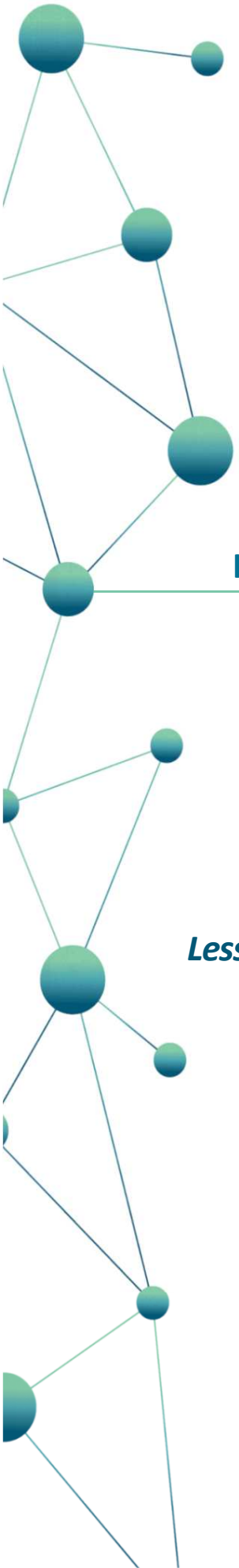

E.DSO
SHAPING SMARTER GRIDS FOR YOUR FUTURE

How the Pandemic Affected the DSO Business Model

The Viral Resilience

Lessons Learnt from One Year of COVID-19 in the European Electric Power Distribution Industry

July 2021

About E.DSO

E.DSO represents the leading Distribution System Operators (DSO) in Europe. It promotes and enables customers empowerment and the increase in the use of clean energy sources through electrification, the development of smart and digital grid technologies in real-life situations, new market designs and regulation.

E.DSO gathers 75 percent of all connected customers serving around 350 million citizens throughout Europe. In a decade, the leading DSOs have coordinated a group of over 40 companies, highly representative of the European industry. E.DSO members manage 7 million kilometres of lines and deliver a consolidated EUR 27 billion a year for grid investments.

Purpose of this paper

The COVID-19 pandemic has presented us, European DSOs, with a variety of unprecedented challenges and opportunities. During the first wave of the pandemic outbreak E.DSO launched an initiative called 'COVID-19 Roundtable" with the aim of sharing knowledge and practices among E.DSO members. Roundtable exchanges contributed to the elaboration of E.DSO's memo 'The way out of pandemic' and recommendations on the Role of DSOs in the European Union's Recovery Plan and the Acceleration of the Green Deal Agenda, developed by Bain & Company in cooperation with E.DSO in June 2020. With seven Roundtables already organized, E.DSO's initiative has become a regular appointment to exchange on lessons learnt from the COVID-19 crises and on the consequent impact and long-term changes for DSOs. Given the unique role we play for the European economy and energy transition, we believe that the Roundtable's lessons can be of interest to a wider audience.

The purpose of this paper is to provide an overview of the lessons learnt in the context of the pandemic. These lessons refer to the adaptability thanks to which we adjusted to the reality of the pandemic and to the importance of cooperation and clear communication in managing a crisis. In a way the pandemic was illustrative for our importance for the sound functioning of the EU's economy and for our central role in the pursuit of a sustainable recovery. We derived lessons also about the opportunities brought by digitalisation for our business model and for data collection and analysis in particular. The pandemic allowed us to also identify some threats to the EU's energy security. These relate to cybersecurity in an increasingly digitalised distribution sector and to dependencies on overseas supply.

Foreword

The outset of the COVID-19 crisis was a challenging period for the European economy as thousands of businesses adjusted to a new reality of distance-based working and minimum physical interaction. We as DSOs were amongst these businesses but carried a more difficult task – the service we perform, electricity distribution, is of crucial significance for the continuity and security of our society and economy. Electricity distribution as a public service activity was one of the most essential preconditions for the EU's shift to distance-based working in early 2020. Therefore, DSOs had to deal not only with our internal company adaptation to the health measures addressing the spread of COVID-19, but equally continue operating our service without disrupting the supply of electricity. This implied a tremendous challenge as electricity consumption patterns changed from professional to residential areas. DSOs overcame this challenge with as little as minor incidents across the EU. This illustrates the sustainability and resiliency of the grid as well as our high standards of professional management and our central role in keeping the EU's economy evolving despite the threats posed by the pandemic. While the paper offers many examples of opportunities emerging from our management of the crisis, one silver lining clearly stands out: strong coordination while often invisible, is a readily available and valuable resource for quick and reliable solutions, especially in times of crisis.

I. How we, the DSOs, adapted to the Pandemic?

The measures deployed by DSOs at the outset of the pandemic were developed with the aim of pursuing three major priorities: the protection of employees, customers and business. With these goals in mind we were able to significantly advance innovation in our work modes and in the operation and delivery of services. New forms of cooperation and business models were created and will remain a crucial part beyond the pandemic – during the EU's recovery and energy transition.

1. Protecting our Employees: *"Keep Safe!"*

Throughout the EU, DSOs introduced measures which have minimised the health risk their employees face in the conduct of professional responsibilities. Many of us established crisis management teams which follow closely governmental recommendations as well as continuously identify and address risks by deploying contingency measures. Clear procedures and rules were set at the very outset of the pandemic to establish the necessary work mode for employees according to the nature of their work. At the height of the pandemic distance-based working was introduced as the go-to option unless physical presence was absolutely necessary. Many DSOs deployed a cellular organisation where professional activities are carried within teams of a restricted number of people so that transmission risks are contained. Personal Protective Equipment (PPE), work protocols and additional vehicles were secured for frontline operational workers and special contingency measures were deployed to safeguard the work and health of employees in critical roles (control room, dispatch, contact centre etc.). All this was done in close communication with Trade Unions and the employees themselves – an approach which provided shared leadership in the management of the pandemic and the change which it necessitated. In the same vein, today inclusive management allows us to preserve a sense of common purpose and teamwork in the remote-working reality and frequent interaction with employees enables to quickly identify and address concerns about well-being or motivation. In this framework today, and with the progress of the vaccination campaign, a greater flexibility and autonomy in choosing the place where to work are now considered a value and a starting point for a new normality.

2. Protecting Customers: *"Keep the Lights On!"*

The pandemic changed not only the way we operate services, but the way we deliver them. Many DSOs deployed new services which increase the safety of customers. Furthering the fourth industrial revolution, we introduced digital services as the default option for business interactions. Examples include the shift to digital communication with customers via chatbots and virtual meetings as well as the development of new software solutions which allow request and management of DSO services solely by means of digital interaction. The shift to digital allowed us to quickly resume the operation of services which were initially curtailed due to the pandemic. Motivated to minimise disruptions, we proactively reached out to customers and helped them learn how to take advantage of the new business model thereby building a relationship based on mutual trust and cooperation.

3. Protecting our Business: *"Keep Going!"*

The quick adaptation to the new business reality, allowed us to keep the undisrupted operation of distribution business. This was made possible by the effective management of relationships with contractors, key service providers and suppliers. The shift to distance-based work and the development of digital channels of communication with customers as well as the inclusive cooperation with employees and stakeholders – all this enabled us to not only successfully manage but seek opportunities in the crisis. Through close cooperation with health authorities, we stayed informed about the newest risks and measures. Communication between DSOs on a national and EU level led to increased sharing of best practices about health management and business operation. Through forward planning, risks related to

supply chains were largely avoided. We found ourselves key actors in the reduction of the EU's economy slump by keeping investments stable and continuing the integration into the grid of prosumers, renewable generation and energy communities. This is suggestive of the profound changes the electricity distribution business is expected to undergo in the coming years and prompts us to invest in the training of new skills for employees to meet the future demands of the sector.

II. What the Pandemic taught us?

1. "Be Ready. Always."

The recognition of COVID-19 as a threat to employee well-being and business in general allowed us to introduce early-on measures for the safeguard of assets and people. **Our flexibility was the key to managing this change whereby processes were altogether adapted in line with a holistic, complete, and proactive approach.** This attitude contributed to the setting of priorities, the identification and addressing of risks in due time and to the deployment of clear procedures and sound measures to protect employee as well as customer well-being. The result of our flexible attitude was a clear shift to a new digital business model as not simply a provisional but a long-term mode of work and business operation.

2. Close Cooperation and Clear Communication are the Key

All of E.DSO's members agreed that **the successful management of the pandemic was only possible thanks to the clear communication and close cooperation with stakeholders, institutions and communities**. This conclusion was relevant in the case of safeguarding employee well-being where trade unions and workers themselves were frequently consulted as regards the best way to protect health while continuing business operation. Similarly, a proactive approach to customer engagement allowed us to deliver our services in an environment of trust and cooperation. We would not have succeeded in providing an undisrupted supply of electricity unless for the sincerity and reliability of our contractors, service providers and suppliers. Finally, cooperation on a broader level between DSOs led to sharing of insight and with governments and institutions – to an acknowledgment about our central role in the economic recovery of the EU and the acceleration of the energy transition.

3. DSOs are at the Core of a Sustainable Recovery

Despite the slowdown the European economy experiences and the uncertainty caused by the COVID-19 pandemic, the DSO sector remains strong and viable. E.DSO's members widely share those investments **have not fallen and there are no immediate risks for the continuity of businesses**. While we recognise that there was an overall drop in the volume of electricity distributed, it was much smaller than initially expected. Today we witness also a rising demand for the integration of renewable sources as more and more businesses, customers and communities seek investment opportunities in the sector. The epidemic did not stop or even slow down this tendency as some E.DSO members report that in 2020, the capacity of connected micro-installations increased by 321% compared to 2019. This shows **the central role DSOs will play in the energy transition and the green recovery of the EU**. The various modalities of flexibility introduced by the Clean Energy Package will be integrated and balanced primarily at the distribution level and distribution grids will become the backbone of an increasingly integrated, decentralised and digitalised energy system.

While this investment track illustrates that we are more than able to carry out our role at the frontline of the energy transition and the green recovery, some E.DSO members shared important concerns about the EU's value chains for electricity distribution and its implications for the Union's energy security. While some DSOs confirmed that forward planning helped them avoid significant issues in the supply of equipment, others noticed that at particular moments the demand for renewables integration could not be met with the

existing supply of cables and equipment. This prompted concerns about the implications of the value chain – **a large segment of the sector's supply of equipment is dependent on overseas imports**. This proposition should be read considering **the strategic significance of the electricity distribution sector for the EU's energy security.**

4. Fast-Track Digital Transformation

Many DSOs' key take-aways from the COVID-19 crisis concerned issues pertaining to human and technological resource management. In particular, the need to upscale and fast track ongoing digitalisation and ICT initiatives was highlighted. In line with the commitments articulated in the European Digital Strategy, **the digital transformation of our tools, services and processes constitutes a major change in how we operate and create value for our customers and stakeholders**. Ensuring business continuity and providing stability to the customers who rely on us has been a priority since day one of the crisis. This implied offering flexibility and reliable development platforms, so that technical bodies could continue their work online, in a safe, responsive and well-integrated working environment.

These investments indicate not a provisional but **a long-term change visible all across our business model**. The shift to digital communication in the interaction with customers accelerated the request and delivery of services to the benefit of consumer surplus. Similarly, a digital-based work option facilitated labour mobility and flexibility. Furthermore, metering by means of mobile applications and smart meters constituted to a major opportunity not only for the distance-based operation of services but also for the profound change of the electricity sector. It brought **opportunities for data collection and analysis** which allow us to identify changes in consumption patterns and pre-emptively address demand fluctuations thereby avoiding disruptions in the supply of electricity. This showed that **compared to physical upgrades, digital investments can be transformative in a very short time and for a typically lower cost.**

While the advantages of digitalisation for business efficiency and consumer surplus are undisputed, there is a reverse side to the coin that implies not only benefits but very real security risks. **An increasingly digitalised electricity distribution system, unless complemented with robust security measures, may lead to an increase in the EU's vulnerability to cyberthreats**. DSOs are essential to the energy supply of the EU – a role which will increase in significance as the end-user sectors of our economy and society become more electrified. This means that risks to the cybersecurity of distribution grids translate as risks for the energy security of the entire Union. In this regard, we express a need for a coordinated European approach to the management and control of cyberthreats. The new Network Code on Cybersecurity developed in cooperation by distribution and transmission system operators should establish **minimum harmonisation of cybersecurity practices for an increasingly integrated and inter-connected European energy system**. Such coordination should place at their core trust and transparency in the choice of vendors and services and should facilitate the efficient sharing of threat data by building bridges across cybersecurity communities.

Conclusion

E.DSO's roundtable on lessons learnt from the COVID-19 pandemic showed that in adapting to the challenges of the energy transition, DSOs were driven by three major goals: protecting their employees, their customers and their business. In the pursuit of these goals, DSOs learnt a lot about the opportunities and risks brought by digitalisation, about the importance of being flexible and about cooperation and coordination as a valuable resource for crisis management. We compiled these lessons in the present paper as we believe that in addition to their usefulness for DSOs, they may provide valuable insight for the policy making process at the national and EU levels.

The lessons in short:

1. **"Be Ready. Always."** Our flexibility and early recognition of COVID-19 as a real and viable threat were the key drivers that enabled us to explore and develop new business models which keep our business going and preserve the undisrupted supply of electricity while protecting the health and well-being of our employees and customers alike.
2. **Close Cooperation and Clear Communication are the Key.** From the outset of the pandemic, we adopted an inclusive approach to management and invariably sought the input and views of employees, stakeholders, and customers. This contributed to a shared leadership in the management of the pandemic's consequences at all stages. We prioritized teamwork and common purpose while building a relationship of trust and cooperation with customers. The sharing of ideas and practices with other DSOs allowed us to coordinate and improve solutions. Last but not least, close interaction with institutions allowed us to quickly deploy the latest health measures while realizing the importance of streamlined permitting procedures for the acceleration of the EU's recovery.
3. **DSOs are at the Core of a Sustainable Recovery.** Investments in the DSO sector during the pandemic remained stable with a rising pressure for renewables integration. This shows the central role DSOs will play in the energy transition as distribution grids become the backbone of an increasingly integrated, decentralised, and digitalised energy system. While DSOs are more than fit to carry out this role, the greater electrification of our society and economy implies a rising significance of the distribution sector for the energy security of the EU. In this regard many DSOs share concerns about the EU's dependence on overseas supply for electricity distribution equipment.
4. **Fast-Track Digital Transformation.** The pandemic furthered the fourth industrial revolution and turned digital solutions into the primary option for working and service operation. We invested in the development of software solutions and communication channels which streamline interaction amongst employees and customers and facilitate procedures. We acknowledge digitalisation as the way forward in our business model and recognise the many opportunities it brings for improved data collection and analysis and for better management of the grid and our services. We recognise, however, that an increasingly digitalised electricity distribution may lead to cybersecurity threats for the EU's energy supply which should be duly addressed with robust security measures.

E.DSO is a European association gathering leading electricity distribution system operators (DSOs) **shaping smart grids for your future.**

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