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Data and analysis of the impact on users of from the COVID-19 lockdown on the use of ICT products and services

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**TECHNICAL REPORT**

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# Foreword

This Technical Report (TR) has been produced by {ETSI Technical Committee|ETSI Project|<other>} <long techbody> (<short techbody>).

# Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](https://portal.etsi.org/Services/editHelp%21/Howtostart/ETSIDraftingRules.aspx) (Verbal forms for the expression of provisions).

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# Executive summary

# Introduction

# 1 Scope

The present document provides data from surveys conducted with users on their private and professional usages and also data from different publications. It also includes feedbacks from User Associations which receive complains from their members, that need to be taken into account for future lockdowns or use of communication tools.

The Lockdown due to Covid-19 has created new needs for the users and new use cases (for e-learning, e-working, entertainments, communication,...).

The Technical report defines the basis of a survey to be conducted in different European countries. It also provides data of usages and complaints of users and the analysis to be taken into account by regulators, network operators, manufacturers, service providers for the products, services, and for different types of users and of use cases.

It also identifies needs for standardization, regulation, innovation to answer to user needs.

Note: User Group conducted surveys before the pandemic period (see [i.1] and [i.2]. The TR includes the results of these surveys on parameters that have also been considered in the potential new surveys.

# 2 References

## 2.1 Normative references

Normative references are not applicable in the present document.

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TR 103 438: "User Group; User centric approach in Digital Ecosystem".

[i.2] ETSI EG 203 602: "User Group; User Centric Approach: Guidance for users; Best practices to interact in the Digital Ecosystem".

# 3 Definition of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the [following] terms [given in ... and the following] apply:

## 3.2 Symbols

For the purposes of the present document, the [following] symbols [given in ... and the following] apply:

## 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

COVID-19

CRM

ERP

HR

IOT

IT

REDs

SMB

UNESCO

USD

# 4 Impact of lockdown and challenges

## 4.0 Introduction

The COVID-19 crisis has raised a number of societal, ethical and policy challenges. Some of them are connected to increased use of digital tools in our everyday life during the confinement, mainly to continue working, for being connected to other people, being informed, for leisure, shopping, medical care.

This section focuses on the lockdown impact on the uses of digital, the development of new services or the improvement of existing one, and the transformations induced in organizations.

But it also looks at what is happening now when returning to a normal situation or during less strict confinement than the first one.

To do this, we will successively explore different surveys or studies carried out on an international scale on the following four major themes:

1) Work, digital work and business transformation

2) Commerce and e-commerce

3) Education and e-learning

4) Medical care and pandemic tools

## 4.1 Work and digital work

### 4.1.1 Digital transformation / “Tech republic”

Due to the pandemic, enterprises reallocate budget and resources away from digitizing paper and toward communication and collaboration tools needed for employees working remotely

TechRepublic Premium [B.1] wanted to find out exactly how the pandemic has led businesses to modify or shift their digital transformation objectives. It polled 110 SMB decision-makers and compared the results to a similar survey conducted last year

In 2020, 60% of respondents said that COVID-19 forced them to alter their digital transformation plans. That number increased to 62% this year.

Digital transformation priorities also changed year over year. In 2020, the majority of survey respondents (68%) focused on implementing remote digital tech that could facilitate collaboration, digital and online training (56%) and IT and business process automation (39%).

In 2021, however, only 32% of respondents were prioritizing collaboration technology for remote workers. Further, focusing on digital and online training decreased to 26% and IT business process automation only ranked high for 23% of respondents. Social media initiatives topped digital transformation projects for 23% of respondents last year, but that number decreased to 8% this year.

By far, digital capabilities centered around collaboration tools brought the greatest benefit for 42% respondents in 2021. Cloud-based computing for systems such as HR, CRM, ERP and office systems benefited 17% of respondents, and 8% of respondents cited data analytics as the digital tech delivering the most benefit.

Not all digital technologies delivered a win. According to respondents, digital technologies such as social media (23%) and IoT devices (14%) failed to deliver.

Overall, more than a quarter of respondents had no complaints about their digital technologies.

Budgets continue to reflect the need for increased digitalization projects. Thirty-eight percent of survey respondents reported they will spend more on digital transformation in 2022 than they did in 2021, and 31% said that the level of digital spending would remain the same as in 2021. Only 7% said they will spend less than in 2021.

### 4.1.2 impact of covid 19 on the industry

[B.2] Pan-European survey on the impact of COVID-19 on the digital industry

DIGITALEUROPE, in collaboration with 14 national trade associations from across Europe, conducted a survey of 634 digital businesses of all sizes between 17 March and 16 April 2020.

This survey

* [Business impact of COVID-19](https://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#impact)
* [Impact on supply chain](https://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#deliveries)
* [Type of impacts](https://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#type)
* [% of employees that can work from home](https://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#home)
* [Measures taken by the digital industry](https://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#measures)

## 4.2. commerce and e-commerce

### 4.2.1 Impact of coronavirus 19 on e-commerce europe / survey - january 2021

The survey was addressed to Ecommerce Europe’s national association members and counts a total of 19 contributions1, highlighting the current situation in different European countries.

*The impact of the closure of brick-and- mortar shops on online sales*

The majority of the respondents state that the closure of brick-and-mortar shops had a positive impact on online sales or at least has resulted in some increase in sales. Some contributions state that the increase in online sales was even higher for traditional retailers which also operate online, as opposed to pure players2, yet both categories experienced a strong growth in online sales. Respondents elaborate that events such as Black Friday and the Christmas shopping period had a strong and positive impact on online sales, due to the restrictions on traditional retail, with the clarification that some e-commerce subcategories such as products fared better than others (i.e. services).

*The impact of COVID-19 on the perception of e-commerce per country*

In terms of the perception of e-commerce during the COVID-19 crisis, all respondents report a positive public perception for the sector, including a positive political perception for most of the contributions. However, France, Belgium, Austria and Spain report a mainly negative focus on large e-commerce players. Additionally, Italy elaborates that part of the public has raised objections in defence of neighbourhood shops and against online shops, a sentiment voiced also by Denmark. Nevertheless, other countries reported successful experiences of brick-and-mortar neighbourhood shops that moved online to continue to sell to their consumers. For instance, in France, the crisis has highlighted the consumers’ expectation to have local shops offering the possibility of online shopping, with a preference for home delivery. This expectation, which has been present since the start of the confinement and beyond, clearly shows the interest of shoppers for an omnichannel offer available from major players in online sales and which is now expected also from their local, neighbourhood merchants.

*E-commerce growth: estimation 2020*

Looking at the changes in product sales online in 2020, all respondents note positive growth, ranging between 5-10% in Poland to 60-75% in Finland. The development in online sales of services, however, is not as positive, with 6 respondents (Norway, Austria, Bulgaria, France, the Netherlands and Italy) reporting decreases compared to 2019, with Norway noting a decrease in the online sale of services as large as 60% compared to 2019. Combining the developments in online sales of products and services for 2020, most of the respondents estimate a growth in e-commerce sales between 44% in Ireland and 4% in the Netherlands. However, Italy and Norway report an overall decrease of respectively 20% and 3% compared to 2019, as a result of the overwhelming decrease of the online sales of services. Therefore, while the e-commerce sector in Europe can demonstrate overall growth in 2020, this trend is not universal and depends on the diverging demand for goods and services during the pandemic. The prognosis of all respondents for the development of the e-commerce sector in 2021 is positive, with 11 respondents feeling “very confident” and 8 “rather confident” about the sector’s growth in the upcoming year

### 4.2.2 E-commerce and COVID-19

[B.3]

Coronavirus impact the whole e-commerce business of the world. E-commerce has experienced rapid growth since its humble beginnings with e-commerce sales projected to grow to 5 double 9.2 million USD by 2024. Do to COVID-19 sales spike 25% in March 2020 alone and we can see the status of retail websites during cobbled in the following table.

Top Retail e-Commerce Websites in COVID-19 Pandemic



Source [B.4]

*Positive Impact of COVID-19 on e-Commerce*

* •  Wide Product Variety: The usage of E Commerce has been increasing rapidly for the past 20 years. In the global marketplace with an almost endless choice of brands and products to choose from, consumers are not limited by the availability of specific products in their local town, city or country. The width and depth of product sold through online traffic are unbeatable.
* •  Lower Prices: This is one of the biggest e-commerce advantage. Online prices are typically lower than traditional store prices as less staff is required to manage an online shop that unable owners to automate inventory management. E Commerce sites are able to offer more discounts that are easier to claim.
* •  Convenient and Safe: online shopping is extremely more convenient and gives more control to consumers. In this COVID-19 pandemic people can do shopping from their bedroom, without heaping out, wait in lines and all challenges that go along with consumerism.
* •  Accessibility: consumers can assess E Commerce services 24 hours a day. They can place order, browse products and avail online services whenever they wish just by a touch of a button. Even people living in remote areas can easily do shopping from their home.
* •  Saves Time: 63% of consumers start their shopping journey online. As it provides massive time savings to the consumers in this busy life. No need to shop in stores, wait in lines and then come back home as you can buy product range at lower prices from the comfort of home.

*Negative Impact of COVID-19 on e-Commerce*

• 6%: ecommerce revenue decreased during lockdown

Of course, there were questions about Covid-19. It seems that most ecommerce companies saw their online revenue increase during the global lockdown in the spring of 2020. According to the survey, 90% of companies saw their online sales increase at least a bit, with 50 percent of respondents claiming it grew by over 100 percent. But still, 6 percent say their ecommerce revenue decreased during the lockdown.

After the lockdown was over, many consumers started shopping at brick-and-mortar retailers again. Still, 86 percent of respondents say their online revenues increased and only 4 percent say it decreased.

• Increased Competition: Increased usage of online traffic due to COVID-19, E Commerce platform

is filled with competitive businesses. It is very important to do a thorough analysis of your competitors to get a better understanding of the market realities. If you are not as compatible as your competitors then you can’t survive in market for a long run.

* •  Profiling Fraudulent Users: Online shopping tools helps in recognizing fraudulent users across different platform. This also create hurdles in working of online Commerce in this panic age. It is challenging time for E Commerce due to COVID-19.
* •  Impacts on parcel delivery: The majority of the respondents state that the COVID-19 situation has caused delays for parcel delivery operators, with 4 respondents qualifying the delays as “severe”. Furthermore, 5 respondents report that parcel delivery operators have resorted to asking consumers to pick up their orders from designated pick-up spots. While some respondents state that the parcel delivery delays during the second lockdown were less severe than the ones during the first one, others report that due to the combined effects of strict lockdown measures, a shift in consumer behavior towards online shopping and the increased demand around the Christmas period, parcel delivery operators had to open extra pick-up points to manage the increased flow of parcels.

## 4.3. Education and e-learning

The impact of the COVID-19 on education – UNESCO study [B.5] –

The data collection was implemented in between December 2020 to July 2021 in the following 11 countries: Burkina Faso, Denmark, Ethiopia, India, Kenya, the Russian Federation, Rwanda, Slovenia, the United Arab Emirates, Uruguay, and Uzbekistan. It thereby covered a wide set of countries from Africa, Asia, Europe, the Gulf region, and South America. REDS collected questionnaire data from a total of 21,063 students, 15,004 teachers and 1,581 principals. Student data were collected in eight countries, teacher data in ten countries and school data in all eleven countries.

The study sifts eight research themes

### 4.3.1. Manifestations of the reference period within countries

This theme is closely related to the research question addressing the education system-level responses to the COVID-19 pandemic. The theme provides a framework for reporting of descriptive profiles of high-level national responses during the period of disruption (due to and including school closures). Questions relating to this theme were addressed to national centres and schools only. They addressed topics associated with the organizational arrangements governing school operation during the period of disruption and the degree to which schools and systems held authority over these arrangements.

### 4.3.2. School/teacher/student background

Measuring the experience of the COVID-19 educational disruption across subgroups is one of the primary purposes of the study.

### 4.3.3. Impact on classroom teaching and learning

This research theme is closely related to the research question addressing the impacts of the COVID-19 pandemic on teaching and learning, and how these were mitigated by measures at the school level.

### 4.3.4. Assessment of student learning and provision of feedback to students

This theme relevant to the two research questions addressing the *impact of the pandemic on staff and students and the support for students to return to regular schooling*. [B.6]

### 4.3.5. Teacher professional support

The change of teaching and learning across schools brought about by the COVID-19 disruption necessitated rapid changes in teaching practices by many teachers across countries. As a consequence, a research theme was associated with the nature of professional support needed by and made available to teachers to help them adapt to the new ways of working. This research theme is most closely related to the two research questions relating to *the impact of the pandemic on teaching and learning and on staff and students* [B.6], however, it also is relevant to the research question associated with *persisting challenges and implications for the future* [B.7].

### 4.3.6. Home engagement/support

While it was not feasible to include a questionnaire for students’ parents/guardians, it was possible to collect evidence from the existing four questionnaires associated with the nature and level of engagement and support for students’ learning available to them at home. This was of particular interest given the emerging policy and research concerns relating to the potential for existing educational inequities associated with students’ access to home support and resources to be exacerbated during the period of disruption when students had limited or no physical access to their school buildings, in-person support or other learning and support resources. This research theme related in particular to the two research questions associated with the *impact of the disruption on teaching and learning and on staff and students* [B.8].

### 4.3.7. Well-being

At the forefront of discussions on the impact of the COVID-19 disruption on schools was, and continues to be, the impact of the changed conditions in schools on the physical, social, and emotional well-being of school staff, students, and their families. There are aspects of the changed conditions associated with well-being that are common across members of school communities, but also some that are specific to the different levels of respondent. Data collected under the well-being research theme is intended to capture an overarching picture of the factors associated with individual well-being, but also what was being done within schools and school systems to support the well-being of school staff, students, and their families. This theme relates directly to the research question addressing the *impacts of the COVID-19 pandemic on school staff and students* [B.6]*, and how these were mitigated by measures within countries*.

### 4.3.8. Persisting changes following the disruption

This research theme is directly relevant to the research question addressing the actions of schools *to support students’ return to regular schooling and the persisting changes in schools and their implications for schooling in the future*.

Under this theme, the potential impact of the experience of the disruption on future schooling are considered from two perspectives:

1. Changes that happened during the disruption that respondents perceived to be positive and may contribute to improvements in regular schooling in the future; and

ii) Changes that may result in school systems and school communities being better prepared should similar disruptions occur in the future.

## 4.4. Medical care and pandemic tools

### 4.4.1 The boost of telemedicine

Telemedicine has experienced a strong boost during the COVID-19 health emergency because of several significant contributions. On the one hand, telemedicine can reduce the number of people visiting medical services, from general practitioners to hospitals, therefore decreasing risks of contagion and spreading of the disease. On the other hand, it serves to optimize the use of medical resources (e.g. imaging scans, lab test) in ‘common pathologies’, freeing resources for the priority of the pandemic. Since there are patients who fear visiting clinical facilities, telemedicine is also helpful to reduce incidences related to certain diseases which can be managed remotely. Severalcurrenttechnologieshaveastrongpotentialfortelemedicinethatisnotyet fully exploited: from wearables and internet-of-things (IoT) devices for health monitoring, to virtual reality environments for human-human interaction.

However, there are also challenges in using telemedicine in the current pandemic. Among them, there is a need for physicians to adapt to a new scenario without the physical presence of the patient. In addition, there is a risk of individuals being remotely guided to perform certain medical procedures that should be carried out by a trained professional. The lack of direct contact with the patient is of particular relevance for a correct diagnosis in many clinical areas, since physicians extract important information from physical contact (e.g. through palpation) and from visual perception (e.g. gait disturbances, skin appearance). The current impossibility of tactile, haptic feedback is an active drawback to be solved for remote diagnosis platforms and tools.

Annex A:
Title of annex

Annex:
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[B.5] UNESCO Study

[B.6] Impact of the pandemic on staff and students and the support for students to return to regular schooling

[B.7] Persisting challenges and implications for the future

[B.8] Impact of the disruption on teaching and learning and on staff and students

Annex:
Change History

| Date | Version | Information about changes |
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| January 2023 | 0.0.1 | Early draft (introduction) |
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