



AT THE CROSSROADS  
OF LAW AND INNOVATION:  
HOW LAW IS FACILITATING  
A GREAT LEAP FORWARD  
IN EMERGING MARKETS



“In many ways, the rise of new technologies has the potential to help developing countries leapfrog the more developed economies.”



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As Alex and Don Tapscott wrote in their recent book, *Blockchain Revolution*: "...it appears that once again, the technological genie has been unleashed from its bottle. Summoned by an unknown person or persons with unclear motives, at an uncertain time in history, the genie is now at our service for another kick at the can – to transform the economic power grid and the old order of human affairs for the better."

Indeed, over the past decade, emerging technologies, coupled with massive changes in regulations, have driven an unprecedented transformation of finance around the world. New players, such as companies engaged in social media, e-commerce, as well as start-ups with large customer data pools and technical capacities, are challenging traditional players in finance, bringing democratisation, inclusion and disruption.

The exponential growth of new business models for financial products and services creates unique opportunities and challenges for lawmakers and regulators as they attempt to create an environment that supports innovation while maintaining appropriate consumer protections. In many ways, the rise of new technologies has the potential to help developing countries leapfrog the more developed economies. While in developed economies, the efficiency levels of the existing financial system are perceived to be acceptable and therefore massive overhauls are not seen as necessary, by contrast, in developing countries, the perspective is that since there are high levels of inefficiency, a massive overhaul is the only way forward.

In that context, governments in many of the EBRD's regions have shown willingness to experiment with solutions and undertake transformative initiatives. In order to help lawmakers and regulators in the EBRD's regions inform appropriate legal, policy and strategic responses, the Bank has published two studies on "Best Practices for the Regulation of Investment-based and Lending-based Crowdfunding" and "Smart Contracts – Legal Framework and Proposed Guidelines for Lawmakers", each of which is described in the following pages.

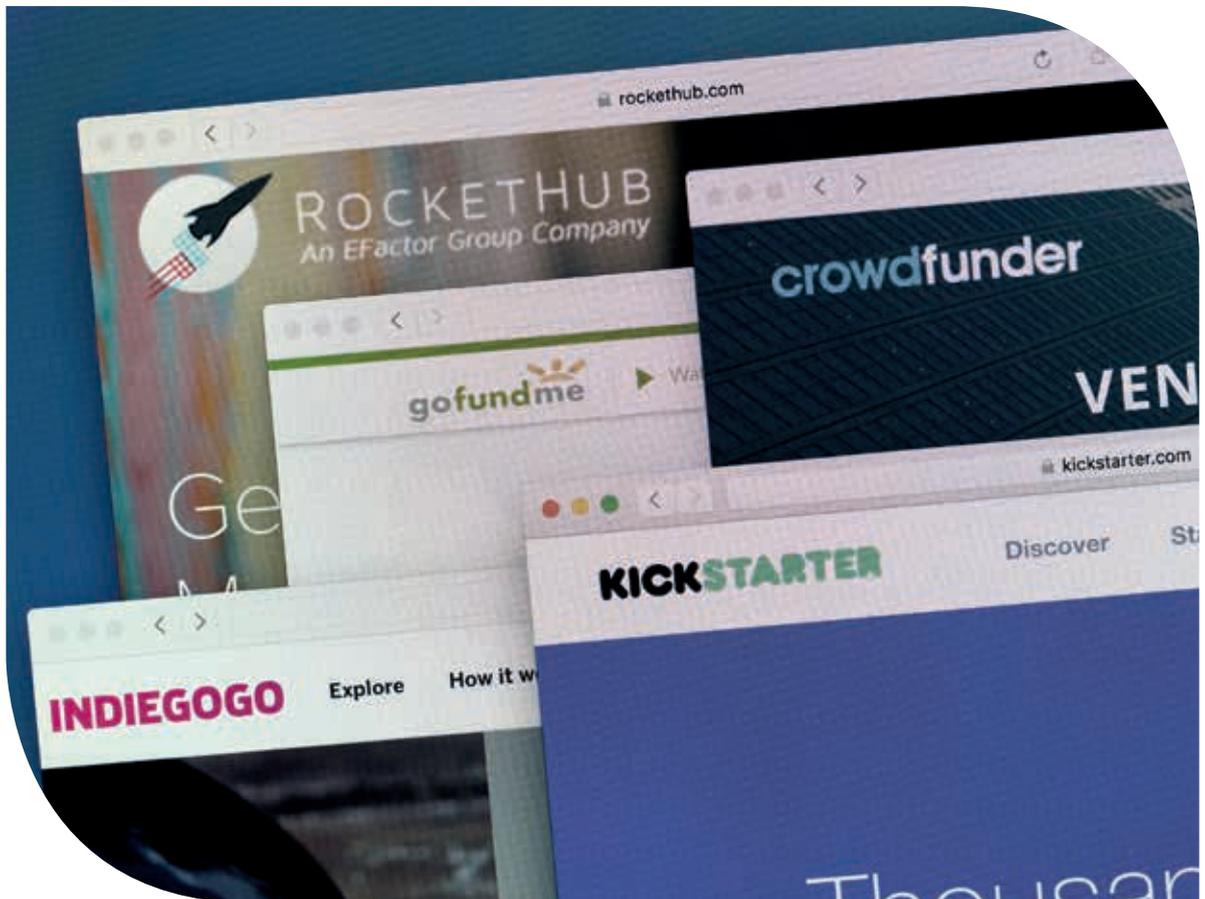
## TOWARDS CHEAPER AND FASTER FINANCE FOR SMALL AND MEDIUM-SIZED ENTERPRISES: REGULATING CROWDFUNDING PLATFORMS

Crowdfunding is being talked up as part of the financial technology (FinTech) "revolution" – the disintermediation of finance by ever-greater use of technology, and as a way to, at last, provide enough financing for small and medium-sized enterprises (SMEs) and early-stage businesses in the economy. In fact, in its Crowdfunding Report, the European Commission has recognised crowdfunding as "one of many technological innovations that have the potential to transform the financial system."<sup>1</sup>

As with all investments, crowdfunding also entails a number of risks (such as project and liquidity risks, platform failure and cyber-attack) and concerns (for instance, investors' inexperience, reliability of the investment, undisclosed conflicts of interest, and so on). But, with appropriate safeguards concerning investor protection, crowdfunding can be an important source of non-bank financing in support of job creation, economic growth and competitiveness.

Against this background, several of the EBRD's regions have been very keen to promote crowdfunding and are looking to enact, or have already enacted, crowdfunding legislation (for example, Turkey, Kazakhstan, Morocco, Egypt, Latvia and Lithuania). They have also reached out and requested the Bank's assistance with the drafting of this legislation. Yet, because crowdfunding is still in its infancy, there exists no consensus as to what constitutes best practice in this area, which makes it rather difficult to advise lawmakers.

In that context, with the assistance of Clifford Chance LLP and with the underlying objective of ensuring that the advice we provide to the lawmakers in our region is founded on thorough research and analysis, we embarked on the preparation of the report which seeks to offer best practice recommendations for the regulation of both equity- and lending-based crowdfunding platforms.<sup>2</sup> Our recommendations are based on the analysis of the regulations of six jurisdictions: Austria, the Dubai International Financial Centre (DIFC), France, Germany, the United Kingdom (UK) and the United States of America (USA), which were selected to provide a cross-section of



“The European Commission has recognised crowdfunding as one of many technological innovations that have the potential to transform the financial system.”

geographies, approaches and degrees of market maturity. The UK and the USA are considered to be leaders in crowdfunding, whose regulatory regimes form the basis for highly developed markets. Austria, France, Germany and the DIFC are regarded as model jurisdictions in much of the EBRD’s regions.

Drawing on commonalities and best practices identified from across these jurisdictions, the report makes recommendations on the following key issues: (i) type of authorisation(s) required for the operation of platforms; (ii) capital and liquidity requirements; (iii) know-your-customer (**KYC**) rules and anti-money laundering (**AML**) checks required; (iv) maximum size of offer/loan; (v) maximum investable amount; (vi) consumer protection measures, including type of investor disclosures; (vii) risk warnings; (viii) due diligence/pre-funding checks; (ix) conflicts of interest inherent in the crowdfunding platforms’ role; and (x) platforms’ governance requirements.

The report has been reviewed by, and discussed with, our colleagues at the World Bank and the International Organization of Securities

Commissions. It also drew the attention of the British Standards Institute, which in September 2018 hosted a workshop with several crowdfunding platforms and the UK Financial Conduct Authority to discuss our recommendations.

The Bank's lawyers are already putting the recommendations from the report into practice through their ongoing technical cooperation projects on the regulation of crowdfunding platforms in Turkey and the Astana International Financial Centre in Kazakhstan. We hope that, thanks to these recommendations, lawmakers in our regions will become more comfortable with the formulation of the crowdfunding legislation, which in turn should give legitimacy to crowdfunding platforms, while ensuring appropriate investor protection.

## BLOCKCHAIN AND SMART CONTRACTS: NEW LAWS FOR NEW TECHNOLOGIES?

Another area where FinTech companies have been at the forefront is distributed ledger technology (DLT), particularly blockchain. Using blockchain, FinTechs have created innovative solutions for different industries including financial services to facilitate convenient, cheaper and innovative ways of working. Possible applications of blockchain are not limited to the financial industry. For example, both the National Public Registry of Georgia and the e-Governance Agency of Ukraine have been working on introducing blockchain-based smart contracts in real estate transactions.<sup>3</sup> Similarly, the Chamber of Digital Commerce's report illustrates 12 possible uses of smart contracts.<sup>4</sup>



### Key recommendations from Best Practices for the Regulation of Investment-based and Lending-based Crowdfunding

- Where platforms' activities are aligned with other regulated activities, it may be possible to regulate crowdfunding by adapting an existing framework. However, a truly bespoke regime may be more appropriate.
- Imposing minimum capital requirements on platforms can help to ensure that operational and compliance costs continue to be covered in the event of financial distress. Capital requirements should be based on the nature and scale of the activities undertaken by the relevant platform and should be commensurate with the attendant risk.
- Platforms should be required to establish and maintain risk management systems and controls that can identify, track, report, manage and mitigate risks to their business (including operational risk, risks relating to cybersecurity and the protection of personal data, and the risk that the platform could be used to commit financial crimes).
- Platforms need to ensure that their senior management and employees are fit and proper persons. Platforms need to be able to assess this themselves.
- Platforms should have primary responsibility for identifying, reporting, managing and mitigating any conflicts of interest.
- The financial services regulator should, where appropriate, have the power to prevent platforms from investing.
- Platforms should be subject to specific disclosure requirements, in order to ensure that investors and investees understand how platforms operate and earn revenue.
- Disclosures to investors and warnings regarding risks need to be tailored to the relevant product offered by the platform.
- There may be good reasons to differentiate between retail investors and institutional investors when it comes to providing information. Retail investors may benefit from receiving risk warnings and disclosures that are more explicit than those provided to institutional investors.
- A regime which differentiates between different types of investor is preferable to one that requires detailed suitability checks for all investors. Financial services regulators are best placed to decide on appropriate categories of investor.
- Platforms should be required to enter into agreements with their clients governing all key aspects of the client-platform relationship.
- Platforms should be permitted – but not necessarily obliged – to offer automated tools supporting the diversification of investors' portfolios.
- It is appropriate for lending-based platforms to provide information to investors on their post-investment arrangements and arrangement rights, whether that involves a trustee-type arrangement or a different type of enforcement mechanism.
- Platforms should be required to carry out KYC checks on their clients. The extent of those checks may vary on the basis of a risk assessment performed by the platform. Financial services regulators are best placed to provide platforms with guidance in this regard, which should be in keeping with the KYC requirements of the relevant jurisdiction. Such guidance should also be commensurate with the risk posed by clients.



What exactly are smart contracts? While a traditional contract records the arrangement between parties in written, legal form, a smart contract replaces the traditional written agreement using executable computer code both to record that agreement and to automate its own execution to some extent – for example by transferring payment or property. It has been analogised to a high-tech version of the principle behind a vending machine (if the correct coins are inserted into the slot, tip the bottle into the trough; if there are no bottles, return the coins), but with more consistent results than such machines sometimes produce. While smart contracts can exist entirely independently of blockchain, proposals for the use of smart contracts have multiplied considerably in the context of efforts to reinvent various forms of business activity around blockchain-based processes.<sup>5</sup>

Smart contracts may be particularly effective for sectors that operate using highly standardised contractual terms without material deviation and agreements with clear conditions and repetitive

transactions. For instance, a simple conditional clause stipulating the obligation to pay a specific amount or to deliver a specific asset on a specific payment or delivery date might be encoded and automated relatively easily. A very simple form of smart contract could look like this:

- The bank lends £1,000 to Alice, who promises to repay the bank £1,050 on 1 September 2019. Computer code is generated to represent the following “if this, then that” function.
- If on 1 September 2019, the bank does not receive £1,050 from Alice, transfer £1,050 from Alice’s account to the bank’s account.
- This computer code would be used on a private network, which would include the computers of the bank. The bank and Alice would sign a coded smart contract.

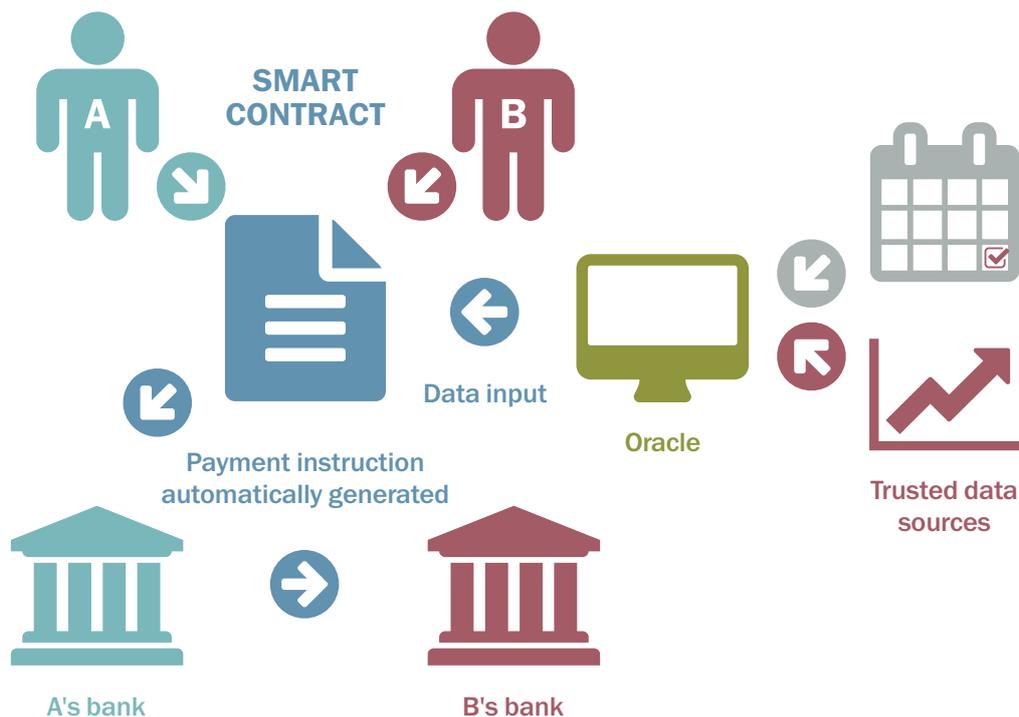
A slightly more complex smart contract would entail a loan agreement encoded so that the software automatically triggers a monthly loan repayment when the software receives an input confirming that it is the last day of the calendar

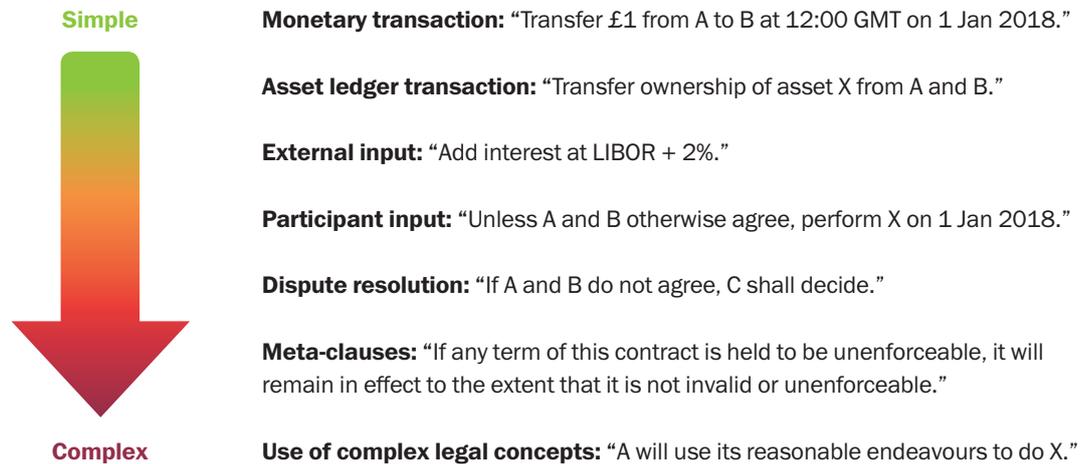
month (that is, without the need for human intervention or instruction) or so that the software automatically changes the monthly repayment amount when it receives an input confirming that there has been a reduction in the relevant reference interest rate (for example, a central bank interest rate); in each case the conditions can be objectively determined.

This is illustrated in Figure 1 below: Parties A and B enter into a smart loan contract. The software is programmed to receive inputs from trusted data sources via an oracle<sup>6</sup> and to automatically generate payment instructions based on those inputs, in accordance with the terms of the smart contract. When the smart contract receives an input that it is the last day of the month, it uses the interest rate input to calculate the correct monthly repayment amount under the smart loan contract. Then the software automatically sends an electronic instruction to Party A's bank to transfer this amount from Party A's bank account to Party B's bank account. Party A's bank acts on the automatically generated instruction and transfers the payment to Party B's account.

Another example could entail the sale of a house on the blockchain: for instance, after the buyer and the seller have executed the sale agreement, the buyer transfers the deposit amount to be held in escrow by the smart contract. In turn, and immediately prior to settlement, the lender can also send the loan amount to the smart contract escrow. After the total purchase price is sent to the smart contract escrow, the seller may finalise the transfer and trigger the smart contract to disburse the funds to its account and transfer the tokenised house to the buyer. The transfer is recorded on the blockchain and the state of title ownership is updated. There are a few key critical assumptions in this example: first, the house has been tokenised, which means that a blockchain token has been associated with the house. Despite media headlines about house sales on the blockchain,<sup>7</sup> there are a number of legal and technical challenges that need to be overcome for this to happen. Second, the transaction does not involve anything more than a simple transfer of property, free from encumbrances, between two parties. This is rarely the case in practice.

**Figure 1:** Blockchain-based smart contract



**Figure 2:** Spectrum of automatibility of contract clauses

Source: EBRD and Clifford Chance: *Smart Contracts – Legal Framework and Proposed Guidelines for Lawmakers*.

In contrast to the above examples, which include conditional “if this, then that” logic, with or without external inputs, conditional clauses requiring an assessment to be conducted “to the satisfaction” of a contracting party or to take action “in a commercially reasonable manner” are unlikely to be automated. These elements require a subjective assessment of the individual circumstances and it may be difficult to express the relevant circumstances in software language or to automate them. For instance, code could be used to represent the agreement that, if an event happened, the price will be adjusted by subtracting the product of x and y. However, it is unlikely that code can be used to represent that, if an event happened, the price is to be adjusted by the party in a commercially reasonable manner.

Similarly, clauses that do not contain conditions, but merely determine arrangements (for example, clauses stipulating governing law or jurisdiction) can be encoded, but may not be automatable because they have no conditional logic. The spectrum of automatibility of contractual clauses can be represented in the above schematic.

Tantalising though they are, smart contracts pose a wealth of legal questions: if code performs in a way that the parties did not expect, what remedies will they have and against whom? In the case of a smart contract between parties in different jurisdictions, which jurisdiction applies in the event

of a dispute? How can the pseudonymous nature of some blockchain transactions be reconciled with increasingly strict AML and KYC regulatory requirements?

Given that no one had really offered solutions to these complex issues, the Bank through its Legal Transition Programme embarked on a study aimed at providing practical recommendations for lawmakers on how to go about addressing these issues. Our study finds that, while existing legal frameworks may allow for the use of smart contracts, this may not always result in a desirable outcome from a policy perspective. If not addressed, these types of issues could prevent or slow down the widespread adoption of smart contracts. The recommendations in our study should provide lawmakers with practical steps in assessing whether their existing legal framework accommodates the use of smart contracts and whether certain legislative amendments might be required.

The Bank’s lawyers presented the study at the June 2018 International Blockchain Regulation Conference in Astana and the September 2018 Blockchain Symposium organised by the United Nations Office of Project Services in New York, as well as to the US Chamber of Digital Commerce in Washington, DC and to our colleagues at the World Bank, the International Monetary Fund (IMF) and other international development organisations.



## Assessing the FinTech sector

By Valdas Vitkauskas (Associate Director, Financial Institutions, EBRD) and Aziza Zakhidova (Principal, Economics, Policy and Governance, EBRD)

The EBRD's Banking teams have kept a keen eye on the emerging FinTech sector in the EBRD's regions. To that end, in 2018, we conducted an assessment of the FinTech sector in selected countries of operations, with a view to identifying potential investment opportunities.

Unsurprisingly, the assessment found that the EBRD's regions are no exception to the global trends: traditional banks struggle to meet banking and financing client needs, especially those of SMEs. Nevertheless, very few FinTech companies match the EBRD's traditional investment criteria. Although the EBRD could invest alone, the preferred approach would be to leverage co-investors' expertise in FinTech, be it local or international venture capital funds or financial institutions. The EBRD is also looking to facilitate donor funding to FinTech companies, which would cover their general needs as they continue to develop their product and grow as well as to support them with the expertise and networks that the Bank developed over the years of extensive engagement with local banking and other financial services.

FinTech, as one form of innovation which is impacting banks' business models, has also been explored in the discussions of the EBRD co-led Vienna Initiative Working Group on Financing for Innovation. The goal of this working group is to explore scaling up of bank and non-bank funding to support innovative firms in central, eastern and south-eastern Europe. The group aims to strengthen cooperation among international financial institutions, banks and alternative providers of finance, including venture capital and private equity funds, as well as FinTech companies.

While it would be impossible to summarise our legal analysis and recommendations on the legislative framework for the use of smart contracts in this limited space, the diagrams on page 31 illustrate how lawmakers may approach assessing whether their existing laws adequately accommodate the use of smart contracts and whether certain amendments might be desirable.

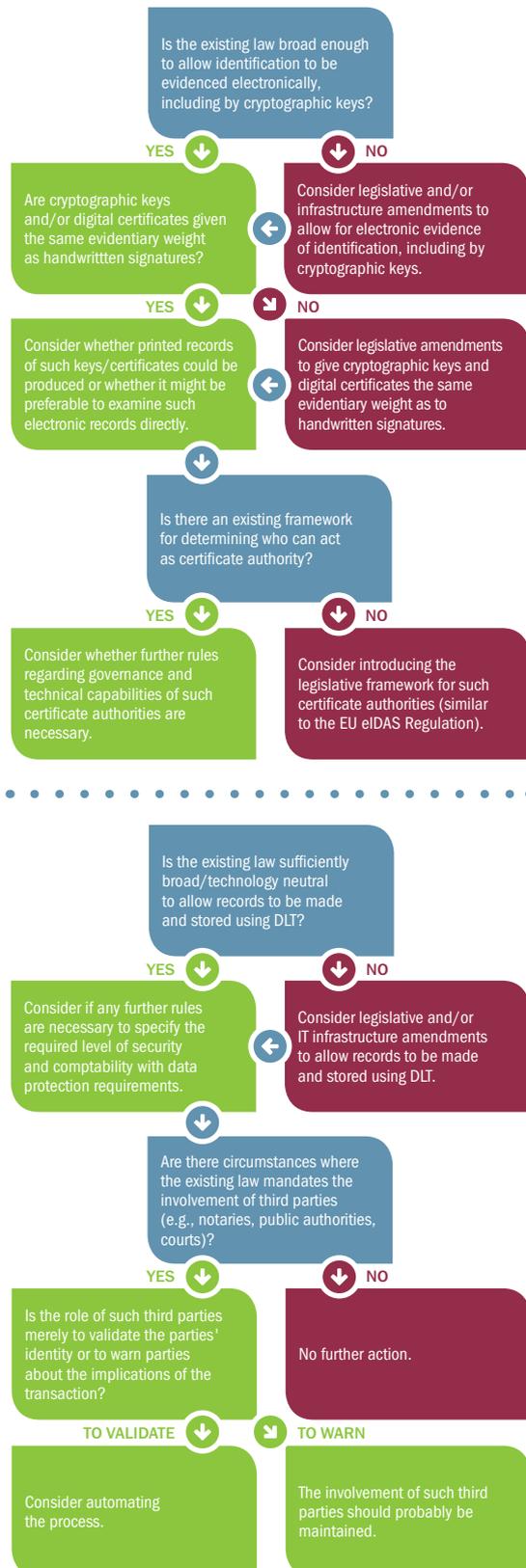
➔ You can access the full study and the accompanying animated videos at: [www.ebrd.com/documents/pdf-smart-contracts-legal-framework-and-proposed-guidelines-for-lawmakers.pdf](http://www.ebrd.com/documents/pdf-smart-contracts-legal-framework-and-proposed-guidelines-for-lawmakers.pdf) and <https://www.ebrd.com/news/video/distributed-ledger-distributed-liability.html>, respectively.

## FINTECH (R)EVOLUTION: THE GOOD, THE BAD AND THE OPPORTUNITIES THAT LIE AHEAD

On 24 October 2018, the Bank through its Legal Transition Programme organised a FinTech conference at its Headquarters, which brought together experts on FinTech issues from the regulators in the United Kingdom, Belarus, Georgia, Kazakhstan, Latvia, Poland, Slovenia, Turkey and the West Bank and Gaza, FinTech companies and international development organisations (the World Bank Group, the International Monetary Fund, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the United Nations Development Programme, who tackled some of the most topical issues in FinTech innovation – from the regulation of crowdfunding platforms, through the application of blockchain and smart contracts, to the potential of FinTech in emerging markets and the role that development organisations can play in facilitating positive application of FinTech solutions in these markets.

The conference has demonstrated that broad scope exists for development organisations to play an active role in expanding the range and depth of FinTech firms, either on their own or as partners with their existing clients. Moreover, development organisations can also use their policy engagement with governments to advocate required changes in legal and regulatory frameworks. FinTech is an international issue and, with the blurring of boundaries among entities, activities and jurisdictions, international cooperation among development organisations and regulators will be essential. Cross-institutional collaborations could help create global frameworks while also establishing regulatory sandboxes to trial innovative approaches with particular governments, users and developers.

**Figure 3:** Assessing whether existing legislation can accommodate smart contracts



- 1 European Commission Staff Working Document: Crowdfunding in the EU Capital Markets Union, SWD (2016) 154 final, available at: [https://ec.europa.eu/info/system/files/crowdfunding-report-03052016\\_en.pdf](https://ec.europa.eu/info/system/files/crowdfunding-report-03052016_en.pdf) (last accessed 18 December 2018).
- 2 The report is available at: <https://www.ebrd.com/cs/Satellite?c=Content&cid=1395276190617&pagename=EBRD%2FContent%2FContentLayout&rendermode=live%3Fsrch-pg>
- 3 See *Georgia to use smart contracts in real estate registrations* (February 2018), available at: <http://agenda.ge/news/96094/eng> and *A house has been bought on the blockchain for the first time* (October 2017), available at: <https://www.newscientist.com/article/mg23631474-500-a-house-has-been-bought-on-the-blockchain-for-the-first-time/> (last accessed 18 December 2018).
- 4 Chamber of Digital Commerce: *Smart Contracts: 12 Use Cases for Business & Beyond* (December 2016), available at: <https://digitalchamber.org/wp-content/uploads/2018/02/Smart-Contracts-12-Use-Cases-for-Business-and-Beyond-Chamber-of-Digital-Commerce.pdf> (last accessed 18 December 2018).
- 5 Dentons: *Global Energy Game Changers – Blockchain in the energy sector: evolving business models and law* (2018), available at: <https://www.dentons.com/en/insights/guides-reports-and-whitepapers/2018/october/1/global-energy-game-changers-block-chain-in-the-energy-sector> (last accessed 18 December 2018).
- 6 An oracle is a third-party information source that has the sole function of supplying data to blockchain. For example: Ania and Bob agree to bet on what the temperature will be on Sunday. Ania bets that it will be 20°C or above, while Bob bets that it will be 19°C or below. They create a smart contract (to which they will both send funds), which will automatically pay out to the winner depending on what the temperature is. In order for the smart contract to determine the temperature, and thus, pay out to the winner, it must receive input from a trusted source that is, an oracle, and use the result to execute the smart contract. After receiving input from a local news website for the weather, the weather on Sunday is 24 °C. The smart contract then executes on its conditions and sends all the funds to Ania.
- 7 See for example, *The First House To Be Sold Entirely Through Blockchain* (October 2017), available at: <https://www.leaprate.com/cryptocurrency/blockchain/first-house-sold-entirely-blockchain/> (last accessed 18 December 2018), and UK's first blockchain property purchase recorded in Manchester (March 2018), available at: <https://www.buyassociation.co.uk/2018/03/19/uks-first-blockchain-property-purchase-recorded-in-manchester/> (last accessed 18 December 2018).