MyData

Towards Network-based Ecosystems

Imagining a human-centric infrastructure for customer relationship management and digital marketing

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Introduction

The past decade has witnessed a remarkable surge in the influence and capabilities of online platforms, matched by rapid advances in the use of online consumer data to track and target individuals for digital marketing. These parallel trends are poised to usher in a fundamental change in how commercial ecosystems are managed online, by consolidating customer relationship management into centralised platforms controlled and managed by large and incumbent technology companies.

This paper considers how the practice of customer relationship management has developed over the last decade and notes widespread dissatisfaction with surveillance advertising and online business models based on data exploitation. It suggests that a network-based ecosystem is a better alternative to centralised platform logic for relationship management. It suggests that the rapid pace of technological and regulatory development in the fields of data sharing, digital marketing, and identity management provide a rare opportunity to fundamentally shift the premises of customer relationship management.

To do so, this paper suggests five design principles for developing the infrastructure that would enable human-centric and network-based ecosystems for customer relationship management and digital marketing. It calls for a broad dialogue on refining these principles and advancing a shared understanding of how to shape better digital ecosystems for the data economy of tomorrow.

The problem with relationships in the data economy

Today's data economy is based on a logic of data exploitation and monetisation. Shareholder primacy and profit incentives in large technology companies have reinforced incentives for data hoarding and trade, while divorcing the notion of data's value and the interests and benefits of individuals[1]. Consumers of online goods and services are often blind to the value of the data created by their digital interactions. Indeed, this model rewards businesses that establish efficient and invisible mechanisms to generate, use, analyse, share, and sell consumer data to third parties.

This fundamental power imbalance in data interactions prevents individuals from exercising control and agency over their data, and the innumerable benefits that doing so could bring to their lives online and offline.[2] This dynamic has further been associated with a variety of societal harms, including online monopolies, dark patterns leading to social media addiction and the distortion of democratic processes.[3] There is widespread dissatisfaction with the current model, and increasing calls to rethink the foundational structures and dynamics in today's data economy.[4]

The evolution of customer and vendor relationship management

Indeed, viewed in the long term, the current market incentives for digital ecosystems and ways of managing relationships between consumers, vendors and technology providers are set up for failure. A deeper look into the evolution and state-of-the-art of Customer Relationship Management (CRM) can provide useful context for these concerns.

1 For a wider discussion of shareholder primacy, see https://www.aspeninstitute.org/of-interest/the-impact-of-shareholder-primacy-what-it-means-to-put-the-stock-price-first-2/. Sirkkunen & Haara 2017, Salesforce 2019.

2 MyData – an introduction to human-centric use of personal data (3rd, revised edition). https://mydata.org/publication/mydata-introduction-to-human-centric-use-of-personal-data/

3 See Zuboff, S. (2015). Big other: Surveillance Capitalism and the Prospects of an Information Civilization. Journal of Information Technology, 30(1), 75-89. https://doi.org/10.1057/jit.2015.5

4 This includes calls for specific regulatory interventions in the technology sector, such as https://www.project-syndicate.org/commentary/big-tech-ai-social-media-platforms-need-digital-advertising-tax-antitrust-publisher-liability-by-daron-acemoglu-and-simon-johnson-2023-03, and calls to rethink how the technology sector is incorporated into larger structures of capitalism, such as https://omidyar.com/wp-content/uploads/2020/09/Guide-Design_V12_JTB05_interactive-1.pdf.

Customer Relationship Management (CRM) is a comprehensive approach for businesses to effectively manage interactions and relationships with current and potential customers. At its core, CRM is aimed at understanding customers deeply, tracking interactions, and tailoring experiences to build stronger connections and drive business growth. The functionalities and design logic of CRM tools and platforms define business practices for customer identification and the collection and processing of personal data, and reinforce the dynamics described above.

The logic of customer management as a unilateral relationship management tool for vendors predates the data economy. In its earliest manifestations, CRM practices were primarily defined by the use of customer data registries, where identification happened through the use of customers' plastic loyalty cards.

The diffusion of mobile phone applications and digital marketing technologies has revolutionised this practice, dramatically increasing the capacities of vendors to track, understand, and exploit consumers' data for economic value, and there has been a proliferation of vendors that do. The increasing uptake of CRM tools is accompanied by dissatisfaction with the quality and accessibility of other types of data, including decreased cookie acceptance as a result of the disclosures and consent practices mandated by the EU's General Data Protection Regulation (GDPR). There is an increasing perception that the customer data collected and monetised is not meeting companies' demands, and offers only the illusion of customer insight. Increasing awareness and dissatisfaction with the low quality of "surveillance data" has led the digital analytics and marketing domains to seek new data sources that could provide more meaningful insights into consumers' online behaviour. In particular, there is interest in generating and leveraging "zero party data" that individuals provide directly and explicitly to companies, including information on their preferences and interests.[5]

This has resulted in an increasing alignment between CRM approaches and digital marketing tools and approaches leveraged by individual online vendors and retailers. However, this dynamic has not changed the fundamental imbalance of information and control in managing customer and vendor relationships. The proliferation of tools and strategies serves businesses, not individuals, and this has led to several calls over the last decade to develop vendor relationship management (VRM) tools that would counter this imbalance by empowering individual customers.[6] However, VRM tools and technologies have not gained significant traction in the market, and their potential to fundamentally alter the power imbalance between online vendors and customers remains uncertain.

5 The term zero party data is intended to differentiate explicitly and directly provided data from "1st party data" that is collected by online parties without data subjects' knowledge, and "3rd party data" that is data collected by media companies. This classification of data is inherently problematic as it ignores and displaces the interests and agency of the individuals whose data is at issue.

6 See for example The Berkman Klein Center's ProjectVRM, at https://cyber.harvard.edu/research/projectvrm.

Another fundamental change to the dominant CRM logic is posed by the launch of centralised loyalty platforms for managing customer data and relationships. These models diverge from the current state of digital CRM tools insofar that the data collection and analysis mechanisms currently employed by various vendors would be centralised within a wallet platform provided and controlled by a commercial entity with an established market share. Proponents argue that this model provides customers and vendors with improved usability and experience, while expanding the scope and potential of data| insights, by removing the costs of standalone CRM tools for small companies. Centralisation is unlikely, however, to increase individuals' capacity to access and control the data that shapes their online relationships with vendors. Further, it diminishes individuals' and vendors' freedom of choice and hinders fair competition in the marketplace. Indeed, centralised wallet platforms like those proposed by the likes of Apple will succeed or fail based on the data exploitation logic and platform protectionism of the current data economy. This risks perpetuating that logic and further disempowering of individuals, exacerbating lack of online trust.

Case: Apple wallets

Of the many changes emerging in the online data economy, the adoption of integrated loyalty and identity management logic by incumbent technology companies is particularly relevant, and the developments around Apple's wallet are indicative.[7]

The Apple Wallet functions today as a relatively simple storage mechanism for documents like travel tickets. Apple has announced[8] incorporating loyalty identifiers and more comprehensive functionalities for relationship management into its wallet offering. This includes personal identification credentials (through both digital and physical touchpoints), points scoring, promotions, and enrollments. It is reasonable to expect that these functionalities will be tightly integrated with the communication functionalities of Apple's messaging platform, in the service of a seamless user experience based on the control of NFC-based authentication for users of Apple Pay.

Other large Internet companies, including Google, are pursuing similar approaches. As these technology platforms pursue market dominance, the outcome is not one ecosystem, but multiple competing ecosystems. By locking users into siloed services and establishing "walled gardens", these solutions limit individuals' choices, stifle business innovation, and fragment the core enablers of our digital society.

7 See https://mydata.org/2023/04/27/wallet-wars-its-the-war-of-ecosystems/

8 See https://developer.apple.com/wallet/loyalty-passes/

This places the development of CRM tools and practices at a fundamental crossroads, as shown in Figure 1 below. The field of practice may evolve to centralise CRM practice within platform-based digital ecosystems, situating information and power in the hands of a few platform providers. Alternatively, we may see a continued proliferation of independent tools, which have thus far primarily been developed to serve vendors and business-to-business service providers. But none of these scenarios are certain, and neither are they the only options.

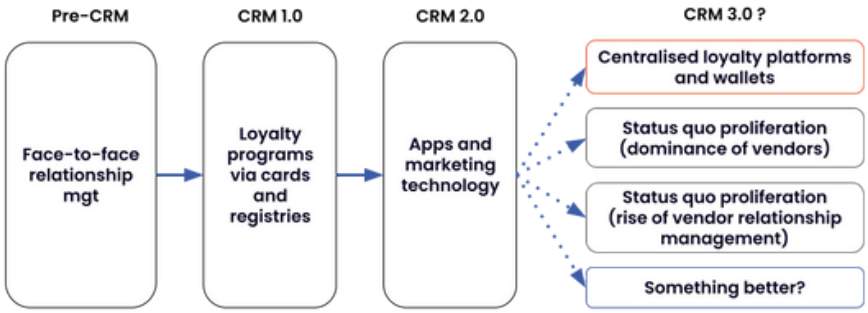

FIGURE 1. The evolution of customer relationship management

The moment is now

The field of commercial relationship management is at a pivotal moment. Several different types of solutions are being explored to address the challenges described above, including calls for stricter regulation, development of specific privacy-enhancing technologies and solutions following human-centric principles.[9] These are important, but they often address only specific aspects of a larger systemic problem. In order to meaningfully alter the underlying market logics described above, we need a fundamentally different design on which to build the technological and operational infrastructure of digital ecosystems.

Widespread dissatisfaction with current relationship management models presents opportunities for such a shift. Companies are investing heavily in building trustworthy brands in response to growing wariness about how customers' data is used online. Simultaneously, emerging regulations, such as the EU's Data Governance Act, the Brazilian draft for Data Empowerment Act, and the Japanese Data Free Flow with Trust initiative emphasise a truly global imperative to regulate data sharing and build trust in these models.[10] These and other regulatory initiatives are setting global expectations, and are matched with significant investments in data

9 See https://www.oecd.org/publications/emerging-privacy-enhancing-technologies-bf121be4-en.htm and https://mydata.org/participate/awards/ , respectively.

10 See https://digital-strategy.ec.europa.eu/en/policies/data-governance-act, https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2401133, and https://www.digital.go.jp/en/dfft-en#:~: , respectively.

sharing infrastructure, particularly in the EU, where €134.5 million have been allocated to developing data spaces and data sharing infrastructure through 2027.[11] Digital enablers and technologies are also advancing apace, with increased adoption of innovative solutions for digital identity and permissions, such as digital identity and personal data wallets, and the maturing field of data intermediaries.[12] Commercial trends such as the increased integration of digital marketing and CRM tools and the increasing use of identity verification and credentials in commercial digital wallets and payment solutions,[13] suggest a market in flux.

Taken together, this suggests several dynamics that can be leveraged to rethink how individuals can play an active role in shaping and defining their relationships with vendors in the online data economy.

11 See https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5863.

12 For a discussion of the complementarity of such developments, see European Commission, Joint Research Centre, Farrell, E., Minghini, M., Kotsev, A. et al., European data spaces – Scientific insights into data sharing and utilisation at scale, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2760/400188

13 See https://www.forbes.com/sites/davidbirch/2023/02/01/the-wallet-wars-are-not-about-money-they-are-about-identity/.

The power of networks

The field of customer relationship management is poised for a fundamental shift towards platform-based infrastructures that will centralise the collection, management and use of individuals' commercial data. In many ways, this is a logical development of the data exploitation model that underpins today's data economy, but it is neither a positive nor a necessary development.

Instead of consolidating governing power with incumbent market leaders, digital ecosystems could be designed according to a network logic, in order to enable collaborative and symbiotic relationships between businesses, customers, partners and suppliers. This would encourage data sharing and collaborative business models between ecosystem participants on the premises of data sovereignty and trust. This has several advantages over a centralised platform model for digital ecosystems. Most obviously, a network-based model provides a more open and scalable approach to data exchange than what can be provided by single platforms, no matter their size and scale. Networks can also balance competing interests in order to maintain the stability that we expect of other types of infrastructure, providing a more even playing field for commercial companies to offer goods and services. These market advantages can help to explain why fields such as telecommunications and banking, which were originally dominated by a fragmented field of small monopolies, have evolved into interoperable networks that facilitate the transfer of information across multiple actors in order to provide single point-of-use services to individuals.

	Centralised platforms	**Open networks**
Main characteristic	A centralised ecosystem approach for connecting customers and vendors through a digital system owned by a single company.In essence, platforms become de facto standards aimed at becoming dominant players or even monopolies in the market.	A decentralised ecosystem that is governed and managed by its participants. Customers (including individuals) and vendors can connect to the network directly or with the support of connecting-enabling service providers (intermediaries)
Benefits	Usability for customers Scalability	Ability to choose service provider No vendor lock-in Collaborative regulation Stability and resilience, if mature
Risks and weaknesses	Vendor lock-in Power imbalance Limitation of innovation	Complexity in early phase Funding challenge Establishing a stable collaborative business model
Examples	Ecosystem solutions provided by Google, Apple, Meta	Banks, telecom operators

TABLE 1. Main differences of the platform and network-based ecosystem solutions

Had the banking and telecommunications sectors not developed as open networks, this would directly impact our daily lives with a myriad of inconveniences. We could only call or message family and friends who used the same mobile phone provider. We would need to either limit our purchases to vendors that used the same bank as we did or maintain dozens of bank accounts to enable payments to different vendors using different banks. This setup is impractical and riddled with obstacles to value creation. It was not realised in the case of banking, thanks to advancements in technology, standardisation, business incentives and regulatory enforcement. The field of CRM and digital marketing should do the same. Thinking about our everyday interactions with banking and phone networks also highlights how a network logic empowers individuals in practice, and, in doing so, can create innumerable benefits for businesses, public services and individuals alike.[14] The future of relationship management will be designed deliberately or by unchecked market incentives. It will be designed according to the logic of platform consolidation and exploitation or according to the logic of open networks and empowerment. A choice can be made to pursue the latter, recognising its value for individuals, companies, and society at large.

Design principles for a network-based infrastructure

Commercial ecosystems are made of technologies, tools, rules and laws, business actors and practices. The business architecture ultimately defines whether the ecosystem will function according to a platform or network logic.

The platform-based relationship management ecosystem is largely in place already. Technological platforms and user interfaces are already established by large technology incumbents, and the business model of data exploitation has been largely socialised. Every day, individuals sign away rights to their data in exchange for the convenience of free online services. The stage is set for that future.

We advocate for a better future based on open networks and individual empowerment. This requires developing not only the technical components for data management and exchange, but also the business, legal, and social components that will enable commerce and interaction. Business models and incentives must be clear and shared across diverse stakeholder groups. Rules and governance mechanisms must be elaborated and agreed upon. Trust must be fostered. The first step in developing this infrastructure is a shared vision and commitment between different parties. As a first step in this direction,

14 Some have argued that enabling individuals to control how their data is shared is the inevitable development of network-based data sharing models, insofar as the inherent complexity of data sharing between large numbers of organisations can be radically reduced when individuals hold and manage all their data through personal data stores. See https://medium.com/mydex/the-perils-of-pre-copernican-data-strategy-974827845585.

we propose the following design principles for relationship management infrastructure based on open networks.

#1 Common governance frameworks to support business-level collaboration.

Clear rules and alignment of business models are necessary to foster trust in the network and its participants, and to incentivise collaboration. Data space rulebooks and blueprints[15] can provide useful reference points for designing such governance structures, in order to establish the foundations for business-level collaboration and interoperability. This, in turn, provides the foundation for addressing long-term challenges related to semantic, technical, and operational interoperability.

#2 Decentralisation through intermediaries.

Governance models should accommodate and acknowledge the role of multiple data intermediaries in providing the technical and operational infrastructure for establishing network-based ecosystems. Interoperability across multiple data intermediaries is important in order to guarantee decentralisation. It should be prioritised over using distributed technologies such as distributed ledgers, which can be consolidated and controlled by single actors, distorting the underlying network logic of open ecosystems.[16]

#3 The four-corner model.

The four-corner model is a set of relationships designed to leverage networks to solve scalability challenges in service provision. In doing so, this model also addresses the inherent asymmetry between businesses and individuals participating in any given digital ecosystem, by linking each individual consumer in the network with a service provider of their choice. This resembles the network logic of the banking and telecom sectors, in that service providers are interconnected and interoperable in order to provide comprehensive network coverage and seamless connectivity. Service providers may provide their services to individuals or companies, but function according to the same governance structure and rules of interoperability.

15 See https://dssc.eu/page/knowledge-base

16 For a discussion of how this model compares to the "two corner model" and "three corner model" see https://smart-connected-supplier-network.gitbook.io/processmanual/architecture/four-corner-model.

#4 Common business models for customer-directed service providers.

A key challenge in providing a stable and competitive environment for all participants in a four-corner model network is the business model for customer-directed service providers. Online consumers have become accustomed to receiving free digital services and are unlikely to pay for connection-enabling services immediately and at scale. Early exploration into potential business models has highlighted the potential of revenue-sharing and roaming mechanisms to enable revenue flow from vendor-directed service providers to customer-directed service providers. Public sector subsidies to customer-directed service providers might also be justified to enable open network ecosystems as a public good. Further elaboration and innovation is required to identify and test sustainable business models.

#5 Relationship management should be enabled through a core set of functional elements.

Identity management, permission management, and communication can be understood as the core functionalities that enable network-based relationship management. While other functionalities may also play an important role, developing network-based infrastructure should begin by understanding how existing technologies and resources could be leveraged to enable these functionalities together. The ways in which each of these components function together within the network needs to be precisely defined in ecosystems' rulebooks, architectures and governance structures, and can build on preliminary work by the MyData Operators thematic group. This can be done through a combined use of existing technologies, such as decentralised identifiers, wallets, smart contracts, and messaging technologies, and there are several assets and tools available to guide how this is done.

Moving forward

The parallel trends of market consolidation and technological innovation are poised to usher in an era of platform-based monopolies and fragmentation of customer relationships online. This would accelerate the worst tendencies of the data economy towards data exploitation and disempowerment, inhibiting the creation of value through trustworthy exchange of data and missing an opportunity to build ecosystems built on trust and individual empowerment. Network logic can enable a more fair, sustainable and prosperous future, but requires clear thinking and a realignment of priorities and incentives across businesses, regulators, and consumers. This in turn requires a broader conversation, driven by a commitment to imagining a better data economy, and the infrastructure on which it would be built.

This paper has provided preliminary analysis and design principles to advance that thinking. It has suggested that a network-based ecosystem for relationship management is in the long-term interests of vendors, technology providers, consumers, and society as a whole. It elaborated five design principles to be applied in the development of necessary infrastructure:

1. Common governance frameworks to support business-level collaboration.
2. Decentralisation through intermediaries.
3. The four-corner model.
4. Common business models for customer-directed service providers.
5. Relationship management should be enabled through a core set of functional elements.

These design principles provide a starting point to convene a wider conversation between those already building data ecosystems for tomorrow's internet. That conversation needs to leverage our collective motivation to balance the benefits to business, individuals, markets and society. We need to be bold and aggressive in working together to map the way to a better future. MyData Global is dedicated to facilitating that conversation, and suggests these design principles as a starting point for constructive feedback and iteration. We hope to bring together pioneers and innovators to begin exploring how we can put these ideas into practice. This is a starting point. We're all in this together.

About MyData Global

MyData Global is an award-winning international nonprofit. The purpose of MyData Global is to empower individuals by improving their right to self-determination regarding their personal data. MyData Global facilitates a global community of personal data professionals and enthusiasts, who share a vision of human-centric paradigm towards personal data. This paradigm is aimed at a fair, sustainable, and prosperous digital society, where the sharing of personal data is based on trust as well as balanced and fair relationships between individuals and organisations.

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Citation information: Wilson, C., Kuikkaniemi, K., Sepp, S. and Lähteenoja, V. (2023) Towards Network-based Ecosystems. MyData Global.

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