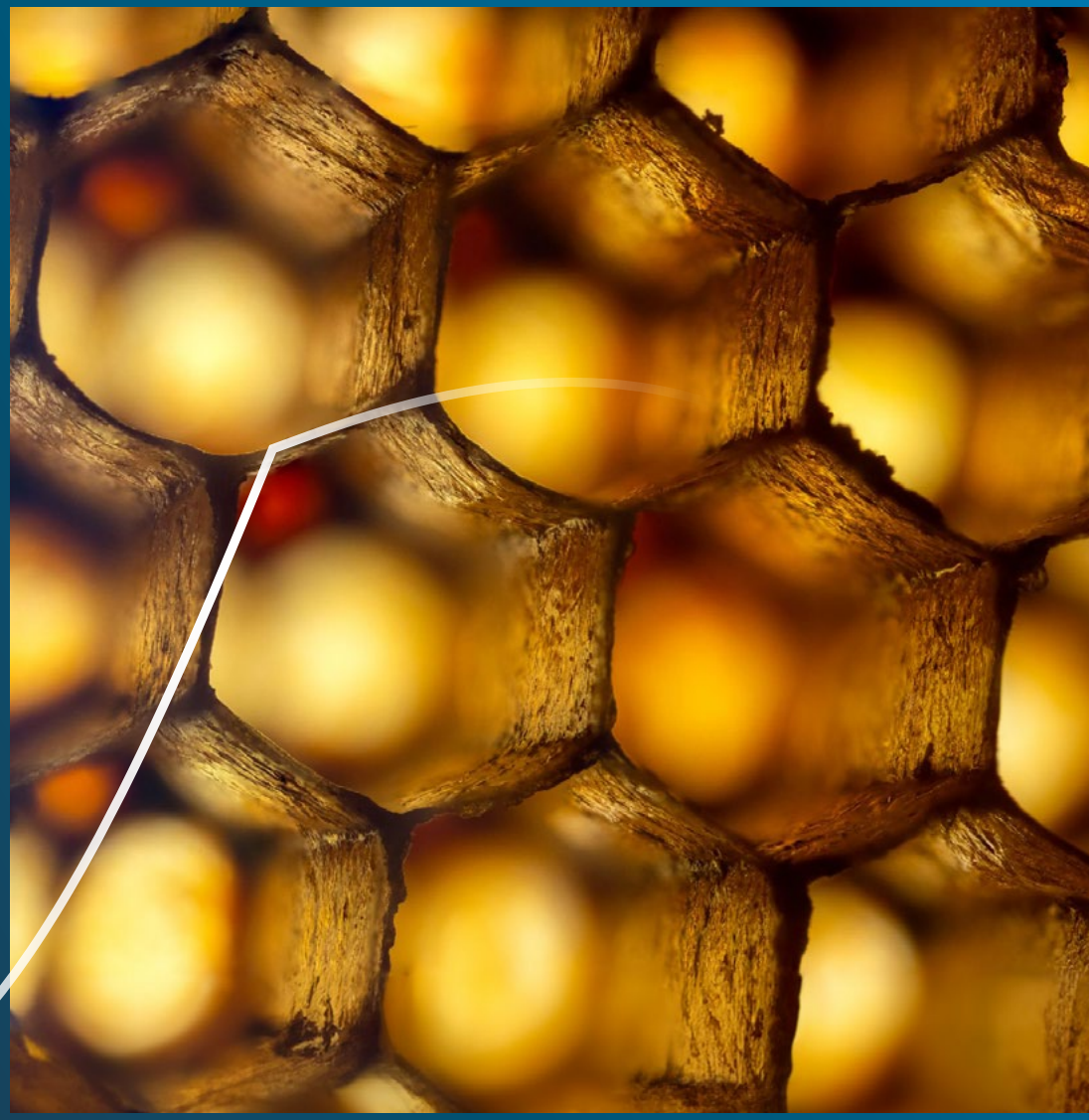
Could *data sharing* accelerate the journey to hyper-personalized customer experience?



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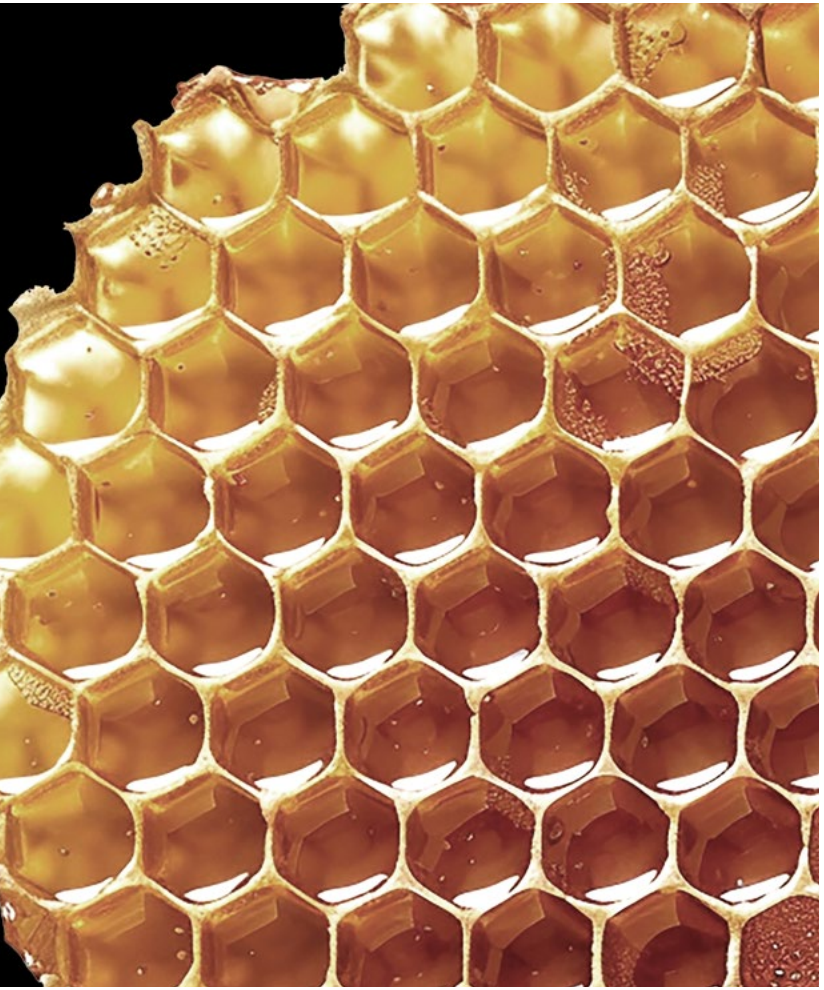


Introduction

Putting the customer first to personalize their every experience is a common practice of how many organizations operate these days. But despite their best intentions, they don't always succeed. Sometimes their products and services target the wrong customer at the worst moment. On other occasions a customer's in-store interaction is a non-existent factor in their digital experience. Could the blame for these mishaps lie with incomplete, inaccurate, or siloed customer data?

In order to hyper-personalize customer interactions without fail, organizations need an abundance of relevant data to make intelligent decisions based on where the customer is, what they want, and how they want to be approached. This is where data sharing and advanced data management can be pivotal in filling in the data gaps to attract and retain more customers. So what's the right data strategy and how can organizations put it to use?

Unlocking collaborative value in the data age

If asked to state the most valuable asset in the world, many enterprises would instinctively say it's data. The immense value of this asset has prompted organizations to look for new, better ways to access it without necessarily owning it.

Data drives the modern world, but it's often confined within organizational departments or brands that limit its potential. With important developments like the soon-to-be elimination of third-party cookies, there's a greater push for sharing data externally.

The best way to do this is by using a data-sharing ecosystem, which offers a secure and compliant solution for collaborative data analysis. Through this ecosystem, brands can gain valuable insights while adhering to evolving privacy regulations.

Understanding enterprise data sharing

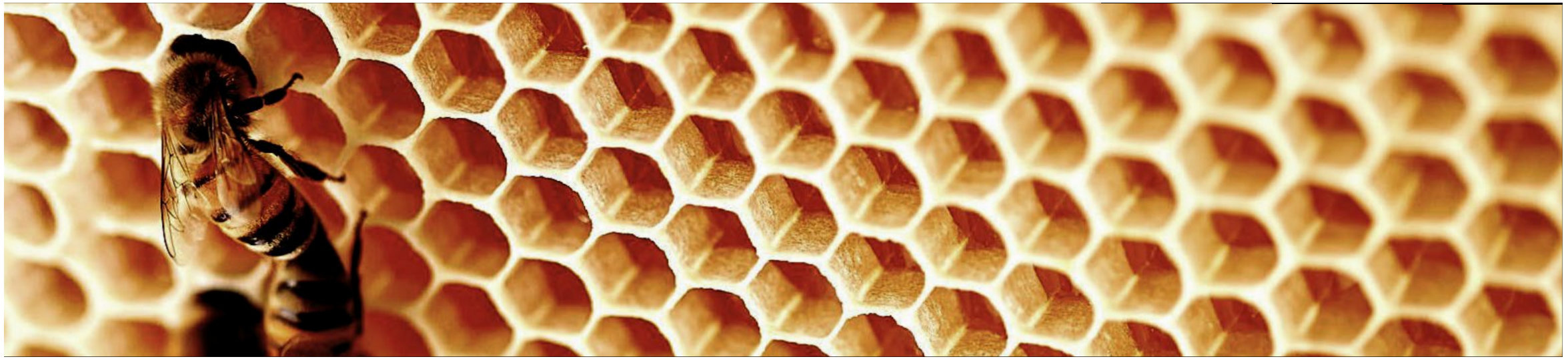
Enterprise data sharing, the intentional exchange of data between organizations for mutual benefit, allows businesses to share both structured and unstructured data. Examples include financial records, customer demographics, sensor readings, and social media interactions.

Just like Uber connects riders with drivers, enabling travel without the need for car ownership, data-sharing partnerships can help organizations get to where they want to go without first acquiring the data needed to get there. They can create a secure and controlled network for data flow between different businesses for new insights and opportunities while respecting and protecting individual privacy.

With shared data, enterprises can better understand customer preferences and behavior to focus on hyper-personalizing customer experiences. They can enable a unified customer view that creates a consistent experience across multiple touchpoints.

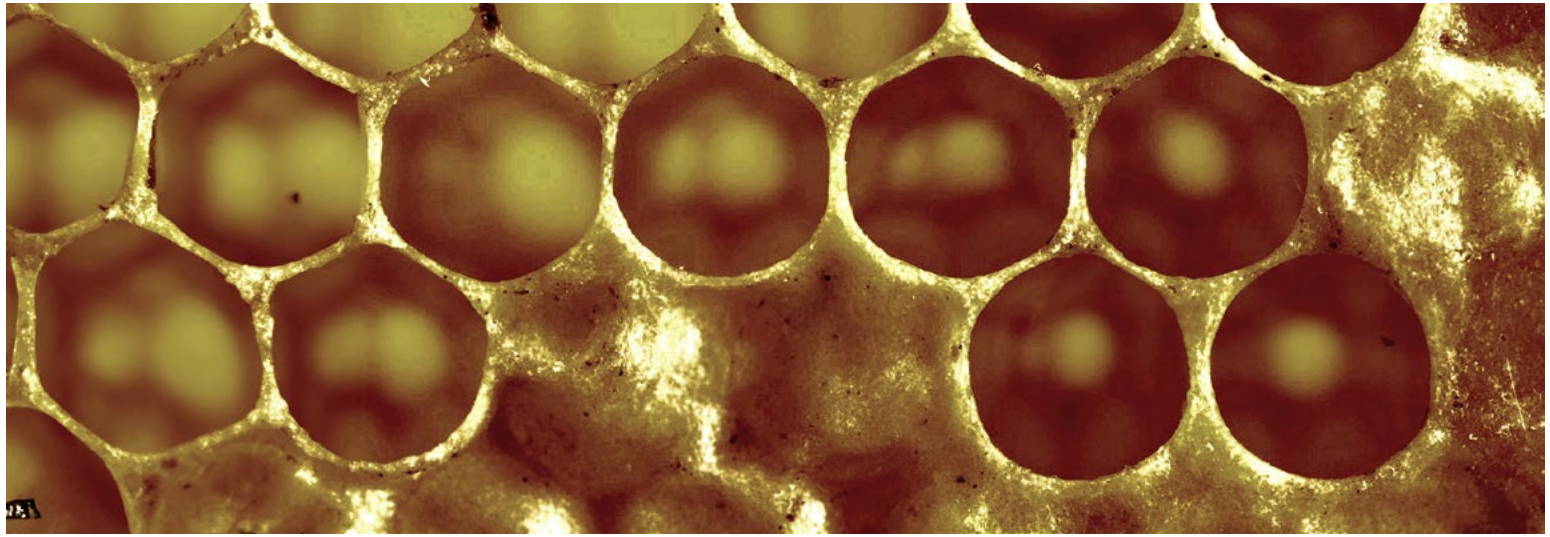
Enterprise data sharing unlocks agility, innovation, and decision-making through various avenues, including:

- Insights from new research and development
- Product and service consumption patterns of customers, along with their purchase, transaction, and usage data
- Tracking and optimizing advertising efficiency thanks to targeted marketing
- Shared aggregate mobility data for smart city services, parking, mapping, and more

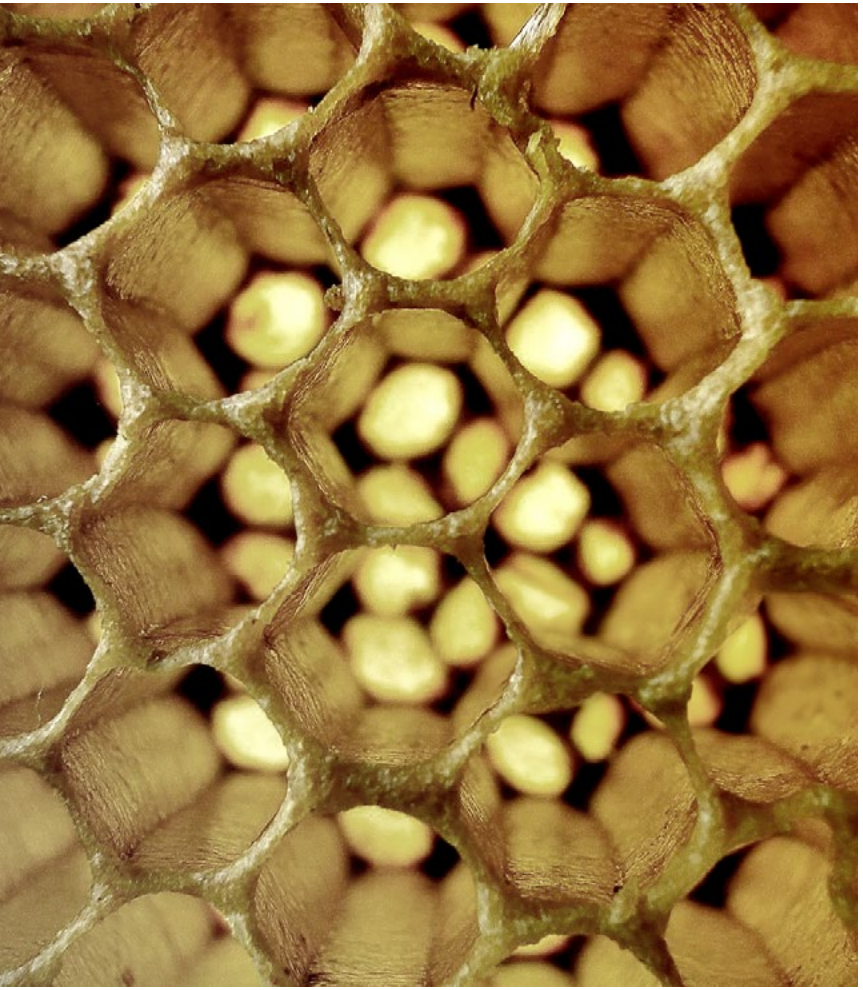


Data-sharing ecosystems – Transformation through collaboration

A data-sharing ecosystem is a partnership between multiple institutions to share and manage data, creating new value that was impossible within an enterprise. The ecosystem adheres to local regulations and guidelines, ensuring confidentiality and privacy, especially for end-consumer or citizen data. Data-sharing ecosystems offer numerous advantages, including:



- **Improved customer experiences.** By combining data from different sources, companies gain the ability to tailor products, services, and interactions to customer needs.
- **Compliance and trust.** Sharing data responsibly and transparently can build trust with customers, who will appreciate knowing how their data is used to enhance their experience.
- **Reduced cost and complexity.** Sharing the burden of data infrastructure and analytics capabilities across the network promotes resource efficiency and reduces individual costs.
- **Scalability and reach.** With access to a broader range of data and expertise, companies can expand their business and increase growth.



As the potential of these ecosystems is realized, several variants have emerged. Let's explore four of them.

01 Data brokerage and aggregation ecosystems

Data brokerage and aggregation ecosystems bring together data from various sources, creating a single, comprehensive dataset. Within this ecosystem data brokers and data aggregation platforms facilitate the flow of information. While data brokers act as intermediaries, connecting data providers with interested buyers, negotiating terms, and managing data access, data aggregation platforms collect and combine data from various sources, making it available for purchase or analysis through unified interfaces.

The aggregated data from these platforms becomes a treasure trove for organizations seeking insights beyond their individual, isolated data repositories. These insights allow them to plan the development of new products and services that satisfy customer needs and expectations.

This dynamic ecosystem empowers organizations to make customer-centric decisions that lead to better experiences while ensuring regulatory compliance.

02 Reciprocal data-sharing ecosystems

Unlike traditional unilateral data brokerage models, reciprocal data-sharing ecosystems emphasize a mutual and transparent exchange of information among diverse stakeholders. Organizations exchange data based on pre-defined agreements, ensuring both parties receive value from the exchange.

This model is particularly beneficial for industries where data symmetry exists, such as retail, travel, finance, and logistics. For example, retailers can share customer purchase data with logistics providers in exchange for insights on optimizing delivery routes.

This ecosystem operates on the principle of reciprocity, where participants – individuals, businesses, research institutions, government agencies – share data, benefit from the collective pool, and contribute to its growth. As a result, it promotes a better, more personalized customer experience across brands. This is due to more frictionless interactions, eliminating repetitive verification, reduced redundancy, and improved predictive experiences, e.g., shared data from an airline improves the terminal or hotel experience.

With help from Capgemini, a leading aircraft manufacturer developed a collaborative data-sharing platform aimed at anonymized data sharing with 16 partners. The model has been embraced by more than 140 airlines, and so far, data has been reused over 20,000 times, resulting in an improved quality of products and services that benefit customers.

Reciprocal data-sharing ecosystems amplify collective intelligence, accelerating innovation and problem-solving through a virtuous cycle of mutual benefit.

03 Federated analytics ecosystems

The most valuable insights lie within the confines of individual data spaces. This is where federated analytics ecosystems shine. In these ecosystems, data remains within its native environment, untouched, while algorithms and models are shared and executed on local data. This means organizations can extract insights without compromising data privacy or security.

Since data ownership and control remain firmly in the hands of the data provider, sensitive customer data is protected. Imagine a network of organizations, from healthcare institutions to financial players, collaborating on critical analyses without ever revealing their raw data.

Federated analytics counteracts security and privacy concerns by enabling algorithms, not data, to travel. Complex models are sent to dispersed datasets, performing computations locally on each device or server. The results, not the raw data, are then aggregated, preserving privacy and unlocking collaborative analyses.

Crucial actors needed to enable federated analytics ecosystems

- **Data providers:** organizations contributing their datasets, from hospitals with patient records to companies with customer behavior data.
- **Model developers:** analytical algorithms sent out to analyze the data across various locations.
- **Privacy-preserving techniques:** tools employed to ensure data remains secure and anonymized throughout the process (e.g., cryptography, secure multi-party computation, and differential privacy).
- **Federated learning platforms:** orchestration platforms facilitating the secure deployment and execution of models, aggregating results and ensuring data privacy.

While federated analytics presents a promising approach to data analysis, it's not without challenges. Ensuring interoperability, addressing communication overhead, and developing standardized protocols are areas that need continued attention. Additionally, ensuring fairness and interpretability in models trained on diverse datasets requires further research.

Overcoming these challenges will involve continual research and development, collaboration between stakeholders, and the creation of standardized protocols and best practices. As organizations continue to prioritize data privacy and compliance, federated analytics is likely to become an integral part of the data analytics landscape.

04 Data clean rooms

The concept of a data clean room stems from the industry-established concept of a clean room – a physical environment typically used in research and analysis, with stringent measures in place to ensure minimal to no contamination of the research subjects.

Extending this concept to data involves having a digital environment where data is the topic of research and analysis while the contamination refers to any action that can result in personally identifiable information leaking out. Data clean rooms allow organizations to securely combine their first-party data with their partners' anonymized data, which may include demographics and purchase behavior from other platforms.

The emergence of privacy laws and regulations like GDPR[1] and CCPA[2], along with the complete removal of third-party cookies, has led to several companies providing data clean rooms as a platform for companies to come, collaborate, derive insights, and structure their marketing strategies.

A data clean room can provide multiple benefits to all parties involved:

Participating companies:

- **Privacy-compliant data insights:** Gain valuable insights from combined data while adhering to strict privacy regulations like GDPR and CCPA.
- **Improved campaign measurement and attribution:** Track the performance of marketing campaigns across different platforms and channels.
- **Reduced fraud and risk:** Identify and prevent fraudulent activity by combining data from multiple sources.
- **New business opportunities:** Discover hidden trends and patterns for new product and service development.
- **Collaborative problem-solving:** Tackle industry-wide challenges through new partnerships and collaboration between companies.

End customers:

- **Personalized experiences:** A holistic view of the customer enables highly targeted marketing campaigns and product recommendations without compromising individual privacy.
- **Improved ad experiences:** A deeper understanding of customer preferences and behaviors reduces the number of intrusive ads.
- **Enhanced trust and control:** More transparency and control over data usage ensures customers' personal information is never shared or exposed during analysis.
- **Effective problem-solving :** Organizations that collaborate to troubleshoot customer issues find faster, better solutions, e.g., a retailer collaborating with a mobile service provider can identify whether a phone issue lies with the device or service plan.
- **Data-driven customer service:** By combining data from multiple touchpoints, organizations can create a 360-degree view of the customer, empowering their service representatives to resolve issues quickly, at a higher satisfaction level.

1. General Data Protection Regulation
2. California Consumer Privacy Act

For a data clean room to be effective, it must comply with regulations that can differ from region to region based on the type and location of data being shared.

For instance, in North America, regulations like CCPA, FTC[3], and sector-specific regulations like HIPAA[4] and GLBA[5] focus on customer privacy, transparency, and control, with data minimization and purpose limitation being of paramount importance.

Typically, compliance requirements include anonymization/ pseudonymization, data subject rights (access, deletion, opt-out), robust security measures, and clear data usage policies. Here the GDPR applies indirectly by means of cross-border transfer and has case-by-case implications.

For Europe, the primary compliance required is GDPR and is more stringent with a comprehensive data protection framework. It places emphasis on individual rights, accountability, and data security, along with strict consent requirements and data transfer limitations.

3. Federal Trade Commission
4. Health Insurance Portability and Accountability Act
5. Gramm-Leach-Bliley Act

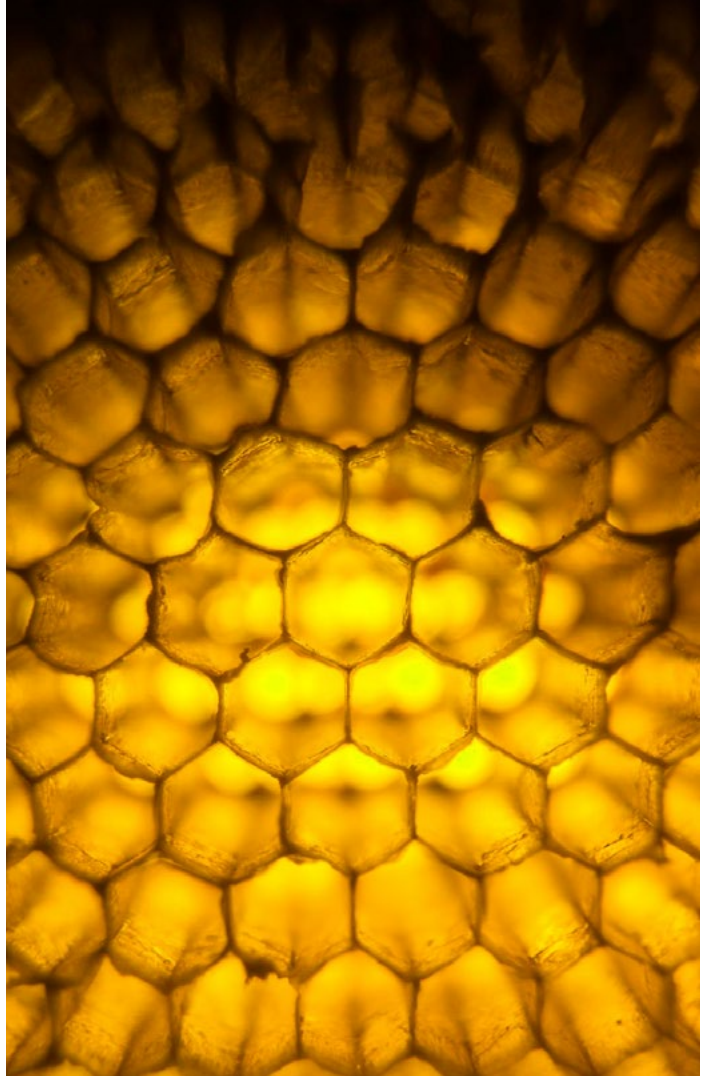
New opportunities through linear-digital ad convergence

A large telecom firm saw the need to converge their linear and digital advertising inventory to improve operations. However, they faced several challenges. They had legacy technology debt, insufficient engineering resources, and they lacked an understanding of the industry best practices their competitors rely on.

Capgemini worked closely with the telecom firm to create a strategy that would help them identify opportunity areas for innovation, including the development of a clean room solution and the application of AI/ML to augment their inventory.

Together with the client, we:

- Identified over $300M in revenue opportunities by improving the way ads are priced and sold, using a combination of targeted and contextual advertising approaches
- Developed a 6-year roadmap for linear-digital ad convergence paired with a revised operating model for the core team to lead the change
- Created four new projects to find additional revenue streams while setting up a publisher clean room for secure access to data



The future of customer experience and enterprise data sharing

As the customer landscape continues to evolve, the future of hyper-personalized experiences and enterprise data sharing promises exciting possibilities. AI will play a transformative role, automating data governance tasks, facilitating secure analysis, and extracting deeper insights from shared data. The emergence of data marketplaces and data co-operatives will further democratize access to information and stimulate collaborative innovation.

However, ethical considerations remain paramount. Robust regulations, responsible data stewardship, and a commitment to user privacy will be critical to gain customer trust and ensure that the benefits of data sharing are realized equitably and responsibly.

Data ecosystems will evolve into dynamic hubs of collaboration, where organizations co-create and innovate with data as their fuel, providing exceptional customer experiences. Open-source data lakes, decentralized data governance models, and even data marketplaces are on the horizon, further democratizing data access and unlocking its transformative potential.

The future of data sharing lies in intelligent ecosystems that seamlessly connect customers, organizations, and data sources. By understanding the different ecosystems and their challenges, organizations can select the right one for their business, then tap into a vast network of knowledge to drive innovation like never before.

In a collaborative future, businesses that share data effectively will be best equipped to understand what customers really want. This data-driven approach will help them paint a more complete picture of the customer journey to enable truly hyper-personalized experiences and thrive in the interconnected world of tomorrow.

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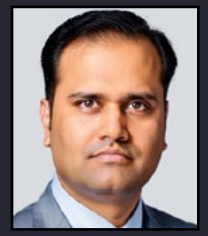

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About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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