

Web3 Decentralized Business Models

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Abstract

This paper presents key characteristics of Web3 and how the traditional business model canvas (BMC) requires update to support managers in the Web3 industry. The characteristics of Web3 include Dapps, wallets, interoperability, tokenization, distributed ownership, decentralized communities, creator economy, and token economy. This study investigates how a business model in Web3 is different from the traditional BMC by Osterwalder and Pigneur (2010) based on a Delphi study with a panel of eight experts from the Web3 industry. The contribution of the research outlines a nascent Web3 business model canvas with seven building blocks, which are complemented by two overarching components specific to the nascent Web3 business models: value co-creation and value distribution. Furthermore, the model expands on the blocks of community and customer, tokenomics, and incentive and reward structures.

Keywords: Business model canvas, Blockchain, Web3, Decentralized business models, Tokens.

1. Introduction

Web3 is considered to be at the center of the next digital disruption, allowing for new business opportunities and business models as part of the next generation of the Internet (Belk et al., 2022). Built on technologies such as blockchain, Web3 could finally be the paradigm shift that enables new businesses through the combination of applications such as cryptocurrencies, non-fungible tokens (NFTs), decentralized autonomous organizations (DAOs), and metaverses (Murray et al., 2023; Wilson et al., 2022). In so doing, Web3 is challenging traditional, more centralized business models with more decentralized business models, where consumers become active creators along with new value co-creation, ownership possibilities, incentive mechanisms, and networked community models (Murray et al., 2023).

The rise of Web3 decentralized business models requires organizational changes in both the dynamic capabilities of orchestrating resources and managing stakeholders in a distributed and collaborative environment, as well as changes in the value creation and capture in such network organizations (Li and Chen, 2022). The accompanying organizational shift in value creation and capture in networks asks for an adapted view of what it takes to roll out successful business models and thus calls for an updated version of business models, such as the Business Model Canvas (BMC) by Osterwalder and Pigneur (2010) (Ojasalo and Ojasalo, 2017) to evaluate and extend our existing theoretical understanding of business models now incorporating the affordances of Web3. To the best of our knowledge, prior research has not yet studied the characteristics of Web3 business models or provided applicable frameworks for those who would engage in Web3 businesses.

With this research, we contribute to the nascent understanding of what constitutes Web3 business models. Based on the business model canvas (BMC) introduced by Osterwalder & Pigneur (2010), as well as the empirical insights we gained from our Delphi study research, we provide new insights on how Web3 business models differ from more traditional business models and explain which key elements constitute a business model applicable for Web3. Thus, our research question is:

How is a Web3 business model different from traditional ones and what are the key characteristics that constitute a Web3 business model?

This research aims to investigate Web3 business model characteristics to extend existing business model frameworks. Empirically, we conduct a Delphi study to gather insights from experts with Web3 domain knowledge and compare these empirical findings with the current literature on business models in Web3.

The remainder of this paper is organized as follows: In section 2, the literature background will be presented, followed by the Delphi study methodology introduction in section 3. The analysis and findings will be presented

in section 4 before the discussion in section 5 is presented. Finally, section 6 presents final remarks, as well as limitations and suggestions for future research avenues.

2. Literature background

2.1. Entering the era of Web3

When researching Web3, one finds different definitions, as the topic is still nascent (Murray et al., 2023). Thus, we establish a working definition for our research that suits our focus on business models and Web3. One can find Web3.0 and Web3, presented and used interchangeably in current literature, which creates a common misconception that the two terms represent the same vision for the future of the Internet, however, they are fundamentally different (Kiong, 2022). Web3.0 refers to the “semantic web” and Web3 refers to the “decentralized web” (Park et al., 2022).

The term Web3.0 was first conceptualized in 1999 by Tim Berners-Lee, stating that the vision for Web3.0 was to create the “semantic web”, in which all Internet data would be machine-readable and facilitate human-to-machine and machine-to-machine communication across different websites (Almeida et al., 2014). In essence, Web3 refers to the evolution of the web that enables reading, writing, and owning rights through decentralization, privacy, and user control (Murray et al., 2023).

Web3 can be defined as the ambition to create an entire interoperable ecosystem (Buldas et al., 2022) that is governed in a more decentralized, user-centric, and democratic manner, a web that empowers individuals and communities rather than centralized authorities, hereby revolutionizing online interactions and business models (Ferraro et al., 2023; Kiong, 2022). This is achieved by assembling a portfolio of decentralized technologies that help establish “provenance, veracity, and value of data” (World Economic Forum, 2023, p. 5). This portfolio includes peer-to-peer transactions which replace existing business models that depend on intermediaries (Beck and Müller-Bloch 2017) and token-based economies that merge the digital and physical world (Schwiderowski et al., 2023). With the emergence of Web3, the web as we know it moves away from automation towards autonomous systems, dominated by machine agency in which machine-to-machine communication and execution play an increasingly important role in Web3 business models (Lee, 2019).

Essential for Web3 is that blockchain, a distributed ledger technology (Pedersen et al., 2019) serves as the foundation and protocol layer, being the transparent, tamperproof, and immutable database that we all share.

Here programmable smart contracts serve as a foundation for facilitating self-executing applications and digital assets and tokens support the notion of ownership, value portability, and permanence, by which identity rights and ownership can be validated without the need for a trusted third party (Nærland et al., 2017). Furthermore, blockchain and decentralized token-orchestrated applications allow users in Web3 to manage their own digital identity, referred to as self-sovereign identity (SSI), giving them “access to their data and be central administrators of their transportable and interoperable identity” (Chaffer and Goldston, 2022, p.1).

Web3 is constructed of these defining elements and their interconnection. They form a system and infrastructure that are depending on a single source of truth (blockchain), and facilities business logic enforced as coded (smart contract) and secure transactions of ownership right, or any other type of rights or value connected to the digital asset or token (Park et al., 2022; Schwiderowski et al., 2023). Blockchain, smart contracts, digital assets and tokens represent an essential part of the foundation for the realization and governance of Web3, by enabling some key characteristics and applications (see Table 1).

Table 1. Key characteristics of Web3

Characteristics and connection to Web3	Example and references
Dapps play an important role in Web3, as they are built on decentralized networks including blockchain and hereby enable peer-to-peer interactions.	Brave browser Park et al., 2022;
A wallet is essential in Web3 as it allows users to store and manage digital assets and tokens.	MetaMask Jorgensen & Beck, 2022
Interoperability refers to the ability to communicate and interact across different Web3 blockchain networks.	Polkadot Murray et al., 2023; Park et al., 2022;
Tokenization means converting real-world assets or non-verifiable digital assets into digital tokens that can be verified, owned, traded, and transferred by utilizing e.g., blockchain.	Digishares Schwiderowski et al., 2023a; Weyl et al., 2022
Distributed ownership is another cornerstone of Web3 moving towards a user-centric and decentralized era of the web, where users e.g., gain greater control of their data and information.	MakerDAO Belk et al., 2022; Murray et al., 2023
Decentralized communities are integral to Web3 and are	Uniswap Murray et al., 2023;

enabled by new ways of organizing and establishing communities.

The **creator economy** allows creators and users to not only monetize their content and talents in different ways but also to connect and collaborate with others without intermediaries.

The **token economy** is important building block of Web3 enabled by blockchain powered cryptocurrencies and tokens.

Park et al. 2022; Costa & Rupino da Cunha, 2015

Opensea
Fridgen et al., 2023; Wilson et al., 2022; Schwiderowski et al., 2023b;

Lens protocol
Oliveira et al., 2018; Schwiderowski et al., 2023a

These key characteristics bring forward new types of applications, economic systems, and communities that all work together to create Web3, which is defined as being more decentralized, transparent, and user-centric (e.g., Park et al., 2022; Murray et al., 2023). Although the development of the technical capabilities of Web3 is still in progress, the key characteristics described in Table 1 have paved the way for disruptive applications such as Decentralized Finance (DeFi), Decentralized Autonomous Organizations (DAOs), and the metaverse(s).

2.2. Changing the business landscape

As illustrated so far, the emerging era of Web3 promises the reshaping of current business landscapes through innovative applications and business models. Due to Web3's decentralized foundation, incumbent businesses are unlikely to maintain their current power status over their users if entering the Web3 arena, both in terms of data control but also in terms of value creation and caption (Murray et al., 2023). As Web3 is likely to develop faster than Web2.0, it is important for an incumbent business to begin its journey toward understanding what Web3 is and how it can prepare (Park et al., 2022). Building upon the premise that Web3 already has and will continue to disrupt existing business models, it is relevant to explore and understand the present business model frameworks (Belk et al., 2022), before exploring and developing a new business model framework for Web3. Utilizing a business model holds great practical power as it can support managers' reflections, decisions, and actions, in areas characterized by uncertain and fast-moving development as seen with the emerging Web3 (Murray et al., 2023).

Although there are many variations of a business model framework, the BMC by Osterwalder and Pigneur (2010) seems to be supported by both academia and managerial practices (Fritscher and Pigneur, 2015; Ojasalo and Ojasalo, 2017). The strengths and main benefits of the BMC are that it is a simple yet powerful

tool to reflect, analyze, discuss, and (re)design the business' business model (Ching and Fuvel, 2013).

The BMC provides a relevant framework for investigating if it can be applied to the characteristics of Web3 and thereby guide incumbent businesses to create business models for Web3. Presented as a one-page canvas, the BMC contains nine building blocks that collectively demonstrate how a business intends to make money. The building blocks address four main areas; customer, offer, infrastructure, and financial viability, according to Osterwalder and Pigneur (2010). Using the BMC as a starting point might be an advantage when moving into the unfamiliar era of Web3, as it represents a familiar framework being widely used by both entrepreneurs and incumbent businesses (Murray and Scuotte, 2015; Fritscher and Pigneur, 2015).

On the other hand, it has been concluded that the business logic embedded within the BMC is closely tied to goods-dominant logic relying on value chain thinking (Ojasalo and Ojasalo, 2017), which may potentially challenge its application to Web3. The pros and cons of applying the BMC on the Web3 decentralized business models will be discussed in the following.

3. Methodology

For this research, we adopted the Delphi method to study and answer the research question. The Delphi method allows for knowledge creation when evidence or empirical data is limited or lacking (McKenna, 1994; Skulmoski et al., 2007) or when expert knowledge and opinions are needed to understand a field in greater depth, to lay a foundation and inform decision making (Brady, 2015; Hsu and Sandford, 2007).

The Delphi method is a technique that emphasizes the facilitation and structure of an anonymous communication process, by allowing the panel of experts to collectively deal with a complex problem (Yousuf, 2007; Skinner et al., 2015). The four following characteristics have been determined by Rowe and Wright (1999) as necessary to define the procedure as a Delphi study: (1) *anonymity*, allowing the participants to express their opinions freely without undue social pressures to confirm, (2) *iteration*, allowing the participants to refine their views based on the progress made by the group from round to round and makes it possible to narrow down the scope of investigation throughout the rounds, (3) *controlled feedback*, allowing for an indirect interaction between the participants, as they will be presented with summarized results from the previous round and thus providing the opportunity for each participant to clarify or change their perspectives, and finally (4) *statistical aggregation of group response*, allowing quantitative analysis and interpretation of the data based on a statistical average of the opinions of each participant.

A modified Delphi design was chosen for this research to generate ideas and facilitate divergent perspectives rather than achieving consensus (Rowe and Wright, 1999). Three iterations of expert insights and opinions were gathered to achieve data triangulation. The triangulation would reveal if the research results were well-supported or affected by inconsistency and contradictions, “by seeing and hearing multiple instances of it from different sources by using different methods” (Miles and Huberman, 1994, p. 267).

A Delphi study can be integrated into a wider research process, categorized by three overall stages: (i) the exploratory stage, which focuses on the study preparation (ii) the distillation stage, which involves developing the interview guide or questionnaire and (iii) the utilization stage, the final stage where the focus is on the outcome of the data collected (Day and Bobeva, 2005).

Table 2. Background of experts and their connection to Web3

Experts and positions	Connection to Web3
1: CEO & co-founder	Web3/Blockchain start-up
2: Senior Digital Innovation	Consultant/Advisor Web3
3: PhD Fellow	Research area: DAOs
4: CEO	Advisor Fintech
5: CFO & co-founder	Web3/Blockchain start-up
6: Entrepreneur	Consultant/Advisor Web3
7: Senior Vice President	Incumbent business in Web3
8: Technology analyst	Advisor blockchain and DeFi

Table 2 provides an overview of the experts in the Delphi study panel in the three iterations of the analysis. Our methodological considerations and interview guidelines are inspired by the work of Svend Brinkmann and Steiner Kvale (2018).

The interviews were conducted as semi-structured interviews using an interview guide with questions based on the research question and insights and themes collected from the literature background. The questions were developed with an emphasis on the following themes: (i) establishing the experts’ knowledge and experiences with Web3 and Web3 business models, (ii) challenges and opportunities awaiting incumbent businesses when entering Web3, (iii) the potential differences between traditional business models and business models in Web3, (iv) relevant components to include in a Web3 BMC, and (v) the role and applicability of the BMC by Osterwalder and Pigneur (2010) in the creation of a nascent Web3 BMC.

4. Analysis

The following is a summary of the synthesized findings that emerged from the thematic analysis.

4.1. Delphi study round one: Interviews

Insights on the overall challenges and opportunities that incumbent businesses could face when entering Web3 acted as background knowledge and supported the development process of the Web3 BMC on two accounts: (i) the new business opportunities can be viewed as an essential argument for the need of developing a nascent Web3 BMC, and (ii) the awareness of the challenges are important for the onboarding process of incumbent businesses to Web3.

Challenges the experts considered critical hinders are a general lack of knowledge and the lack of skilled and capable developers for Web3 solutions: *“People often don’t understand the technology and we do not have enough experts that are actually able to show how blockchain technology can really help and why that is better compared to another server client interface, so I would say it is too complex, it needs to be made a little easier for everyone to understand, to be expanded further than the fintech space or the technology industry.”* (Expert 2)

A few experts mentioned dynamic capabilities within the businesses as a challenge, as Web3 is inherently different from what the business has tried before. An insight confirmed across the panel was the lack of readiness and openness from the incumbent and existing businesses. A reason for this could be the dramatic change of mindset it requires to comprehend the nature of Web3 and how it might affect established businesses: *“The whole enablement and readiness and preparation of the traditional mindset is probably the biggest challenge because it is still a little bit nerdy and a little bit for people who like or are interested or curious about the technology.”* (Expert 3)

According to part of the panel, the insecurities or hesitations related to participating in Web3 are a key challenge for onboarding more incumbent businesses. These insecurities could be explained by volatility in the Web3 space and the lack of regulatory frameworks which poses greater risks of, e.g., damaging the brand reputation and financial losses. The experts collectively agreed that there are several disruptive and unique business opportunities waiting in Web3, opportunities that go beyond the ambition to be a first mover and capture a bigger part of the market. The experts particularly emphasized Web3-specific characteristics such as the tokenization of assets, the notion of digital twins, DeFi, and supply chain management. And they emphasized blockchain characteristics that allow for peer-to-peer interactions, transparency, and immutability which can have an immense effect on e.g., transactions costs and improve efficiency: *“I think right now most people, organizations are looking at it from an efficiency point of view, that they can basically improve their existing supply*

chain management, supply chain transparency, the cost of their existing systems. That they basically improve what they have right now in terms of performance or costs.” (Expert 8)

A more structured and synthesized overview of emerging themes from the first round of interviews can be found in Table 3.

Table 3. Emerging themes from the interviews that describe business models in Web3

Theme	Quote
Decentralized ownership & Distribution of value	“I mean the Web3 industries is one of the few industries where everyone is partners, no one has like a classical relation where one is the seller and the other one is the buyer. Now everyone is partners because everyone has to rely on each other to benefit so I think that is a big change.” (Expert 1)
Tokenization	“(…) tokens can be used as benefits for the users that are part of the model, it can be used for creators to be used for example for voting or decision making, so I mean tokenization can do a lot of things but in general (…) that is how you get your revenues.” (Expert 2)
User-centric value proposition	“I think that in terms of business models it is more as I said, giving the power back to the creative industry or the creators. That it is more democratization, it is more equality, it is more transparent, so I think these are the keywords in terms of what to involve in the different business models.” (Expert 4)
Co-creation & Community	“You need to make revenue somehow to survive but then again it is in most of the cases within Web3, the current Web3 ecosystems are user-driven, so it is open source and people that are part of the community, they co-create so they are not a cost they are a value you can say.” (Expert 2)
Customer/user can also be a creator	“So, web 3 enables the creator economy, so basically creators can get back a lot more based on peer-to-peer relationships.” (Expert 2) “I think that is where it becomes super interesting, and if you can create that user engagement and you create something that you can actually use as a user or even creator, everyone will be a creator.” (Expert 7)
Changes in revenue streams	“The cost structure will obviously be more efficient and thereby your revenue streams would be more interesting than what you have today.” (Expert 5)
Global reach is bigger &	“You can scale a phenomenally because there is no borders here that you do not need to

Greater access to market. build organizations to reach people in remote areas where you would never dream of having customers.” (Expert 3)

Customer segment & Customer relationship “So much more open distributed framework for selling your products in a decentralized space which is kind of implied by the name, so your customer relationships will change to be much more global in nature.” (Expert 5)

4.2. Delphi study round two: Questionnaire

A questionnaire was used as an additional source of data to cross-verify previous statements and provide a more granular view of expert opinions, rather than as a quantitative measurement of statistical consensus. Based on the interview analysis above, the questionnaire guide was developed, which laid the foundation for developing the Web3 BMC. The panel was asked about the statements made by experts in the first round regarding differences between current business models and business models in Web3. These responses were relevant for the development process of the Web3 BMC, particularly when the applicability of the BMC by Osterwalder and Pigneur (2010) was challenged in the Web3 field. As an essential part of the questionnaire, the panel were asked to rank the building blocks and components mentioned in the first round, that according to their experience should be included in a Web3 BMC. Based on the initial analysis, the results as shown in table 4 provide a steppingstone towards the third and final round of the Delphi study.

Table 4. Degree of panel agreement on what belongs into a Web3 BMC

Full Agreement	Partial Agreement
<ul style="list-style-type: none"> • Ecosystem • Key partnerships • Value proposition • Incentives/reward structure • Community • Tokenization/Tokenomics 	<ul style="list-style-type: none"> • Decentralization • Key activities • Key resources • Channels • Value creation • Cost structure • Revenue • Customer relations • Customer segments • Purpose, Mission & Vision. • Problem statement

The panel did not agree on the role or applicability of the BMC (Osterwalder and Pigneur, 2010) in the development of a Web3 BMC. In the third round, the panel was given a chance to provide insights and feedback to reach a panel agreement on the Web3 BMC.

4.3. Delphi study round three: Model

The third and final round had three aims (i) reaching further triangulation of insights in terms of the creation of the Web3 BMC, (ii) testing the degree of applicability of the BMC (Osterwalder and Pigneur, 2010) to the Web3 BMC, and (iii) clarifying essential contradicting responses found between round one and two. The final analysis of the Delphi study ultimately led to the findings that five out of the nine building blocks from the BMC by Osterwalder and Pigneur (2010) could be re-applied in a Web3 BMC if the description and content of each building block were updated to fit a Web3 context. The five building blocks from the BMC by Osterwalder and Pigneur (2010) are value proposition, key partnerships, revenue, cost, and channels. However, the analysis also showed that specifically relevant for a Web3 BMC additional elements were needed which included revenue and value distribution, community (building), and value co-creation between a company and customer.

The Web3 BMC contains the key elements and components that according to the experts capture the unique characteristics of Web3 and are therefore essential for a Web3 business model. As illustrated in Figure 1, the Web3 BMC contains seven building blocks: value proposition, incentive and rewards structures, community and customer, tokenomics, revenue and cost structures, key partnerships, and channels. The double arrows, connecting the six building blocks in the outer rim, illustrate the connectivity between the different elements and represent the dynamic capability and approach needed when creating a business model in Web3.

The seven building blocks are complemented by two overarching components, value co-creation and value distribution. When deploying a Web3 business model it is recommended that incumbent businesses consider how they want to engage with their users, customers, or community and to what degree they want to facilitate co-creation and let value or created revenue be distributed to the community. This will play a key role in the ability to attract customers and foster a thriving community.

When addressing the Web3 BMC, it is recommended by the experts that value proposition and customer and community are the two starting points in the Web3 BMC. This will guarantee that the business offering and motivation behind the business model are customer and community-centric. The structure or order should be approached in an agile or flexible manner, both in terms of the business model and interaction, as dynamic capabilities are essential for participating in a Web3 environment. However, key partnerships and

channels can be prioritized towards the end of the business model development as they are closely tied to the creation and delivery of the value proposition.

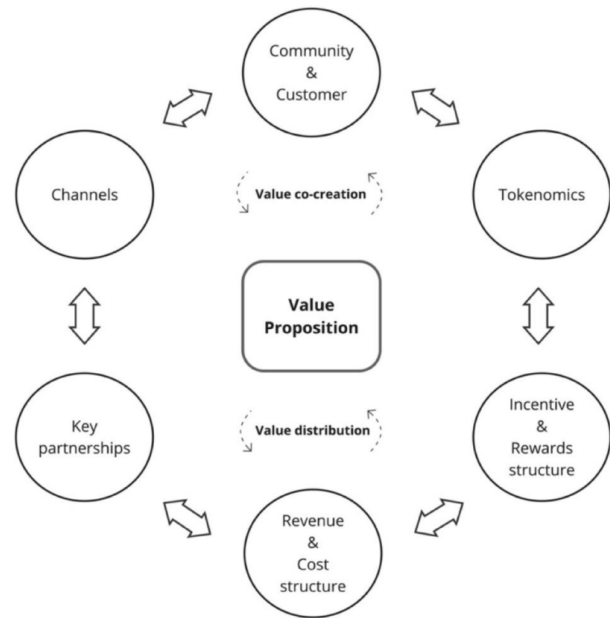


Figure 1. Web3 decentralized business model

Value proposition: Represents the problem statement and customer-centric value proposition. What kind of solution or services are you offering to the customer or community that bring them value and attract them to the company? Why should they choose your proposed solution over others?

Community and customer: The community and customer are at the center of the decentralized business model. The community part of this building block represents a relational connection with people, here the goal is to establish a co-creation and co-contributing relationship and to determine to what degree you wish to share certain ownership rights with the community.

Tokenomics: The tokenomics is the enabler of the Web3 business model as is it the economics and backbone of the value proposition. Here it is essential to consider what type of token(s) and token system you want to use and deploy, and it is advised to be specific on what is it that you want to create, what it represents, and how the token(s) interacts within your own system and potentially with other systems.

Incentive and reward structures: This building block is comprised of the incentive and rewards structures set in place to attract, engage, and motivate people to use, purchase or contribute to the business model. The incentive and rewards structures are closely tied to the

value proposition, customer and community, and tokenomics building blocks, and thus these building blocks should be viewed as interdependent.

Revenue and cost structures: The revenue and cost structures are cornerstones in a sustainable Web3 business model. The revenue structures can either (i) be seen as the different ways in which profit can be captured from a transactional relationship with the customer, or (ii) determine if the revenue and value captured should be shared and distributed to the community or key partners.

Key partnerships: Key partnerships represent the network of partners, stakeholders, ecosystems, or platforms that you need to (co-)create, (co-)deliver, (co-)operate and ultimately make the business model work.

Channels: Represents all the different means by which you intend to reach, engage, and communicate with your customer or community, such as platforms or ecosystems, as well as the distribution channels needed to deliver the value proposition. It is essential to take the choice of channels into consideration as there is no generic way to do outreach in Web3. The choice of channels should appeal to as many customers and potential community members as possible, however, it is worth considering who owns the channel that has been chosen, and whether it is centralized or decentralized.

5. Discussion

5.1. Applying the Business Model Canvas to Web3

As incumbent businesses become interested in presenting themselves and creating and capturing value in Web3 environments, having a clear understanding of a Web3 business model is useful in the managerial decision process (Fritscher and Pigneur, 2015; Ojasalo and Ojasalo, 2017).

It can be argued that similar to the incumbent businesses that need a knowledge and capability update to comprehend and embrace business opportunities in Web3, so do traditional business models (Murray et al., 2023). To our knowledge, prior research has not studied or developed a Web3 business model. With the help of the panel of experts from the Web3 domain, we are able to explore how the BMC (Osterwalder and Pigneur, 2010) could be applied to the unique characteristics in Web3 and form the foundation for a Web3 BMC.

5.2. Comparing our Web3 BMC with the Business Model Canvas

The initial findings in this Delphi study indicate that most of the experts believe that the BMC (Osterwalder

and Pigneur, 2010) would apply to Web3, but that an adaptation to Web3 is necessary. Some on the panel believed that an update of content would suffice, while another part believed that while some elements and building blocks in the BMC were applicable if adapted, the overall visualization of the BMC was not in alignment with the dynamic characteristics of Web3, and therefore required a change to be suitable for Web3. Through an iteration process in the Delphi study, the BMC's building blocks and visualization were discussed, adapted, and applied to a Web3 context. These adaptations were based on panel reflections and insights on key elements and characteristics of Web3. The process of triangulating panel insights ultimately led to an almost unanimous panel supporting the adaptation of the BMC both in terms of content and changes in visualization. This resulted in the nascent Web3 BMC as illustrated previously in figure 1. Before answering our research question on how a Web3 business model is different from traditional ones and what the key characteristics are that constitute a Web3 business model, it is essential to discuss the findings accordingly.

When comparing the BMC by Osterwalder and Pigneur (2010) with our Web3 BMC as illustrated in Table 5 below, it becomes evident that there are differences between the two. The Web3 BMC contains seven building blocks and two additional elements, as opposed to nine building blocks in the BMC by Osterwalder and Pigneur (2010).

Table 5. BMC versus Web3 BMC

BMC (Osterwalder & Pigneur, 2010)	Web3 BMC
Building blocks:	Building blocks:
<ul style="list-style-type: none"> ▪ Value proposition ▪ Customer segments ▪ Customer relationship ▪ Channels ▪ Revenue ▪ Cost structures ▪ Key resources ▪ Key partnerships ▪ Key activities 	<ul style="list-style-type: none"> ▪ Value proposition ▪ Community & Customer ▪ Tokenomics ▪ Incentive & Reward structures ▪ Revenue & Cost structures ▪ Key partnerships ▪ Channels
	Additional elements:
	<ul style="list-style-type: none"> ▪ Value co-creation ▪ Value distribution
Visualization:	Visualization:
Square, divided in nine separate building blocks.	Circular, with an illustrative connectivity between the building blocks and additional elements.

Visually the BMC by Osterwalder & Pigneur (2010) has a rectangular design divided into nine individual boxes representing the building blocks, whereas

the nascent Web3 BMC design is circular, made up of round building blocks in the outer rim connected by double arrows to illustrate the dynamic and interconnective characteristics of Web3. In the middle of the circle, value proposition, value co-creation, and value distribution are placed to indicate their significant role in the nascent Web3 BMC. Diving deeper into the nascent Web3 BMC, the key differentiating elements that according to the expert make the nascent Web3 BMC applicable for Web3, are the newly established building blocks community and customer, tokenomics, and incentive and reward structures together with the additional elements of value co-creation and value distribution. The circular design of the Web3 BMC came to light during the iteration process with the experts and it gained preference over the original BMC design. The main driver for this change was the fact that the original BMC design was viewed as a representation of the linear and traditional business mindset, something that many experts disliked, as, in their opinion, Web3 is more dynamic and interactive between participants, specifically business, community, and peer-to-peer. Although the Web3 BMC is adapted, extended, and visually different from the original framework, we believe that it still has roots in the BMC by Osterwalder and Pigneur (2010) based on the following: (i) five of the original building blocks were adapted in description and content but otherwise applied to the Web3 BMC, (ii) the two building blocks key partnerships and key resources were merged into each of the seven building blocks, and (iii) the building blocks customer segments and customer relationships were adapted and merged into the new building block community and customer.

6. Conclusion

With the changing business landscape that follows the slipstream of emerging Web3 technologies and applications, our research is motivated by studying the potential disruption of current business models, from a theoretical and empirical perspective. Specifically, how Web3 business models differ from other business models and whether any Web3-focused business model framework had been developed to guide, amongst others, incumbent businesses entering Web3 environments. By investigating these questions, it became evident that there is a current knowledge gap, as no prior research to the best of our knowledge, has looked holistically at Web3 business models and identified key elements and components that are required for a business model to be suitable in a Web3 context.

Thus, with a departure in the current literature and the well-established BMC by Osterwalder and Pigneur (2010), we embark on an exploratory journey using a modified Delphi method to gather insights in Web3

business models from a panel of experts with Web3 domain knowledge. To gather empirical data, two rounds of interviews and a questionnaire were conducted and processed through thematic analysis and data triangulation, extracting the panel's insights and feedback on key elements and unique characteristics of Web3 business models. Merging the BMC by Osterwalder and Pigneur (2010) with the panel's Web3 domain knowledge this Delphi study ultimately resulted in the development of the Web3 BMC, created to answer our research question.

The empirical data indicated that the BMC can be applied to a Web3 context, but to fit the unique characteristics of Web3 it must be modified and extended in terms of content and visualization. The original nine building blocks from the BMC were variously embedded within the building blocks selected for the nascent Web3 BMC. Two additional elements were added to the nascent Web3 BMC, value co-creation and value distribution, that in connection with the newly created building blocks community and customer, tokenomics, and incentive and reward structures represent a model, which would be an advantage for incumbent businesses entering Web3. Furthermore, to support the unique characteristics of Web3, the visualization of the BMC was changed into a circular and interactive framework. According to the panel, Web3 business models are driven by community and value co-creation, thus dynamic capabilities are required on two levels: (i) within the company to adapt to the ever-changing landscape of distributed and collaborative environments in the Web3, and (ii) the visualization of the nascent Web3 BMC must intuitively emphasize the dynamics and interconnectivity between building blocks and elements.

6.1. Theoretical implications

As illuminated in the literature review, academic literature on business models in the Web3 environments is scarce and predominantly of conceptual nature. To the best of our knowledge, this research is the first study that: (i) explicitly studies how the BMC by Osterwalder and Pigneur (2010) can be applied to capture the unique and dynamic characteristics of Web3, and (ii) studies business models in Web3 from a holistic point of view, to identify key elements that make a business model applicable in a Web3 context, and (iii) analyses how a Web3 business model differs from other business models.

According to our findings, Web3 is fundamentally different from other business models, by empowering value co-creation and value distribution, through the notion of tokenomics and the creator economy that flourishes on mutually beneficial interactions between business, community, and peer-to-peer in a distributed and

collaborative environment. An essential theoretical contribution illuminated by our empirical work is the notion of value co-creation and dynamic capabilities emerging in Web3 business models, thus adding knowledge to the current literature on value configuration and the dynamic capabilities view in a Web3 context.

6.2. Practical implications

The development of this Web3 BMC was meant to contribute to a more holistic view of business models in Web3 and how the unique characteristics of Web3 may affect and change current business models. As such, this research provides a primer for anyone who seeks to understand how Web3 has the potential to change the future of businesses. Our insights will be relevant for incumbent businesses that are interested in getting a better understanding of how Web3-empowered business models potentially disrupt the current business landscape and business models. Furthermore, our model can be helpful by offering an overview of key elements and component required to create a business model that captures the unique characteristics of Web3, and thus serve as an inspirational framework to be used by organizations when entering Web3. The notion of value co-creation and dynamic capabilities presented in this nascent Web3 BMC serve as valuable areas of consideration and reflection for incumbent businesses before entering Web3.

6.3. Limitations

The questionnaire in the second round of the Delphi study was put in place to cross-verify statements from the first interview, however, it turned out that we were not able to gain sufficient insights from the panel in the last interview regarding the contradictions found in the questionnaire analysis.

It would have strengthened the nascent Web3 BMC, for both theory and practice, if we had conducted a case study or interviews with incumbent businesses and gotten feedback on the usefulness and value of the model for companies aiming to initiate a Web3 business model. Moreover, as this was the first study focusing holistically on a business model combined with the novelty of Web3, there are still a lot of research areas to uncover, so this paper is just the first step towards a deeper understanding of business models in Web3.

6.4. Future research

Both the literature review and the Delphi study indicated that Web3 is a novel complex research area and industry, where much is yet to be explored, discovered,

and understood. As this research is the first study to view Web3 business models from a holistic perspective, the findings require further research and development to substantiate and finalize key elements and building blocks to make the nascent Web3 BMC a suitable framework for creating viable Web3 business models. We ask for further research on the role and conditions for how value co-creation and value distribution can be orchestrated in collaborative networks in a Web3 context, and how these collaborative business models allow for value creation and capture in Web3.

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