Capgemini invent

EUROPEAN VOICES

# BUILDING DATA BRIDGES

## Why Data Ecosystems Can Be the Next Public Infrastructure

EUROPEAN VOICES

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European Voices brings together viewpoints from our experts in Europe, working at regional, national and international organization level, on topics that will resonate with public sector leaders across the world.

Evolving legislation and data initiatives. The impact of new technologies on citizen service delivery. Governments' responsibility to enable business and sustainable economic growth in a fair society. Affirming European values in the digital domain. As Europe's digital decade unfolds, diverse points of view across the continent offer valuable insights that can build greater understanding and coherence, while providing a benchmark for the international community.

This series offers comparative perspectives to the global public sector community and a window into the latest thinking shaping local policy, technology choices, and citizen-centric innovation.

## ABOUT THIS REPORT

This is the second of two opinion pieces on the future of data. In the first, Data to the People, we described the history, achievements, and immediate future of government open data and public data resources in general, and how they empower society.

Here, we give European leaders insights into how, today, more mature technology and legal frameworks enable governments to actively lead and support the creation of multiple and interoperable collaborative data ecosystems. These become enablers that are instrumental to a country's development. We argue that this is similar to how public bodies contribute to public infrastructure by building motorways or developing the power network. The international community will be inspired by Europe's ambition and use it to benchmark their own role and strategy in enabling the data ecosystems of the future.

More information can be found on Capgemini Invent's website.

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# FOREWORD

The push for governments to embrace open data and make a wealth of information available to the public has already had a profound impact on the relationship between citizens, elected officials, and civil servants. Open data is data that is not confidential or private, most often sourced from the government, that can be redistributed and reused freely with little or no restriction but attributing its source. Over the past decade, we have seen a proliferation of open data initiatives and portals that have liberated treasure troves of valuable data. The datasets were made readily accessible for anyone to reuse and remix in ways that have fostered transparency and deeper insight, while enabling the creation of new businesses and jobs.

The progress made – led to a large degree by the European public sector – put to rest the conventional wisdom that governments are too unwieldy and cumbersome to reinvent themselves and pursue game-changing initiatives.

Yet this journey, as inspiring as it has been, yielded an equally important discovery: open data was not the end but rather the beginning. We have seen how important open data has become for individuals and businesses and the many opportunities it creates.

## Now, we need to do more.

It's time for governments to take the next step; one that has the potential to be even more revolutionary by leveraging the power of their open data foundation to enable a more general model of data sharing in collaborative ecosystems. Governments are in a unique position to facilitate and incentivize the creation of legal, ethical, and sustainable spaces where data can be shared between citizens, businesses, and governments. This is not dissimilar to the way governments already create infrastructure for the public good: bridges, motorways, power networks, sanitation and so on.

We must take a sober approach and acknowledge that this is new territory and one for which we don't yet have all the answers and roadmaps. A big part of Capgemini Invent's role is to help partners explore, learn, and adapt to define the solutions that will succeed. Yet, the absence of clarity is no excuse for inaction. To cite just one example, through its Digital Europe program[1] , the European Union is providing funding to governments, businesses, and other organizations to pursue data ecosystem development. Hesitating now could lead to the more considerable risk of missing out on this financial support and watching the knowledge, experience, and benefits flow elsewhere first.

Finding our way together means confronting the challenges ahead, such as the current immaturity of data systems, legislative regimes, business culture, and the public's concerns around privacy. From there, we can survey the existing attempts to overcome them through policymaking, education, innovation, and incentives. Even if the public sector is just learning to crawl when it comes to creating collaborative data ecosystems infrastructure, the initial movement has clarified the immense opportunities ahead.

By creating fertile terrain for data ecosystems to take root, the public sector has a chance to foster new forms of collaboration that could dramatically improve health, transportation, communications, education, and the economy. These notions may sound grandiose, but there is an urgency in acting now. We stand at a crucial juncture where the public sector can help build the products and services we need for a better society, by supporting the creation of those underlying data ecosystems.

## It's time to seize the moment.

# THE BENEFITS OF SHARING DATA: A SHIFT IN CULTURE AND MINDSET

Data sharing is understandably associated with the evolution of technology. Society has a far greater range of devices, endpoints, and networks that allow for the collection, storage, and analysis of data in technologically sound and secure ways. But more fundamentally, sharing data is not so much a technology transformation as it is a shift in culture and mindset.

While governments worldwide have been adopting forward-thinking open data practices, Europe has emerged as a leader in these initiatives. According to this summer's "Data Sharing Masters" report , from the Capgemini Research Institute (CRI), the European Union's open data portal data.europa.eu has seen tremendous success in providing data access to organizations, businesses, and citizens[2]. Currently, more than 1.3 million datasets are available from 36 countries, sourced from 82 portals in the EU and beyond.

That momentum has positioned the continent's public sector to become a springboard toward the era of data sharing in general, and not just from public sector sources. And yet, compared to the private sector, government has been slower to move ahead in this area. On one side, the same CRI report observed how about 40% of all organizations surveyed had plans to launch a data ecosystem initiative within three years. However, the public sector response seems to be disproportionate, with only 8.9% of public sector officials surveyed having plans to do the same in the next 12 months, and 39% instead saying they remained focusing on strengthening current data initiatives.

Of course, it's laudable that these governments are still dedicated to reinforcing the more traditional open data initiatives. While we can praise the successes in this realm, that doesn't mean these systems have been perfected or that all problems of data ecosystems have been resolved. Indeed, governments should and must continue to invest in these essential building blocks in the years to come.

And yet, the technology and infrastructure around data are leaping ahead rapidly. This allows private industry to push more aggressively into collaborative data ecosystems, where we see executives quickly convinced of the benefits. The tools have never been more mature than they are today, even if no one has wholly reached data-sharing nirvana.

Also, the legal frameworks are evolving to support sharing. The European Union's General Data Protection Regulation (GDPR) was just the first step in a long journey to adapt the legal framework to a digital world. With a starting point of personal data, that journey over the next few years will give us many other pieces of legislation revising and complementing pre-existing regulation around data sharing, cloud infrastructure, smart contracts, data portability, and intellectual property, to name just a few. Contrary to common belief, it is not just Europe being sensitive to these matters. In the US, for example, the California Consumer Privacy Act (CCPA) followed suit about two years after its EU equivalent. And Sundar Pichai himself, the CEO of Google parent company Alphabet, has argued for creating a federal privacy standard in the USA similar to the GDPR.[3]

These advances are resetting the expectations of consumers and citizens in terms of how services are accessed and delivered. Governments that fail to push ahead risk leaving citizens frustrated and disillusioned over the quality of their public sector and its general competence. What will happen if these consumers of public services begin to see other countries rapidly evolving and rolling out highly efficient new services that improve the quality of life and economic opportunity? They will inevitably begin asking why the agencies they are supporting with their taxes can't do the same.

So why are governments lagging? Again, it's too simplistic to simply dismiss this as government ineptitude or the conservative nature of bureaucrats. We've seen the same public sectors pursue open data projects. Instead, let's drill down to examine the specific challenges that data sharing poses for the public sector.

# THE HURDLES AHEAD: REGULATIONS, CULTURE, EDUCATION, AND BUSINESS MODELS

There are four main roadblocks that we must understand to appreciate the special relationship between the public sector and collaborative data ecosystems.

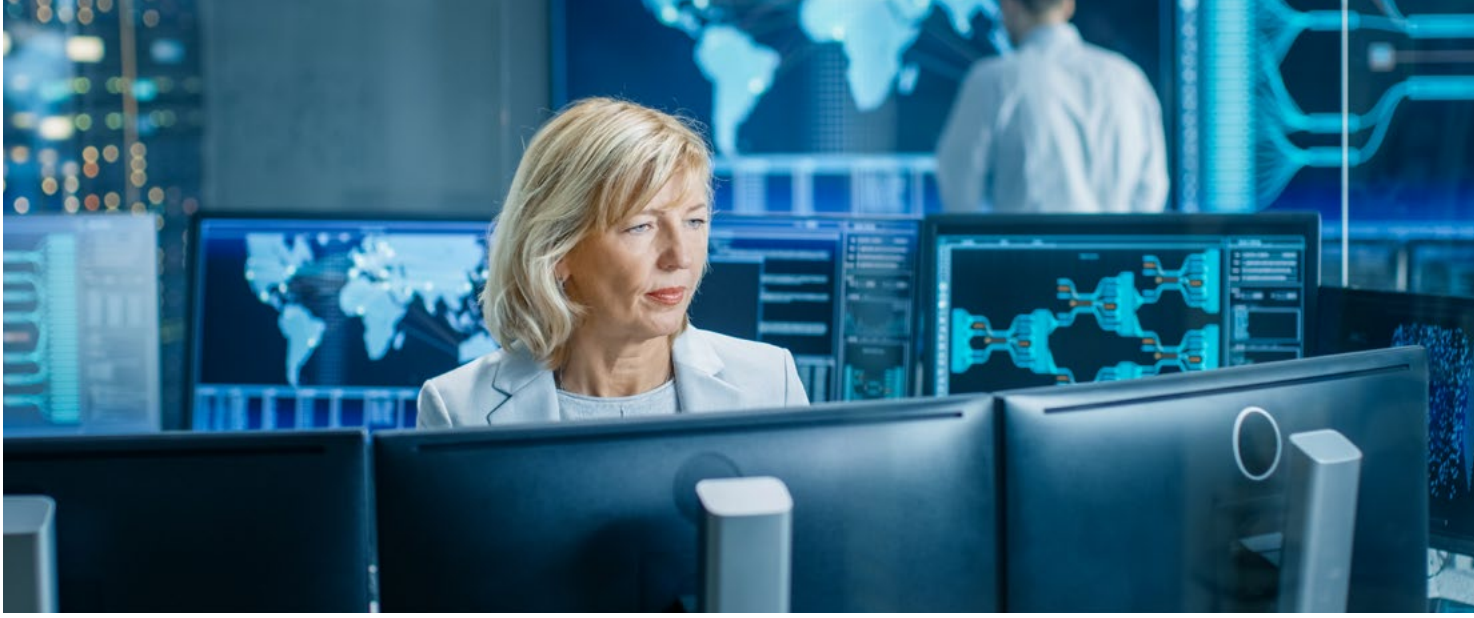
## First, there are the legal and regulatory systems that exist around data.

This goes beyond just the question of privacy and touches on the broader nature of the data in the marketplace. Although the advances described earlier demonstrate substantial progress, they take time. Economic and financial rules have primarily been written to delineate the buying and selling of physical goods. It has become almost trite to say that "data is the new oil," but that overused phrase doesn't quite capture the dynamic here. Oil is a finite product; either you have it, or I have it. And when you burn it, the oil goes away. Data is not finite, we can both have it, and when you use it, it is still there to be used again. Even using the word "selling" to talk about the exchange of data is off base. We need a new vocabulary and a new legal system to support data ecosystems.

## The second challenge is culture.

Businesses are accustomed to believing that their competitive advantages are based on secrecy. But, for the public sector to become an enabler of collaborative data ecosystems, it must find ways to help and accelerate businesses to change that mindset. Governments need to construct dynamics that create a neutral territory allowing companies to experiment with competitors and partners on co-creation initiatives. But again, the rulebook on how to do this has yet to be written.

We can learn a lot from the decades of experience we now have with open-source software. Over the past 30 years, everyone from individual programmers to the most prominent tech corporations (think Cisco, Google, Huawei, and Microsoft) has embraced open-source movements like the Linux operating system. And yet, at the start, the business models and rules of engagement were unknown. Only by taking the plunge, some quickly and some slowly, did these relationships, and the values begin to take shape. Today, Linux powers most computer and network infrastructure we depend upon. It is estimated that the collective contributions of its community created USD 54.1bn of total shared value.[4]



## The third challenge is public perception.

In recent years, the rate and size of cyberattacks have been growing exponentially. Even a simple human mistake can cause significant leaks of confidential or personal data. And the sins of social media platforms have provoked a strong crackdown by policymakers.

Yet this reaction has at times become an overreaction. The demonization of Big Tech has painted all tech with the same sinister brush. Most of us are not aware of how most digital services we use every day are only made possible by perfectly legit data sharing between companies. The media doesn't document those cases where data sharing was used to deliver outstanding, socially impactful results. We don't get enough reporting on how digital is driving breakthroughs in medical research, for example. We don't read about the unprecedented technology achievement of getting the 27 European Union countries to create and agree in record time on the standard behind its Digital COVID Certificate (EUDCC) and develop a plethora of compatible mobile apps. Often called simply the "green pass", the app enabled European citizens to restore traveling seamlessly between countries, a defining characteristic of the Union.

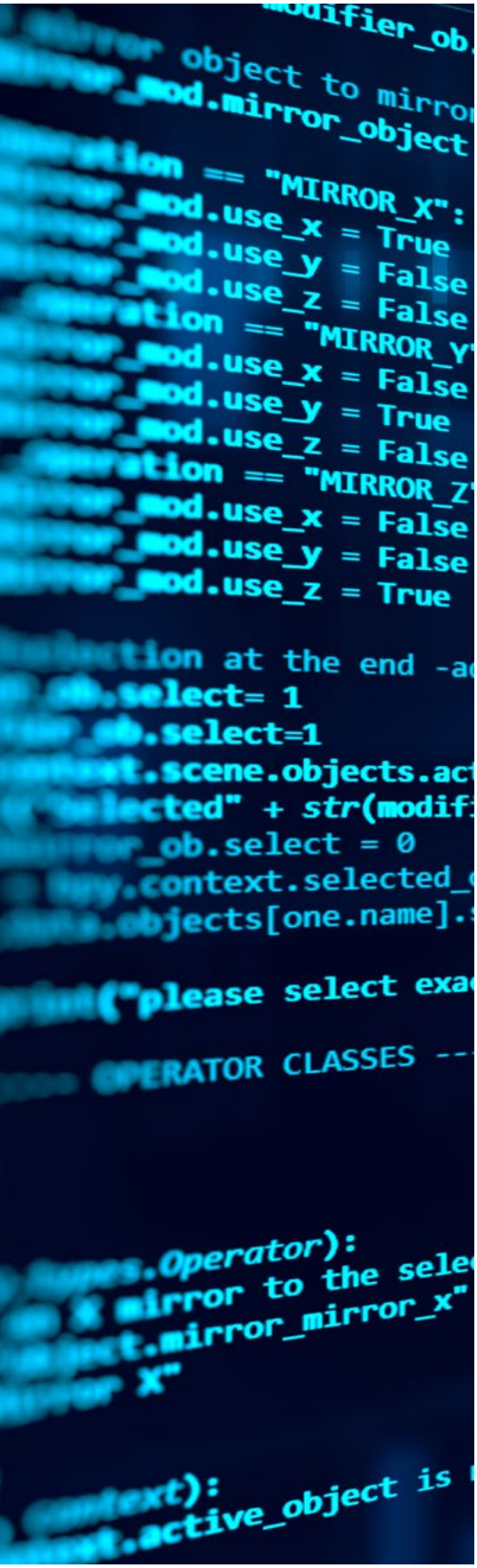
We're somewhat overwhelmed instead by dog-bites-man news: the mistakes, the privacy violations, leaks, the hacks. To make the picture worse, our schools do not often integrate data and digital literacy into their curricula. The scandals and abuses may be everything our children know about data, together with the latest fashionable TikTok challenge.

For the public sector to become a lever for data sharing, governments must find a way to calibrate this discourse more appropriately. The goal should be to help citizens see that when done correctly, with honesty and transparency, it can be acceptable for third parties to use our data to deliver better services that improve society.

## The final hurdle is the lack of proven business models.

Simply put, there are no mature business models. If you start a pizza parlor, you know how the business model works. You know how much it costs to make, the infrastructure you need to buy, how you can price the pizza, and so on. But if you start a data business, you have no idea. Even talking about "price" can be confusing, if we aim at modern collaborative models rather than traditional monetization. There's no textbook that you can follow, and you can only rely on the experience of others: entrepreneurs and organizations like Capgemini that have done this before, whether directly or by supporting their clients. And so, the public sector faces a dilemma: What if it invests big taxpayers' money in a data sharing experiment and no one comes? Governments must find the right carrots to entice businesses into the picture in a way that lowers their risks.

# TIME TO WRITE THE FUTURE




The experience of data ecosystems that we have developed across the public and private sector over many years – alone and as part of working groups such as Team Data Spaces[5] – has made us more curious, better listeners, and helps us recognize patterns. Technology has never been more mature. However, the ultimate textbook about collaborative data ecosystems does not exist. It's time to start writing it.

Those who forge ahead in these early days have a chance to create that textbook with us and establish themselves as pioneers. Think of Big Data in the early 2000s: Did we perhaps know at the get-go how we could put to good use those fantastic new tools to process large volumes of data at unprecedented speed and such low cost? We built the business cases and the best practices as we went.

This way is also open to the public sector around the world. The following offers a roadmap for getting started, made of three goals that are specifically for governments to focus on:

## Goal No. 1: Enhancing the legal framework.

When the European Union first adopted the General Data Protection Regulation (GDPR) several years ago, tech insiders condemned it as a knee-jerk regulatory move by elected officials out of step with the times and the realities of disruptive technologies. Fast forward to now, and GDPR is seen as a proactive framework that has created an essential balance between privacy and innovation by clarifying the rights of the individual over the data that describes them. We can now see that GDPR is just the first brick in this new policy and regulatory structure at the service of healthy data ecosystems.

Some time over the next year or so, Europe's Data Governance Act (DGA) will complete the process to become a regulation and come into effect. The proposed legislation[6] collects extensive policymaking preparatory work and consultations with stakeholders to progress the implementation of the EU data strategy. It will further promote the availability of datasets in the hands of governments, extending it to types of data for which publishing entirely in the open is not an option: typically, intellectual property rights, trade secrets, and personal data, while preserving privacy and confidentiality.

Europe's ambition is also to encourage "data altruism": the opportunity for citizens and organizations to volunteer their personal and confidential data to be reused for the public good. Together, they can address the top challenges in the political agenda, from climate change to health emergencies, such as the Covid-19 pandemic. Even before the DGA, for example, France's Health Data Hub platform is already operational today, bringing together data from various health databases in the country. The hub helps in cataloging citizen healthcare interactions to further research and development in healthcare.

The DGA will also set the basis necessary to regulate data intermediation services: the "operators" acting in the coming European data ecosystems, whether as hosts of the ecosystem or as providers of value-added services.

Combined, these legislative breakthroughs modernize the rules around intellectual property, the obligations of businesses that handle data, and personal rights. Good people will debate the finer points of these rules, and that is healthy. But the more

significant takeaway is the proactive role of the EU and its Member States. Clear regulation can be seen as an enabler rather than a constraint. This approach is sometimes called the European "third way", in contrast with the neoliberalism more typical of technology regulation in the United States or, on the opposite side of the spectrum, state control in China. This clarity will give a significant boost to businesses because (whether they agree with all the policies or not) their executives will be able to plan and align around the new rules and revise their strategy and business models to be timeproof against the backdrop of a society's understanding of data and customs that are changing, and law and ethics with them. Business leaders hate uncertainty. Sharp rules that allow legislators to offer straightforward guidance are the surest way to warm the heart of any executive who is already expending tremendous energy and resources trying to remove obstacles.

## Goal No. 2: Unleashing the use of personal data.

How do we educate citizens to be more trusting of entities that need to use the data that describes them? The key is in reciprocity and transparency.

By reciprocity, we refer to the value individuals get in exchange for the data they are willing to share. We may call it their voluntary "personal data sacrifice". Despite the negative feelings around privacy, people already share massive amounts of personal data. They do so because they feel they are getting valuable services in return, like free email or social connections. The high quality of services convinces them that the tradeoff of sharing their data is worth it. Conversely, we get uncomfortable when that value is not commensurate. Savvy users will spot a lack of reciprocity, and the other side is getting far more out of this data exchange than they are giving. Worse, the other side may be using the data for purposes beyond what was declared or what would be ethically acceptable to the user (hence the insistence on consent by legislation such as EU's ePrivacy and GDPR).

Reciprocity needs to be perceived, and to be perceived it needs to be communicated. When there is a lack of communication and transparency in how data is used, it can get to the point sometimes of being creepy. We all know the feeling of being haunted by identical adverts for the same item on multiple websites, after having Googled for some item we need. The lack of communication around what is commonly called "web tracking", for example, made it so that the technology is not perceived to be at our service – helping consumers be informed about goods we may be interested in purchasing – but rather as supporting retailers as they snoop on us.

But just as often, it's also a question of interface design problems. A well-designed user interface in apps or websites can improve people's perception of these interactions and ease their concerns about the interplay between humans and technology. After the General Data Protection Regulation was adopted, user experience designers regrouped and spent substantial effort in gracefully and effectively integrating in websites and mobile apps the dynamics of "opting-in", of consenting to data processing (and withdrawing that consent), and the granularity and transparency by which those messages were offered to the user.

Beyond adopting carefully designed principles, the public sector has

an important educational role to play. Governments should increase investments in digital literacy to ensure that citizens better grasp both the risks and rewards of sharing data. People are far more willing to take some risk when they understand the potential value of what they receive in return. Earlier in this document we referred to the European Covid Digital Certificate. Its internal workings require some degree of sensitive personal data of 350m citizens to be shared across all of Europe, of course. Still, it has allowed us to go back to some degree of normality without sacrificing caution: meet our friends in a restaurant, travel and watch a football match…

## Goal No. 3: Creating safe spaces for businesses.

This includes creating incentives to encourage business leaders to rethink their culture and business models.

The public sector should highlight the well-documented benefits that flow from co-creation. This requires businesses to defy the secrecy mentality mentioned earlier. Co-creation is only possible when ecosystems made of peers come together, and even rivals can find a way to sit around the table and design new services collaboratively. It's difficult to overcome the legacy of secrecy, but the public sector's pivotal role as an arbiter and convener can create the right conditions.

A big part of this can also be promoting and funding research that documents success stories. The EU has established a precedent with data.europa.eu: its program for promoting open data that has tracked more than 900 use cases[7]. The same has begun for data sharing with the EU Support Centre for Data Sharing program[8] but more needs to be done. Breakthroughs around the ethics, legal, or business elements need to be captured, documented, studied, and reported. A new iPhone or Tesla will get tons of ink in the press. But the benefits of a data ecosystem? Probably yawn-inducing for journalists. So, it's up to the public sector to promote and sell the big wins, so businesses (and citizens!) grasp the benefits and push for more.

As part of the Digital Europe program[9] launched in 2021, the EU is investing €181m on grants to help safe, modern data ecosystems to flourish. Support for these "data spaces" – that's the term and data sharing model favored by the EU policymakers – will be targeting smart cities and communities, and sectors such as agriculture, cultural heritage, finance, mobility and tourism. Pioneer Member States and organizations joining the program will gather significant learnings and experience as these efforts develop. Even before Digital Europe, the German Federal Ministry for Economic Affairs and Energy, for example, has already started a €122m competition to select projects from fields such as finance, health care, law, education, and mobility to demonstrate practical applications of data spaces.[10]

That learning will benefit everyone. At Capgemini Invent, we are eager to find partners to help us write these next chapters of data history.

# CONCLUSION

The only way to make this new era of public data sharing happen is for governments to take the plunge and build the missing infrastructure of collaborative data ecosystems or create the conditions so that businesses does so. Failure to do so would represent a tragic missed opportunity to use data to improve society. Rather than sit on the sidelines and watch others chart this future, be bold and lead the way. When these pioneers succeed, and these public sector data ecosystems deliver on their promise (and we're sure they will), we all need to shout about them from the rooftops.

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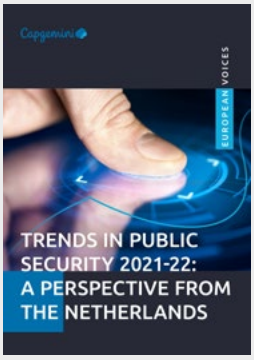

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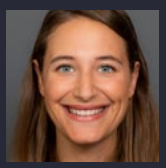

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