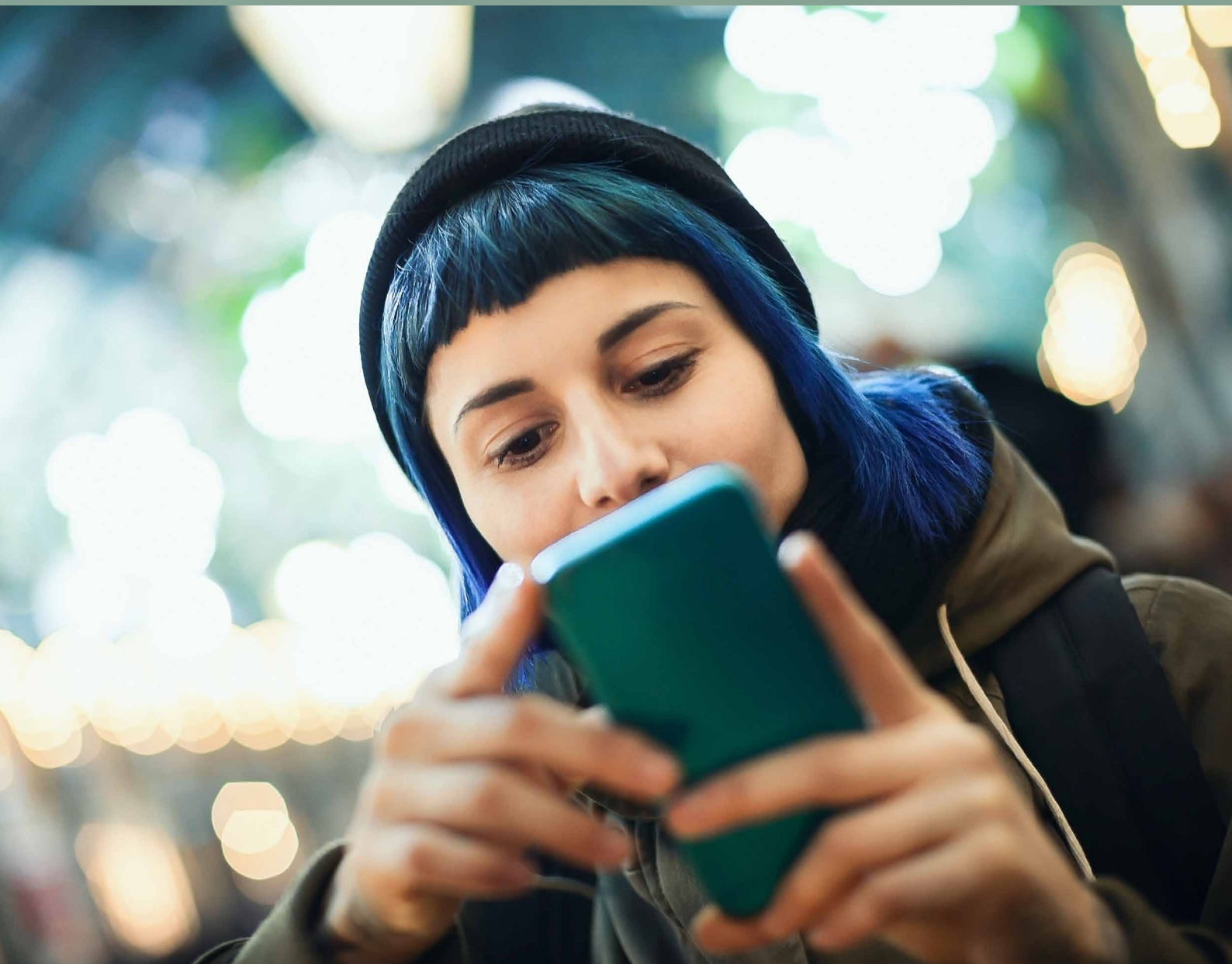# ACCELERATING THE POLISH DIGITAL TRANSFORMATION AGENDA BY FACILITATING THE USE OF CLOUD AND BLOCKCHAIN IN THE PUBLIC SECTOR

The isolation and social-distancing rules imposed to tackle the Covid-19 pandemic have brought about many (temporary and permanent) changes in the way we lead our lives. While everyone is scrambling and catching up to the new reality, one thing is clear: the "new normal" is more digital. And going digital in today's world is not just a precondition to thrive and succeed – it is more fundamental than that. It is a precondition to survive and remain relevant.

" GOING DIGITAL IN TODAY'S WORLD IS NOT JUST A PRECONDITION TO THRIVE AND SUCCEED – IT IS MORE FUNDAMENTAL THAN THAT. IT IS A PRECONDITION TO SURVIVE AND REMAIN RELEVANT. "

The recent economic crunch, coupled with inflation and the ever-increasing cost of living, have forced the hands of many governments to intervene and provide financial subsidies to alleviate the negative impact on citizens' lives. Such unanticipated costs have pushed governments to rethink and re-jig their public spending priorities and accentuated the need for more efficient, digital and transparent delivery of public services.

While this new reality has compelled many governments to prioritise the design and delivery of digital transformation strategies, some countries were working on their digital transformation strategies well before the crisis. Such is the case of Poland.

With a dedicated ministry dealing with digitalisation between 2011-21, the digital angle has been at the forefront of the Polish state strategic vision for a long time. Among the many strategic documents, *Digital Poland for 2014-2020* identified "effective and user-friendly public e-services" as a key area of focus.[1] Yet, despite its long-time focus, work and efforts on digitalisation, Poland has continued to lag behind its European Union (EU) peers. The Digital

MILOT AHMA
COUNSEL, EBRD
AhmaM@ebrd.com

---

[1] See https://www.polskacyfrowa.gov.pl/media/10410/POPC_eng_1632015.pdf

Economy and Society Index 2018 ranked Poland as 24th of 28 EU member states in the field of the digitisation of the economy.[2, 3]

EBRD'S WORK WITH THE CHANCELLERY OF THE PRIME MINISTER OF POLAND

To achieve greater digitisation of government services, Poland's Ministry of Digital Affairs[4] approached the EBRD in 2018 with a request for assistance to:

1. increase the uptake of cloud computing across government administrations and local public authorities throughout Poland (Cloud Workstream) and

2. explore the possible uses of the distributed ledger technology (DLT) in the Polish public sector (DLT Workstream).

With funding from the European Commission's Structural Reform Support Programme in 2019-21, the EBRD's Legal Transition Team – with the assistance of external consultants from Ashurst, R3 and Maruta Wachta – successfully delivered on this request.

THE CLOUD WORKSTREAM

Since the early 2010s, governments around the world have introduced so-called cloud-first policies to prioritise the acquisition (where appropriate) of cloud-based information technology (IT) solutions by public-sector organisations. In practical terms, this means that public-sector organisations should consider and fully evaluate cloud solutions when procuring IT services before considering any other option. The ultimate aim of this policy is to ensure that the IT infrastructure retained offers the best value for money.

In the United Kingdom, for example, IT procurement is effected through the digital marketplace – a portal for ordering services, including cloud services – with cloud services purchased under prescribed framework agreements with pre-approved service providers within the so-called G-Cloud model.

This G-Cloud model was a reference point for the Polish Common State IT Infrastructure Program (WIIP), adopted through a resolution by the Council of Ministers of Poland on 24 September 2019. The WIIP promotes Poland's own cloud-first policy and recognises the benefits that cloud solutions offer when developing new IT solutions in public administration.

> **❝ CLOUD COMPUTING IS A METHOD OF STORING, RETRIEVING AND PROCESSING DATA, AND ACCESSING SOFTWARE PROGRAMMES, OVER THE INTERNET (OR OTHER NETWORKS). ❞**

Cloud computing at a glance
The National Institute of Standards and Technology defines cloud computing as a model to enable ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. In other words, cloud computing is a method of storing, retrieving and processing data, and accessing software programmes, over the internet (or other networks). Instead of buying, owning and maintaining the physical assets (such as servers) at on-premises data centres, one can access technology services, including computing power, storage, network, security services and software applications, on an as-needed basis from the relevant cloud provider. This can enable faster innovation, flexible resourcing and considerable economies of scale.

---

2 See Digital Economy and Society Index (2018), available at: http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=52233

3 Despite progress in many areas, the ranking remained the same in the DESI 2021, where Poland scored better than only three other EU countries (Greece, Romania and Bulgaria). See: https://ec.europa.eu/newsroom/dae/redirection/document/80495

4 The Ministry of Digital Affairs was liquidated in 2020 as part of a government reshuffling and (part of) its responsibilities were passed on to the Chancellery of the Prime Minister of Poland.

Figure 1: **Key features of cloud solutions.** *Source: EBRD, Ashurst, Maruta Wachta and R3 (2021)*

The key features of cloud computing can be summed up as follows:

Cost: Cloud computing reduces the capital expense of investing in hardware and software, as well as the cost of setting up and maintaining on-site data centres.

Scale: Cloud computing is an elastic delivery model, meaning that a cloud resource can be dynamically scaled (upwards and downwards) according to the user's requirements.

Speed: Most cloud computing products are offered as self-service and on-demand services. This means resources can be provisioned flexibly and rapidly.

Transparency: Cloud services are typically metred, so there is constant visibility over the amount of the service being consumed. This helps in the management of IT budgets.

Performance: Cloud services are regularly upgraded to ensure fast and efficient performance. Achieving equivalent performance on-premises can be prohibitively expensive.

Productivity: On-premises data centres require considerable set-up and ongoing maintenance. Cloud computing devolves this to the provider, so in-house IT teams can focus on more strategic goals.

With respect to the cloud component of the technical assistance request, the Chancellery of the Prime Minister was mainly interested in:

1. raising awareness among the public authority bodies in Poland about the benefits of cloud solutions (in relation to the "on-site" alternatives) and

2. guiding the public authorities in Poland on how to procure cloud-based IT solutions.

To this end, we produced the cloud guidelines aimed at government administration and local public authorities in Poland.[5] This guide, part of the WIIP, is supposed to help government administration and local public authorities in Poland determine the potential application of cloud computing solutions as part of their decision-making process when procuring new, or refreshing existing, IT resources. To this end, the guide explains what cloud computing offers and the benefits of adopting a cloud-based solution, and sets a framework to help evaluate what data are suitable for the cloud. The use of the cloud also raises important considerations around security, privacy and resilience and the guide outlines these key considerations in separate, specific sections.

In addition, to help government officials negotiate service levels with cloud service providers, we prepared template service level agreements, accompanied with annotations to indicate the rationale and importance of the key provisions typically found in such agreements.

What does this mean in practice?

IT infrastructure is essential for the functioning of every public administration body. When the infrastructure becomes outdated, new resources must be procured. Nowadays, IT infrastructure can be hosted on-premises or on the cloud, and deciding between these two options depends on many variables. However, due to its numerous advantages (see Figure 1 above), there should be a clear preference to go for the cloud alternative, when possible. A simple example is data storage. Instead of stocking physical server machines, which have high initial costs and maintenance costs and take up a huge amount of space, public administration bodies in Poland can procure the services of a cloud service provider and have all their data stored in this provider's data centres.

---

[5] *Cloud in Government Services: Guide to Public Authorities.* Available at: https://chmura.gov.pl/zuch/static/media/Cloud%20in%20Government%20Services_Final%20[ENG].pdf

THE DISTRIBUTED LEDGER TECHNOLOGY WORKSTREAM

A subset of distributed ledger technologies, blockchain enables the creation of records of shared facts secured using cryptography to create an audit trail that is maintained and validated by those using the network (without requiring a third-party intermediary). These data are cryptographically assured and can be synchronised and distributed across multiple institutions. This enables anyone with access to the network to view the same information as other network users and creates the capacity to record shared facts across independent participants.

> " WE DRAFTED A STUDY TO IMPROVE AWARENESS AMONG GOVERNMENT STAKEHOLDERS ON THE TYPES, BENEFITS AND POTENTIAL OF BLOCKCHAIN IN FOSTERING TRANSPARENCY OF GOVERNMENT SERVICES. "

As the Covid-19 crisis has demonstrated worldwide, governments cannot rely on the old ways of administering to meet the challenges of the present or future. Identifying which services could be led or supplemented by digital solutions must become a major driver of public-sector reform.

As part of this technical assistance project with the Chancellery of the Prime Minister, we drafted a study to improve awareness among government stakeholders on the types, benefits and potential of blockchain in fostering transparency of government services. Drafted in conjunction with colleagues at the Chancellery of the Prime Minister, the study outlines the fundamental technical elements of the technology in a simple way, so it can be understood by a lay audience. To encourage its use, the study highlights the current landscape with regard to public- and

private-sector use-cases to illustrate where the technology is being applied and where it would be well-suited to public-sector deployment in the future. Furthermore, the study outlines the legal considerations of blockchain solutions. It concludes that there are no clear minimum requirements to implement blockchain and/or specific provisions of Polish law that would explicitly exclude the possibility of using blockchain for governmental purposes. However, any legal framework under which blockchain can be successfully deployed should provide a level of clarity around three key but complex topics: (1) the legal status of crypto-assets, (2) the legal status of smart contracts and (3) compatibility with the existing regulation (such as data privacy, digital identification and authentication).

To illustrate the potential of the technology, the study outlines and discusses three use-cases: one in the financial sector, one in healthcare and the other in education. In each case, a high-level technical architecture and a walk-through of operations is provided along with guidance on how such solutions could operate in Poland. These use-cases are designed to emphasise the flexibility of the technology and its capacity to work within existing frameworks, making blockchain solutions an attractive prospect.

> " GOVERNMENTS CANNOT RELY ON THE OLD WAYS OF ADMINISTERING TO MEET THE CHALLENGES OF THE PRESENT OR FUTURE. IDENTIFYING WHICH SERVICES COULD BE LED OR SUPPLEMENTED BY DIGITAL SOLUTIONS MUST BECOME A MAJOR DRIVER OF PUBLIC-SECTOR REFORM. "

Figure 2: **Blockchain's (potential) use in healthcare: E-prescriptions.** *Source: study by EBRD in cooperation with R3/Ashurst/Maruta)*
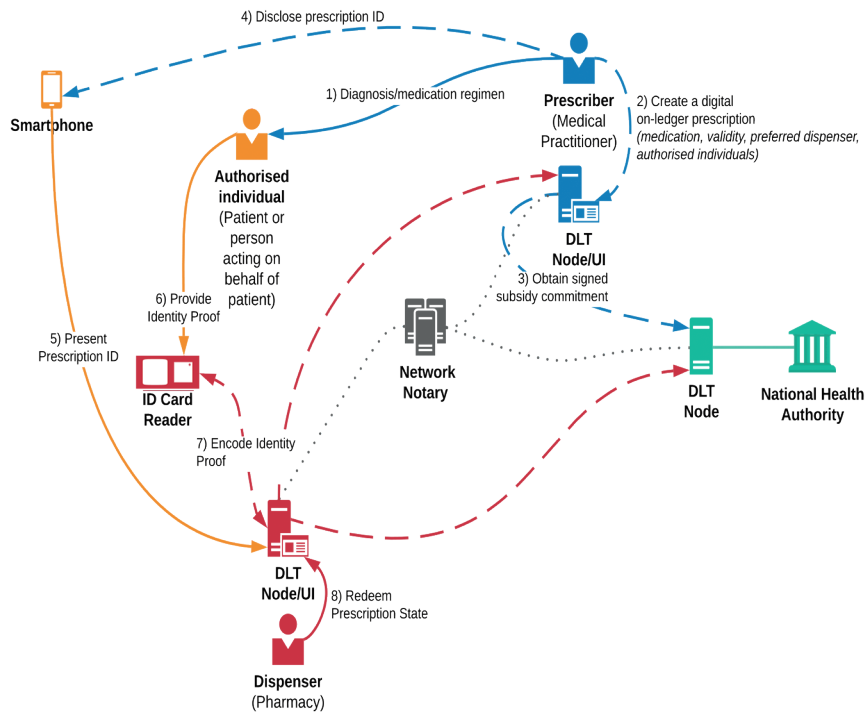
Benefits:

- Capacity to verify collection of prescriptions by patient (or known substitute)
- Traceability in the prescription services from prescriber to distributer and then to patient
- Capacity for prescriber to correct prescription errors
- Efficiency and reduction of time lost to error correction
- Peace of mind for patient in knowing that the prescription is correct
- Creation of digital audit trail for authorities in tracking and monitoring prescription services and potential for the created data set to inform future policy decisions. Such data could include geographic activity, type, origin and manufacture of medicines dispensed

Figure 3: **Blockchain's (potential) use in education: University diplomas.** *Source: study by EBRD in cooperation with R3/Ashurst/Maruta)*
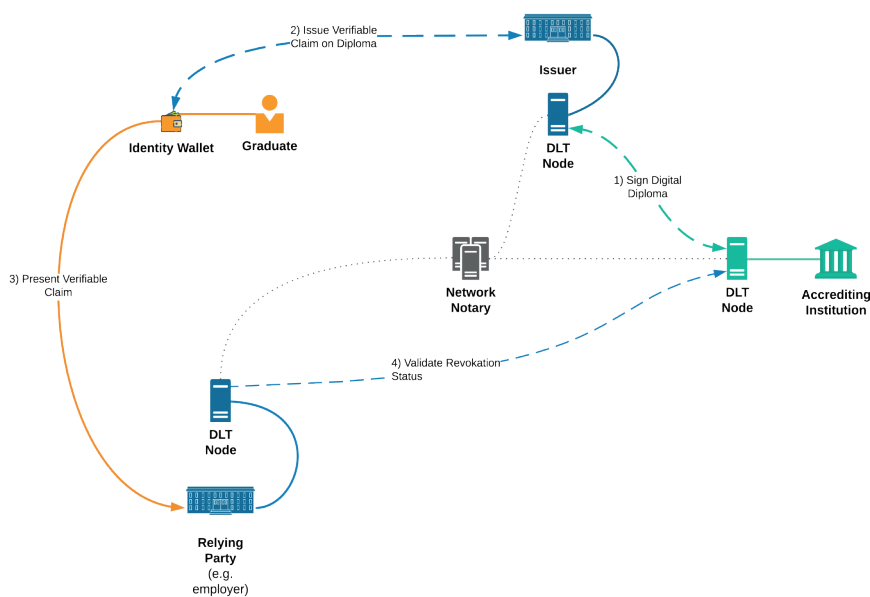
Benefits:

- Streamlining of application processes for candidate and employer
- Reduction of fraud through the verifiable proof of original qualification
- Capacity for awards to be more effectively revoked
- Capacity for awarding institutions to have status revoked
- Could lead and inspire the development of increased use of digital solutions in identity

The study was presented in January 2021 to a wide audience including local and international representatives from the public and private sectors.

" THE CENTRAL AIM
OF THIS STRATEGIC
THEME IS TO UNLEASH
THE POWER OF
TECHNOLOGY TO
BRING ABOUT CHANGE
FOR THE BETTER IN
OUR ECONOMIES OF
OPERATION. "

What does this mean in practice?

In the e-prescriptions case study (see Figure 2)
the use of blockchain would add traceability to
the prescription chain. Every party (the general
practitioner, the patient and the pharmacist)
would have a view of the situation at all times.
This blockchain-enabled, digital audit trail would
also help national health authorities to track
and monitor prescription services to inform
future policy decisions.

In the education case study (see Figure 3),
credentials (that is, certifications) stored on
a blockchain database, would create a more
trustworthy system where the reliant party (that
is, an employer) would have full certainty
that the certification presented by a certain
candidate is genuine.

CONCLUSION: DRIVING DEVELOPMENT WITH TECHNOLOGY

The limitations in the day-to-day interactions brought about by the pandemic, including mandatory isolation and social-distancing rules, have spurred many governments around the world to think about introducing or revamping their digital transformation agendas. It is clear that the "new normal" will be far more tech-driven and, as such, will present new challenges. Both cloud-based solutions and blockchain have important roles to play in this digital transformation, but deploying real-life use-cases based on such technologies triggers important legal, technical and operational considerations that need careful assessment to ensure a smooth transition with lasting benefits.

The EBRD is here to lend a helping hand to overcome such challenges. Digital transition is at the heart of the EBRD's mandate and is one of the three key strategic themes in our 2021-2025 Strategic Capital Framework. The central aim of this strategic theme is to unleash the power of technology to bring about change for the better in our economies of operation. And when it comes to realising this strategic ambition, in addition to actual investments, we will also engage in policy dialogue, capacity building and advisory activities, develop knowledge products and create strategic partnerships.