THE IMPACT OF COVID-19 PANDEMIC ON ACCELERATED DIGITIZATION OF THE ECONOMY

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Review article

Abstract: *The main topic of this paper is the impact of COVID-19 pandemic on accelerated digitization of the economy. In order to facilitate understanding of the given topic, the goal of this paper is to explore the causal link and effects that COVID-19 pandemic had on accelerated digitalization of companies around the world. The outbreak of the global COVID-19 pandemic is an absolutely singular phenomenon in recent economic history that will leave deep impact on the economies around the globe. Almost all aspects of our lives have changed in just one year. Hence, today we depend heavily on digital tools, whether it's trade, education, working from home, or something else. Ultimately, this makes it even more difficult for companies to survive, as the expectations they have to meet are now higher than ever. The digital transformation certainly did not begin due to the COVID-19 pandemic, but it was accelerated by it - according to some experts, COVID-19 accelerated digital transformation strategies by an average of six years globally. Many companies recognized the importance of digitizing business processes long before the pandemic and began the digital transformation. However, the appearance of the coronavirus has forced companies to adapt to the new circumstances practically overnight. COVID-19 has turned digitization from a "nice to have" to a "must have" for many organizations, forcing them to adapt and modernize quickly in order to keep their operations running. Everything that could be digitized has been digitized, and what hasn't (and has no intention of doing so in the next few years) is doomed. Staying in the comfort zone, i.e. deciding that everything is going the old way, is no longer a business option. The value of digitization has become more evident than ever, and those who refused to think about it are now forced to do so. Changes that were brought upon practically overnight in many countries actually helped to drive a digital transformation that has impacted businesses across industries. Exploring how these changes have impacted the businesses can help people understand how organizations can embrace their digital transformation and what parts of these changes will likely be here to last.*

Keywords: *digitization, acceleration, COVID-19, pandemic, economy, technology*

Introduction

The theme of this paper the impact of COVID-19 pandemic on accelerated digitization of the economy. The goal of this paper is to theoretically and practically explore how companies and economies around the world embraced digital technologies much sooner than they have planned, all due to the global pandemic that has put down whole societies and most of economies in a lockdown. On the basis of the topic and purpose of this paper, a working hypothesis has been set - It is possible to prove the causal link between accelerated digitalization as a response to the global pandemic caused by the COVID-19 virus.

The impact of digitalization is not new, the economies around the world entered a new age that presents unprecedented challenges for both public and private sector. Digital tools and technologies invaded the business environment, provoking significant changes in the way we live, travel and work. The spread of digital technologies in the past two decades did not only enable better communication between people but also had a strong impact on creating new business models, new products and new services. This has given rise to new opportunities and challenges - and has triggered the digital transformation of business. With a clear focus on (digital) customer experience and overall stakeholder experience, while optimizing costs, innovating and creating competitive differentiation, digital transformation is set to become the cornerstone of digital economy and forth industrial revolution (Industry 4.0).

The digitalization of business processes in companies and public institutions had an impact on the overall growth of productivity and has created additional value. The need for completely new professions and jobs appeared. Digitalization opened entirely new opportunities for distribution, especially in those industries that could digitalize their products and services and sell them by new distribution channels to unavailable markets. Digital technologies function as agents of change in digital transformation, revealing new capabilities in the business context. Technologies such as cloud, IoT and artificial intelligence are just some of the technologies that encourage changes in the organization. (Factory, 2020)

Last year as well as first months of this year have undoubtedly shown how important digitalization is for the survival of every company and the economy as a whole. The digitalization of the economy has significantly accelerated and moved to a higher place in the list of priorities, even for those companies that have not yet developed a concrete plan for adaptation to the digital age.

When the COVID-19 pandemic broke out, much of the world moved online, accelerating a digital transformation that has been underway for decades. Children with at-home Internet access began attending class remotely; many employees started working from home; and numerous firms adopted digital business models to maintain operations and preserve some revenue flows. Internet traffic in some countries increased by up to 60% shortly after the virus outbreak, underscoring the digital acceleration that the pandemic sparked (OECD, 2020).

Pre-COVID-19, private and public organizations were on a journey towards a digital business model, travelling at varying speeds. But the scale of the pandemic has forced a dramatic acceleration, both in the speed of change and the required investment in digital transformation (KPMG International, 2020). Large number of organizations didn’t implement these changes before the crisis caused by the COVID-19 pandemic mainly because it was not their top business priority. The crisis obviously removed this barrier.

The crisis caused by the COVID-19 pandemic is the most recent example of a crisis with far-reaching consequences for the global socio-economic environment and, consequently, many businesses, the causes of which can be found in factors outside the organizations themselves. On the other hand, there are business crises that arise as a result of internal causes, which relate to the manner and quality of business and are directly related to the management and implementation of business processes. In any

case, a business crisis, caused by either external or internal factors, is an unexpected event or a series of related events that cause significant disruption to various aspects of business and consequently disrupt the stability and sustainability of the organization. It is for these reasons that many businesses have embraced digital technologies as an opportunity to manage the crisis more easily in the era of COVID-19 pandemic, but also to become more resilient to all future crises. Awareness of the importance of digitalization of business has become one of the key traits of every successful manager nowadays.

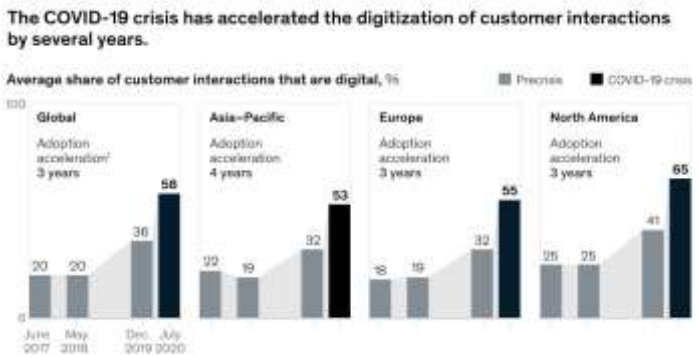
Accelerated digitization as a response to the crisis

When Covid-19 struck, it forced societal changes around the globe. Nearly overnight, governments issued orders that limited large gatherings of people, restricted in-person business operations, and encouraged people to work from home as much as possible. In response, businesses and schools alike began to look for ways to continue their operations remotely, thanks to the internet. They turned to various collaboration platforms and video conferencing capacities to remain engaged with their colleagues, clients, and students while working from home offices (EHL Insights, 2021). COVID-19 has caused leaders to rethink their priorities, with an emphasis on immediate challenges like falling revenues, security concerns and interrupted supply chains, which have focused minds on the here and now and demand immediate action. In addressing these concerns, they also realized that the inexorable shift to digital has become today's rather than tomorrow's priority.

In just a few months' time, the COVID-19 crisis has brought about years of change in the way companies in all sectors and regions do business. According to a new McKinsey Global Survey of executives, their companies have accelerated the digitization of their customer and supply-chain interactions and of their internal operations by three to four years. And the share of digital or digitally enabled products in their portfolios has accelerated by a shocking seven years. What's more, most of them expect most of these changes to be long lasting and are already making the kinds of investments that all but ensure they will stick. (LaBerge, O'Toole, Schneider, & Smaje, 2020).

During the pandemic, consumers have moved dramatically toward online channels, and companies and industries have responded in turn. There is a clear rapid shift toward interacting with customers through digital channels. The rates of adoption are years ahead of where they were before the COVID-19 pandemic, which is shown in the Graph 1 below.

Graph 1. Accelerated digitalization of customer interactions



Source: (LaBerge, O'Toole, Schneider, & Smaje, 2020)

Perhaps more surprising is the speedup in creating digital or digitally enhanced offerings. Across regions, the results of the McKinsey Global Survey suggest a seven-year increase, on average, in the rate at which companies are developing these products and services. There is a similar mix of types of digital products in companies portfolios before and during the pandemic. This finding suggests that during the crisis, companies have probably refocused their offerings rather than made huge leaps in product development in the span of a few months (Graph 2). (LaBerge, O'Toole, Schneider, & Smaje, 2020)

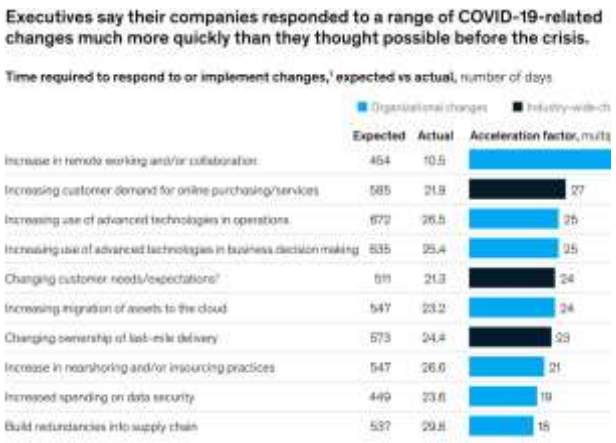
Graph 2. The share of digital offerings

Source: (LaBerge, O'Toole, Schneider, & Smaje, 2020)

The pandemic and the resulting economic crisis have accelerated the digitalization of economy and society as a whole, so we can see that many changes have taken place in a very short period of time - both the public and private sectors have begun to digitize rapidly.

The speed with which companies have responded to the COVID-19-related crisis & changes is, remarkably, even greater than anyone expected. McKinsey Global Survey results suggest that many of these changes were adopted 20 to 25 times faster than expected. In the case of remote working, companies moved 40 times more quickly than they thought possible before the pandemic. Before then, it would have taken more than a year to implement the level of remote working that took place during the crisis. In actuality, it took an average of 11 days to implement a workable solution, and nearly all of the companies have stood up workable solutions within a few months (Graph 3). (LaBerge, O'Toole, Schneider, & Smaje, 2020)

Graph 3. The speed of adoption of changes in COVID-19 pandemic



Source: (LaBerge, O'Toole, Schneider, & Smaje, 2020)

The COVID-19 pandemic and lockdown measures have introduced remote (home based) working and with it the use of digital tools – which was mostly forcefully adopted by most of the companies as well as public sector organizations in the affected countries. While some organizations have already practiced remote work, for many this was a completely new situation which, of course, brought many new challenges. One of the main questions was how to enable geographically dislocated employees to work in their usual way of working. For some companies, this issue is completely justified because they are primarily related to their physical location such as manufacturing companies which are bound to their manufacturing facilities and most of their employees, with the best of intentions, simply cannot take their standard job home and do it 'remotely'. However, for most of the companies out there, there was no such issue, mainly thanks to new digital technologies and tools which most companies adopted even earlier but fully utilized during the pandemic.

As mentioned before, digitalization was already high on most organizations' agendas even before the pandemic and has only risen in its importance since. According to the global consulting company KPMG Global survey into the impact of COVID-19 on digital transformation, 69% of respondents in the survey said that their digital transformation strategy was a 'high' or 'top' priority prior to the pandemic, but COVID-19 pandemic accelerated implementation of their digital transformation strategy in 67% of the companies under this survey. Also, 63% of the respondents said that they have increased their budget for digital transformation (KPMG International, 2020). It is clear that most companies have accelerated the speed of digitization to mitigate the impact of the pandemic on global economy.

The COVID-19 pandemic has brought massive and unexpected life twists, but it did not grind everything to a halt. While it is true the COVID-19 has caused catastrophic

health, social and economic effects, we were fortunate that technology has advanced so much that we were able continue communicating and working with one another, albeit only virtually. The pandemic has shown just how internet consumption can change drastically, even overnight. According to the estimates of World Economic Forum, stay-at-home orders, compounded with increased dependence on digital services for both entertainment (for example, site streaming) and work (for example, videoconferencing), have led to a 20% surge in total internet usage. Vodafone, a telecommunications company in Europe, has recorded as much as a 50% increase in internet traffic during the pandemic (Crawford, 2021).

In this regard it is important to mention the role of the Internet and the importance of its stability and reliability in keeping our businesses and personal lives going on. For that, we have to thank the internet's early foundation and the high-tech organizations that have silently kept the worldwide web running. Connectivity is one of the pillars of digital transformation, it is the enabler of digitization which only goes to show the importance of the resilience of Internet.

COVID-19 has raised the stakes around digital access and engagement, reinforcing the fact that connectivity and use of digital technologies are dynamic goals. Although some online activity may decline as COVID-19 treatments begin to emerge and enable greater in-person interactions, it is likely to remain high in areas for which the pandemic has acted as a catalyst, including telework, e-commerce, e-health and e-payments. This maintains pressure on establishing high-quality connectivity as well as boosting the ability of people and firms to use increasingly sophisticated digital solutions. (OECD, 2020)

Technology offers businesses across industries incredible potential to engage with people around the world at a moment's notice. Prior to the pandemic, many organizations were just beginning to see the potential that many of these capabilities offered their businesses. However, when in-person meetings and work was limited in response to COVID-19, they quickly realized just how powerful technology can be. The pandemic helped to accelerate the digital transformation and created a landscape that will continue to encourage innovation and technological adoption moving forward. As businesses begin to better understand the capabilities of these types of modern technology, they will also begin to understand the opportunities that lie before them, even after the pandemic is over. (EHL Insights, 2021)

Digitally transformed companies will likely have the edge in the COVID-19 recovery phase over other companies. This is because they will be able to respond with greater agility to customer, employee and supplier needs, because their decisions will be informed by data, while automation of their organizational processes will help them scale faster.

The support of the governments

The digitalization of public services has improved greatly in many countries of the European Union. A great number of member-countries have enabled access to almost all public services via digital technologies. Local development is now based on concepts of "smart city" and "smart village" in which digital technologies are used to create local digital ecosystems and to develop smart communal services and improvement of life standard. The digital transformation of economic systems and public sector is today considered as a huge opportunity for starting a new cycle of long-term sustainable economic development. It would, however, be wrong to expect from digital technologies to solve all unsolved problems of economic growth, threatened by stagnation. It's mandatory to integrate digital and physical systems and create an integrated economy that's going to create new opportunities for socio-economic development. (Factory, 2020)

Croatia as well has a significant amount of digital resources at disposal. Technologies are all around us, thanks to the speedy development of mobile networks of the fourth generation, and now even the fifth generation. However, digital technologies

are still not being used enough in private and public sectors as tools for adapting to tectonic changes on global markets, especially in the context of a deep economic crisis caused by the pandemic of COVID-19. The creators of public politics and private economic actors should seize the opportunity of the digital transformation of both economy and society with the goal of elevating the overall social welfare.

The past year has shown the need for agile and flexible information and communication systems that can ensure the functioning of government bodies regardless of the location of the workplace. However, after the pandemic and as a consequence of protection measures, it is very likely that the government budgets will be significantly lower, so the question arises whether digital transformation will be a priority for the public sector.

In this regard and due to the crisis caused by the COVID-19 pandemic, the European Union has adopted a package of measures and entire new programs such as Next Generation EU worth a total of 750 billion euros and React EU worth 55 billion euros, which aim to speed up recovery of economics. This aims to address the reforms in public sectors, namely digitization in order to build sustainable, agile, flexible and more resilient public administration.

Many governments had strengthened their strategic approach to the digital transformation prior to the COVID-19 pandemic. Governments are also devoting more attention to emerging digital technologies such as AI, blockchain and 5G infrastructure, the latter of which is critical to support enhanced mobile broadband, Internet of Things (IoT) devices and AI applications. By mid-2020, 60 countries had a national AI strategy, and in the last couple of years several countries have issued national 5G strategies. Blockchain and quantum computing are also attracting increasing policy attention. This circle between digital innovation and digital transformation is a fundamental driver of new business models and markets, and digital technologies hold the potential to strengthen the science and research systems that are proving so critical to countries' COVID-19 response and recovery. This strategic trend is encouraging, but it may not be enough to ensure a resilient and more inclusive digital future. The COVID-19 crisis reinforces the need for a coordinated, whole-of-government policy approach to digital transformation. This requires a balancing act that will not be the same for all countries, as cultural, social and economic factors influence the most suitable policy environment. As governments re-evaluate existing digital policies in light of the COVID-19 crisis, they will face complex, inter-related issues that demand concerted international co-ordination, co-operation and dialogue (OECD, 2020).

In this period of intense economic, sociological and cultural changes in the global economy it is necessary to identify and integrate new technologies in the implementation of the structural reforms in the public sector. The governments across the globe have recognized the positive impacts that digital transformation has on reforms in public sector and on economy in general. They see it as a necessary step for greater competitiveness of their economies and survival in the post COVID-19 digital age, as well as the key factor for building resilience, agility and further economic growth.

Digitalization after the pandemic - next steps in the digital age

During the pandemic, we learned to cope; in the post pandemic world, we need to learn to thrive. Companies emerging from the crisis are realizing that workforces require new capabilities to face the digital and environmental future. Since the onset of the COVID-19 pandemic, digitization processes have sped up due to an increase in demand to work remotely and access information from different locations. Generally, many organizations have undergone a re-negotiation of their relationship to and use of technology because of the pandemic.

As the world looks forward hopefully towards an end of the pandemic, many wonder about the future of many of the changes businesses have made in response to the pandemic. It is likely that many of these

changes are here to stay. Since the pandemic forced brands to eliminate many of the barriers that once stood in their way of digital adoption, such as network security to allow employees to work remotely, it will be significantly easier for companies to operate on a remote basis. Companies have already made key investments to help them protect their digital security while also building a technology stack that allows employees to work from their home office. It is likely that many of these changes will last, with capabilities such as flexible scheduling to allow people to work from home when needed. Businesses have also begun to see the power and potential of digital adoption. Particularly as it comes to business innovation, adopting technology is not only about saving money, but also gaining an edge over competitors and seizing new opportunities in the industry. As businesses realize these advantages, they will be positioned to keep employing technology and taking advantage of what it has to offer. (EHL Insights, 2021)

Working from home and the need to use digital technologies, such as data stored in the cloud and other digital business tools, make it particularly clear that digital business transformation are necessary for survival of economy. Better use of digital business tools and development of internal digital competencies of employees (upscaling) should be the focus of every company today in the times of reduced business intensity. Although this is unlikely to lead to short-term results, we can say with certainty that in the post-COVID-19 crisis period it will be one of the key success factors and the necessity to achieve long-term business sustainability, competitiveness and resilience. But, replacing compulsory office attendance completely with working from home cannot be the goal of our new working world. Yet, the aim should be to develop hybrid working models that optimally combine the advantages of both worlds. This includes, on the one hand, finding ways to promote digital skills for productive working from home and ensuring that employees are motivated despite reduced social interaction. On the other hand, it must become clear when being at the office is necessary.

To compete in the digital, post-COVID-19 age, organizations must attain the capability to connect digitally with customers, suppliers and employees. This means addressing five key challenges:

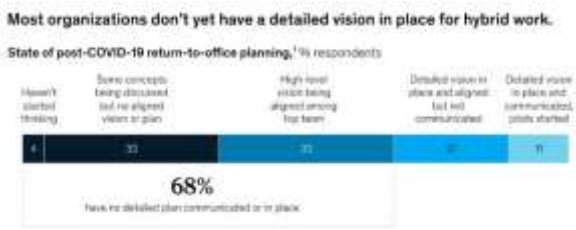
i. **Digital acceleration** - Rapidly build a digital technology infrastructure, to connect front, middle and back offices.
ii. **Customer behavior** - Create customer-centric business, digital commerce-driven models where customers buy and engage through integrated digital channels – increasingly with little or no physical contact.
iii. **Supply chain and operations** - By digitally connecting with suppliers and service providers, and investing in analytics, companies gain resilience and flexibility, to respond to customer needs and market dynamics.
iv. **Ways of working** - Organizations must become more nimble, by accessing the skills they need both internally and via external resources, and combining a physical and a virtual footprint.
v. **Resilience** - Digitally enabled organizations have the capabilities to withstand the impact of pandemics (and other shocks) and should be far more agile on their path to recovery. (KPMG International, 2020)

While we can expect Covid-19 to continue changing the way we use and rely on the internet, the prevalence of digital technologies and connected devices will continue helping organizations remain afloat, an unthinkable feat 20 years ago. In a post-Covid-19 world, many companies will likely continue operating remotely to reduce real estate costs and boost productivity. After all, why would a company require employees to commute for hours when they could use that time more efficiently? The remote work trend began well before the pandemic, but Covid-19 has accelerated it multifold. The work-from-home model opens expansive opportunities for economic growth, global talent recruitment, job creation and,

eventually, improved human prosperity and well-being. However, the inherent risk of this model is that those who are not able to access the internet (today, approximately half of the world's population) will be even more disenfranchised than before, and the issue of universal internet access will become even more important than it is now. After 2020, there is hardly a chance we will ever return to doing business the old-fashioned way (Crawford, 2021).

A McKinsey survey of 100 executives found that 90% of them envision a future with some combination of remote and on-site work, but most (68%) have no detailed plan for how it will work (Graph 4). We know the COVID-19 pandemic has changed consumer behavior, attitudes toward office work, and even some views about society itself. But knowing something and knowing what to do about it are two different things. One of the most obvious pandemic takeaways is that workplaces will never be the same, and companies that want to lure workers back to the office in will probably have to find hybrid model. As economies reopen, many companies plan to combine remote work with time in the office to get the best mix of productivity and collaboration. But with employees feeling anxious and burned out, getting the balance of the new hybrid model right is critical. Also, some experts predict the rise of co-working spaces/hubs which can help companies reduce their costs significantly in the years to come

Graph 4. Return to office planning in the post COVID-19 age



Source: (McKinsey & Company, 2021)

In this regard it is also important to mention productivity, which has long been a weak spot in global growth, but the COVID-19 crisis might have kick-started a rise in productivity. As companies shifted rapidly to online channels, automated production tasks, increased operational efficiency, and sped up decision making and innovation of operating models, productivity also rose. New McKinsey research finds that there is potential to accelerate annual productivity growth by about one percentage point in the period to 2024. The stakes are high. One percentage point of additional productivity growth per year in every country to 2024 would imply an increase in per capita GDP ranging from about $1,500 in Spain to about $3,500 in the United States (McKinsey & Company, 2021).

Furthermore, many companies recognize the need to radically change their shape, size, and structure, and to acquire a range of new skills. Through strategic reskilling initiatives, and by embracing the professional 'gig' economy, they can benefit both workers and employers. Additionally, shared services, partnerships, alliances and strategic use of retired staff, brings access to vital talent on a short-to-medium term basis. The 'workforce of the future ecosystem' is becoming more and more digital, increasingly augmented by automation as well as contingent workers (KPMG International, 2020).

Conclusion

Almost all aspects of our lives have changed in just one year. Today, we depend heavily on digital tools, whether it's trade, education, working from home, or something else. Ultimately, this makes it even more difficult for companies to survive, as the expectations they have to meet are now higher than ever. There will be no "return back to old normal". The pandemic is permanently reshaping the way we live and work. Some of the behaviors developed in crisis including wide-scale digital adoption will outlast the pandemic, well after restrictions on activity are lifted. To stay competitive, companies must respond to these behavioral changes and meet emerging customer demands. Savvy organizations will focus now on leveraging advanced analytics to extract insights from their customer data and continue internal and external data integration efforts to develop a more holistic view.

Even prior to the pandemic, technology had become an increasingly important part of the business. Companies were looking at

technology as a helpful mean of engaging with customers, for workplace flexibility, and for a way to introduce automation and faster business processes. However, the spread of the COVID-19 virus and the lockdown measures accelerated these adoptions immensely. It actually forced companies to look into creative digital solutions so that their employees could continue to function and work remotely and continue to serve their client base (EHL Insights, 2021). The pandemic significantly accelerated the adoption of digital products and services as businesses had to quickly pivot, moving operations online and staff to work remotely.

The pace and the degree of digitalization is accelerating in the wake of COVID-19 pandemic, with ever greater pressure to meet customers wherever they are. This calls for flexible, 'commerce everywhere' business models, and a renewed focus on employee experience and purpose, to drive an enhanced customer experience.

Companies and organizations around the world are investing heavily in technology to address immediate concerns like falling revenue and interrupted supply chains in order to build longer-term competitiveness and resilience. Regardless of how this crisis and its aftermath unfold, there is no doubt that digital technologies will continue to transform the way we live and work.

On the positive side, organizations have (to some extent) recognized the importance of digitalization and digital business transformation, but on the other hand, the negative side is that the “means of coercion” - COVID-19 - served as an incentive and catalyst of change. We only hope that relaxation of anti-virus measures will not mean relaxation of accelerated digitalization, technology awareness and the introduction of new opportunities that are easily accessible and easy to implement so that economies around the world will be ready for all future crises.

The results and information obtained from the theoretical research and conducted analysis provide a great insight about the impact of the COVID-19 pandemic on accelerated digitization of economy. Therefore, it is clear that the hypothesis of this paper can be accepted as follows: *It is possible to prove the causal link between accelerated digitalization as a response to the global pandemic caused by the COVID-19 virus*

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