

In the “Trusted Health Ecosystems” project we are creating a concept and a product vision for a national health platform of the future. This text is part of the overall concept which is published at www.trusted-health-ecosystems.org.

On the terminology of digital ecosystems and platforms

The terms “platform” and “digital ecosystem” are frequently used in various contexts, but their precise meanings can be unclear. What distinguishes a digital ecosystem and how does it relate to the concept of a platform? The following definitions are intended to shed light on these terms.

Brands like Amazon, Airbnb or Uber are notable examples of companies that have established extensive digital ecosystems that have a profound impact on the lives of many people. As such, they facilitate the exchange of goods, overnight accommodations and transportation services between providers and consumers. And while companies such as Amazon, Airbnb and Uber originate from the United States and have expanded their operations globally, China has also brought major digital ecosystems such as Alibaba and Tencent to the field.

Though not as well known, there are also thriving digital ecosystems in Germany. Schüttflix, for example, has transformed the German construction industry by enabling the swift and reliable delivery of bulk materials. MyHammer connects customers with craftsmen, while Urban Sports Club provides sports enthusiasts access to a diverse range of fitness activities.

As providers, bulk goods suppliers, craftsmen and fitness studios all benefit from gaining access to a large customer base, streamlined processes and other simplifications. Consumers, in turn, enjoy having access to a broader array of options that no single provider could offer alone.

Digital ecosystems can therefore create a win-win situation and, in some cases, even yield a triple win when we account for the benefits they provide platform operators as well. However, digital ecosystems are also viewed as a potential threat, as companies can establish significant dominance over time and create dependencies that they then utilize for their own business practices. Nevertheless, for many individuals, these digital ecosystems have become integral to their daily lives. It is therefore crucial that we consider how to construct and operate digital ecosystems in a manner that benefits all participants.

Definition: Digital ecosystem

“A digital ecosystem is a sociotechnical system that encompasses individuals and companies participating as providers or consumers, as well the IT systems that connect them. All digital ecosystems are characterized by digital brokering, that is, the exchange of goods and services among various parties, all of whom benefit from the fact that the largest possible number of providers and consumers are involved.”

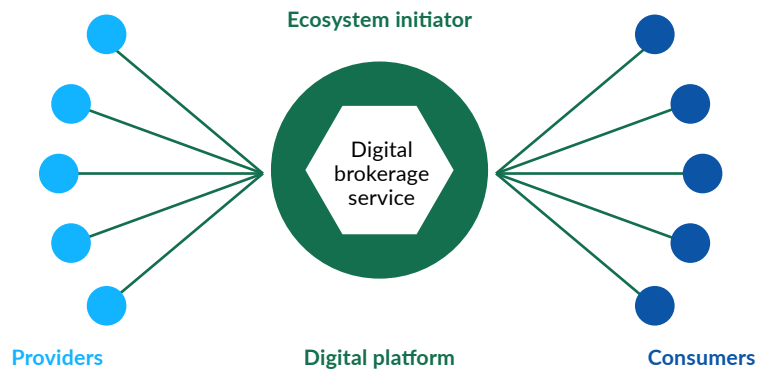
adapted from Koch 2022

These participants, who are typically independent, expect mutual benefits from their involvement (Koch 2022a, Koch 2022b).

An ecosystem operator or facilitator provides a service known as asset brokering, which is carried out through a digital platform. This arrangement allows for effortless scalability and generates positive network effects that can be leveraged. Assets play a central role within a digital ecosystem as they are exchanged between providers and consumers. They encompass a wide range of items, including overnight accommodations, bulk materials and digital information.

The operator of a digital ecosystem often adopts a core business model that is centered around participating in the success of the brokerage process. To achieve this, operators strive to increase the volume of brokered transactions and invest significant effort in ensuring the smooth exchange of assets and the easy onboarding of participants. The term “platform economy” has emerged to describe this kind of brokering activity facilitated through a digital platform. In this context, the supply side becomes more attractive as consumer engagement increases, leading to a cycle of improved supply and increased consumption. The concepts of “network effects” and “flywheel” capture this dynamic. [Abb](#)

Basic principle of digital ecosystems



Source: Dr. Matthias Naab, Dr. Marcus Trapp

Trusted Health Ecosystems

Definition: Digital platform

The term “platform” has been in use for a long time. However, due to the success of platform companies and the potential offered by the platform economy, the term has enjoyed such widespread currency that it also suffers from overuse, leading to confusion even among experts in the IT industry who often interpret its meaning differently. As a result, business models are at times poorly understood, and companies may attempt to establish a platform without a shared understanding of what a platform truly means for their operations.

*“In the context of digital ecosystems, we define a digital platform as a software system that serves as the technical foundation of a digital ecosystem. As such, it is typically developed and operated by an ecosystem operator.”
adapted from Koch 2022*

Both providers and consumers directly engage with the platform through APIs or user interfaces, such as a digital marketplace, to facilitate the exchange of assets. The platform’s brokerage process is entirely digital, allowing for scalability and efficiency (Naab 2023).

It is crucial to distinguish digital platforms for ecosystems from what are known as technology platforms. Technology platforms are utilized to construct and operate software, including services, applications and other technology-based platforms. These platforms consolidate recurring technological and infrastructural aspects of software systems, making them easily accessible through well-defined

interfaces. Examples of such platforms include cloud services like Amazon Web Services or Microsoft Azure. Although these platforms do not generate network effects themselves and do not function as the core of digital ecosystems, they are often erroneously conflated in discussions.

Despite what the term may suggest given its roots in biology, digital ecosystems do not emerge spontaneously or follow an innate evolutionary instinct. Instead, they are intentionally created by organizations that actively address identified shortcomings and generate added value within an industry by taking on a well-designed intermediary role and providing a digital platform that supports such activity. This is not something that takes place overnight, but which typically unfolds over extended periods of development.

To ensure a balanced and conflict-free environment, a platform operator must be fully aware of their responsibilities and take concerted action to fulfill them. This includes accounting for and aligning business, technical and legal considerations right from the beginning. It is important to establish incentives and frameworks that prioritize responsible governance. Furthermore, a set of values and clear behavioral guidelines should be in place for all participants to follow in order to encourage fair and respectful interaction (Lewrick 2021, Kawohl 2022).

There are multiple ecosystems within the healthcare system

Healthcare, like other sectors, offers numerous opportunities for digital ecosystems to emerge. It is important to avoid adopting a view of the entire future healthcare system as one homogenous digital ecosystem, as this often leads to vague discussions in which it's difficult to attribute accountability to any specific agent. Instead, we should focus on specific digital ecosystems that align with the provided definition and explore how these ecosystems interact within the healthcare sector itself. We can then determine which rules and regulations are needed to govern such ecosystems and develop a strategy to implement them.

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Dr. Matthias Naab and Dr. Marcus Trapp

Dr. Matthias Naab and Dr. Marcus Trapp, co-founders of Full Flamingo, an eco-tech startup, aim to leverage the power of the platform economy for the greatest possible impact on sustainability. Before 2022, they held senior executive positions at Fraunhofer IESE, where they played a pivotal role in developing and overseeing the field of "Digital Ecosystems and the Platform Economy."

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