Developing an early-stage nutrition start-up business model by using an adapted version of the Business Model Canvas

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Abstract

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With today's international operating environments undergoing rapid and unpredictable changes (e.g., COVID-19 and the conflict in Ukraine), there is a vital need for businesses to take immediate action to avoid emergent risks and to also better exploit the new market opportunities that arise from major socio-political change. Business model innovation, through business model development can provide an effective solution, facilitating strategic decision making and enabling businesses to navigate and adapt to market changes.

The Business Model Canvas (BMC) is a well-established and popular tool for validating the viability of new business concepts. There are various academic studies that have explored the modification and adaptation of the BMC to increase its effectiveness for businesses in specific industries (e.g., circular economy, ecotourism). In this study, the use of the BMC in the nutrition industry by start-up businesses is explored. Narrative inquiry methodology is applied, leading to qualitative data collection from four semi-structured interviews of European founders of nutrition-related start-ups. Narrative analysis is utilised to evaluate the effectiveness of the BMC as a tool for business model planning and validation. Findings are used to inform the creation of a modified BMC template, the "Nutra Canvas," a variation of the BMC tailored for use by nutrition-related start-up business.

In order to test and evaluate the effectiveness of the "Nutra Canvas" and related guidance, the canvas is applied to a business case example. This business case is the product of market research conducted for this study and is a concept for a nutritional start-up snack bar brand targeting the esports market segment, using Finland as a test market. Testing the "Nutra Canvas" with this case example, reveals several strengths and weaknesses, resulting in further identified modification to the canvas template and guidance.

The study provides valuable insight into the validation of the business case example, as well presenting for the first a new variation of the BMC which can be specifically used by nutrition-related start-up businesses. As a point for future development and study, the "Nutra Canvas" could be applied to different business models and on a wider scale to collect feedback to further improve its effectiveness.

Keywords
Business models, Business Model Canvas, Start-up, nutrition industry, entrepreneurship, value creation

Contents

Abbreviations

B2B – Business to business

B2B2C – Business to business to consumer

B2C – Business to consumer

BMC – Business Model Canvas

CPG – Consumer packaged goods

DTC – Direct to consumer

EU – European Union

MVP - Minimal viable product

NFT – Non-fungible token

NPD – New product development

RQ – Research question

SEMC - Social Enterprise Model Canvas

SEOs - Social entrepreneurship organisations

TLBMC - Triple Layered Business Model Canvas

1 Introduction

1.1 Topic introduction

There are few concepts in business management that have had as significant impact as the "business model." By identifying and defining an organisation's activities in relation to their product or service offering, it has been possible to more effectively study how businesses have brought about disruptive innovation within their industries. With today's international operating environments undergoing rapid and unpredictable changes (e.g., COVID-19 and the conflict in Ukraine), there is a vital need for businesses to take immediate action to avoid emergent risks and to also better exploit the new market opportunities that arise from major socio-political change. For example, since the 2010s scientific advances have resulted in such diverse innovations as 5G networks, advanced genetic engineering tools (e.g., CRISPR), augmented reality, competitive electric vehicles, cloud computing storage and blockchain technology (Palandrani 2022). These technologies, along with numerous others, will profoundly reshape a wide range of industries, leading to dramatic changes in how consumers and organisations will expect their products and services to be delivered.

Businesses that will maintain their position are those that successfully anticipate the impact of changes on their operating models and effectively utilise new technologies to access growing markets. This is demonstrated in figure 1, where in the past decade Amazon and Apple have overtaken established market leaders such as Hewlett-Packard Company and General Electric Company in the Fortune Global 500. It can be argued that these companies achieved this by effectively harnessing technology to disrupt their markets. Notably, Walmart still has a higher position. As a large traditional incumbent, the assumption would be that they too would be displaced. However, through a strategic pivot to ecommerce, including acquisitions of smaller ecommerce players, and novel concepts such as "Endless aisles" (where customers can order for an item not found on shelves at a kiosk at the end of each aisle), the company has managed to leverage its strengths whilst also taking market share from novel competitors (Repko 2022).

Whilst future scenario planning activities and analysis of megatrends can aid management teams to make strategic decisions, the speed and pace of market change has only continued to accelerate making it more challenging for larger organisations in particular to anticipate the optimal time for a major pivot. The recent case of Meta (formerly Facebook Inc.) illustrates this challenge. Reporting declining revenues from digital advertising and a slowdown in user-acquisition growth, Facebook's CEO Mark Zuckerberg unveiled a strategic pivot towards building a social media "Metaverse" (a virtual reality space for communication) and rebranded the company as Meta to reflect this aim.

Despite significant investments and build-up of internal resources, there has been little popular up-take and momentum in Meta's new services leading to a decision in November 2022 to lay off 13% of workers across Meta's international operations (Soni & Balu 2022). It can be reasoned that Meta's abrupt decision to focus their business away from core sales channel and product development to a niche and experimental technology was poorly timed and an example of a "solution looking for a problem" (Sczyzinski 2022).

2012	2022
1. Exxon Mobil	1. Walmart
2. Wal-Mart Stores, Inc.	2. Amazon
3. Chevron Corporation	3. State Grid
4. ConocoPhillips	4. China National Petroleum
5. General Motors Company	5. Sinopec Group
6. General Electric Company	6. Saudi Aramco
7. Berkshire Hathaway	7. Apple
8. Fannie Mae	8. Volkswagen
9. Ford Motor Company	9. China State Construction Engineering
10. Hewlett-Packard Company	10. CVS Health

Figure 1. Fortune Global 500 ranking 2012 vs 2022 (Fortune 2022).

To avoid costly missteps, companies should consider focusing on planning, validating and analysing its business models. Business model development has been shown to be particular effective in as-sisting management to make well-informed decisions when refining or embracing a new business model. For example, over its corporate history Netflix has altered its business model multiple times, pivoting from a revolutionary internet-based DVD rental service to an online streaming subscription service. Due to an organisational mindset that was committed to exploration through testing and learning, Netflix was able to discover a product-market fit at multiple timepoints and build service offering business models for which there were no prior precedents (Mier & Kohli 2021).

There are various ways to test and validate business models and to facilitate Business Model Inno-vation for an organisation (Demil, Lecocq, Ricart & Zott 2015, 1). Framework tools that provide struc-tured guidance to support ideation have come into common use and acceptance in strategic man-agement (Figueiredo de Faria, Santos & Zaidan 2021, 93). For example, the Business Model Canvas (BMC) is a well-established and popular tool for validating the viability of new business concepts (Osterwalder & Pigneur 2004, 65). As there have been significant changes to how businesses are

formed and managed in a post COVID-19 world (e.g., 100% remote teams based in different countries), it is important to assess if the BMC is still a relevant instrument to assist in effective organisational business model innovation. A valid case example is the nutrition industry, a source of rapid product and service innovation that has undergone dramatic changes in past decade with the rise of plant-based eating habits and the previously niche sports nutrition entering the mainstream. Even more changes are expected in the near future, with personalized nutrition, lab-grown meat and climate-friendly food production methods all on the near horizon (Mintel 2020).

1.2   Study background and motivations

In addition to the rapid changes in consumer preferences and technology that the nutrition industry is experiencing, the costs of formulating, manufacturing and distributing a nutritional product can have a significant impact on the feasibility and early success of a nutrition start-up. Due to this particular emphasis on logistics and regulation that comes from setting up a nutrition-related business, there is arguably a necessity to modify the BMC so that it can better evaluate these aspects, improving its overall relevance for nutrition-related business concepts.

This thesis will evaluate the appropriateness of the BMC, evaluating its strengths and weaknesses and the potential impact of its effectiveness for validating nutrition business ideas for start-up companies, such as those aiming to target services to the esports nutrition consumer segment. It will also detail an example of using a modified version of the BMC to develop an initial business model for a business case example. This case example is a nutrition business targeting the esports market in Finland. Due to a lack of global competitors and insufficient understanding in how to effectively market to this segment, there is a potential business opportunity for a new consumer brand to target the esports nutrition consumer segment. The Finnish consumer market represents a highly valuable test market, due to the oversized popularity of esports and gaming-related activities. Therefore, this study will significantly benefit the author and others who wish to utilize this research to aid in the development of a personal business idea in the nutrition industry. This thesis collates and analyses qualitative interviews with start-up founders, applying their feedback to propose recommendations for a modified version of the BMC that future entrepreneurs seeking to set up businesses in the nutrition/food tech industry can use to validate business concepts in the nutrition space, also potentially benefiting advocates of the BMC in both academia and industry.

Outcomes

1. **The development of a modified version of the BMC for nutritional business concepts.** A literature review of existing modifications to the BMC and alternative models provides a valuable summary. These findings inform the development of a new modified version of the BMC and also acts as framework that can be adapted by stakeholders for potential future modifications for other industry application areas.

2. **Case example of utilization of the proposed modified BMC for a nutrition-related start-up.** This thesis includes the application and evaluation of a proposed modified BMC in validating an example start-up business concept for the esports nutrition consumer segment.

1.3 Research questions

The thesis utilizes narrative inquiry as the scope involves researching, actively designing and implementing modifications to the BMC and aiming to answer these two questions:

- **RQ1.** How is the BMC used by nutrition-related start-up businesses?
- **RQ2.** What modifications are needed to make the BMC more effective for validating a business model concepts for a prospective nutrition-related start-up business?

1.4 Scope and limitations

The scope of this thesis includes a literature review of the BMC and its various modifications and alternatives. Particular emphasis is placed on how the modifications can be used to more effectively evaluate the operational, regulatory and logistic factors which significantly impact on a nutrition company's success. Business leaders of start-ups in the nutrition industry are interviewed to examine how the BMC is currently used and how it can potentially be improved, with feedback used to proposed and develop a modified version of the BMC. The thesis also includes market research required to effectively evaluate the viability of a concept for a nutritional supplements business for the esports market segment. The thesis scope excludes detailed examination of the scientific nutritional principles involved in developing supplements or other nutrition-based products and services.

2 Literature review

2.1 Business model as a concept

The "business model" can be mainly considered as a late 20th Century concept, which has grown in importance and common understanding over recent decades enabling businesses to navigate an increasingly unpredictable operating environment (see table 1). Business models have also contributed to these changes by creating new ways for organisations to target new market segments, disrupt existing ones and develop unique competitive advantages (Nielsen, Dumay, Lund, Massaro, Montemari & Paolone 2018).

An early concept of a business model was proposed by Drucker (1955) as a "theory of business," consisting of three sets of business assumptions (relating to environment, mission and core competencies) which should be validated for a "business theory" to succeed (Daly & Walsh 2010, 500). Shortly after, the term "business model" was used for the first time by Bellman, Clark, Malcolm, Craft & Ricciardi (1957, 469) in their study of business training games, where business activities were simplified for modelling and simulation purposes. In the 1960s, the business model term was used in several studies examining the impact of new technologies on business strategy and training. Jones (1960, 619) featured the term in the title of their study exploring education of college students, and Chandler (1962, 13) linked the business model concept, where resources are allocated to enable activities, with an organisation's wider long-term strategic goals. This connection was later developed further by Andrews (1971) who distinctly defined (overall) corporate strategy and (individual) business strategy as separate concepts, with business strategy focusing only on one of a corporation's businesses within the context of its activities and market.

Table 1. Development of the "business model" concept

Use of "business model" concept	Authors
Early concept which described business models as a "theory of business" consisting of three sets of business assumptions (relating to environment, mission and core competencies).	Drucker (1955)
First use of "business model" as a term in study of business training games.	Bellman, Clark, Malcolm, Craft & Ricciardi (1957, 469)
Business model used as a term in a study title for the first time.	Jones (1960)
Linked the impact of resources on business activities to an organisation's wider long-term strategic goals (a business model concept).	Chandler (1962, 13)
Identified the distinction between a company's strategic aims and the strategic activities of a company's business in its market.	Andrews (1971)
Classified technologies by types and connected these to a company's value chain and operational structure.	Thompson (1967)
Presented a "strategic choice" concept which has significant similarities to the business model, including recognition of a company's value proposition.	Child (1972, 1)
Noted that organisations are operating in a dynamic environment and need to adapt their practices to fit their market. Adaptative change is a major factor driving business model development.	Starbuck & Dutton (1973, 21)
Explored how ideas developed in the core business of an organisation can also be potentially applicable to other corporate divisions, much like how similar business models can be applied to businesses operating in different markets.	Prahalad & Bettis (1986, 485)
Defined a business model as a function of information management and how this relates to sources of revenue.	Timmers (1998, 3)
Proposed a framework for business models based on four main pillars ("Core Strategy," "Strategic Resources," "Value Network" and "Customer Interface") which interact through "bridges" to maximize profitability.	Hamel (2000)
Summarised a business model in terms of operational functions, including value proposition, market segment, value chain, cost structure, profit potential, value network and competitive strategy.	Chesbrough & Rosenbloom (2002, 529)
Proposed a two-part concept framework which breaks down a business model's assumed activities into a "narrative" of two halves.	Magretta (2002, 86)
Examined how business models can be integrated into strategic actions by proposing a framework which includes the business' value proposition, value capture methods and value creation and delivery system.	Richardson (2008, 133)
Define a business model as describing "the rationale of how an organization creates, delivers and captures value."	Osterwalder & Pigneur (2010)

Another viewpoint is the use of business model as a way of describing how a company does business through reducing it down from a complex and industry specific description of operating model processes to the different factors and relationships involved with the business providing its offerings. By making the description of a company's activities simpler and with less terminology, there is a greater possibility to share knowledge between organizations, potentially allowing these modes of operating to be applied within the same industry by competitors or attempts at adaptation for use in other industry markets (Galper 2001, 70).

The business model concept was rarely used before the second half of the 1990s but entered into popular use during this period due to its association with the "dot-com" boom of e-businesses (Mahadevan 2000, 55). Following this, in the 21st century, business models started to be viewed as separate concepts from internet-related businesses and were quickly applied in the analysis of entire industries, as well as being used to explore non-business concepts. Despite this, in more recent years, there has still been surprising little agreement on the definition of business models and related ontology (Zott, Amit & Massa 2011; Demil, Lecocq, Ricart & Zott 2015, 1019). Perhaps the closest the field has come to a comprehensive definition is the proposal by Chesbrough & Rosenbloom (2002, 529), who summarised a business model in terms of operational functions:

- Articulate the **value proposition**, that is, the value created for users by the offering based on the technology;
- Identify a **market segment**, that is, the users to whom the technology is useful and for what purpose;
- Define the structure of the **value chain** within the firm required to create and distribute the offering;
- Estimate the **cost structure** and **profit potential** of producing the offering, given the value proposition and value-chain structure chosen;
- Describe the position of the firm within the **value network** linking suppliers and customers, including identification of potential complementors and competitors;
- Formulate the **competitive strategy** by which the innovating firm will gain and hold an advantage over rivals.

Chesbrough & Rosenbloom (2002)

Due to the lack of a clear consensus however, there is a need for a "standard framework for characterizing a business model" (Morris, Minet & Jeffrey 2005, 726). This is important as it facilitates the clearer identification of how an organisation creates value or captures it through its activities (Teece 2010, 172). The different decisions that influence these activities can be considered to be interrelated, as they are linked to an organisation's strategy. Therefore, you could consider that the value proposition, resources, partners, channels and customers are also factors that form the overall business model (Morris, Minet & Jeffrey 2005, 726). These factors are influenced by an organisation's activities but can also act as an influencer on management decision-making, creating a dynamic feedback system that is perpetually changing, resulting in a need for companies to regularly evaluate and monitor the business model.

A two-part concept framework proposed by Magretta (2002, 86) breaks down a business model's assumed activities into a "narrative" of two halves: Part 1. Production/Manufacturing (e.g., product design, sourcing of raw materials) and Part 2. Selling (e.g., customer acquisition, distribution, marketing). The use of a narrative frame can be valuable in establishing the value generated by business activities, with a focus on finding "a better way than existing alternatives" (Caredda 2020). Another concept proposed by Kaplan & Norton (1992) in their Balanced Scorecard tool, describes a four-dimensional concept, evaluating what they considered to be four basic questions that are reflective of vital perspectives ("Customer," "Internal," "Innovation and Learning," and "Financial") which impact on a business' performance.

A notable framework is the "Business Model Framework" by Richardson (2008, 13), which aims to incorporate strategic actions into business models to drive impactful decision making by corporate management. This framework includes key business model concepts such as the value proposition, value capture methods and value creation and delivery:

The Business Model Framework

The value proposition — what the firm will deliver to its customers, why they will be willing to pay for it, and the firm's basic approach to competitive advantage.

The offering.

The target customer.

The basic strategy to win customers and gain competitive advantage.

The value creation and delivery system - how the firm will create and deliver that value to its customers and the source of its competitive advantage.

Resources and capabilities.

Organization: the value chain, activity system, and business processes.

Position in the value network: links to suppliers, partners, and customers.

Value capture — how the firm generates revenue and profit.

Revenue sources.

The economics of the business.

Richardson (2008, 13)

Another application that has been particularly useful in exploring the concept of business models has been the identification of Business Model Archetypes which can be used as basis for existing companies to test potential adaptions to existing models (Bocken, Short, Rana & Evans 2014, 42). For example, a fine dining restaurant could explore how the existing business model of limited covers and restricted booking systems would work when applying a direct-to-consumer (DTC) model for meal ordering and home delivery. Many modifications would need to be made to existing operations, as well as sales and marketing. Using an "outside-in" approach of testing hypothetical scenarios can led to new perspectives and unforeseen opportunities for potential BMI.

2.2   The Business Model Canvas

The need for an accepted framework led to development of The Business Model Canvas (BMC) by Osterwalder & Pigneur (2004, 65), who share Drucker (1955) and Magretta's (2002) viewpoint of a business model being based on a set of assumptions. They define a business model as describing "the rationale of how an organization creates, delivers and captures value" (Osterwalder & Pigneur 2010). The BMC (figure 2) is a widely used tool through which participants can understand the logic of "doing business," facilitated by the structure of a visualised canvas. It has found immense popularity in recent years with both entrepreneurs (developing new ventures) and corporate "intrapreneur" managers at incumbent firms (Sund, Bogers & Sahramaa 2021, 11). The BMC was designed with the objective to facilitate the establishment of a "common language" which can be used by all business stakeholders (e.g., company founders, corporate leadership team, investors) when developing and mapping out a company's business model.

The BMC contains nine key elements ("Customer segments," "Value Proposition," "Channels," "Customer Relationships," "Revenue Streams," "Key Resources," "Key Activities," "Key Partners," and "Cost Structure"), roughly representing the four dimensions of a business model ("Product," "Customer Interface," "Infrastructure management" and "Financial Aspects"). The nine elements in the BMC can also be viewed as a "function of six cognitive processes" central to the sense-making of a company's business logic (Identify," "Select", "Plan," "Implement," "Evaluate," "Create"). These could be considered as steps entrepreneurs take when "connecting the dots" to do business (Keane, Cormican & Jerome 2018, 65).
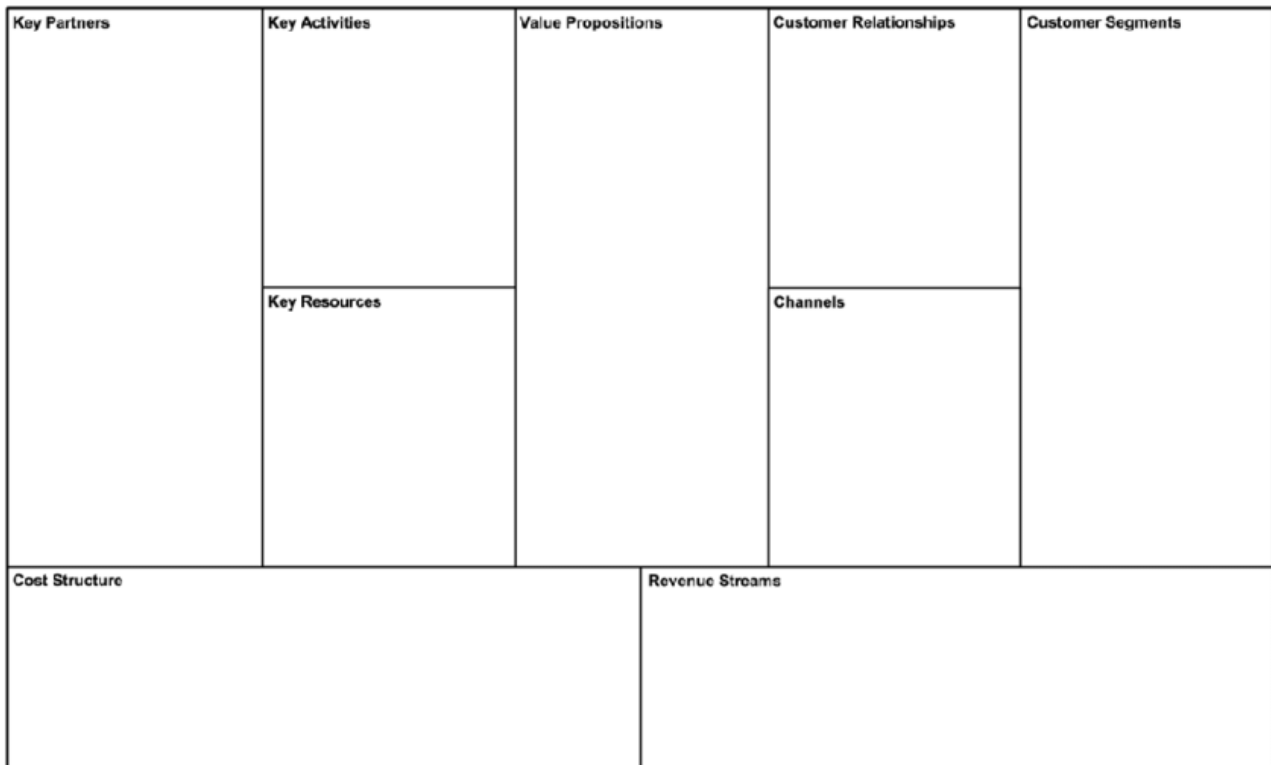
Figure 2. The Business Model Canvas (Osterwalder & Pigneur, 2010)

Taken together, the theoretical underpinnings allow the BMC to effectively illustrate an overview of how a business utilises resources to provide a product or service to customers. By linking together an organisation's high-level strategy with underlying actions through visualisation of the Business Model by using the BMC, it is possible to explicitly improve awareness of the business' competitive advantage and identify new opportunities through new connections. This is an example of an "inside-out" approach towards business model innovation, a phenomenon that has led to dramatic changes in several industries (e.g., retail's move from bricks and mortar to ecommerce) and an increasingly important area of focus for corporate incumbents seeking new areas for value creation and renewal (Johnson, Christensen & Kagermann 2008, 50; Massa & Tucci 2013, 420).

Studies and practitioners have however, identified several drawbacks in the BMC. These weaknesses can create limitations that act as barriers to business model innovation. For example, there is a limited opportunity in the 9 elements for visualising the environmental impacts and potential social value of a business model, in particular for non-profit organisations and social enterprises, possibly due to the "profit-first" nature of the BMC (Upward & Jones 2015). There are also key fundamental differences in the expectations, experiences and objectives between different practitioners using the BMC (i.e., entrepreneurs and managerial intrapreneurs). Whilst this is recognised by Osterwalder & Pigneur (2010) in their descriptions of different business models patterns observed

through the application of the BMC by practitioners, it is possible that the BMC is better catered to new ventures and not as "user friendly" for existing businesses. For example, Keane, Cormican & Jerome (2018), interpreted priorities and business factors in the BMC differently for these two groups; for entrepreneurs "(1) Finance and Operations and (2) Serving Products to New and Existing Customers," and for managers "(1) Making Products and Serving them to Existing Customers and (2) Costs and Revenues." Other criticisms of the BMC include its failure to evaluate the competitive landscape, summarise top-level business goals/strategic purpose, or formulate KPIs and measurement criteria for business performance (Ching & Fauvel 2012, 26).

2.3 Adaptations of the Business Model Canvas

Due to the limitations inherent in the BMC, several adaptations and alternative framework tools have been proposed for specific industries (e.g., the energy sector) (Dobrowolski & Sułkowski 2021, 1). For example, the Triple Layered Business Model Canvas (TLBMC) developed by Joyce & Paquin (2016, 1474), which adds two additional canvas layers (environmental life cycle and social stakeholder) in order to better integrate the social and environmental impacts of a business with economic factors. There is a growing need for businesses to consider their broader value creation and overall sustainability, areas that the BMC arguable doesn't provide a structured framework to consider in its current form.

There is great interest in modifications such as the TLBMC which aims to evaluate "how an organization generates multiple types of value – economic, environmental and social." Unlike the BMC, which is a single canvas, the additional layers also allow for new analytical methods in its use: horizontal coherence (connections between elements within one layer) and vertical coherence (integration of elements across all the layers together). Similarly, Sparviero's (2019, 232) Social Enterprise Model Canvas (SEMC) and the Ecocanvas (figure 3) proposed by Daou, Mallat, Chammas, Cerantola, Kayed & Saliba (2020) makes additions and modifications to the elements of the BMC in order to incorporate principles of the circular economy and social value into a visualised Business Model. The Ecocanvas is particularly innovative as unlike the BMC it makes a clear distinction between stakeholder and customer relationships. This has relevance to businesses in the nutrition industry as stakeholders are of significant importance due to their influence on regulation (e.g., market-specific policy and legislation) and technological development (e.g., scientific research leading to the development of new food and beverage manufacturing processes for tech transfer to businesses).
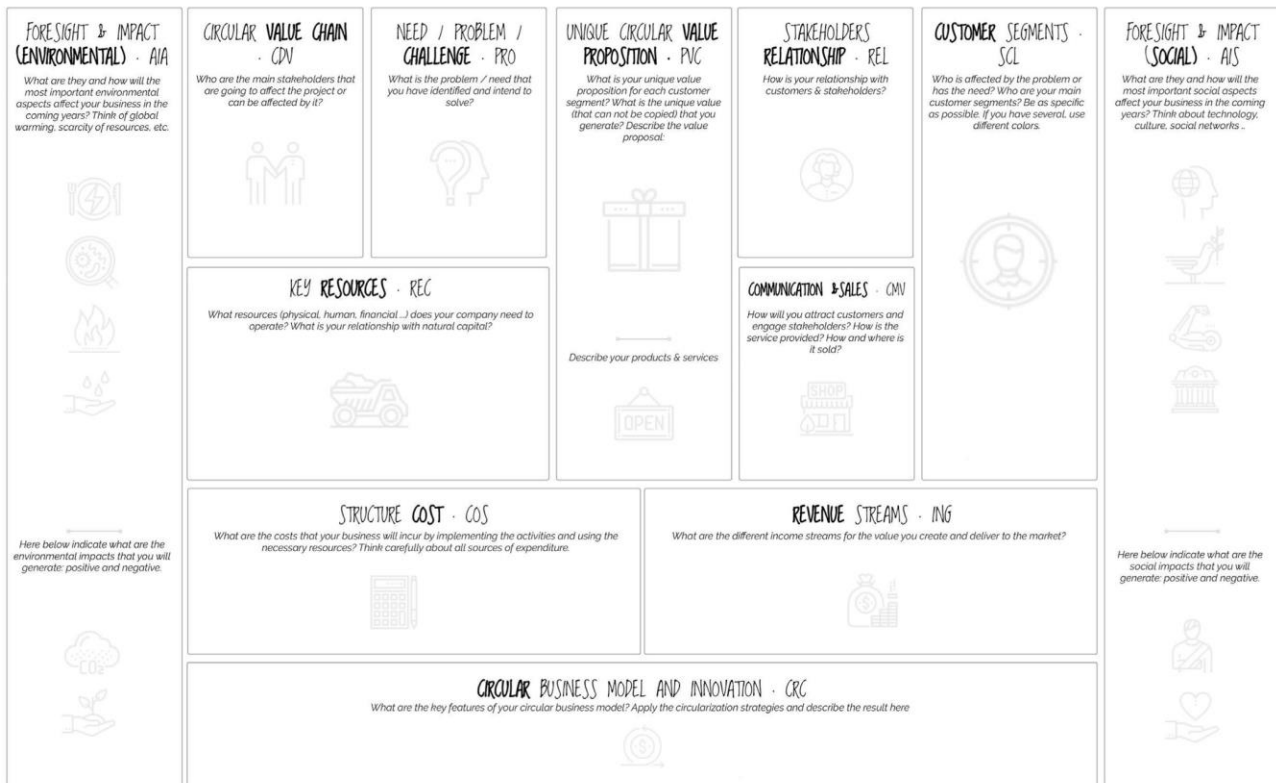
A · ECOCANVAS: CIRCULAR BUSINESS DESIGN

Figure 3. The Ecocanvas as proposed by Daou, Mallat, Chammas, Cerantola, Kayed & Saliba (2020)

In addition to variations of the BMC to better accommodate sustainability concepts, there are modified BMCs that focus on emphasizing a business model's value proposition, the "Value Proposition Designer" proposed by Osterwalder (2012) and Kraaijenbrink's Strategy Sketch (Kraaijenbrink 2015). A popular alternative to the BMC is Maurya's Lean Business Model Canvas (Maurya 2010), which modifies 4 of the 9 BMC elements in order to better reflect the principles of Lean Business Design (Blank 2013, 63). A crucial change is the removal of the "Customer Relationship" element, as Maurya wants to emphasise the need for co-development of a product or service with the intended customer – a key aspect of Lean which encourages the use of a minimal viable product (MVP) which is iterated in response to customer feedback.

In the development of business models in the nutrition industry, there is an enhanced emphasis on complex logistical supply chains and operational activities such as R&D, which are not well accommodated by the BMC (Van Fossen 2018). In this study, the BMC will be evaluated in terms of its strengths and weakness for use cases in this industry, utilizing feedback from practitioners to propose and develop modifications/alternatives to adapt the BMC further.

3 Research methodology

3.1 Research approach and strategy

When considering the research questions explored in this thesis it is vital to establish an appropriate research approach and strategy, for example deciding whether to focus data collection on qualitative, quantitative or mixed sources. Research strategy can be "defined as a plan of how a researcher will go about answering her or his research question," and can be linked to a "particular research philosophy and also a deductive, inductive or abductive approach" (Saunders, Lewis, & Thornhill 2019, 130). In the case of this study, the research questions and objectives will guide the decisions towards establishing a sound research plan that utilises an established research strategy (figure 4).
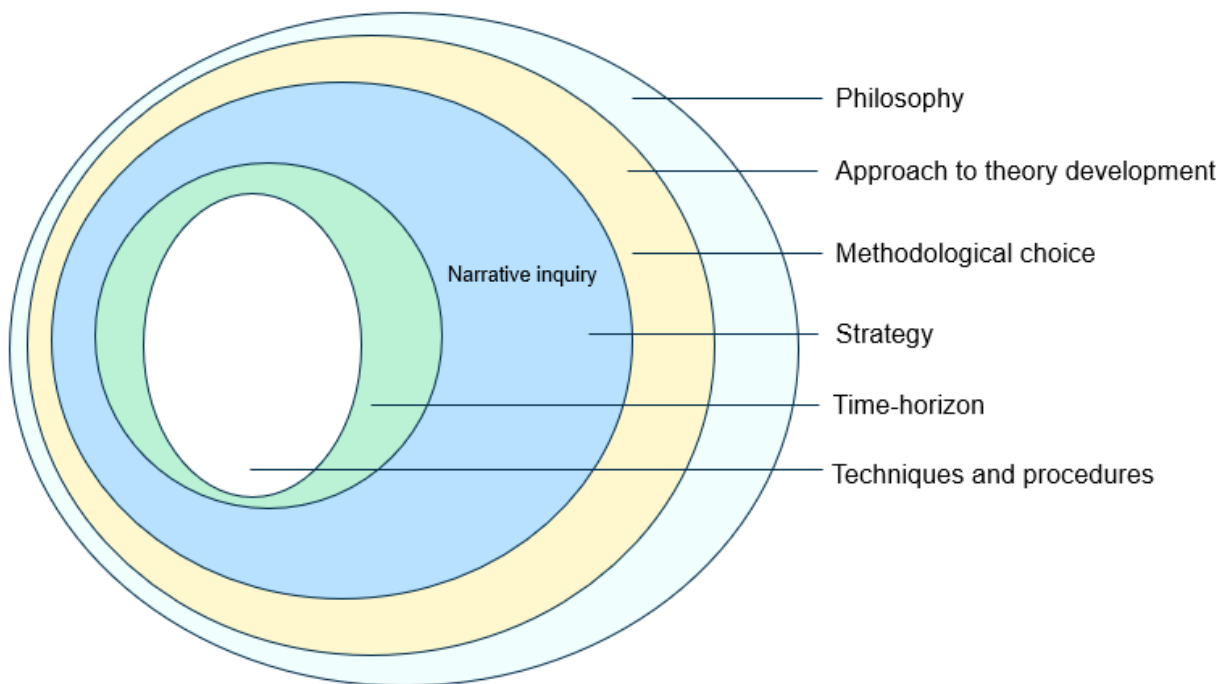

Figure 4. The "research onion" which illustrates established research methodologies, philosophies, strategies, approaches and techniques (adaptive from Saunders, Lewis & Thornhill 2018)

Qualitative research is typically applied in academic research, with qualitative research interviews being a highly popular data collection method employed in research projects (Flick 2018). These interviews can take a structured, semi-structured or unstructured approach, with most interviews using a question-and-answer format but others more resembling a typically free-flowing conversation. Interviews are commonly between two individuals (the "interviewer" and "interviewee"), however

there are many examples of larger groups being interviewed together in studies of business practices. Regardless of approach, it is crucial that interviews focus on generating empirical evidence that is related to the research question of the study. Interview questions should however avoid being the same as the research questions but rather connected to the research topic, this facilitates the collection of information which can provide potentially relevant answers to the research question through comprehensive data analysis. (Eriksson & Kovalainen 2008)

Qualitative research has been previously used as a primary data source in several studies exploring use and potential modification of the business model canvas as it is well suited to gathering non-numerical feedback and critically establishing context when analysis complex use-case examples. For example, Dobroweolski & Sułkowski (2021) found it highly valuable to follow up their literature review, when examining the BMC, with interviews with 28 representatives of energy companies. Their approach used non-structured interview feedback to develop a proposed adapted version of the BMC.

Building upon approaches such as these and recognising the appropriateness of prioritising qualitative data collection methods, this thesis will apply narrative inquiry as a research strategy – a recognised strategy as described by Saunders, Lewis & Thornhill (2019, 130) and featured in figure 4. Narrative inquiry is rarely applied as a research method in international business research, but its documented advantages are particularly well suited to the research questions of this thesis. In order to effectively understand how nutrition-related businesses utilise the BMC as a strategic tool in business model creation and innovation, it is vital to select an approach that prioritises empowering interview subjects to explain in detail the context in which they developed their organisation's business model (as well as the role the BMC may or may not have played in achieving this). Narrative inquiry therefore provides an appropriate data collection approach and framework that encourages interview subjects to explain the full context of their experiences without bias or interruption.

Narrative inquiry has been previously applied by Chase (2011, 421), who detailed encouraging interview subjects to describe a full narrative account of their experiences and argued that this approach has clear differences from structured qualitative research where interviewees generalize their responses. Often during interviews with research subjects, interviewers find that interviewees can go into tangents and effectively tell long stories when responding to questions that trigger a recollection of a specific incident or experience. As described by Riessman (2012, 367), "participants were resisting our efforts to fragment their lived experience into thematic (code-able) categories—our attempts to control meaning." The narrative inquiry approach typically aims to retain the chronological order of narratives to aid analysis.

Gertsen & Søderberg (2011, 787), have also found that narrative inquiry is helpful in evaluating the differences in meaning achieved by sensemaking. Sensemaking is a process where individuals ascribe meaning to their experiences and has been defined as "the ongoing retrospective development of plausible images that rationalize what people are doing" (Weick, Sutcliffe & Obstfeld 2005, 409). Start-up founding teams seeking to develop business models in the nutrition industry consist of a wide range of individuals from different cultural backgrounds, age, professional experience and technical expertise. This means that sensemaking is likely to vary significantly at both an individual and organisational level. Additionally, the industry application and resulting business models of these start-ups varies considerably, ranging from businesses focused on providing B2B commodities or services, to providing direct-to-consumer goods via a company's own sales channel.

In the case of studying entrepreneurship, narrative inquiry has been found to be a valuable approach, enabling the creation of new organisations to be considered from the viewpoint of experimental organisational design (Hjorth, Holt & Steyaert 2015, 599). Gabriel, Gray & Goregaokar (2013, 56) also applied a narrative methodology, developed from prior research into organisational storytelling, to explore the impact of job loss on managers. This type of research may have a future value in understanding how this might lead to a possible path to entrepreneurship for new company founders.

In this study, it is appropriate to consider how sensemaking of founders, and founding teams, factor into business model creation and how this process may be experimental and iterative. There are potential implications related to these insights that may inform different forms of usage and guidance for the BMC in supporting business model creation for nutrition businesses. Interviews in this thesis are designed to be semi-structured conversations built around prompt questions that elicit storytelling from interview subjects. By focusing on storytelling responses, it is then possible analyse using narrative models and concepts to identify meaning and potential commonalities between stories. In this study, narrative inquiry methods including applied narrative theory, interviews and analysis techniques, have been used to identify key areas of opportunity for modification and potential improvement in the BMC when being applied by early-stage nutrition businesses.

3.2   Data collection

Data collection in the thesis consisted of primary data collection from narrative interviews conducted with founders of nutrition-related start-ups. The interviews were semi-structured conversations based around a series of questions related to the formation of the business model for their organisation, the tools employed in assisting in design and validation of the business model, and their

thoughts on the BMC. It was decided that a fully structured or standardized approach solely focussing on components of BMC would fail to accurately capture the necessary context and reasoning that would explain the overall perceived value of using the BMC when carrying out business planning. Likewise, a fully unstructured approach would also be too free form and would unlikely provide common themes across the interview subjects from which tangible improvements to the BMC could be derived.

Interview subjects were not randomized but selected based on the following criteria:

- Subjects must be a founder (ideally CEO) of a nutrition related start-up.
- Start-ups were defined as organisations founded less than 5 years ago and employing less than 40 employees.
- Subjects must be previously involved in the creation of their organisation's business model.
- Subjects must be familiar with business model design tools (e.g., BMC).

Interview subjects were identified through research into start-up companies active in segments relevant to the nutrition industry. These companies were located within the European Union and were identified through EU networks such as the EIT FAN incubator program and the Sweden Foodtech ecosystem, as well as through independent research using the described criteria via corporate social media platforms (e.g., Twitter and LinkedIn). Subjects were approached via personal or corporate channels and provided with a brief introduction to the research topic and aims, as well as a call for participation. Subjects that replied were provided with additional details and informed about the study's ethical and privacy guidelines.

In order to facilitate effective narrative analysis, the interviews involved using questions as prompts to generate storytelling related to pivotal events in the development of the business model (Oliver 1998). Informed by Gertsen & Søderberg's (2011) approach, interviews were conducted with the flexibility of allowing the interviewer to also assist in constructing the narrative alongside the interviewee by asking prompt questions out of a select sequence and sometimes improvising to establish clarity or chronological order to the narrative being described. The interviewer maintained a commitment to a principle to not interrupt or comment on responses when the interviewee was telling their story or in a certain train of thought related to historical details. This was informed by the concept of active listening (Rogers & Farson 1957), whereby the interview subjects are treated as individuals who have a point of view which should be respected and understood by the interviewer.

The interview questions were pre-written in detail (Appendix 1) so delivered consistently and verbatim in interviews, although the sequence and selection of the questions was altered depending on the direction of the conversation. Questions were designed taking into account the recommendations of the Sage Research Methods, in particular with an emphasis on constructing "neutral and leading questions" which aimed to avoid any presumption by the interviewer of answers or influenced categorization of experiences by the interviewee (Eriksson & Kovalainen 2008). The interviewer was provided with the option to use questions when they judged was most appropriate to better facilitate the narrative delivery by interviewees.

Interviewees were guided through the study aims and research questions and were provided with an opportunity to provide consent before the interview discussion commenced. It was important that the interviewees understood and agreed with the overarching aim of contributing towards research that could potentially improve the tools or frameworks used by other founders in the future when establishing new business models. Interviewers were anonymised, with all references to interviewees, specific individuals and organisations coded.

The narrative interviews (table 2) were conducted online or in-person with all conversations recorded using Microsoft Teams software. This software also provides a reminder to interviewees that they are being recorded and they have provided consent. The length of the interview discussions varied between 30-50 minutes, with all conversations taking place in English and being transcribed with the assistance of Microsoft Teams software. Transcripts have been archived and extracts from the interviews are featured in the data analysis and discussions. To fulfil ethical conduct and obligations set out in good faith with the participants, all interviewees have been name-coded and anonymised.

As detailed in table 2, four interview subjects participated in the study, each representing a different nutrition industry segment. F1 is the founder of a start-up targeting the wholesale beverage market, utilising a B2B business model which aims to manufacturer and supply a milk alternative product to be used in hot beverages (e.g., coffee and tea). F2 is the CEO of a start-up providing a smartphone app service which matches food service businesses (e.g., cafés and restaurants) with customers to sell their daily waste food and drink. F3 is the founder of a personal nutritional consultation and supplements business which targets individual clients (e.g., professional women 30-50 years old) to provide personalised coaching services. F4 is the founder of a start-up which has launched a new consumer beverage brand, targeting retailers across the Baltic and Nordic markets.

Table 2. Summary of narrative interviews

Name code	Business model	Nutrition industry segement	Interview date	Interview length
F1	B2B	Wholesale beverage	10/10/22	31 mins
F2	B2B	Waste food app service	14/10/22	41 mins
F3	B2C	Nutritional consultation and supplements	17/10/22	46 mins
F4	B2C	Consumer beverage	20/10/22	39 mins

3.3   Data analysis

Narrative analysis is a particularly well-suited method to utilise when evaluating the interview data in this study. Building on the narrative inquiry approach applied in data collection, narrative analysis allows for an effective and appropriate reconstruction of interview transcripts into findings that can concretely inform potential modifications to the BMC. When compared to other data analysis methods, narrative analysis is better suited to making sense of the core narratives being described in the interview data. For example, Ritchie & Lewis (2003) suggest building a list of key thematic ideas in advance which can be applied when coding interview data using framework analysis, but this approach would not be appropriate as the business models being described in the interview data collected here are significantly different and share only loose thematic connections (e.g., being nutrition-related businesses). Prior development of key thematic ideas could potentially influence findings leading to modifications made to the BMC which are biased and reflect preconceived ideas about its areas of weakness instead of being accurately informed by the feedback raised by interview subjects. Thematic analysis is also challenging to apply due to the small number of interview subjects, their specific role as a company founder and presence as a singular representative of an organisation. As there are no alternative viewpoints presented on the same events, narratives described in the data are subjective, personal experiences, meaning that comparison of coding themes across

the interviews, whilst interesting, are unlikely to generate relevant findings related to the use of the BMC.

As described by Riessman (2012, 367), narrative analysis involves examining the stories that emerge from the data and how they have been constructed by the interviewer subject. It takes into account subjectivity and emphasises the way in which the "narrator" has told their story from their personal perspective. Narratives that are explored in research methodology can take a variety of forms and can potentially be categorised as topical stories (usually the depiction of a time-boxed incident), a "life story" (a person's life over chronological time pieced together from various oral sources) and a personal narrative (an extended series of events recounted by an interview subject from an in-depth interview) (Adler, Dunlop, Fivush, Lodi-Smith, Lilgendahl, Mcadams, McLean, Pasupathu & Syed 2017).

There are many different methods that can be used to carry out narrative analysis, although typically they can be classed into denarrativization and renarrativization approaches. Denarrativization is a grounded theory developed by Somers (1994) and is a process of extracting and placing key data from narratives into distinct categories that are separated from the story elements. This is a particular valuable approach when analysing and comparing narratives connected to a similar context or institutional setting, where many of the narrative elements are similar and not as critical to evaluate as the content of potential differences between interview subjects. For example, in schools or courts where a study may wish to examine different sociological questions but where routines and processes are likely to be common across narratives (e.g., scheduled events across a typical school day). In the renarrativization approach, data is placed within a temporal context to establish facts and place them in a plausible sequence of events as a narrative. This is an appropriate approach when trying to study a historical event with lots of different narrative sources. In a business context, this could be the events leading up to an IPO or the founding of a company.

Gertsen & Søderberg's (2011) approach applies the concepts of peripeteia (a critical moment when the circumstances change) and anagnorisis (when a breakthrough in knowledge occurs) from dramatic literature analysis when identifying key narrative incidents, combined with a third approach to narrative analysis - actantial analysis. A narrative analysis model developed by Greimas (1980, 206), actantial analysis is used to describe storytelling through defined roles. This model is notably different from denarrativization and renarrativization methods as it is a structured approach that is also broad enough to allow the narrative to "drive the findings" (Wang & Roberts 2005, 51). It is a more applicable approach for the data collected in this thesis for several reasons. As interviews were conducted with individual founders and not founding teams, a renarrativization approach would not

be valid as there are not various interview subjects discussing the same event from different perspectives. Similarly, denarrativization methods would be challenging to apply, due to the low volume dataset collected and significant differences in the context of the interview subjects. Whilst subjects were all CEOs of start-up companies, there were significant differences in segments they occupied in the nutrition industry, as well as variations in company size and growth stage. This reduces the similarities between the narratives which would require denarrativization to extract categorised findings.

Analysis of the narrative interview data in this thesis therefore utilised actantial analysis. In this model, narrative interviews are analysed using six roles called actants as shown in figure 6.
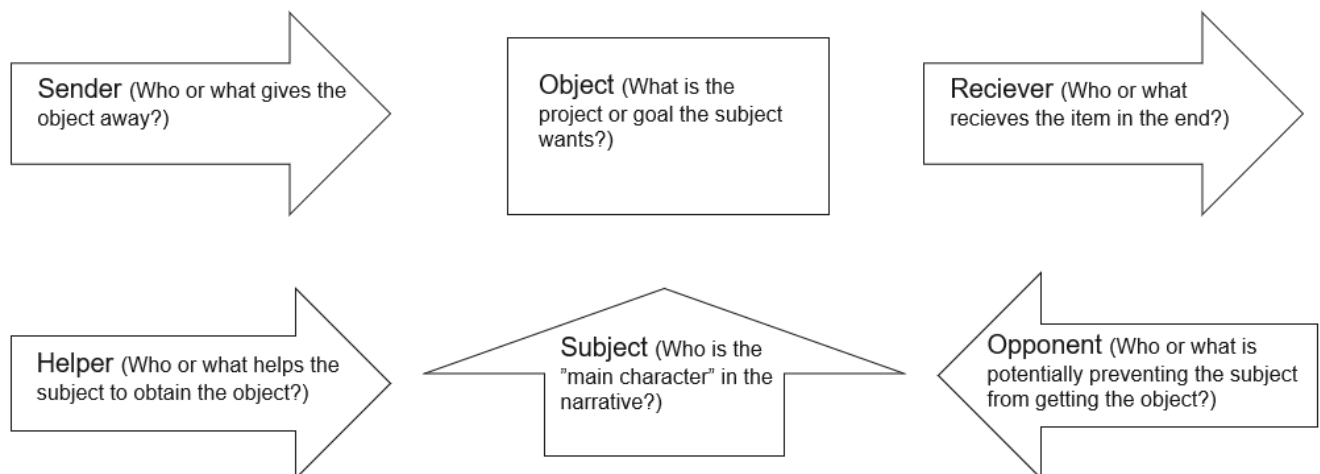

Figure 5. The six actants in actantial analysis (adaptive from University of Copenhagen 2013 & Griemas 1980)

These actants are then applied using three axes in the analysis. The first of these is the project axis (also called the "axis of desire") which establishes the relationship, referred to as a junction, between the subject and object. For example, consider the relationship between a CEO and VC funding. The relationship described in the narrative could be classified as a conjunction (e.g., the CEO receives funding from a VC) or a disjunction (the CEO succeeds in avoiding taking VC funding). The second axis is the conflict axis (also called the "axis of power") which establishes the junction between the helper and opponent who act to either facilitate or disrupt the junction between subject and object. Using the CEO funding example, this could be a start-up incubator (helper) assisting the matchmaking the CEO with funders and other competing CEOs (opponent) who are trying to obtain the same funding. The third and final axis is the communication axis (also called the "axis of transmission") which establishes the end ending action of the story by identifying

the junction between the sender and the receiver. As the receiver is typically the subject, this is usually the way the subject obtains their object. In the example given, this would be either the CEO (subject) receiving funding (object) from a VC (sender) or another funding source (e.g., a government fund being the sender) (Hébert 2006).

Hébert (2006) described a method of conducting actantial analysis both using a table form and a visual representative as a square. This table adds additional layers onto the six roles and three axes by including actant subclasses. To streamline analysis as the narrative data in this thesis has not been obtained from literature or a wide range of historical sources, the adapted actantial visualisation in figure 7 will be used in analysis.
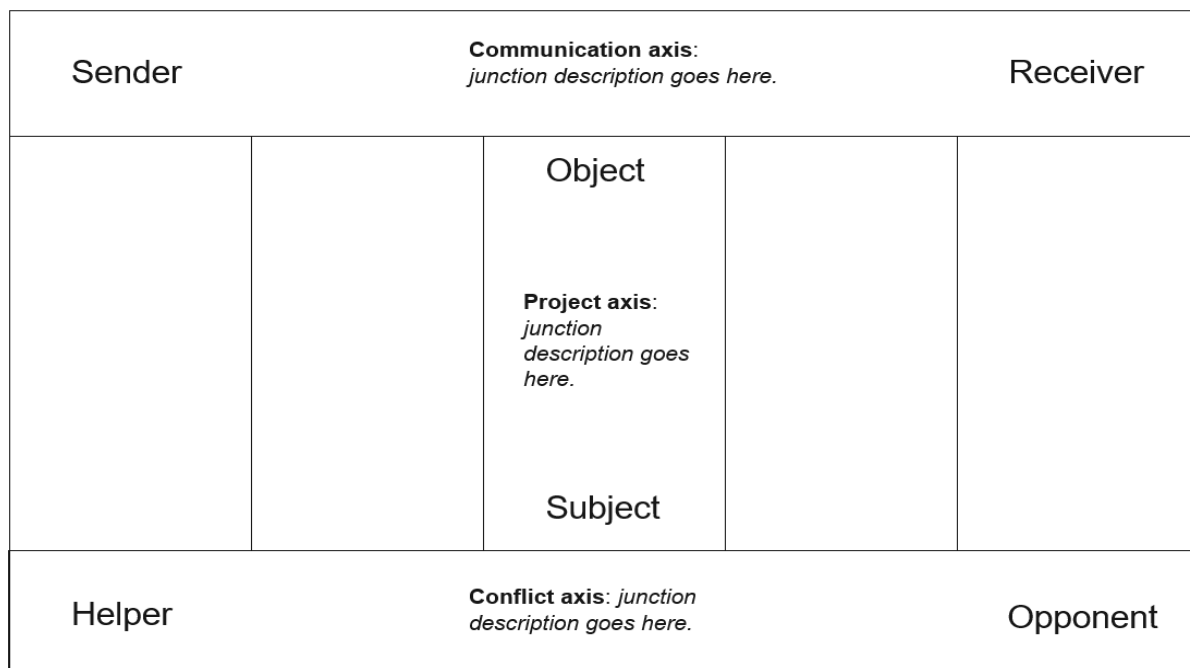
Sender	**Communication axis**: *junction description goes here.*			Receiver
		Object		
		Project axis: *junction description goes here.*		
		Subject		
Helper	**Conflict axis**: *junction description goes here.*			Opponent

Figure 6. A visualisation model template for actantial analysis of narrative data (adaptive from Hébert 2006)

3.4   Research quality

There are various debates in the literature on the metrics of qualitative and quantitative research, indeed it can be argued that the best studies feature elements of both as suggested by Allan & Skinner (1991). In this thesis it is crucial to utilise qualitative research methods as the research question and potential outcomes are linked to evaluating what is arguably a qualitative tool. The BMC does feature sections that examine potential financial elements of a business model (e.g., cost

structure and revenue streams), but guidance and shared common practice is to use written descriptors to generalise these elements when completing the BMC (Fox 2022).

Research quality criteria are typically based on the concepts of reliability and validity, which are built upon quantitative data collection and analysis methods but may not be appropriate when applied to qualitative data (Lincoln & Guba 1985). The data collection and analysis plan in this thesis to answer the research questions have been informed by the quality criteria proposed by Yin (1984). Validity is constructed by interviewing several different subjects to develop a chain of evidence. Internal validity is established by conducting a through literature review examining different viewpoints which to match this study against. External validity is achieved by defining the study to the nutrition industry and start-up businesses, allowing numerous possibilities for replication, as well as comparison with similar studies in literature. Reliability is also satisfied by presenting here a clear protocol and framework that can be used by others to interview additional subjects and develop modifications to the BMC.

Overall, approximately 50 different subjects were approached to participate in this study but due to time-constraints and work commitments only four individuals were able to finally participate. All potential interview subjects were initially screened using the pre-defined criteria and were contacted via publicly available channels. The interviewees who participated in the final study were all CEOs and co-founders of companies operating in the nutrition industry. Those who agreed to provide consent to the interview process were also additionally selected due to the differences in the segments they occupy in their positioning with the nutrition industry. CEOs represented companies that also featured radically different business models, with two interview subjects providing series and the other two manufacturing products. Whilst the overall number of samples collected could be considered to be small, Guest, Bunce & Johnson (2006, 59) suggest that a small sample size can be adequate in providing meaningful data if applied with a competent and appropriate analysis. Romney, Weller & Batchelder (1986, 313) also found that data from interviewing four subjects generated significant finding with a high confidence level.

3.5   Research ethics

Ethics form the cornerstone of any research which sets out to uphold the principles of research integrity. These include "reliability, ethics, reproducibility and transparency" (University of Helsinki 2022). This thesis study was conducted in accordance with the guidelines of the Finnish Advisory board on research integrity (Finnish National Board on Research Integrity 2012). Of particular im-

portance is the responsible conduct of research was sets out the need to comply with ethically sustainable practices, avoiding violations that could be classed as research misconduct (e.g., fabrication of results) and disregard for the reasonable conduct of research (e.g., inadequate record-keeping and storage of research data). It is key to also be aware of the relationship between researcher and interviewee, with three different modes being detailed by Eriksson & Kovalainen (2008) which range from actively participating in the development of the research (e.g., "action research") to the researching being completely detected and neutral to the interview subject (Burns 2015, 99). In this study, it will be necessary to retain distance from the interview subjects, so that they can share their narratives in full and without influence from the interviewer.

Within the context of this thesis, it was critical to receive informed consent from research interview participants before starting data collection and to ensure that all storage and handling of any personal data was in compliance of GDPR (Wolford 2022) to ensure privacy and compliance with European regulations. As previously described, all subject names were coded with letters (i.e., F1 to F4, "F" denoting founder), and company names referred only to as "Company 1, Company 2, etc." All participants were reminded that participation in the study was voluntary, and they can request the data collected from them (along with the final thesis report) at any time. Interview subjects were asked for additional consent to being recorded using Microsoft teams, with the recorded sections of the interviews being the only components of data collection that were processed for analysis.

Overall, the feeling was that all interviewees were happy to participate in the interview discussions and agreed with the study objectives. The majority of the subjects discussed sensitive and quite challenging situations they had experienced as company founders, indicating that there was trust in the process and the safeguards described to them about confidentially and data storage. In addition to the anonymization of names, all data was processed in accordance with GDPR, this means that any data that could be used identify persons or entities that was referenced to in the discussions was removed or coded in the transcripts (e.g., addresses, dates, company names). This also means that recordings of the interviews were destroyed after the data analysis, so as to remove any risk of data being mishandled. All recorded video and audio files were stored on a server located in the European Union and deleted from all server storage following data processing into coded transcription records. As the study specifically targeted company founders as interview subjects, there was agreement that the interview subjects could share their position as CEO in this study. All efforts have been made to prevent descriptions of interviews from containing information that could be used to identify the companies and founders consulted in this study.

4 Business case description and research findings

4.1 Business case background

A key outcome of this thesis study is to apply a modified BMC tool to a specific business case. These modifications have been developed in accordance with the findings from the narrative analysis of interview data conducted using the actantial approach. By testing the business case through using a modified BMC, it will be possible to see what potential benefits and disadvantages such modifications have in validating the business case, when compared to the standard BMC tool. The business case being explored is for a nutritional start-up in Finland.

The global nutrition market is becoming increasingly diversified, with several market segments experiencing significant growth as consumer demand for tailored solutions continue to rapidly drive the wide-spread adoption of new consumer preferences such as "plant-based". Sports nutrition, including protein powders, supplements, and energy drinks, is one such segment which has greatly benefited from recent megatrends including an awareness of dietary protein and interest in potential health benefits from supplements (Mintel 2020; Cargill 2021). The overall sports nutrition segment itself is highly fragmented, with many sub-segment areas tailored to consumers looking for products that accurately match their specific nutritional needs, for example professional athletes preparing for an endurance event require very different products compared with people who play recreational sports at the weekends.

Worldwide, the sports nutrition segment is predicted to experience considerable growth being valued from $8.4 billion in 2012 to $24 billion in 2022 (Ordonez 2018). European markets are thought to make up a sizeable share of this market and are estimated to reach $15 billion by 2025. This represents a significant opportunity for European start-ups, who have can potentially better cater for developing sub-segments than large corporates by focusing on building brands that effectively communicate and resonate with specific consumer groups. Among the many sub-segment niches in the sports nutrition market, esports (also referred to as electronic sport or competitive video gaming) nutrition is a relatively new and underdeveloped area (Wagner 2006). The first sports nutrition brands explicitly targeted at esports professionals were notably founded in the past three years, these include: E-sports Nutrition (2020), Play Beyond Nutrition (2020), Beyond NRG (2020), XP Sports (2020), LevlUP (2021), Noob (2020), and Advanced LLC (2018).

In Finland, consumers are focused on their health and wellness, with approximately two thirds of women and over half of men in Finland using dietary supplements (Valsta, Kaatinen, Tapanainen,

Männistö & Sääksjärvi 2018). Much of this is driven by self-driven research, where Finnish consumers will investigate and weigh up the benefits and risks to personal health before committing to a supplement purchase (Flanders Investment & Trade Helsinki 2019). Esports is a highly popular activity in Finland, so much so that the government officially recognised esports players as professional athletes in 2017. According to the Global Games Market Report (NewZoo International 2020), it was estimated that 2.8 million people in Finland identify as being "gamers" and play video games as a recreational activity, a number that is more than half of Finland's overall population which was 5.5 million in 2021 (Official Statistics of Finland 2022). Personal earnings for the top Finnish player have been estimated at $6.4M (Gough 2001; Valentin 2020). Beyond the players, there are fans who support their favourite teams and players, sharing a passion for the profession and often aspiring towards playing professionally themselves. This consumer group is eager to spend income on pursuing their interest. Viewers of esports competitions has also continued to grow, up 11.4% from 2020 to an estimated 26.6M monthly esports viewers in 2021 globally (Insider Intelligence 2021). Positive growth has attracted increased investment from venture capitalists (VC) and private equity funds, with the YoY growth rate of investments of 837% (Deloitte 2018).

There is a clear market opportunity for a new start-up company to target the esports segment with tailored nutritional products in Finland. The popularity of esports in Finland provide a receptive market of potential early adopters from which feedback can be used to market test product and brand marketing concepts before entry into other European markets. There is also relatively little competition in the Finnish market; as of 2022, there are no Finnish start-up companies actively targeting the domestic sports nutrition market. Finnish consumers currently have to purchase and import these products directly from other EU countries (or even outside of the EU) using direct-to-consumer online ecommerce platforms and specialist webstores.

4.2   Competitive analysis for business case

In order to validate a business model that targets this segment, it is vital to evaluate the current market situation through a competitor analysis. A total of 31 brand owners were found (featured in figure 8) from market research conducted for this thesis. These companies are considered to be potential competitors due to their focus on providing nutrition-related products and services targeted through sales and marketed activities at the esports gaming consumer segment. This market map has a limitation in that it categorises the companies by primary product/service offering but it should be noted that many of the brand owner companies are providing multiple products in different application areas (e.g., both powered drink supplement as well as pre-packing drinks).
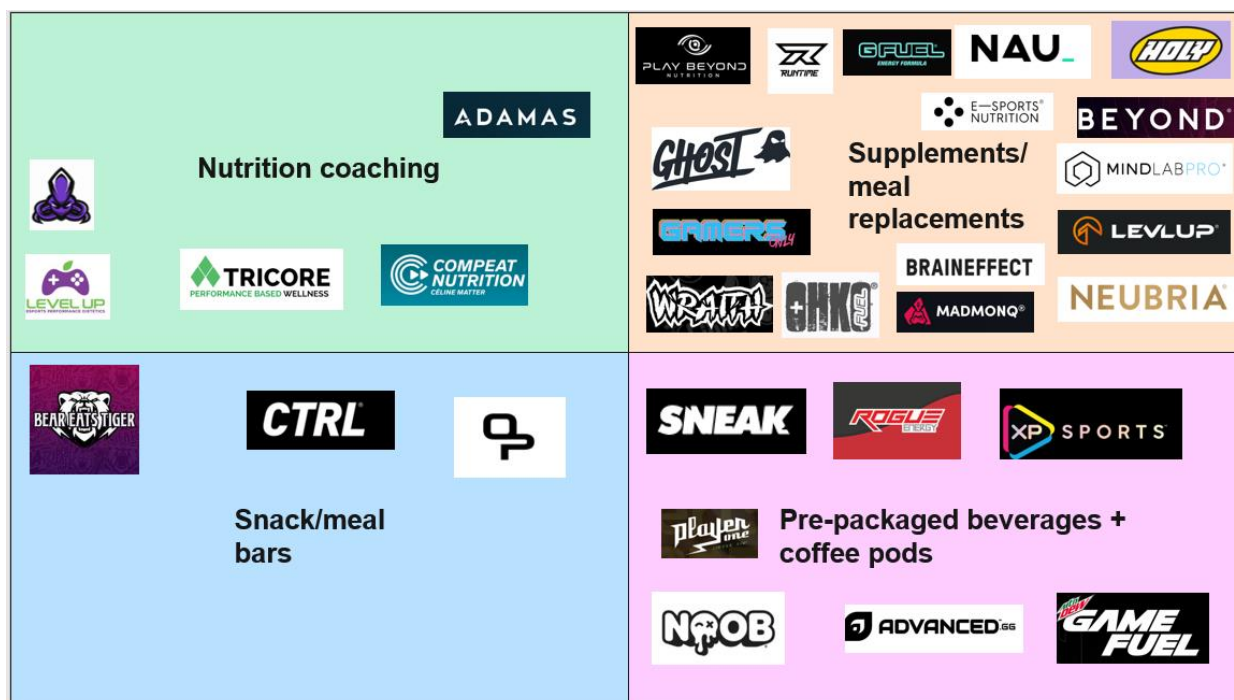
Figure 7. Market map of brand owners focused on providing nutrition-related products and services to the esports consumer segment

In order to evaluate the market further, it is appropriate to consider competitive analysis methods. Various competitive analysis models can be used to assist in evaluating potential market gaps and areas of oversaturation, for example Porter's Five Forces which can be used to evaluate the overall competitive landscape of an industry (Porter 1979, 137). In the context of the business case being explored, it is important to understand what product or service could feature high growth potential in this segment. One tool that is particularly well suited to identifying potential growth areas is the Growth Share Matrix designed by the Boston Consulting Group (Henderson 1970). This model was initially designed to assist with portfolio management, allowing businesses with multiple brands, products and services to more effectively allocate resources and make strategic decisions about business development by better understanding the profitability of different businesses. However, in recent years the model has come under much criticism due to its limitations which involve over-simplifications of profitability and market share, as well that fact that it only evaluates two factors (growth and market share) (Mohajan 2018, 1).

The Growth Share Matrix (Henderson 1970) is also only typically used for evaluating offerings from a single company but if adapted it could potentially be applied to the context of an emerging industry to better understand the areas of low competition and potential growth. In the traditional Growth Share Matrix, products and services are divided into four quadrants:

1. Question Marks - These are products or services in high growth markets but have a low market share.
2. Stars - These are products or services in high growth markets and also have a high market share.
3. Cash Cows - These are products or services in low growth markets but have a high market share.
4. Pets/Dogs - These are products or services in low growth markets and also have a low market share.

Henderson (1970)

The completed matrix then guides strategic decision making through follow up actions relating to the position of products and services. For example, if a brand is determined to be a "star," then more resources should be allocated to enable the responsible business unit to maintain market position and continue to grow. On the other hand, "pets" should be revaluated and potentially discontinued/liquidated. An adapted version of this matrix (figure 9) is presented here which places companies on the matrix but also groups them by product or service within the different quadrants. This additional dimension allows for better detection of competitors with different offering areas, as well as highlighting significant openings in the market for new market entry.
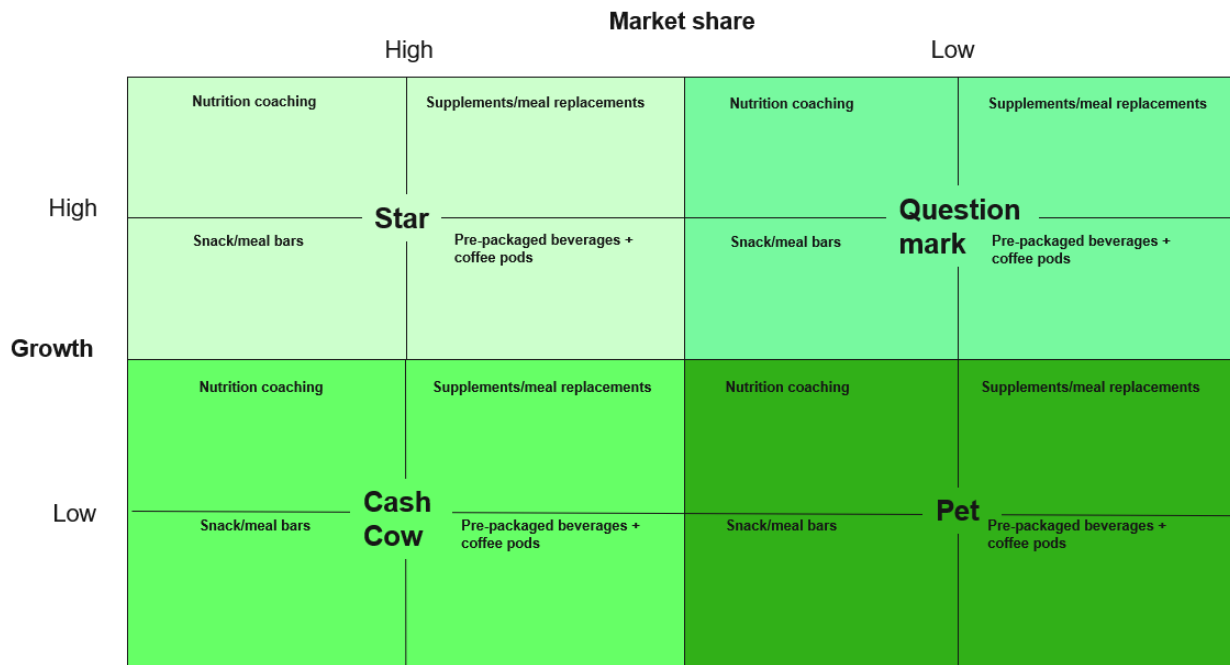

Figure 8. Modified Growth Share Matrix (adaptive from Boston Consulting Group 1979).

Applying this modified version of the Growth Share Matrix to the companies identified in the market research, generates interesting results (figure 10). Parent companies of esports nutrition brands

were assessed using metrics that included social media followers, number of employees and brand awareness. Examining the results, it is clear that many companies are competing with similar offerings in the supplements/meal replacements application area with varying degrees of success. The majority of the companies evaluated are start-ups in the early funding stages meaning that they are struggling to growth fast enough to capture the market demand. Whilst a few key brands are thriving (Ghost and G Fuel), it can be argued that the other companies providing supplement/meal replacement offerings in this space are potentially exposed to risk from incumbent corporates who have resources to aggressively compete. For example, PepsiCo Inc. is featured in the analysis as it has leveraged an existing heritage brand (Mountain Dew) to create a successful esports branded product line extension (PepsiCo Inc. 2020).

Additionally, there is a lack of companies that could be classified as "Cash Cows" - this is perhaps to be expected as the industry segment is still nascent and has few market leaders who would be considered as occupying a large market share. Unsurprisingly, nutrition coaching services are fragmented, with only one company demonstrating signs of notable growth.
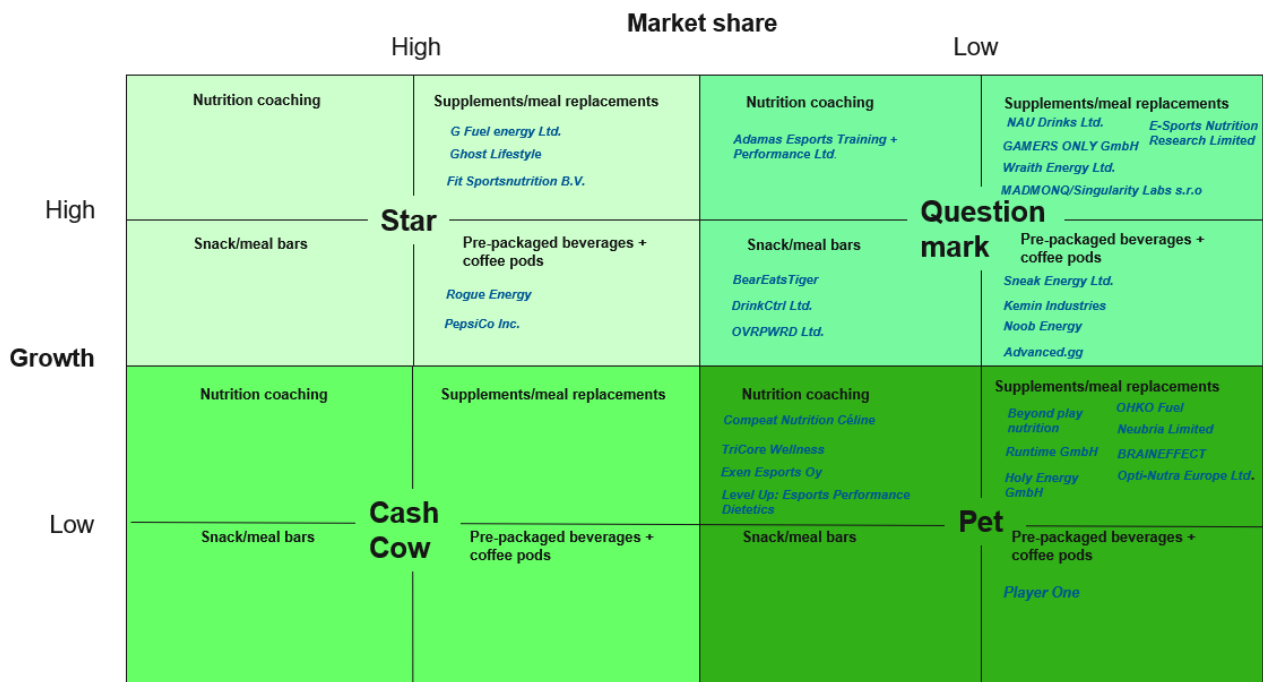

Figure 9. Competitive analysis of esports nutrition companies using a modified version of the Growth Share Matrix (adaptive from Boston Consulting Group 1979)

4.3 Implications from market research on business case

Considering the competitive analysis as a whole, it could be argued that there is an opportunity for the proposed start-up business to develop a snack bar product (and corresponding brand entity) targeting the esports nutrition consumer segment. This is due to a lack of competitors in the "question mark" quadrant and no potential market leaders that could be classified as a "star" business. By focusing on this offering, it is possible to avoid the heavy competition in the supplement/meal replacement, pre-packaged beverages and coffee pods product areas. Whilst nutrition coaching also represents an opportunity, it appears challenging to achieve significant traction and would require several innovations in order to successfully scale as a service business model. There are many contract manufacturing businesses within the European Union who are specialized in producing snack bars for consumer brands. This provides potential local resources in order to rapidly formulate and market test product ideas within an existing manufacturing and supply framework (i.e., the common market of the European Union).

4.4 Narrative analysis

As part of the narrative inquiry approach, the interview data has been processed with actantial narrative analysis. Each interview subject told a story which is summarised here, along with a corresponding adapted visualisation model template for actantial analysis proposed previously. Additionally, direct quotations of some responses have been included here and displayed indented.

4.5 F1's Story

The first interview subject was F1, who is a CEO of a Swedish start-up company (Company "A") which has recently entered the domestic consumer beverage market. Over the course of the interview, F1 shared details on many of the difficulties and successes relating to the product development of Company A's core offering, a milk-alternative beverage. Utilising narrative analysis (figure 11), a clear story emerged from the conversation which highlighted a major challenge and conflict Company A had experienced in the process of realising its business model. Whilst the concept of developing a milk-like beverage came early to the founding team, achieving the correct product formulation was a significant barrier.

| | | Object:
Successful
product
formulation.

Project axis:
Conjunction – F1
achieves object to
progress business.

Subject:
F1 – Company
"A" CEO. | | |

Figure 10. Actantial analysis of narrative data from interview subject F1 (adaptive from Hébert 2006)

F1 expressed an overall positive impression in the value and use of the BMC when used in initial planning phases and considered it to be no less useful for nutrition business models than for other industry areas.

> I think that the business model canvas is great. It's a good tool for someone who does not have any previous experience in building companies and thinking about a holistic view of a company because it's kind of like a checklist. So, I wouldn't neglect this area, it's not a silver bullet to solve everything but I don't see why it would be worse for nutritional based companies when compared to others. (F1)

F1 noted that whilst the founding team had prior experience in using the BMC in strategic planning (due to previously working in management consulting), the BMC was not a particularly helpful solution in solving the particular challenge of product formulation identified in the analysis. This is because the BMC does not place a specific emphasis on product development and testing, or on the values that are being served and upheld by the company's activities. In the case of Company A, F1 also explained that values form the core of the brand being developed as their offering is allergen-free, gluten-free, lactose-free, vegan and ecologically sustainable.

> I think the trap of relying too much on a business model canvas is that it will give you the obvious answers. Of course, you need to think about the customer aspect. Of course, you need to think

> about the supplier aspect. Of course, you need to think about the internal structure of the company… We have used a lot of value-based branding when we're assigning our brand and thinking about what it is that we are building. (F1)

The challenge of product development was not only in the necessity of developing values that resonate with consumers but also in taste and mouthfeel of the final product formulation. In order to produce a product that has familiar and desirable properties for use by consumers in beverage applications (e.g., when added to coffee) or used in cooking, specialised equipment infrastructure was required. Unfortunately, the founders found that these resources were unexpectedly challenging to obtain in Sweden. Eventually, through their network, the management team were able to partner with a large corporate who was able to provide them with access to both the necessary equipment but also knowledge and expertise required for refining the product development.

> I would say the main obstacle was getting access to equipment that is fit for purpose because this is a volumes game. It's not something that you can do with 50 litres (first) and then try to go to the big players for distribution…. Minimum quantities are quite big quantities. So, we have needed to have a big partner who believed in us and would let us use both their knowledge but also machines. (F1)

4.6   F2's Story

F2 is the CEO of a Finnish start-up (Company "C") providing a reselling service network across various restaurants, cafés and supermarkets to reduce food waste. F2 shared many anecdotes from their experiences over the course of Company C's development, now transitioning from the start-up to scale-out phase. They also used several stories from other companies to illustrate how influences from a diverse set of industries had informed Company C's management team's strategic decision making. Utilising narrative analysis (figure 12), it was possible to identify a significant story which related to business model development – the impact of Company C's historical performance on new market entry.

Sender: Company "C" management team.		Communication axis: *Company "C" communicates market entry to potential customers.*		Receiver: New customer group (wholesalers) access service.
		Object: Successful market entry. **Project axis**: *Conjunction – F2 achieves object to progress business.* **Subject**: F2– Company "C" CEO.		
Helper: Local market research team.		Conflict axis: *Overcoming resistance to targeting wholesalers as a customer group due to failure in home market.*		**Opponent:** Historical poor performance in home market.

Figure 11. Actantial analysis of narrative data from interview subject F2 (adaptive from Hébert 2006)

F2 explained that market entry had been a particular challenge as the operating environment in international markets resulted in unpredictable results for business model execution. In the case of Company C, the domestic business model has involved targeting the workers at restaurants and cafés who provide the food and beverages to be resold using Company C's service. This group in the value chain was identified as a crucial one to target through business communications as they are responsible for selecting and listing the products to be resold by their employer on the app. Therefore, it could be considered that they control significant influence in the value chain process and can actively act as brand ambassadors for Company C's service. Therefore, the end customers in this model (people using the app to purchase waste food) were not the active focus of the company's sales and marketing activities. It was found that by targeting the restaurant/café workers, there was an increased success in achieving contracts with management and more sales achieved in selling food waste.

> It was very much market research driven and therefore it was very strategically driven. In short, in our case our market was in terms of a solution for a particular asset class. There are 200 plus similar kinds of solutions globally. So, the key was how to disrupt this, to not use the same model that everyone was focusing on. The business model was the inspired output from that work, not so much the tool for doing that work. Our hypothesis strategy was how to retain the supply side? The surplus food market is very much supply-driven, whereas the delivery market is very much demand-driven. Our focus was to figure out how to grow demand, the volumes both in terms of quantity and sales activity. So, the supply side, how to grow the volume of the supply side but also simultaneously the activity. (F2)

Despite the success with this model in Finland, one group that were poor traction was found was through targeting food and beverage wholesalers. This group generates significant volumes of food waste but in the home market, Company C found that wholesalers were not receiving the sales that would make it worth their while to continue to provide the service. This was found to be due to the location of wholesalers which tended to be on the outskirts of central city areas. As most end customers purchase waste products through the app and then have to travel to the restaurant/café/supermarket location to pick them up in person, there is a low threshold for inconvenience if a location is far away from a buyer. F2 explained that this model typically worked best for those locations that were centrally located in cities and could be accessed via public transport as part of a routine daily commute. This historical performance informed the business model planning for market entry into the Estonian market. It was with great surprise that the initial feedback from potential customers in the new market was that there was demand from wholesalers. After a trial with a wholesaler customer, it quickly became apparent that the business model would need to be revised because its assumptions were not valid in the new market.

> In the past we had a hypothesis that the supply needs to be very near the demand side. With wholesalers in Estonia, you actually didn't have to be nearby. So, we saw that when we tested with the wholesalers, end customers were coming from a 10-plus kilometre radius to purchase. We wondered was it just in Estonia that end customers were more used to traveling as there were so few cities or was this also applicable for other segments? All of a sudden wholesalers made our business case valid. (F2)

Reflecting on this story and how the BMC played a role, F2 noted that the BMC had previously been useful in initial business planning but that using the common guidance for its use it had been unable to predict a situation where market assumptions are invalidated by the operating environment in different markets. F2 suggested that perhaps the BMC would be better applied by creating a separate canvas for each new market entry.

> After this we amended our market research methodology, we actually found segments that were not applicable to what we have learned in the past in our home market. So, then you can apply the business model canvas in a way that you have made flexible for your customers. There should be more leeway in the business model canvas, so we say that this element operates differently in this market when compared to another one. It should be considered whether I can apply it to the general overall strategy or only to these individual countries. (F2)

4.7 F3's Story

F3 is the CEO of a nutritional consulting business based in Germany (Company "D") which has been operating as a small personal business for over a year. A key focus of their business activities has been on trying to validate their operating model and pricing. As this is a new enterprise being run part-time by F3, it was perhaps to be expected that narrative analysis strongly defined a story featuring scare resources as being a major obstacle for the company (figure 13). More specifically, F3 identified a lack of prior personal knowledge of marketing activities, such as producing content and managing social media channels, as directly causing poor sales traction.

> I faced a lot of resistance with marketing. Basically, you start off having to do everything yourself when you have a nutritional consulting business. I would say the marketing part was really the hardest one for me as it's so resource intensive. It's no surprise that companies have entire teams working on marketing strategy. Moving forward, I would possibly get someone else to do that for me as a cost. It's impossible to get a steady stream of clients through word of mouth only. In order to have a really successful nutrition business I think digital marketing has to be implemented effectively. (F3)

When discussing if F3 had used the BMC in planning their business, they explained that it had not been a tool they had found very useful but conceded that it may have been more appropriate when used for different business models. F3 argued that service offerings such as theirs require a heavier focus on marketing and sales channel development than is emphasised in the BMC currently. This is because, a significant perceived channel presence leads to credibility with the customers being targeted. Customers typically find nutritional consultants through word-of-mouth recommendations, touchpoints at the workplace through corporate wellness activities or via a digital marketing channel. F3 wanted to target a specific group of customers they had identified through market research and stakeholder interviews – 30-60 years old women who are professional business leaders. A solution was found by evaluating the lack of success in targeting this group and subsequently conducting using additional market research.

> I saw that that it would be quite difficult to have a steady stream of clients which I really think comes by spending a lot of time on marketing and PR… I think it's something that takes time. I did some market research and interviews and as a result I discovered that I really need to focus on the copywriting. I did use quite a bit quite a few tools following this and set about seeking external support to enhance the copyrighting on my website. (F3)

By investing in a specific area to improve in the company's marketing activities (copyrighting on the company website), it was possible to better communicate the service's value propositions and sales messaging to potential customers. F3 detailed a collaborative approach with external support, using

their interviews with potential customers in their targeted segment to instruct copywriters to deliver tailored copy. This resulted in product offerings shaped to better resonate with the problems of the group being targeted.

Sender: F3 – Company "D" CEO.		**Communication axis**: *Company "D" is connected directly to potential customers.*		Receiver: Relevant customers understand and learn about service.
		Object: Company sales and marketing channels. **Project axis**: *Conjunction – F3 achieves object to progress business.* **Subject**: F3 – Company "D" CEO.		
Helper: External copyrighting support services.		**Conflict axis**: *sales channel developed despite lack of internal resources.*		**Opponent:** Lack of experience and guidance in developing social media channels.

Figure 12. Actantial analysis of narrative data from interview subject F3 (adaptive from Hébert 2006)

Whilst not captured by the narrative analysis, F3 also mentioned another area which they felt was neglected by the BMC. As Company D has also recently started to provide personalised supplement products alongside nutritional diet coaching, F3 noted that quality and safety were significant issues in the nutrition industry which are not featured in any of the BMC's sections.

> … quality for example, I mean that's very important in nutrition. Product- based companies have a lot of issues with quality that come up. For example, if you are not meeting certain standards when it comes to heavy metal levels in the European market. There's a lot of suppliers with different ways of working and different limits of things that they allow, so you really need to have very stringent and very strong guidelines of what you do. It can really be a problem because you have to thoroughly test and analyse everything and have all the documentation. It takes a lot of time it costs a lot of money to test. There is you know things like ethylene oxide from India, for example, which is a substance that is not allowed in the Europe and has affected a lot of the goods coming from India. (F3)

4.8   F4's Story

F4 is the CEO of a Latvian start-up (Company "E") which has recently launched a completely novel beverage product in their domestic market but has also begun market entry and expansion across the Baltic countries. Company E has overcome many major obstacles on their path to market entry, from business model design (F4 described their strategy as B2B2C) to product development and manufacturing. Applying narrative analysis (figure 14), it is possible to identify a single story that resulted in a pivotal milestone for Company E.

Figure 13. Actantial analysis of narrative data from interview subject F4 (adaptive from Hébert 2006)

The initial concept for Company E's product was based on discussions between F4 and others in the founding team and sought to capture the recent trend for dairy alternative products. However, due to the founding team's wide experience, they were able to rapidly pivot and rework their concept when they discovered their initial product offering was considered by investors to be a poor fit.

> … we wanted to validate the idea and we participated in international competitions to get opinions from global food tech representatives. During one of these kinds of events we got a question from the jury about what would be the competitive advantages of our product and of course at the very beginning we thought that it was a kind of novel ingredient… but he was demanding. He was asking this question… because the plant-based milk (market) is so saturated. Creating awareness to the target customer would be very like high level (and expensive) but then my business partner… a specialist in their field, mentioned we were thinking about fermenting the

> ingredient instead and this would create a completely novel beverage. We were pretty flexible and open minded to new ideas. (F4)

Following this incident, Company E's founding team were able to reconceptualise the product offering and moved forward with an offering that has a unique competitive advantage by being a first mover in a new beverage segment. F4 explained that this new focus allowed Company E to develop a clearer brand identity and also stand out from competitors when seeking funding.

> We made it our mission to listen to the opinions around us and take them under consideration because if we want to create something new, we have to put all the ideas on the table, as well as the resources we have to design a market entry strategy. I think that in the very beginning it was very valuable for us and actually I'm thankful that we were so open minded and good listeners to receive this external opinion on the product. (F4)

Whilst the investor triggered the change in the approach that enabled Company E to find a product-market fit, the role of the BMC was considered to be less critical. F4 indicated that it had been used in the very early stages of the business model development but was not able to provide significant value when dealing with complexity of the product-market fit.

> Yes, we have we have filled the business model canvas. Of course, we have thought about it and at the moment we also from time to time like evaluate the canvas. But honestly speaking, when I think that at the very beginning when we are in this very early stage of our company, I don't want to say that we didn't have time to take a look at this canvas, but I think that there must be another way… you can implement (tools) into your business development and be more practical. You have to definitely consider those pros and cons, like your suppliers? Or what are the cost structure of the product? But these are kind of basic things. When you are developing this kind of company, I think through doing practical things you are going to find the right fit for your product. Of course, you should have clear vision aims and step-by-step things know what you are going to do but I'm not really sure that this kind of tool helps us a lot. It didn't help us much during the product development. (F4)

4.9   Summary of narrative analysis findings

Overall, it was felt by several of the interviewees that participating in the interviews had a generated positive value for their own their own work, for example the conversations prompted one subject to strongly consider using the BMC as part of the strategy building process for a planned new market entry in the near future. When considering the four narratives that were identified by narrative analysis, and visualised using an adapted version of Hébert's model, it is interesting to observe that there are several similarities across the interview subjects. The sender was typically the subject or company founding team, so this role was common across the stories. In two of the stories, the desired object was a successful product development - a clear challenge for nutrition companies is being

able to produce a food or beverage product that resonates with consumers. Similarly, the receiver in all four stories was the market group which uses the product or service offering provided by the companies interviewed. Interestingly, the opponent in the stories could be considered a lack of resources. For example, needing but not being able to access specific technical expertise and having a poor understanding of the operating environment are the direct results of poor resource allocation. Reflecting on this, it appears that the conflict axis is the most critical in resolving the narrative in all four cases and that the helper role plays a key role in providing a solution.

When interpreting these results within the context of the research question 1, it is apparent that the BMC is currently not providing sufficient support to founders in the nutrition industry in solving some of the complex industry-related barriers to market entry. At a fundamental level, these narratives indicate that the BMC could be more focused in connecting subjects with helpers. In each story, if the guidance and structure of the BMC was modified appropriately, it would be possible to facilitate a faster solution. For example:

- F1's story – Listed partners in the BMC are evaluated based on potential resources they can offer. This would have enabled F1 to find a corporate partner with the required infrastructure earlier in the product development phase.
- F2's story – An additional element in the BMC focused on market research along with guidance to create a new BMC for each new market could have provided more confidence when conducting market entry and allowed for better targeting of potential customers.
- F3's story – Guidance on incorporating social media channels related tasks into the channels element and an additional element focused on marketing in the BMC would have allowed for faster identification of areas where outsourcing could be beneficial to business growth.
- F4's story – An additional element focused on investment strategy in the BMC would have allowed for faster evaluation of the initial business idea by identifying prospective investors to pro-actively approach and pitch their idea to.

In addition to these potential modifications resulting from the narrative analysis, there were also comments from the interview subjects about the need for considering health and safety-related regulation when developing both products and services (e.g., nutritional advice provided by non-medical professional needs to be voluntary and not promoting potentially harmful behaviour). The need for market testing is perhaps even higher in this industry than others, as taste, mouthfeel and health impact are all factors that have an oversized impact on the successful market fit for a nutritional product or service. This is an area not explicitly explored in the BMC.

4.10 Revised Business Model Canvas

Taking into account the findings from the narrative inquiry approach, it is clear that there are several areas for potential modification in the BMC in order to improve its efficacy in resolving obstacles typically faced by nutrition-related start-ups. An adapted BMC model called "Nutra Canvas" is proposed in figure 15, for each of the modifications featured a justification has been detailed in table 3. Modifications have tried to reasonably capture and apply all the key points critical of the BMC from the interview findings, along with providing support that could had led the interview subjects to more effectively discovering their solutions identified in the narrative analysis.

Key partners

Who are our key partners providing access to the market?

Who are our key suppliers (e.g. ingredients, packaging or market data)?

What key services are we acquiring from partners and what are we providing them in return?

Infrastructure/ distribution partners

Who will distribute our product/service offering?

What infrastructure is required to manufacture or distribute our offering (owned vs outsourced)?

Which of the key partners will provide support in manufacturing/distribution?

What is the value chain of our product/service?

Cost structure

How much will the infrastructure cost to produce and distribute our offering?

What is the cost for professional specialist technical expertise (e.g. nutritionist, product developer, chef)?

What are the costs related to production and distribution?

Key activities

What key activities do we need to carry out to distribute our offering?

What distributions channels are we using?

What key activities are required to maintain revenue streams?

What is our growth strategy and how will our activities scale?

Key resources

What key resources are required to produce our offering?

What capabilities are required for the business (e.g. chefs, scientists, regulatory experts, marketers, legal, sales team)?

Is there a sustainable and predictable supply chain for required resources (e.g. ingredients)?

Investors

Who is providing our funding?

What will the funding be used for?

What expertise can our funders provide for our operations and go to market strategy?

Have our investors validated our business concept?

Value propositions

What is the offering (e.g. product or service)?

Who are our customers (companies/institutions or consumers)?

What are the problems we are solving with our offering?

What is our unique competitive advantage?

Offering development process

How will we manufacture/deliver our offering?

What technical expertise is required (e.g. new product development specialists)?

How will we receive feedback from the customers about the offering (e.g. tastings, consumer sensory testing)?

How we will iterate the offering development?

Physical channels

Are we distributing our offerings via a physical channel (e.g. retail, restaurant, office)?

Are we marketing our services using traditional methods (e.g. flyers, posters, newspaper ads)?

What are the physical touchpoints for with offerings or brands for customers?

What physical events will we attend?

Digital channels

Are we distributing our offerings via a digital channel (e.g. DTC ecommerce, retail platform, resell platform)?

Are we marketing our services using digital methods (e.g. social media advertising, video content marketing)?

What are the digital touchpoints for with offerings or brands for customers?

What metrics will we measure to evaluate performance?

Revenue streams by market area

What is our pricing model?

Which markets are we planning to generate revenue in?

What are the differences in purchase power and perceived value of our offerings in each market area?

How we will scale and grow our revenue streams?

What is the impact caused by key partners on revenue (e.g. how much do retail partners reduce the profit margin)?

Customer segments

Which customer groups will be targeted using sales and marketing activities?

How does our brand target these different groups?

Where are our customers?

What our brand values (e.g. health, sustainability)?

Regulation

Are we aware of the regulatory requirements in the markets where we are planning to provide the offering?

Who is responsible for regulatory compliance in the value chain?

What are the regulatory risks?

How will we monitor and manage quality-related topics?

Figure 14. Proposed modified BMC – "Nutra Canvas" (Version 1) (adaptive from Osterwalder & Pigneur 2004)

Table 3. Detailed modifications made to develop the proposed "Nutra Canvas" (Version 1)

Modification	Justification
Addition of "Infrastructure/ distribution partners" element.	Interview subjects mentioned this as being a critical obstacle to progress for nutrition-related products (e.g., preventing trial samples of product from being produced and tested, or hindered fast scale out to meet distributor obligations).
Addition of "Offering development process" element.	Nutrition-related products and services typically require significant R&D resources which is needed for continual process development based on customer feedback. NPD and brand line extension is heavily desirable to maintain growth and market position.
Separation of "Channels" element into "Physical channels" and "Digital Channels".	Marketing activities play a crucial role in market entry for new products and services. The nutrition market has many large incumbent corporates with significant resources, meaning that new businesses should consider their strategy from the early stages of business model development. Digital marketing was identified as a key obstacle to growth in the narrative analysis.
Addition of "Investors" element.	Intervention and feedback from an investor played a critical role in defining the product offering of one of the interview narratives. The nutrition industry is highly competitive and funding is a critical element that determines success for new market entry.
Addition of "Regulation" element.	Market legislation, nutritional quality and safety control of product development process were common topics across the subject interviews. Whilst not identified as a major obstacle, regulation was highlighted as a key area not adequately covered by the BMC.
Extension of "Revenue streams" to "Revenue streams by market".	A criticism of the BMC identified by the narrative analysis was the fact that it is static and encourages viewing at a single market. As most new businesses are bult with a growth mindset to facilitate market entry in multiple markets, this extension encourages users to reflect on the business model in different operating environments.
Reworked guidance and brainstorming prompts.	Overall, new guidance instructions have been developed, taking into account the issues identified in through narrative inquiry. Nutrition industry context has been provided through specific examples appliable to products, services, and stakeholders.
"Customer relationships" removed.	It was decided that this element was too similar to value proposition and customer segments, making it a good candidate to be removed from the canvas to facilitate more space for the new elements.

4.11 Implementation of modified and original Business Model Canvas for business case

In response to RQ2 posed in this thesis, it was necessary to test the proposed "Nutra Canvas" with the previously described business case – a Finnish start-up business aiming to develop a brand offering for snack bars to the esports/gaming consumer segment. This is a personal business idea developed through market research and competitor analysis conducted in this study. In order to test the "Nutra Canvas," it is necessary to compare any results with the tradition BMC process. Therefore, the BMC was used to map out and validate a business model for the business case (Appendix 2). Following this step, the same effort was then repeated using the "Nutra Canvas" (figure 16), the resulting differences and record of observations during the process are summarised in table 4.

Reflecting on the process of applying the "Nutra Canvas" to the business case when compared to its application in the BMC, it was clear that the proposed modifications to the BMC had generated significant improvements in both the depth and quality of ideas about the potential business model. However, not all of the modifications were as successful in bringing about perceived improvements, for example some essential information was missed when following the guidance of the "Nutra Canvas" in the Costs element.

Table 4. Observations comparing applying the BMC and "Nutra Canvas" (Version 1) to business case

BMC/"Nutra Canvas" element	Observation
"Key partners"	A big difference in using the "Nutra Canvas" is the level of detail. The guidance prompts are more focused and better at reflecting on ideas. The BMC has a strength in facilitating quick ideation, but these ideas are at a general level. It was found that the "Nutra Canvas" supports identification of potential benefits and resource investments related to key partners. This generated an idea to use colour coding to help identify these different factors. Red was used for partners that will generate costs to the business and green was used for those partners who provided a net benefit (i.e., neutral or no cost for their support).
"Infrastructure/ distribution partners"	This element is only in the "Nutra Canvas," it was highly helpful in mapping the value chain and understanding where to allocate resources for infrastructure.
"Cost structure"	It was felt that the BMC was more effective at considering a wider range of business costs as its guidance directs thinking on fixed and variable costs. The "Nutra Canvas" takes a more operations focused approach, which has the advantages considering what infrastructure cannot be outsourced.
"Key activities"	The BMC generated very general, top-level concepts of activities. The guidance of the "Nutra Canvas" allowed for consideration of the growth strategy, allowing for evaluating potential combinations of activities. However, the BMC directed ideas to consider the shipping activities, which were not picked up on as a key activity when using the "Nutra Canvas".
"Key resources"	The "Nutra Canvas" generated similar topics to the BMC but facilitated significantly more detail. A prompt in the guidance regarding supply chains helped to identify a benefit but also potential risk to the business case.
"Value propositions"	Value propositions developed using the BMC were effective and could easily be used for pitching to investors and stakeholders. However, the "Nutra Canvas" generated more details about the overall business model (e.g., classifying it as B2C) and allowed for the formulation of an unique competitive advantage.
"Offering development process"	This element is only in the "Nutra Canvas," and generated some repetition through the prompt guidance. However, it also allowed for the generation of new ideas related to consumer feedback and iterative product development.
"Investors"	This element is only in the "Nutra Canvas" and was extremely valuable in helping to inform and shape the investment strategy. It also highlighted a clear next step for the business case, which is to seek out validation of the concept from potential investors.

"Physical channels"	This element is more specified in the "Nutra Canvas" and was highly effective when compared to the BMC. Initially it was assumed that the company would not have any physical channels (with the exception being trade events) but the guidance generated a number of additional activities that would involve a physical presence.
"Digital channels"	This element is more specified in the "Nutra Canvas" and was useful in generating more detail for the key marketing and sales channels. As the business case is focused on providing products to gamers who are mostly active on digital channels, it is valuable to develop concrete ideas in this area.
"Customer segments"	The BMC generated very general, top-level concepts of activities which were reproduced in the "Nutra Canvas". The guidance of the "Nutra Canvas" allowed for consideration of brand identity and resulted in a new idea related to partnering with relevant brands that could leverage the case business location in Finland.
"Regulation"	This element is only in the "Nutra Canvas," it was highly helpful to develop an understanding of potential regulatory issues. As a result, new areas for business development (a quality management system and complaints procedure) were identified. The importance of selecting a good contract manufacturing partner who could aid in these issues (and shares responsibility) was emphasised by this element.
"Revenue streams by market area"	The BMC generated some clear ideas about pricing, but the "Nutra Canvas" allowed for the identification of a new pricing model for bulk item sales. It also allowed for clearer strategic planning for phased market entry.

Key partners

- Nutrition industry networks and events – *marketing cost.*
- Media/PR partners – potentially free *coverage.*
- Government-sponsored programs (e.g. EIT FAN) – funded to participate.
- Market intelligence providers (e.g. think-tanks and industry networks) – potentially free or reduced fee in short-term.
- Contract manufacturers (source the ingredients) – *production cost.*
- Co-packers (needed for finishing packaging) – *production cost.*
- Shipping service provider - *operational cost.*

Infrastructure/distribution partners

- Snack bars will be manufactured by a contract manufacturer. They will then need to be transported to a copacker who will deliver product units to our warehouse. We will then deliver these to consumers via a shipping partner (e.g. FedEx).
- Outsourced infrastructure partners – product manufacturing, packaging and delivery.

Key activities

- Creation and 24 hour maintenance of a DTC ecommerce channel (e.g. a website where consumers can order bulk packages of snack bars).
- Advertising to reach target customers to create brand awareness, consideration and purchase of product.
- Growth strategy to focus on activities that enable developing sales funnel by increasing traffic to the ecommerce platform and achieving conversion to sales.

Key resources

- Owned infrastructure – Warehouse and distribution centre.
- Capabilities needed:
  - Expertise in developing nutrition-related products.
  - Regulatory expertise.
  - Legal services (e.g. contracts, NDAs).
  - Financial support (e.g. record keeping, P&L).
  - Marketing expertise – experience in building campaigns.
  - Customer service design expertise – brand creation.
  - Ecommerce expertise.
- Ingredients and components are sourced and purchased by contract manufacturing partner.

Value propositions

- Our offering is a product – snack bar CPG.
- The business model is B2C (DTC) model using ecommerce). Customers can only buy our products from our brand channels.
- The problem we are solving with this offering is the need for fast, healthy and specialised products for esports professionals and gamers.
- Our unique competitive advantage is to develop a brand that supplies healthy products to consumers in this segment (e.g. for concerned parents of gamers).

Offering development process

- Snack bars will be manufactured by a contract manufacturer. We will then deliver these to consumers via a shipping partner (e.g. FedEx).
- NPD expertise is needed to create a nutritional framework for the product and provide instruction and guidance to the contract manufacturing partner.
- A small batch of the product will be tested at a local nutrition fair – with consumer feedback being used to refine the next batch formulation.

Physical channels

- Our offering is a product – we will not distribute the product offering at any physical space.
- We will advertise in some select print media (e.g. gaming magazines).
- There will be pop-ups in domestic shopping malls.
- We will attend gaming industry and esports-related events.

Digital channels

- We will sell our product offerings in bulk (different package options) directly to consumers via our web ecommerce platform.
- Digital marketing channels will include social media (YouTube, Instagram and Twitch).
- Content marketing activities will focus on video content creation.
- We will seek to partner with gaming companies to sponsor esports events.
- Website traffic and social media growth metrics will be measured.

Customer segments

- Target group is esports professionals, teenagers and young adults (14-17) and parents of teenagers.
- The brand will use imagery and brand voice that will be familiar to the core target audience. Association with famous gaming brands and activities will help the brand to gain credibility (e.g. developing a partnership with an iconic Finnish video game company).
- Our customers are based in cities and at esports events.

Regulation

- Basic understanding of Finnish food authorities and domestic regulation.
- More expertise and knowledge of other markets in the European Union required.
- The contract manufacturer is responsible for microbiological and food safety issues – they can provide support.
- There is a need to develop a returns and complaints procedure.
- A quality management system will help us to manage any non-compliance issues.

Cost structure

Infrastructure costs:

Owned infrastructure:
- Rent or mortgage + utilities.
- Staff – salaries for NPD manager, sales and marketing manager, regulatory expert.

Outsourced infrastructure:
- Contract pricing.
- Transportation tenders.
- Legal services (third party).
- IT services (third party).

Investors

- Our funding will come from private investment from the founder, as well as targeted business loans and government grants.
- Initial seed funding will be used to develop the brand, launch a pilot ecommerce channel and order the first batch of the product for tasting and formulation iteration.
- Government funding will provide additional support and guidance to navigate the local Finnish market.
- No investors have validated the concept currently.

Revenue streams by market area

- Premium pricing model – single unit pricing comparable to retail. Volume-based pricing for bulk sales.
- Initial market entry in Finland, expecting DTC sales to represent 100% of revenue in first year.
- Market research needed to explore pricing for similar products in Sweden for planned market entry in year 2 (likely comparable with Finland).
- Price testing needed for Estonian market, also planned for market entry in year 2.
- Of critical importance to select reliable manufacturing and distribution partners who will guarantee long-term contracts.

Figure 15. Application of the "Nutra Canvas" (Version 1) for the tested business case (adaptive from Osterwalder & Pigneur 2005)

Taking into account the strengths and weaknesses of the proposed modifications to BMC made to design the "Nutra Canvas" identified from its application in the test business case, a logical next step would be to develop an updated version which better reflects these findings. The result of this is the proposed "Nutra Canvas" (Version 2), presented in figure 17. This updated version removes the "Key partners" element entirely, replacing it with the "Infrastructure/distribution partners" element, in order to prevent repetition and allow for focus of operational topics which were noted as a crucial aspect for nutrition-related businesses. The "Customer segments" element has also been removed, to better allow for those segment groups to be considered in the value proposition and to leave more space for regulatory topics.

Regulation was another topic of major importance to the interview subjects and due to its complexity in the nutrition industry, it should be considered at length when developing business strategy. Guidance from the standard BMC has been added to the "Cost structure" element prompts to better ensure that fixed and variable costs are considered. Additionally, guidance in the "Offering development process" element has been refocused to feedback and iteration to reduce overlap and repetition with "Key activities" and "Infrastructure/distribution partners".

Infrastructure/distribution partners

- Which of the key partners will provide support in manufacturing/distribution?
- What is the value chain of our product/service?
- Who will distribute our products/service offering?
- What infrastructure is required to manufacture or distribute our offering (owned vs outsourced)?

Key activities

- What key activities do we need to carry out to distribute our offering?
- What distributions channels are we using?
- What key activities are required to maintain revenue streams?
- What is our growth strategy and how will our activities scale?

Key resources

- What key resources are required to produce our offering?
- What capabilities are required for the business (e.g. chefs, scientists, regulatory experts, marketers, legal, sales team)?
- Is there a sustainable and predictable supply chain for required resources (e.g. ingredients)?

Value propositions

- What is the offering (e.g. product or service)?
- Who are our customers (companies/institutions or consumers)?
- What are the problems we are solving with our offering?
- What is our unique competitive advantage?

Offering development process

- How will we receive feedback from the customers about the offering (e.g. tastings, consumer sensory testing)?
- How we will iterate the offering development?

Physical channels

- Are we distributing our offerings via a physical channel (e.g. retail, restaurant, office)?
- Are we marketing our services using traditional methods (e.g. flyers, posters, newspaper ads)?
- What are the physical touchpoints for with offerings or brands for customers?
- What physical events will we attend?

Digital channels

- Are we distributing our offerings via a digital channel (e.g. DTC ecommerce, retail platform, resell platform)?
- Are we marketing our services using digital methods (e.g. social media advertising, video content marketing)?
- What are the digital touchpoints for with offerings or brands for customers?
- What metrics will we measure to evaluate performance?

Regulation

- Are we aware of the regulatory requirements in the markets where we are planning to provide the offering?
- Who is responsible for regulatory compliance in the value chain?
- What are the regulatory risks?
- How will we monitor and manage quality-related topics?

Cost structure

- How much will the infrastructure cost to produce and distribute our offering?
- What is the cost for professional specialist technical expertise (e.g. nutritionist, product developer, chef)?
- What are the costs related to production and distribution?
- What are the fixed and variable costs?

Investors

- Who is providing our funding?
- What will the funding be used for?
- What expertise can our funders provide for our operations and go to market strategy?
- Have our investors validated our business concept?

Revenue streams by market area

- What is our pricing model?
- Which markets are we planning to generate revenue in?
- What are the differences in purchase power and perceived value of our offerings in each market area?
- How we will scale and grow our revenue streams?
- What is the impact caused by key partners on revenue (e.g. how much do retail partners reduce the profit margin)?

Figure 16. Proposed modified BMC – "Nutra Canvas" (Version 2) (adaptive from Osterwalder & Pigneur 2004, 65)

5 Discussion and conclusions

5.1 Discussion

There are two research questions being addressed in this thesis study. The first is "how is the BMC used by nutrition-related start-up businesses?" The findings of the narrative analyses of the interviews with nutrition-related company founders identified that the BMC was not considered to be neither a particularly valuable tool or prioritised step for these companies when developing business models (or undertaking business model innovation). Whilst it would not be appropriate to generalise these findings to all start-up businesses, it is useful to consider why these founders, in their own view, had not found the BMC fit-for-purpose. One possible explanation can be found in the narrative analysis results which indicate that the BMC had not played a significant role in resolving key challenges the founders had experience when validating their company's business model. It can be argued that the BMC currently does not provide sufficient support in solving some of the complex industry-related barriers to market entry. For example, in F4s story, validation of their business model concept would have been achieved at a much earlier stage in the business planning process if the BMC had explicitly featured an element that guided research and engagement with investors.

Through the narrative inquiry approach, three key areas of perceived importance to company founders in nutrition business models were identified: regulation, product/service development and brand identity/marketing strategy. Whilst these aspects are not exclusive topics of focus and interest to solely the nutrition industry, their combined influence could be considered to be an industry-specific characteristic. These areas are not explicitly supported in the BMC currently and therefore were highly appropriate to consider in relation to the second research question explored in this study; "what modifications are needed to make the BMC more effective for validating a business model concepts for a prospective nutrition-related start-up business?" Evaluating the impact of these key areas of importance, it is possible to propose modifications to the BMC to potentially increase its effectiveness and relevance for the start-ups targeting nutrition industry segments.

A modified and adapted version of the BMC is presented in this study as the "Nutra Canvas." This template is the result of iterative design and represents a first step towards a development tool specifically tailored for business model creation and innovation in nutrition-related start-up businesses. Based on the results of the implementation of the "Nutra Canvas" for the test business case presented, it can be argued that it was possible to validate the business model effectively and with a greater level of detail than is possible with the current BMC template.

It is possible to make valid comparisons with studies that have taken a similar approach towards developing modified versions of the BMC. For example, the Ecocanvas proposed by Daou & al. (2020) made several additions to the BMC elements, including two parallel elements focused on the potential impact of the business model on environmental and social aspects. Through testing with an idealized fictional business case in the wine sector, it was possible for them to evaluate a suggested order for elements to be completed in. This type of specified instruction was not proposed in this study but could be considered as a potential next step.

Braun, Schöllhammer & Rosenkranz (2021, 698), in their study of a proposed modified business model canvas for companies in the circular economy sector, reflected that their template failed to propose specific technologies or guidelines for businesses models applied through "digital ecosystems." This is a concept where a digital platform enables closer collaboration between companies, stakeholders and customers. Direct contact between businesses and customers is not uncommon (e.g., customer interviews and surveys) but in the nutrition industry achieving a deep customer relationship in a meaningful way can be challenging, in particular for B2C business models. This is because retail players typically act as a distributor and point of purchase for consumer-packaged goods (CPG) products. Food and beverage manufacturers are therefore a step removed from direct discussion and feedback with end customer consumers. Digital ecosystems offer an opportunity for nutrition companies to directly interact with end customers, as well as other stakeholders, and could potentially have a significant impact on existing business models. For example, recently a US beverage brand created a digital ecosystem using a gated digital platform (Discord) and a token-based access key, a non-fungible token (NFT). This community of "early-adopters" who purchased accessed were sent two batches test batches of the company's product to try and vote on their favourite (Wright 2022). This feedback was then used in the product development process to refine the product formulation of the final product. Such activities could be incorporated into the "Nutra Canvas," potentially through revising the guidance prompts in the "Offering Development" element.

When considering the use of narrative inquiry and analysis in this study, it is appropriate to examine similar studies which have utilised narrative theory to investigate business models. Scuotto, Cicellin & Consiglio (2022) utilised narrative analysis in their study of business model innovation in social entrepreneurship organisations (SEOs) in Southern Italy. In total, they identified and analysed 15 narratives, providing new insights into how business models for SEOs are formed and their differences between SEOs and traditional organisations. In this study, 4 narratives were analysed but it is possible that additional narrative inquiry and data collection could facilitate even further understanding into business model innovation in nutrition-related start-ups. Haggège & Collet (2011) explored a real-world business case at Schneider Electric utilising a narrative approach and a "co-

constructed project process" which led to a number of workshops being carried out to establish the company's "narrative perspective." Through analysis, value propositions were identified which were then used to construct value networks maps and representations of the company's business model. Whilst in this study the role of the BMC in the development of business models was a primary focus, it is of value to consider that narrative inquiry and analysis can be used as a business development tool in and of itself.

There were many limitations in the methodology applied to generate the "Nutra Canvas" which will need to be considered when taking the concept further, not to mention weaknesses in the tool as a whole. As the "Nutra Canvas" was developed using the BMC as its basis, many of the same critical issues identified in literature apply. For example, despite adaptations to consider multiple markets with different factors influencing market entry, the "Nutra Canvas" is still a static tool – a snapshot of a business model which will need operate in a dynamic and unpredictable operating environments. In addition, it can be considered that the "Nutra Canvas" was not used in the same spirit as the BMC during its evaluation and development. It is suggested that the BMC is used with a team of founders who use post-it notes to ideate points to discuss together the overall business model. As the business case being tested was personal business idea, the author was the only test subject in applying both the BMC and "Nutra Canvas" to the business case. Both canvas tools require significant time investment to use appropriately, this was perceived as a negative by several of the interview subjects. In this context, the "Nutra Canvas" will likely need more refinement as it features more elements than the BMC and therefore requires a high time investment. Additionally, the guidance generates longer notes and detailed descriptions, adding to the effort level needed to get the most value out of its use.

5.2   Conclusions

Overall, this study was successful in identifying aspects that were considered to be of higher importance to founders of nutrition-related businesses. The proposed "Nutra Canvas" was developed by applying narrative inquiry to identify areas for improvement to the BMC. By taking a critical approach towards developing a new canvas tool, it was possible to further refine its elements and structure.

5.3   Personal evaluation of the thesis process and learnings

The thesis process has been of considerable value to the author, providing a framework from which a better understanding of business model creation and innovation in nutrition-related start-ups could be achieved. Through interviewing founders of start-ups in the industry, it was possible to gain a deeper appreciation of the obstacles and potential solutions that could arise in the founding of my own business during the early phases of business model planning and validation. The literature review also developed the author's knowledge of business models and the development of ideation tools such as the BMC. Narrative inquiry and analysis were new concepts to the author, and through research and application it was possible to gain a fuller appreciation of their usefulness as a qualitative research method and approach.

As part of the study planning and research methodology, it was decided that a personal business idea would be tested as the business case example. This provided an impetus to conduct significant market research into the business concept, related market segment and competitors. The author began this thesis under the impression based on prior research that nutritional supplements would be the optimal product application for the hypothetical nutrition brand to focus on as its first offering, however the market study strongly indicated that snack bars represented a more attractive opportunity with less competition. This insight will have a significant impact and guide any future product development. Similarly, the application and testing of the modified BMC ("Nutra Canvas") to this business concept, generated an initial business model in comprehensive detail. The resulting information is extremely useful and provides a very strong foundation from which to continue business planning when developing the concept further into a potential business.

5.4   Limitations and implications for future studies

Firstly, the sample size for the subject interviews was small, with individual opinions and experiences potentially having an outsized influence on the areas identified as being of importance to the businesses operating the nutrition industry. Whilst attempts were made to diversify the interview subjects (CEOs of companies in different countries, business offerings and company stages were represented), future studies should consider broadening data collection efforts. Efforts should be made to independently reproduce these results, as well as test and validate assumptions made when developing the "Nutra Canvas."

Narrative interviews were informed by Rogers & Farson's active listening approach (1957) but the interview protocol applied in this study did not take all of their recommendations into account when

conducting the interviews. For example, verbal information was the primary source of data collected for analysis, but active listening also requires recognition of non-verbal cues such as body language, posture and pauses between responses. Observations are also suggested as a potential data collection method in the Sage Research Methods (Eriksson & Kovalainen 2008), which notes that a key advantage is being able to record actions at they take place and not indirectly through a secondary source. Such additional data sources could be collected by studying video footage of interviews and making recorded observations of non-verbal information. Additionally, in Scuotto, Cicellin & Consiglio's (2022) study, site visits were achieved in order to include further context and depth for the case studies being explored.

The implementation of the test business case with the BMC and "Nutra Canvas" was highly subjective and whilst attempts at objectivity were made by recording observations during the testing exercise, it is clear that there is scope for more rigorous testing with multiple subjects and collection of feedback to continue the iterative design process. A similar limitation was observed by Daou & al. (2020) in the development of the Ecocanvas as they also tested their canvas with a single and idealized example business case. It would be valuable to test application of the "Nutra Canvas" to other business concepts within the nutrition industry as the test business case in this study was primarily concerned with a snack bar product targeted at the esports segment. For example, future studies could examine the appropriateness of the "Nutra Canvas" in developing business models for business concepts as diverse as products and services for personalized nutrition, sports supplements, nutritional guidance applications, nutritional coaching, B2B food distribution and lab-grown meat.

An additional topic area for future study and development is how to accommodate the differences between product and service offerings. It was apparent through the process of developing the "Nutra Canvas" that it was challenging to balance the product and service types of businesses. The nutrition industry is very broad, with many different types of products and service offerings, this makes it difficult to strike a balance in providing a framework for tailored advice.

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Appendices

Appendix 1. Questions and prompts for narrative interviews

Related to general business experience

1. What are roles and responsibilities in your organisation?
2. What business model(s) is your company currently implementing?
3. What type of challenges did you face in the first 12-24 months of business?
4. Did you make changes to your business model based on market feedback?
5. What assumptions did you make when first developing your organisation's business model?
6. Where there any areas of the business model that you overlooked in the planning phases?
7. What tools did you use to aid you in developing the initial business model concept?
8. How did you validate your business model?
9. Did you utilise a MVP/iterative process when developing your business model?
10. What do you consider are the industry-specific challenges that face a nutrition business when developing an effective business model?

Related to use of the business model canvas

1. When did you use the BMC in the process of developing your business concept?
2. How long did you use the BMC in the process?
3. What do you consider the strengths in the BMC?
4. What do you consider the weaknesses in the BMC?
5. What improvements would you make to the BMC that would make it more applicable to your business area?
6. Would you use the BMC in the future? For what purpose (e.g. intraprenuership, new revenue streams)?
7. Have you used a modified version of the BMC in the past?

Appendix 2. Implementation of the original Business Model Canvas to business case

Key partners

- Investors.
- Accelerators/incubators.
- Government business support (e.g. Business Finland).
- European Union support (EIT FAN).
- Contract manufacturer for product.
- Shipping partner.
- Website hosting/ecommerce platform provider.

Key activities

- Designing brand.
- Marketing and sales activities (e.g. advertising and promotions).
- Tracking and shipping of product units.

Key resources

- Warehouse space.
- Office facility.
- Design team to develop brand assets.
- Expertise in web design and ecommerce.
- Financial and legal services.

Value propositions

- Our company provides innovative, tasty and healthy snacks to gamers.
- We are solving the problem that gamers are too busy to cook and prepare meals and have high energy requirements.
- We are different from other gaming brands as we produce "guilt-free" products which are healthier than solely consuming supplements.

Customer relationships

- Our customers expect a tasty and fast to consume snack with some functional benefits (e.g. protein).
- Fast delivery.

Channels

- DTC sales via brand website.
- Marketing events.

Customer segments

- Esports professionals.
- Teenagers and young adults (14-27).
- Parents of teenagers.

Cost structure

Fixed costs:

- Office and warehouse spaces (rental, electricity and heating).
- Website and ecommerce platform (software licences and internet/storage provider).
- Salaries.
- Insurance.
- Business loans repayments.

Variable costs:

- Production of units (snack bars), due to ingredient/packaging prices.
- Transportation logistics.
- Piece-rate labour (marketing consultants/freelancers).

Revenue streams

- Revenue generated from product bulk unit sales via DTC sales channel.
- Premium pricing model used – product is tailored to specific niche to provide added value.
- Shipping offered to Finnish market with roll out to Sweden and Estonia in Year 2.