Axis 3: Digital business models

The axis of digital business models represents a critical component in the framework of digital transformation, as it underpins how companies generate value and interact with the modern digital economy. This axis explores the evolution from traditional business models to innovative digital formats that leverage technology to create, deliver and capture value in unique and dynamic ways. Digital business models enable organizations to respond more effectively to consumer demands and market changes, often leading to increased efficiency and opening up new revenue streams. As we examine this axis, we will be looking at the shift towards models that prioritize agility, customer engagement and continual adaptation to technological advancements. This transformation is not just about adopting new technologies but also about rethinking the organization`s approach to business, and making strategic use of digital tools to enhance competitiveness and sustainable advantages in the digital era.

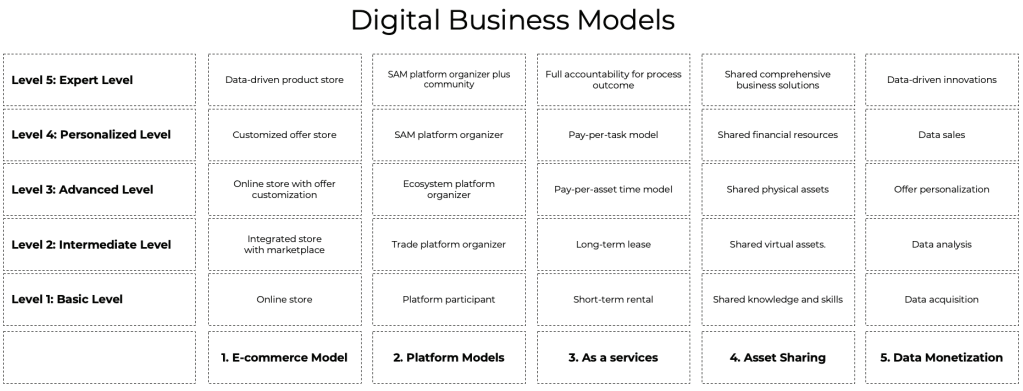

Figure 13

The assessment covers five key areas: the use of e-commerce models, platform solutions, As-a-Service models, asset sharing and data monetization. Each category is crucial for understanding how businesses adapt to and thrive in the digital economy, focusing on scalability, customer engagement and the strategic use of digital tools to develop a competitive edge.

Each area is rated on a scale that reflects the maturity and sophistication of the business model, from basic implementations to expert-level innovations that incorporate the latest technologies and market approaches. This structured assessment helps organizations identify their current capabilities and areas for growth in the digital landscape.

Area 3A. Use of e-commerce models

In the hyperreal world, numerous levels of e-commerce business models are shaping the landscape of trade. Online stores and e-commerce platforms are central to delivering products and services worldwide. These business models evolve gradually, from a basic level to advanced strategies based on personalization and the latest technologies.

Level 1. Basic. Online stores offer products or services through their own websites or popular e-commerce platforms like Amazon or eBay. Customers can choose from a variety of products, such as clothing, electronics or cosmetics, and make online purchases. This process involves adding products to a cart and making payments. Companies utilize basic sales applications to manage orders and track sales.

Level 2. Intermediate. An essential step is integration with various e-commerce platforms to enhance the visibility of products on various platforms. Additionally, sales applications offer more advanced tools such as inventory management and sales data analysis. The importance of offer personalization is greater at this level, and products can be tailored to individual needs.

Level 3. Advanced. E-commerce stores continue to enhance their capabilities through further integration with various platforms, including marketplaces. More advanced visualization tools allow customers to, for example, view products in different colours or configurations. The personalizing of offers is more advanced at this stage, relying on customer purchase data and enabling customization, such as a choice of colours or engraving options. Advanced-level stores may also use product recommendations based on customer purchasing behaviour to give them a competitive advantage.

Level 4. Advanced personalization. Internet stores reach for even more advanced visualization tools and sales applications that allow for full customization of offers. Integrated e-commerce platforms are more comprehensive, enabling the sale of products on multiple platforms simultaneously. At this level, personalization becomes a key element of the business strategy, facilitating the adaptation of offers to each customer`s individual preferences.

Level 5. Expert. E-commerce harnesses the latest technologies such as artificial intelligence, blockchain and the Internet of Things. Product visualization can include advanced virtual reality technologies, providing customers with incredibly realistic online shopping experiences. Integrations with marketplaces are highly comprehensive, allowing for product sales on various platforms simultaneously. Companies such as IKEA, with its online furniture store, and the IBM Commerce sales platform are setting the standard in e-commerce, using state-of-the-art technologies and innovative approaches to customer service.

Area 3B. Platform solutions

The second assessment area focuses on the use of platform solutions in business models. These models, while offering significant competitive advantages and financial returns, are among the most complex to implement. They involve the creation of digital platforms that act as intermediaries, connecting service or product providers with customers and facilitating transactions within a digital ecosystem. Revenue is often generated through fees charged to either sellers or buyers. Successful platform models establish ecosystems where suppliers and customers collaborate and share knowledge, but they also require adaptation to market needs and robust support for ecosystem participants. Their complexity and need to be continuously adapted are what make these business models challenging to implement but also powerful means by which to secure lasting competitive advantages.

Level 1. Basic. An individual or company uses a platform to conduct simple transactions, such as purchasing or selling products or services. For example, a company might use a B2B platform to optimize raw material purchases or to forecast prices.

Level 2. Intermediate. A company or institution provides a platform where sellers can offer products or services to customers. The platform may offer analytical tools to sellers and personalized recommendations to customers. An online gaming platform, for example, might provide access to games through a subscription or one-time payment.

Level 3. Advanced. A company or institution creates and manages an ecosystem, connecting suppliers, partners and customers to create added value and synergy. They offer market analysis tools, joint promotions and loyalty programmes. An example might be an e-commerce platform integrating suppliers, partners and customers while also offering market analysis.

Level 4. Advanced SEM. In addition to facilitating transactional relationships, the owner provides Software-as-a-Service solutions on its platform, enabling access to various online applications and tools. This type of platform organization is referred to as a Software-as-a-Service Enabled Marketplace (SEM). SEM platforms offer diverse applications, from project

management to data analysis, with the option for customization and integration. An example might be a project management platform that provides access to various tools tailored to customer needs.

Level 5. Expert. The highest-level platforms combine the functionalities of SEM platforms with an active user community. This enables participants to interact, collaborate and share knowledge. Companies combine SEM platforms with forums and chats where users can share knowledge and resolve issues. For example, an IT platform might allow IT resource management while also providing a space for collaboration and technical support for users.

Area 3C. As-a-Service

The third area of analysis is the As-a-Service business model, in which companies offer their solutions on a subscription or pay-per-use basis. In this model, the customer has access to the provider`s infrastructure, applications, tools and resources, allowing them to leverage advanced technologies and services and to pay only for what they actually consume. This model enables companies to save significant time and costs associated with maintaining infrastructure and employee teams. It also allows for flexible scalability and faster market innovation.

Level 1. Basic. The company and its service provider enter into long-term service agreements that resemble traditional partnerships. The provider offers a basic service with an emphasis on availability and simplicity. The customer values the convenience and flexibility of using the service, even though the service does not solve complex business problems. For example, an electronics manufacturer collaborates with an external company to run a basic online store and manage online product delivery. Customers can purchase products through the website, and the provider facilitates basic e-commerce services.

Level 2. Intermediate. The company and the service provider establish long-term subscription or tariff-based agreements for service usage. The provider offers more advanced features and technical support. The customer expects consistent service quality throughout the contract period. Here, an example might be an electronics manufacturer collaborating with an external company that handles warehousing, packaging and product shipping on demand. The external operator is responsible for the product from the completion of production to delivery to the customer.

Level 3. Advanced. The customer pays the service provider for the time they use available assets or resources. The service provider focuses on managing and maintaining assets for the customer`s needs, providing greater flexibility. Consider an electronics manufacturer that establishes a long-term partnership with an outsourcing company that manages various sales channels, including online stores, physical retail shops and online marketplaces. The outsourcing company also offers advanced analytical tools for sales monitoring.

Level 4. Advanced personalization. The customer pays a service provider to complete specific tasks or achieve precisely defined results. The provider adapts heavily to the customer`s individual needs and delivers personalized solutions. The customer expects a specialized and tailored approach from the provider. An electronics manufacturer might use an omnichannel platform that connects various sales channels, allowing personalized customer service at every stage. The platform integrates online stores, physical stores, mobile apps and real-time delivery.

Level 5. Expert. Service providers act as the primary executor, managing the entire customer business process. The customer leverages comprehensive business solutions offered by the provider. This is the highest level of provider involvement in the customer`s business processes and might, for example, entail an electronics manufacturer outsourcing solutions to experts in omnichannel. The collaboration includes comprehensive sales management, delivery, customer service and high-level personalization. Services are fully tailored to the customer`s needs and utilize advanced technologies. In this business model, the level of digital maturity depends on the amount of complexity and risk that is delegated to the service provider. The technological aspect of this assessment indirectly concerns the extent to which the service provider can monitor and manage the risks they undertake.

Area 3D. Asset sharing models

Asset sharing is gaining popularity as a business model in the era of digital transformation. It involves creating platforms that enable users to share various types of assets, whether virtual or physical, as well as knowledge and financial resources. This can not only efficiently utilize available resources but also create ecosystems where users can collaborate, exchange services and achieve their business goals.

Level 1. Basic. The platform allows users to share virtual assets such as files, digital content, applications or online services. Users can use these assets based on subscriptions, pay-per-use or platform access. For example, a platform might allow graphic designers to share tools and collaborate effectively on projects, paying for access based on the number of projects they create.

Level 2. Intermediate. The platform enables users to share physical assets such as cars, properties, tools or equipment. Users can rent these assets from others for a specified duration, allowing them to save on purchasing or renting a full set of items. For instance, a bike-sharing platform allows users to rent bikes from other users on a subscription basis, providing them access to various types of bikes based on their needs.

Level 3. Advanced. The platform allows users to share knowledge, skills, experience or the product of intellectual work. Users can offer their services, conduct training or share educational materials with other platform users. One example might be a platform for marketing professionals on which experts offer their skills in data analysis and marketing strategy to other platform users for an hourly fee.

Level 4. Advanced personalization. The customer pays the service provider for the time they use available assets or resources. The service provider focuses on managing and maintaining assets for the customer`s needs in order to increase the customer`s flexibility. Thus, an electronics manufacturer might enter into a long-term partnership with an outsourcing company that manages various sales channels, including online stores, physical retail shops and online marketplaces. The outsourcing company also offers advanced analytical tools for sales monitoring.

Level 5. Expert. The platform enables users to share complex business solutions such as IT infrastructure, analytical tools, logistics services or project management. Users can use these solutions on a subscription or pay-per-use basis, allowing them to reduce the costs of their investments. An example might be a platform that integrates various services and technologies to provide comprehensive business solutions for project management, data analysis and logistics. Companies can use these solutions on a subscription basis, allowing them to devote the time and resources they save to developing their proprietary solutions.

Area 3E. Data monetization models

The fifth area in which business models are assessed for digital maturity is data monetization models. These models centre on a company`s ability to generate financial revenue by collecting, analysing and utilizing data about customers or processes. These data constitute a crucial resource for understanding and serving customers and generating added value.

Level 1. Basic. The company collects data from its customers, such as preferences, shopping behaviour and demographic information. It uses the data to comprehend customers and enhance its offerings. For example, auction platforms analyse purchase histories to recommend to users products that may interest them.

Level 2. Intermediate. The company conducts more advanced analysis of the accumulated data to identify patterns, trends and opportunities. Data analysis helps it understand customers and make more informed business decisions. An example is Netflix, which analyses viewership data to identify trends and create more personalized recommendations for users.

Level 3. Advanced. The company employs the gathered data to personalize offerings to individual customers. This allows it to deliver customized products, services and content that align more closely with individual customer needs and preferences. Spotify, for instance, analyses musical preferences to provide users with personalized playlists and song recommendations.

Level 4. Advanced personalization. The company uses the accumulated data as a valuable resource that can be sold, shared or used to generate additional revenue. This may involve sharing data with business partners, offering paid analytical services, or using data for advertising purposes. Facebook, for instance, sells data to advertisers, enabling them to target specific user groups.

Level 5. Expert. The company uses its gathered data to create new products, services and innovative solutions. Data serve as the foundation for developing new business models, crafting intelligent algorithms and harnessing artificial intelligence to deliver more advanced solutions to

customers. Google, for example, utilizes user data to develop advanced AI algorithms, such as search algorithms, leading to the creation of new services and products.

Axis 4: Data management: Big Data everywhere

In the digital era, data management and the effective use of Big Data have become critical components of organizational success. The fourth axis of digital transformation focuses on how well an organization captures, stores, processes and utilizes vast amounts of data to enhance decision-making, improve operational efficiencies and drive innovation. This axis examines the infrastructure, strategies and competencies that organizations deploy to handle the complexities of Big Data.

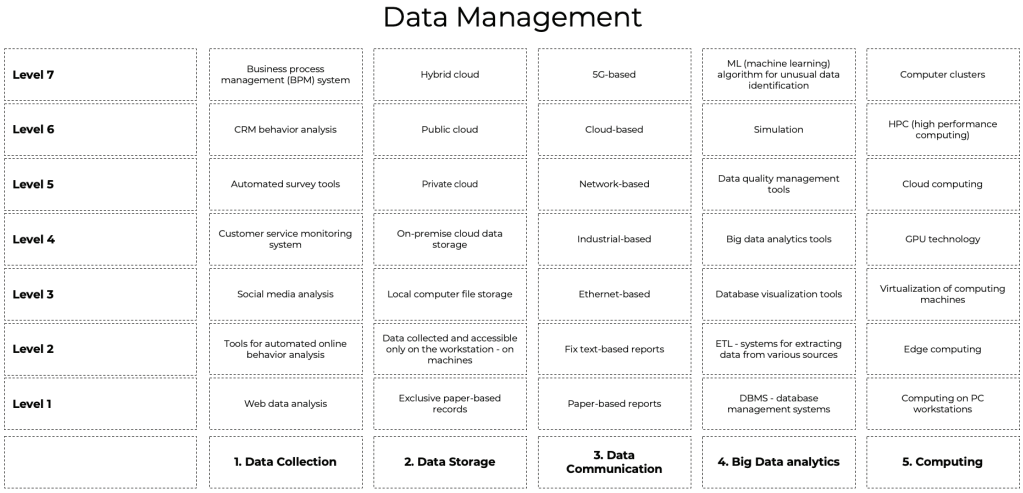

Figure 14

As we explore this axis, we investigate the various facets of data management that are essential for building a strong digital ecosystem. From collecting data and ensuring their secure storage to conducting advanced analytics and deriving actionable insights, each component is crucial in turning raw data into strategic assets. This axis encompasses not only the technical skills required to handle Big Data but also the cultural transformations needed to cultivate a data-centric approach throughout the organization. A seven-tier maturity model has been proposed to assess each area, reflecting the broad range of technical capabilities present in these fields.