New technologies: opportunities and challenges

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Digitalisation brings better financial services, but also new risks

We have seen significant shifts in the digitalisation of retail financial services in recent years. Incumbent firms are developing their own digital services and are aiming for cost savings through digitalisation and automation. Fintech companies are applying for licences and also seeking partnerships with incumbents. We have also seen big tech companies applying for and being granted EU licences for payment services. All these developments may make the sector more efficient and increase access to these services. But they also introduce new types of risk.

The accelerating pace of digitalisation is beneficial for those consumers who have good digital skills. These users will have a wider variety of retail financial services to choose from and they will be able to access these services at almost any time and place – also across borders. Operating in an online environment also makes it easier to switch between service providers, assuming that terms of contract do not raise unnecessary barriers. On the other hand, fraudulent actors may take advantage of the accelerating pace of change in the market and establish services which look like authorised ones, but which have been set up only for fraudulent purposes. More effort is needed to educate consumers about the detection of fraud and the identification of licensed and authorised service providers.

> *"The consumer segment unable to use digital financial services cannot be neglected."*
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> - ANNELI TUOMINEN

According to the latest Digital Economy and Society Index (DESI), 17% of the EU population had no digital skills and 35% of the EU labour force did not have the basic digital skills needed in most jobs. As the pace of digitalisation of retail financial services accelerates, the consumer segment unable to use digital financial services cannot be neglected. We must ensure that the regulatory framework contains the tools required to ensure consumers' access to financial services. More tools may be needed to ensure access to cash services in sparsely populated areas, for example. >>>

>>> Supervisors are closely watching the use of data and AI in retail financial services. Broader use of data enables more tailored services and may reduce service providers' risks by making available more accurate data on particular consumers. Use of AI is also driven by cost savings, for example by reassigning simple claims management or credit scoring by AI.

This raises two important questions from the supervisors' point of view: Are data handled in compliance with data protection rules? And how can the decisions made by AI be explained to consumers and also to supervisors? A good example of efforts in this field is the work of the High-Level Expert Group on AI appointed by the European Commission. The expert group has developed draft Ethics Guidelines for AI, which put forward key requirements that AI systems should meet. These requirements are now in the piloting process. I am happy to see that some financial services companies are also developing and committing to their own principles for ethical AI.

The progress of digitalisation does not necessarily introduce new cyber threats, but it increases the significance of existing threats. The increasing use of cloud services in providing digital services highlights risks such as data confidentiality in cloud platforms and service continuity in subcontracting chains. Protective measures against cyber threats must be taken into account at all stages of the digital service lifecycle. Internal and external security testing in service development, deployment and production are indispensable. A recent example of an initiative to improve testing is TIBER-EU, a framework to test and improve the cyber resilience of entities by carrying out a controlled cyberattack.

Finally, the possible entry of big tech companies into the retail financial services market brings an additional, new element to the discussion, namely big techs' access to data from their existing platforms. The potential entry of big tech companies into the financial sector requires a balance to be struck between financial stability, competition and data protection, as mentioned in the BIS annual report. ●

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In with the new: rules for implementing new technologies for market infrastructure

Any discussion pertaining to the implementation of new technologies in the case of financial market infrastructures (FMIs) must focus on the question of what is the underlying purpose of deploying a new technology tool. An incorrect answer to this question will set any implementation project off onto the wrong course. The correct answer will result from carefully considering the needs of customers and key stakeholders, which for FMIs, also includes regulatory supervisors and policymakers. There must be a rational basis behind the use of the technology, which will be informed by a keen focus on delivering on clients' and stakeholders' expectations.

Once a sound decision to implement a client solution using a new tool is made, in the case of FMIs, there are several key considerations to keep in mind. >>>

>>> FMIs arguably are held to the highest of regulatory standards; therefore, the first consideration is that a measured, incremental approach must be followed. A narrow use case first must be identified and pursued, with client and stakeholder needs driving the assessment, and implementation should move forward only if the initial stage is successful. There are trade-offs to this approach, but from a safety-and-soundness perspective, an FMI must accept the conditions and proceed accordingly if it is to manage its responsibilities successfully. For example, one trade-off is that the implementation timeline will likely be longer than it might be for other firms with fewer regulatory responsibilities.

The second consideration is that collaboration with key stakeholders must drive the process. Successful implementation of new technology by FMIs requires key industry players, including policymakers, to understand how new technology implementations meet not just the needs of clients, but the interests of the overall industry and, indeed, the public. One method to achieve this is reaching a mutual understanding of how existing public policies and their implementing regulations will be met. Another is to agree on how to adjust regulations if necessary, in the cases where existing regulations may not squarely apply to a new technology implementation.

With this in mind, regulators and policymakers are consulting at a global level, through standard-setting bodies (SSBs) such as the Financial Stability Board (FSB) and IOSCO to gain a greater understanding of how new technologies such as DLT, robotic process automation, machine learning and big data can improve the functioning of financial markets without risking their safety.

"FMIs must focus on the underlying purpose of new tech deployment to ensure successful implementation."

- MARK WETJEN

Best practice guidelines are useful tools to guide the collaboration process, and cloud technology is a good example. Due to the new levels of robustness and sophistication of cloud technology, FMIs – such as DTCC – continue to expand use of the cloud across external services and applications, and point to and follow best practices in the implementation process, as well as in discussions with stakeholders.

Finally, it is important to acknowledge that while many different types of technology tools are frequently categorized as emerging technologies, the fact is that some are more mature than others, and today, some of the newest and least-tested of these tools will likely struggle in the short term to deliver on the requirements that FMIs face.

Meanwhile, the industry must address challenges now. While today's financial infrastructure is highly resilient, the future beckons, and pressures on clients remain. These conditions demand that FMIs begin the journey today to tomorrow's infrastructure, which inevitably will leverage innovative technology.

New technologies are transforming parts of financial services and continue to change the way in which certain areas of post trade infrastructure operate. Over the past decade, FMIs have successfully achieved increased levels of efficiency, speed and cost reduction using technology. It is our view that in ten years' time, FMIs will have been further transformed by new technologies, driven by a combination of established and newer technologies. While this development should be encouraged, it is critical that in the case of FMIs these technologies are implemented following a strict framework of prudence, collaboration with policymakers, best practice guidelines and at the appropriate time of their maturation. ●

Klaus Löber

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Distributed ledger technology: slow and steady wins the race

Many market players and central banks, including the ECB, are exploring the potential of new technologies. Decentralisation and tokenisation offer significant potential as well as challenges that must be addressed. At the international level, standard-setting bodies such as the CPMI have developed analytical tools for this purpose. Similarly, they are guiding public authorities' thinking on the risks and opportunities posed by new ledger technologies and services based on decentralised cryptographic arrangements to hold and transfer assets and cash in tokenised form.

The key feature of distributed ledger technology (DLT) lies in the possibility of making multilateral arrangements involving multiple participants to propose, validate and record state changes consistently without the need to rely on a central and trusted third party. By replacing central account providers and custodians with a distributed ledger consensus mechanism, DLT also enables the "tokenisation" of assets. Efforts to create digital settlement assets, often called digital coins or tokens, particularly in the wholesale sector, come with promises to enhance settlement efficiency. These initiatives are often presented as alternatives to traditional settlements in central bank or commercial bank money.

In theory, they could lead to greater transparency in and accessibility to financial markets, as well as simplify reconciliation among contractual parties, facilitate authorities' access to traceable and manipulation-proof data, and increase operational resilience and process automation.

> *"Regulatory measures should support innovation without compromising security and integrity."*
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> - KLAUS LÖBER

However, from a legal and regulatory point of view, DLT and digital tokens raise a series of questions relating to legal status, governance, finality, interoperability and operational risk management, to cite just a few. From a technological standpoint, studies have shown that use cases in finance and banking can be conceptually and technically designed in a DLT environment. At the current stage of development, however, DLT is not mature enough to meet the safety and efficiency requirements demanded by the financial industry and the authorities.

Although we see continued progress in the technical solutions considered, firms will have to proceed with caution as they contemplate implementing new solutions.

To maximise the benefits of new technologies for the financial industry, adoption should not be pursued to the detriment of integration. Time to market cannot be innovators' sole focus. Without addressing interoperability concerns, there will be siloes and fragmentation, duplicated efforts leading to unnecessary costs and a lack of efficiency. Harmonised rules and technical standards must be defined

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>>> to help new technologies fulfil their promise and support integration, particularly in the financial domain.

Regulators and central banks play an active role in this process. Amongst others, the Basel Committee, CPMI, IOSCO and the FSB provide analysis and recommendations on the implications of digital innovations for their constituencies. At EU level, through its Fintech action plan the European Commission is driving research on regulatory measures that may support technological innovation without compromising the financial sector's security and integrity. In particular, it has set up an expert group to assess whether there are unjustified regulatory obstacles to innovation in the financial services' regulatory framework. This work is complemented by sectoral activities conducted by European supervisory authorities and the Eurosystem. The combined result should allow for the provision of a technology neutral and risk sensitive regulatory environment to foster and support innovation based on new technologies. ●

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An overview of the Maltese framework for the Regulation of Crypto-Assets and the need for international standards of best practice for the sector

Malta's initiatives in the Blockchain sphere started with the government's publication of a Consultation Paper on the establishment of the Malta Digital Innovation Authority; the Framework for the Certification of Distributed Ledger Technology Platforms and Related Service Providers; and a Virtual Currency Act[1]. This ultimately led to the enactment of three legislative acts; the Virtual Financial Assets Act[2]; the Malta Digital Innovation Authority Act[3] and the Innovative Technology Arrangements and Services Act[4]; which together provide a holistic regulatory framework catering for regulation both from a technology and financial services perspective. Whilst the MDIA Act and the ITAS Act cater for the establishment of the Malta Digital Innovation Authority and the certification of innovative technology arrangements and services, the VFA Act provides a regulatory framework for virtual financial assets as a separate asset class for investment purposes.

Malta does not regulate the crypto-assets themselves, but rather the persons issuing such assets and, or providing services in relation thereto in or from within Malta. In a nutshell, the VFA Act provides a regulatory framework for [i] the offer of Virtual Financial Assets to the Public and the admission of VFAs to trading on a DLT Exchange; and [ii] persons providing services in relation to virtual financial assets as well as a new functionary termed the VFA Agent. Whilst the regulated activity is analogous to that under the traditional framework, it is the asset in relation to which the service is being conducted (or which is being issued or admitted to trading) which is different, given that it does not qualify as a traditional financial instrument. In this light, it is evident that the applicability of the VFA framework is highly dependent on >>>

>>> the classification of the DLT Asset in question as a VFA. The Act defines a VFA as a DLT Asset by way of exclusion – a DLT Asset which is not: [i] a virtual token; [ii] electronic money; or [iii] a financial instrument. In this respect, in order to provide further clarity, the Authority has issued a Financial Instrument Test which, through a set questions, provides the end user with a determination as to whether a particular DLT Asset qualifies as a VFA or otherwise.

At international level, with the exception of the Financial Action Task Force's AMLCFT standards, there is no common approach towards the regulation of crypto-assets - whilst some jurisdictions have integrated the regulation of crypto-assets into existing legislation others have opted to enact bespoke regimes to address regulatory gaps. That being stated, it is clear that various jurisdictions are striving to provide legal certainty in a field which was, until recently, unregulated. In this light, it may be argued that the diverging approaches being undertaken are a direct result of the absence of international standards on best practices for the sector and that therefore such standards may be necessitated. The promulgation of such international standards would not only ensure harmonisation; but would also foster mutual trust and understanding between financial supervisors and facilitate collaboration with respect to cross-border business. ●

1. Government of Malta Consultation Paper in relation to the establishment of Malta Digital Innovation Authority (MDIA) and the framework for the certification of Distributed Ledger Technology Platforms and related service providers, 16 February 2018, available online at: https://meae.gov.mt/en/Public_Consultations/OPM/Pages/Consultations/ConsultationPaperinrelationtotheestablishmentofMaltaDigitalInnovationAuthorityMDIA.aspx
2. Laws of Malta, Chapter 590, Virtual Financial Assets Act ('VFA Act'), available online at: http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12872&l=1
3. Laws of Malta, Chapter 591, Malta Digital Innovation Authority Act ('MDIA Act'), available online at: http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12873&l=1
4. Laws of Malta, Chapter 593, Innovative Technology Arrangements and Services Act ('ITAS Act'), available online at: http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12874&l=1