money', Science 254(6317), 2016, <https://science.sciencemag.org/content/354/6317/1288.full>.

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26 Weitzberg K, 'Mobile Credit Expands Mass Surveillance of Ordinary Kenyans', Authoritarian Tech, September 2019, <www.codastory.com/authoritarian-tech/mobile-credit-kenya/>.

27 'The Status of Online Gambling Market in Kenya', Business Today, August 2020, <https://businesstoday.co.ke/status-of-online-gambling-market-in-kenya/>.

The impacts of payment and lending services integration in business models

BFTs active across different categories including Techfin, social media, and e-commerce or marketplace platforms have developed payment or lending services complementary to their core products. For example, Amazon offers several payment and lending services,[28] which are examined in detail below, while Facebook has been offering payment services with its Free Basics, increasing its customer base by 100 million across 30 countries in Africa by 2018.[29] Free Basics provides payment services as part of a broader business model providing 'digital access' but has received scrutiny for its approach and some of its unintended impacts including issues of data privacy, impact on peace and institutional as well as national security, and even claims of digital colonialism.[30] Now the greatly anticipated blockchain-based stablecoin, Diem, is set to launch in 2021 with much debated potential impacts.[31]

Uber has offered car loans[32] as well as a digital wallet feature in Africa through its partnership with Fintech Flutterwave (which in turn is working with Alipay and Visa),[33] intended to bridge the credit gap for qualified driver-partners and investors, to grow businesses and to position Uber as the first-choice transport solution.[34] However, the COVID-19 crisis has illustrated the implications of the integrated business models. In Africa, COVID-19 has caused banks to bring in emergency measures including relief to borrowers and the restructuring of loans including measures with regard to Uber which along with other rideshare and gig economy businesses have suffered a major downturn. For example, Stanbic Bank in Kenya, which entered a partnership with Uber to offer loans for low-cost vehicles, put more than 72 repossessed vehicles up for auction by July 2020 and the number of drivers who have lost their livelihood, their cars and credit ratings, continues to rise as banks close in on car loan defaulters.[35] Here again, examples point to growing effects beyond direct financial inclusion benefits, which also impact broader aspects of resilience, livelihood and sustainability.

The impact of BFTs as providers of capital for SMEs through credit and loans

Ant Group, Amazon, M-Pesa and Facebook all offer forms of SME financing, impacting—both positively and negatively—decent work and economic growth. For example, Facebook is running a US$100 million SME grant programme in response to COVID-19.[36] In addition, Ant Group's MyBank offers SME lending, pioneering the '310 model', which offers collateral-free loans and takes a customer less than three minutes to apply for via mobile phone, less than one second to approve and requires zero human intervention. Thus far, the 310 model is serving over 10 million SMEs and enabling them to survive through the COVID-19 crisis.[37] MyBank is expanding its proprietary SME lending to support supply chain lending, and for rural and female entrepreneurs, increasing financial inclusion and reducing inequalities. Amazon has provided US$3 billion in SME financing directly, and much more through its platform from third-party financial institutions including Goldman Sachs and ING.[38] While the result is increased access to financial services for SMEs and the ability to sell goods and services to third-parties, these developments also put the BFT platforms in a powerful position with both positive and negative implications for economic development and businesses, putting SMEs in particular, in fragile positions.[39]

The monopolistic tendencies of the BFTs examined in their respective fields demonstrate both positive and negative effects on SMEs, particularly with regard to impacts on inequalities and decent work. For example, SMEs trading on e-commerce platforms reach a broader market, but these platforms prioritize their own products—while still taking a margin of up to 30 per cent (up to 25 per cent commission plus other fees) and driving down prices. In economies in which people are

28 'Everything You Need to Know About What Amazon Is Doing in Financial Services', CB Insights, <www.cbinsights.com/research/report/amazon-across-financial-services-fintech/>.

29 Nothias T, 'Access granted: Facebook's Free Basics in Africa', *Media, Culture & Society,* 42(3), 2020, <https://journals.sagepub.com/doi/pdf/10.1177/0163443719890530>.

30 Ball J, 'Inside Facebook's New Power Grab', The Wired, August 2020, <www.wired.co.uk/article/facebook-power-grab>.

31 Blakstad S, 'Libra: Economic Implications of Global Cryptocurrency', *Altcoin Magazine,* July 2019, <https://medium.com/the-capital/libra-economic-implications-of-global-cryptocurrency-8a5eef8bc9b7>.

32 Wadekar N, 'Uber Driver Data in Kenya Helps Bridge Credit Gap', Reuters, June 2016, <www.reuters.com/article/us-kenya-credit-uber/uber-driver-data-in-kenya-helps-bridge-credit-gap-idUSKCN0ZG1RW>.

33 'Uber Cash Onboard with Flutterwave in Africa', PYMNTS.com, June 2020, <www.pymnts.com/news/ridesharing/2020/uber-cash-onboard-with-flutterwave-in-africa/>.

34 'Uber Kenya and Sidian Bank Launch Car Financing Service', Finextra, May 2016, <www.finextra.com/pressarticle/64585/uber-kenya-and-sidian-bank-launch-car-financing-service>.

35 Mwita M, 'Taxi Drivers In Limbo As Auctioneers Go After Car Loan Defaulters', The Star, July 2020, <www.the-star.co.ke/business/2020-07-11-taxi-drivers-in-limbo-as-auctioneers-go-after-car-loan-defaulters/>.

36 Burgess A, 'Facebook and Google Assist SMEs with Ad Credit and Cash Grant Programmes' <www.equimedia.co.uk/blog/facebook-and-google-assist-smes-with-ad-credit-and-cash-grant-programmes>.

37 'MYbank Unveils Five-Year Plan to Reach More SMEs Across China Via Supply Chain Finance', Finextra, June 2020, <www.finextra.com/pressarticle/83097/mybank-unveils-five-year-plan-to-reach-more-smes-across-china-via-supply-chain-finance>.

38 Shevlin R, 'Amazon and Goldman Sachs: A Small Business Lending Wake-Up Call For Banks', Forbes, June 2020, <www.forbes.com/sites/ronshevlin/2020/06/15/amazon-and-goldman-sachs-a-small-business-lending-wake-up-call-for-banks/>.

39 Rosenberg JM, 'Want to Sell on Amazon? Businesses Must Weigh Pros, Cons', The Associated Press, January 2020, <https://apnews.com/article/d6eb30fe034dc4e643130d554ab2d019>.

more price-sensitive, BFT platforms have outcompeted 'bricks and mortar' outlets, negatively impacting jobs, local economies and tax bases for LDC economies.

While Amazon launched its Handmade platform segment in 2015, and hosts small business days to support SMEs enterprises in reaching a global marketplace, the application process and requirements, and the acceptance rate remain a hurdle for those in LDCs. Furthermore, there is a lack of governance frameworks to protect intellectual property of smaller brands, sellers and artisans from cheaper copies and productions.[40]

The advantages to SMEs selling and lending via the platforms may be short lived. For example, Amazon's lending for its marketplace has been criticized for locking sellers into the platform by lending against the assets they sell, while driving down prices.[41] Sellers are therefore not able to use the assets in Amazon's supply chain to demonstrate sales potential to other lenders. The risk to sellers and loan clients is exacerbated by its business model and search algorithms that boost Amazon's own branded products or priority (additional fee paying) sellers.[42]

Another example of the exposure of marketplace sellers was highlighted during Amazon's short-lived decision during the early stages of the COVID-19 crisis to focus on essentials in its marketplace. The intention was to prioritize supply and delivery of health and food staples during the crisis (much to the benefit of the West), but the decision was devastating to sellers all around the world who relied on the platform as their primary market access and, as noted above, had their assets locked into the Amazon supply chain so they could not opt to sell elsewhere.[43] The results also highlighted the flaws in its marketplace regarding counterfeit products and other nefarious methods by some aggressive sellers to bypass Amazon restrictions.[44]

Landscape visualization of SDG impacts in LDCs by BFTs (both positive and negative impacts)

Relative proportional impact of BFTs on specific SDGs observed via landscape analysis

40 Whitehead Lohr S, 'Why Isn't Anyone Talking About the Most Frightening Part of Amazon Handmade?', *The Huffpost*, October 2015, <www.huffpost.com/entry/why-isnt-anyone-talking-a_1_b_8288806?guccounter=1>.

41 Sussman S, 'How Amazon Uses Landing to Control Small Businesses', The American Prospect, February 2020, <https://prospect.org/economy/how-amazon-uses-lending-to-control-small-businesses/>.

42 Mattioli D, 'Amazon Changed Search Algorithm in Ways That Boost Its Own Products', *The Wall Street Journal*, September 2019, <www.wsj.com/articles/amazon-changed-search-algorithm-in-ways-that-boost-its-own-products-11568645345>.

43 Kaziukėnas J, 'Amazon's Botched Focus on Essentials', Marketplace Pulse, March 2020, <www.marketplacepulse.com/articles/amazons-botched-focus-on-essentials>.

44 Kaziukėnas J, 'Coronavirus Brought Back Flaws in Amazon Marketplace', Marketplace Pulse, March 2020, <www.marketplacepulse.com/articles/coronavirus-brought-back-flaws-in-amazon-marketplace>.

The unintended or 'invisible' impacts of BFTs across the SDGs

While e-commerce and marketplace platforms are improving social and environmental responsibility for their core operations and their own products,[45] there are major gaps with regard to addressing (and even identifying) their SDG impacts in LDCs because of the business models themselves. For example, Amazon states that it has received "high scores" for SDGs including on gender, human rights, environment and sustainable production, etc., in its own sustainability report,[46] but it has been called out by numerous organizations for gaps in these initiatives[47] (recently for selling clothing from dozens of Bangladeshi factories blacklisted by the Alliance for Bangladesh Worker Safety).[48] Moreover, Amazon has been criticized for not applying, let alone imposing, environmental and social standards on its third-party vendors and suppliers, which make up more than 50 per cent of its marketplace.[49]

Another impact of e-commerce and market platforms and the related counterfeit production noted above, is that "counterfeits are often produced in unsafe workplaces, with substandard and unsafe materials, by workers who are often paid little or sometimes nothing in the case of forced labor".[50] Most transparency and governance initiatives for marketplace platforms focus on consumer safety issues in the West (particularly in the USA), leaving a major gap in addressing the SDG impacts for LDCs including the labour, health and safety and livelihoods, and even environmental issues.[51] The proceeds of counterfeits are also known sources of funding of conflict, terrorism and illicit activities in LDCs.[52] As such e-commerce marketplaces and fulfilment centres such as those in North America "have emerged as an important element of the supply chains for many counterfeit traffickers"[53] and the domino impacts on LDCs.

45 This results from standard practice regarding sustainability reporting as examined in Annex 2 of this paper.

46 'Sustainability: All In -- December 2020', Amazon Report, December 2020, <https://sustainability.aboutamazon.com/about/report-builder>.

47 'Oxfam Urges Amazon to Address Human Rights Risks In Its Supply Chain and Protect Its Workers', Oxfam, March 2020, <www.oxfamamerica.org/press/oxfam-urges-amazon-address-human-rights-risks-its-supply-chain-and-protect-its-workers/>.

48 The Alliance was established by many leading global retailers after the collapse of Rana Plaza in 2013 at Savar, Bangladesh, but does not include Amazon itself. See Scheck J, Emont J, Berzon A, 'Amazon Sells Clothes from Factories Other Retailers Blacklist', *The Wall Street Journal,* 23 October 2019, <www.wsj.com/articles/amazon-sells-clothes-from-factories-other-retailers-shun-as-dangerous-11571845003>.

49 Gross A, 'Activists Push Amazon to Do More to Prevent Human Rights Abuses In Its Supply Chain', knkx, May 2016, <www.knkx.org/post/activists-push-amazon-do-more-prevent-human-rights-abuses-its-supply-chain>.

50 'Combating Trafficking In Counterfeit and Pirated Goods: Report to the President of the United States', Department of Homeland Security, January 2020, <www.dhs.gov/sites/default/files/publications/20_0124_plcy_counterfeit-pirated-goods-report_01.pdf>.

51 Transnational Alliance to Combat Illicit Trade, 'Mapping the Impact of Illicit Trade on the Sustainable Development Goals', UNCTAD, 2019, <https://unctad.org/meetings/en/Contribution/DITC2020_TRACIT_IllicitTradeandSDGs_fullreport_en.pdf>.

52 'Anti-corruption and integrity hub', OECD, 2021, <www.oecd.org/corruption-integrity/reports/trade-in-counterfeit-and-pirated-goods-9789264252653-en.htm>.

53 Ibid., note 53.

The emerging BFT impact divide between core operations and value chain

BFTs are enabling other SDG impacts, such as the adoption of clean energy and provision of water and sanitation. For example, M-Pesa has been instrumental in enabling distribution of several pay-as-you-go (PAYG) clean energy and water services, including M-Kopa, the popular solar power PAYG supplier, and a solar water project by Danish pump company Grundfos in Kenya.[54] Ant Financial is also celebrated,[55] and held up as an example of the "positive impact" of BFT on environment, sustainable and healthy lifestyles and even job creation through its gamification and behavioural Ant Forest app and with its spillover effect into other initiatives and partnerships such as GCash in the Philippines.[56]

While the gamification of the carbon offsetting model (such as that developed by Ant Financial) is upheld for its purported climate impact, it is important to note that the gamification element is not directly related to funding innovation for the offset initiatives (i.e. new sources of funding by the app users), but rather to philanthropic funds, which are not always proportionate to actual carbon output.[57] In addition, there is a growing body of use cases on emerging tech for SDGs ranging from water, sustainable cities, health, energy and carbon markets to sustainable sourcing and transparent supply chains.[58]

This approach is problematic for two reasons. First, these innovations are not currently examined from a Fintech lens perspective. They do not feature in the current Fintech landscape and are examined as a separate track of emerging technology for SDGs.[59] Yet, these emerging technologies are enabling the scaling of green finance and green Fintech initiatives through, for example, digital monitoring, reporting and valuation for mitigation, supply chain or ESG initiatives. Second, BFTs are adopting these innovations on core operations, infrastructure and

54 This is one of the case pilots where pilot projects and partnerships with blockchain start-ups are being developed linking traceability to the local level.

55 See, for example, 'Ant Forest Wins UN Champions of the Earth Award', UN Environment Programme, September 2019, <www.unep.org/news-and-stories/press-release/chinese-initiative-ant-forest-wins-un-champions-earth-award>.

56 See 'Alipay Ant Forest: Using Digital Technologies to Scale up Climate Action I China', United Nations Climate Change, <https://unfccc.int/climate-action/momentum-for-change/planetary-health/alipay-ant-forest>.

57 Natural carbon sinks, such as forests, can help address climate change. Tree-planting initiatives are under greater scrutiny in terms of their effectiveness and impacts including with regard to the measures of emission capture and concerns over local biodiversity, potential for ecosystem changes, drought and wildfires. See ibid., note 7.

58 'Unlocking Technology for the Global Goals', World Economic Forum, January 2020, <www3.weforum.org/docs/Unlocking_Technology_for_the_Global_Goals.pdf>.

59 Foster K, Macdonald D, Johnson M, 'Blockchain and Sustainable Development Goals' in Wendt, Karen (ed.) *Theories of Change: Change Leadership Tools, Models and Applications for Investing in Sustainable Development,* Springer 2021.

activities (from supply chain traceability and clean energy generation or shipping, to mitigation and philanthropic initiatives such as Amazon's Electric Vehicle and Climate strategy), but not across the entire value chain or ecosystem. This duality presents the most significant impact in marketplace and e-commerce platforms where a BFT brand or direct activity is monitored and reported, but in many instances, such monitoring and reporting requirements are absent for the key third-party products and services central to the platforms' business model (making up 50 per cent of sales).

As a result, there is an emerging gap between BFTs' direct services, activities and brands (e.g. Amazon brands and direct operations such as Amazon Web Services) and the lack of transparency in their broader ecosystem of activities such as third-party vendors. This latter segment is widening the gap on which parts of their ecosystems and value chains are bypassing environment and labour standards.

The governance polarity parallels that of the third-party user content issue now under scrutiny with regard to Facebook third-party content. This polarity has led to a new form of digital divide of BFT SDG impacts: one that is visible and measured to a limited degree regarding core operations, infrastructure and activities and a potentially far greater one, facilitated by the platforms and encouraged to drive down costs by segments of their business models that are outside governance tracks, including self-governance via corporate social responsibility (CSR) and ESG measurements.

Conclusions

Based on the landscape analysis and research, the SDG impacts (both intended and unintended) vary across BFT categories.[60] BFTs have a significant emerging overall impact across the 17 SDGs, particularly for and within developing countries in both positive and negative ways,[61] but many of these impacts are made 'invisible' by the business models and governance silos themselves. With the rise of the term 'greenwashing' in global dialogue, it is important for robust frameworks and benchmarks against which BFTs test their operations, showing both the immediately apparent SDG impact of their operations as well as third-party and downstream activities that have (un) intended collateral impacts across other SDGs.

The impacts of BFTs present a different type of effect (and across different SDGs) from those emphasized by the 'enabling impact' narrative regarding Fintech and digital economy on financial inclusion, work and economic growth, and by the limited governance issues related to that narrative such as on data, privacy and security.[62] BFTs' business models are becoming more complex as they are integrating various products and services across a wide range of sectors (with both vertical integration as well as horizontal expansion) and spreading all over the world through their platforms, marketplaces and other activities.[63] With sectors, borders and business models increasingly blurred, the potential for some BFT activities to bypass or disturb hard-won governance frameworks that have emerged from key sectors, activities and arenas is increasing.

A majority of BFT case studies examined indicate that BFTs advance organizational structures which leverage existing tax legislation (or lack thereof) to their advantage not only at the expense of competition but with a direct impact on the funding of government and infrastructure by way of regulatory arbitrage. Many BFTs are partnering with diverse third-party financial institutions to decrease regulatory burdens and the risk of lending off their own books; however, there is a trend towards platforms managing end-to-end financial services themselves, sometimes supporting and sometimes exploiting previously underserved markets, such as women and SMEs. Moreover, there is a lack of appropriate regulation for the changing cross-border nature and cross-sectoral activities of BFTs. Areas such as finance, e-commerce marketplaces, consumer goods and mobility merge into less clear-cut product offerings and therefore uncertain SDG impact measurement and regulatory space.

As noted above, emerging tech is underpinning innovations in SDGs for direct operations and initiatives (supply chain traceability, efficiencies in certifications and verifications and emissions tracking) as outlined in CSR reports. These innovations were rarely detected for LDCs and third-party users or sellers. Moreover, that same tech—combined with globalization—has facilitated the emergence of multisector, multigeography corporations which are increasingly adopting 'invisible' financial services alongside their traditional offerings and opaque value chains with key negative SDG impacts. Current regulation and CSR self-reporting frameworks are not equipped to monitor or control core business of

60 A summary table of these positive and negative impacts are available in Annex 1.

61 Although some qualitative information and data were gathered, the results are not yet viable for interpretation, but the path has been set towards this capacity.

62 This narrative and distinction are outlined and examined in Annex 1.

63 See case studies in Annex 5.

platform marketplaces, nor to effectively monitor complex multinational businesses, as has been seen through the many failed attempts by legislators to apply existing regulations to these platforms. For example, user content on Facebook is affecting elections, while extractive multinational business models are layering social safety net costs on states without contributing through taxation.

Our research indicates that BFT impacts cross deeper economic, social and environmental themes of the SDGs that are particularly challenging to LDCs, including climate change, sustainable production, human rights and strong institutions. Despite bolstering financial inclusion, employment and economic growth, BFT models can lead to a diminishing tax base for infrastructure and public institutions, to a decline in job quality, security and benefits, and even to the potential undermining the financial stability of LDCs.

There is a need for a holistic examination across the three tiers—1) direct service offerings; 2) integrated services, operations, infrastructure and processes; and 3) business model, value chain and overall ecosystem (vertical and horizontal integration)—and for a fundamental re-assessment of regulatory frameworks to address the systemic impacts and vulnerabilities driven by these core technologies and services. In addition to the conclusions presented above, we have identified the following recommendations and areas ripe for action by BFT providers and SDG governance globally:

- There is a growing call for platform BFTs to spearhead increased supply chain visibility and transparency through DLT source certification and carbon offsets etc. As a result of the high profitability of participating in e-commerce activities through a BFT platform, this is well placed to serve as an incentive to SMEs to provide transparency on their business practices. This also provides BFTs the opportunity to be global leaders in SDG adoption and business practices.
- Data ownership governance continues to evolve. As seen in legislations such as the GDPR and PSD2 in the EU, it is important to underpin the right of data ownership to the user who generates it. This enables empowered data usage among LDC demographics.
- The use of both consumer and non-financial data for financial decision-making is well documented, there is a need to look at effects of monopolistic data collection practices in the SDG context, as these are traditionally only analysed in a competition perspective.
- In terms of income equality, poverty alleviation and other favourable SDG outcomes often purported by BFT platform applications in especially LDC economies, there remains a clear need for more research and investigation into the ‘scale game’ present in tech—where the scalability of a product allows it to be broadly deployed, but centres power and resources in the hands of a very small minority, and where this occurrence is more pronounced than power balances in other industrial revolutions.

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