

MASTER THESIS

# **Typologies of Subscription-based Business Models**

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## **Preface**

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## **Abstract**

This research looks into developing typologies of Subscription-based Business Models (SBMs), resulting in three new typologies for SBMs: Curation, Exclusivity and Personalization. With the absence of Network effect, Switching costs and also a negative loading of lock-in on the Exclusivity typology, we also see that SBMs do not create any barriers for customers to unsubscribe. These typologies resulted from a literature review on factors of SBMs. We compared these typologies to 84 companies that are practicing an SBM from three industries - Food, Cosmetics and Media. Traditionally, subscriptions have been offered for products such as newspapers. In more recent years, companies like Netflix, HelloFresh and Birchbox have been offering their products via subscriptions, creating an extra experience for customers. With their popularity rising, the media and business community have been showing a growing interest in SBMs. As far as we know, this is the first academic research specifically on SBMs. We add new insights that could be valuable for both companies and researchers who want to learn more about this business model.

# 1 Introduction

Companies that sell their products through subscriptions are using a Subscription-based Business Model (SBM). Subscriptions offer a way for customers to sign up to receive a product or service at regular intervals. Instead of paying per product or every time a customer uses the service, these subscriptions are paid in advance and over a longer period of time. SBMs are the future for many industries, they bring value to companies and to customers (Longanecker, 2015). That is why some predict that they will become important for every industry (Hill, 2015), or could also function as a tactical move or as ‘a gift-wrapped Trojan horse’ (Gayomali, 2015). The popularity of this business model is more mature in North America than in other regions such as Europe. This research looks into developing typologies of SBMs.

Traditionally, companies have been offering subscriptions for e.g. receiving a newspaper every morning or getting access to cable TV channels. More recent examples include companies offering subscriptions for unlimited music streaming (e.g. Spotify) or video streaming (e.g. Netflix). And even more recently, we have also seen companies in other industries adopting SBMs. For instance, in the food industry these days, multiple companies are offering subscriptions to food ingredients and recipes selected by experts to be delivered at customers’ homes every week. For example, HelloFresh is a subscription recipe delivery service in the Netherlands that quadrupled its sales in 2015 compared to 2014. And in the cosmetics industry, Birchbox is a company that offers a monthly delivery box consisting of personalized beauty samples.

There is a growing interest in new business models because of changing consumer behavior. People hold higher expectations of products and services than ever before, and for companies it is becoming increasingly difficult to expose unique selling points to distinguish themselves from their competitors. We can see three main trends in the way companies are offering their products and services to customers. First, experience economy companies go beyond selling a product or service. They create experiences to influence perceptions of their offerings and buying decisions in their favor. Commodities are exchangeable, goods tangible, services intangible, and experiences memorable (Pine II & Gilmore, 1998). The experience economy is showing companies and customers that not only products or services themselves are enough. Second, the sharing economy is creating a big impact on the traditional role of buyer and seller. With platforms like AirBnB and Snappcar consumers are getting used to buy products or services under other conditions, not necessarily from companies. Finally, the rise of online businesses is a positive impulse for subscription-based models. To create online value as a business, new strategies need to be created and applied to attract customers.

Creating value has become increasingly about efficiently offering products or services as well as delivering 'stickiness' to have returning customers (Zott, Amit, & Donlevy, 2000). These trends strongly relate to SBMs. First, subscriptions bring new experiences to known products or services. Second, buyers and sellers need to build a connection before a subscription is started. Finally, SBMs create new opportunities for companies that sell products online.

With the digitization of news, newspaper subscriptions have been replaced by advertising business models, and with consumers now blocking these advertisements, SBMs are again becoming more popular. But not only the media got digital, other businesses also created new opportunities using the internet for their products. Cloud computing is a good example of a subscription model: for a monthly fee customers are able to use online storage which does not need to be installed on their computer (software as a service) instead of using their own hard drive or online software. With successful examples like these, businesses are keen to use SBMs.

From a company perspective, reasons to start an SBM are:

- Financial: customers pay beforehand for their product or service, that way it may become less necessary to borrow money for investments
- Loyalty: a subscription model leads to automatic, renewal purchases. Customers do not have to make the decision to buy every week or every month, creating more loyalty to a product or service
- Differentiation: subscriptions can be part of the differentiation of a product or service. Curated services, for instance, where the company selects products for a customer, the subscription model itself offers the differentiation
- Efficiency: knowing how many people are buying a product for the next months or even next year can bring more efficiency in managing a company's inventory, logistics or planning deliveries

Also from a customer perspective, there are different reasons to get a subscription on a product or service:

- Convenience: SBMs come in services for daily things, like sending you coffee every month before you run out, or things you do not want to think about like recipes and ingredients for your meal everyday
- Money-saving: when you watch a lot of movies but don't want to pay per view Netflix is a money-saving service. But also the fact that you take a subscription for a year could be enough for a company to give you a discount for your loyalty.

Zwilling (2015) created an overview of the many ways companies are offering subscriptions:

- Membership website model: customers pay for access to a website, mostly common in niche markets where it is hard to find expert advice
- All-you-can-eat content model: unlimited access to a big collection of content such as Netflix or Spotify. Or unlimited shipping of products like Amazon Prime
- Private club model: the opposite of all-you-can-eat, for very limited and exclusive products
- Front-of-the-line model: for people who don't want to wait in line but need to have access without a waiting line
- Consumables model: subscription for daily things like diapers or groceries
- Surprise box model: this model let other people pick things for you, curated boxes will be sent every week, month or year. Examples are known for food, cosmetics or special interest products such as Japanese candy
- Simplifier model: services to simplify your life like bookkeeping or window cleaning
- Network model: this model works best when a lot of people are using it, e.g. LinkedIn or group buying websites
- Peace-of-mind model: a new sort of insurance model, services which let you know if everything is alright (with your house, children, online accounts)

Zwilling's list of subscription models gives an overview of how companies can use SBMs to sell products. However, that overview did not seem to result from scientific research and for that reason not that useful to make assumptions about SBMs. Mainstream and business media also have started to pay attention to SBMs, in particular to the success story companies. But it appears that scientific journals have not paid much attention to SBMs thus far. Much research has focused on business models and business model innovation, but searches for SBMs, related terms and SBM company names does not result in any research articles. With the growing interest in this type of business model and successful examples like Netflix, Birchbox and HelloFresh, the need for more insights into SBMs is bigger than ever. This brings us to the central question in this research: *is it possible to define typologies to classify SBMs?*

Defining a typology is an important first step in research of SBMs. A typology is not a hypothesis but can give guidance in developing one. Baden-Fuller & Morgan (2010) explain why it is important to define typologies of business models. They give a definition of the role of a business model, that is: 'to provide a set of generic level descriptors of how a firm organizes itself to create and distribute value in a profitable manner'. These generic level descriptors can be *kinds* or types. *Kinds* are the classes of a taxonomy derived from empirical

work: bottom-up. *Types* are part of a typology of things, where the scientist decides the types theoretically or conceptually: top-down. This research will create concepts of SBMs instead of empirical work, which will result in typologies and not taxonomies.

By defining SBM typologies we contribute to the knowledge of SBMs in two ways. First, it encourages a proposal for SBMs from an academic perspective. Employing more precise concepts of business models would allow other researchers to better understand what the business model in the respective study is meant to denote (Zott, Amit, & Massa, 2011). Second, it gives valuable insights for entrepreneurs and business managers who want to start with an SBM. The attention for SBMs is rising, but more knowledge on the types of SBMs is needed to help businesses define what they want to offer to their customers, and more importantly “how”.

This research develops typologies for SBMs. First, a literature review aims to provide more insights on business models and the characteristics of SBMs in particular. Second, a literature review suggests four typologies and their variables that are relevant to companies that operate an SBM. Third, we compared these variables against 84 companies that practice an SBM. Fourth, by performing a factor analysis, we partly confirm the typologies suggested in the literature review and validate a new typology. This analysis shows that companies with an SBM practice three typologies: Curation SBM, Exclusivity SBM and Personalization SBM. These typologies give new insights to the knowledge of SBMs, which has not been examined in this way by any other academic research.

## 2 Literature review

### 2.1 Business models

Before we go into the literature of SBMs, we will first take a closer look at business models in general. Teece (2010) defines the essence of a business model in the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit. In other words, companies need to find out what customers want, expect and what they want to pay for it. The way a company organizes this is the core of their business model.

When working with business models, two approaches can be followed: a static approach focusing on the on the core components of the model, and a transformational approach where the business model is a concept or tool to address change and focus on innovation (Demil & Lecocq, 2010). The SBM could provide many companies that sell existing products an opportunity to innovate by now starting to sell them in another way.

A review of the literature on business models from the past 10 years shows different views on how business models appear. There are three phenomena: First, e-business and the use of information technology in organizations; Second, strategic issues, such as value creation, competitive advantage and firm performance; Third, innovation and technology management (Zott, Amit, & Massa, 2011). As Zott, Amit & Massa recommend in their research on business model literature, this research paper will focus on one of the three business model streams: e-business model archetypes. All companies with an SBM analyzed in this research are selling their products online, so we can define them as e-business models. The consequence of this focus is that traditional subscriptions like print newspapers will not be part of this research. These traditional subscriptions do not represent the recent developments of subscription models where more factors show up than just the convenience of having a newspaper delivered every morning.

#### 2.1.1 Value creation

For companies with SBMs we want to find out how they create value. Because companies that use SBMs mostly sell their subscriptions online we will first look at the way online businesses create value (Amit & Zott, 2001):

- Efficiency: transaction efficiency increases when the cost per transaction decreases. The greater the transaction efficiency of an e-business, the more valuable it will be
- Complementarities: when having a bundle of goods together provides more value than having each of the goods separately

- Lock-in: motivating customers to repeat transactions. This can be achieved through lock-in which prevents customers buying from competitors
- Novelty: businesses innovate in the way they do business

These four value drivers all can be linked to SBMs.

- Efficiency increases for subscription-based models because when the number of subscriptions increases, the more efficient transactions will be.
- Lots of SBM businesses offer curated or monthly boxes with products. These products together are an example of complementarities
- Through automatically renewal subscriptions companies create a lock-in for customers. They will not buy products from another company as long as they receive their products through the subscription service
- SBMs are a prime example of new ways in doing business, novelty is also an important value driver for customers using subscription-based services

This is seen from a company perspective, value creation can also be examined from a consumer perspective. The ‘consumer benefit experienced’ (CBE) proposes a new viewpoint for creating value. From this perspective companies do not only focus on capturing value but on the value experienced by the customer (Priem, 2007). It is hard to predict how much a customer is willing to pay for a perceived benefit. Moreover it is difficult for customers to decide what they pay for and for managers what they are charging for (D'Aveni, 2007). In the next paragraphs we will explore factors that can be related to the business model of subscription businesses. Differentiating factors of SBMs can teach us what value drivers are used for this specific business model. We will take the value drivers proposed by Amit & Zott as a basis in our literature search, that means that the SBM factors can be related to value drivers like complementarities, novelty and lock-in.

## **2.2 Subscription-based business models**

There is not a clear, widely agreed-upon definition of a subscription-based business model because of the lack of academic research on this type of business model. Lumpkin & Dess (2004) describe a subscription-based model as an Internet business model in which businesses charge a flat fee for providing a service or proprietary content. But this definition does not cover the current field of companies who are using an SBM. For example, a flat fee suggests unlimited use of the product or service while most of the subscription services have their limits in use, scope or delivery.

Some research papers pay attention to SBMs in a context with other business models. Wirtz developed the 4C typology for Internet business models, which consists of content-oriented,

commerce-oriented, context-oriented and connection-oriented business models. Content- and connection-oriented business models in some cases get their revenues from subscriptions, which we mainly see in the media business where subscriptions are an important way to create revenue (Wirtz, Schilke, & Ullrich, 2010) (Wirtz & Lihotzky, 2003).

Companies who use SBMs often come from other business models. In the past, retailers typically sold per product and distributors of some news outlets got their revenues from advertising. In the case of advertising, consumers were used to get the news for free. When the distributor of the news no longer earns enough money with advertising and switches to a subscription model, this could cause some aversion with the consumer towards getting a subscription to get the news, because they were used to get the news for free. The same goes for online music subscription services where consumers prefer the illegal music downloads because of economic benefits (Cesareo & Pastore, 2014). There will always be a group that keeps trying to get things for free, but some consumers are willing to pay for online content through subscription services. The primary needs for subscription-based services are convenience, essentiality and usage frequency. Important factors to increase their willingness to pay are enhancing the richness and specialty of the content, increasing the ease of access to needed information, and encouraging the frequent usage of a service (Wang, Zhang, Ye, & Nguyen, 2005).

### **2.3 Factors of Subscription-based business models**

Various factors can be recognized when analyzing SBMs. A recent Harvard Business Review blog exposed that companies with successful SBMs connect their products to two critical customer value propositions: convenience and curation (Randall, Lewis, & Davis, 2016). Convenience plays an important role for customers who do not want to think about doing groceries or other repeat purchases like diapers and razor blades. Curation or an expert role for subscription-based companies is being used when customers want to explore new products or want to be surprised every month or week. In this research we see SBMs bring up other customer value propositions than today's online web shops that are focused on delivering the product and offering a lot of choice. Another factor for SBMs are personalization and mass customization. For instance, subscription box with cosmetic products customize the content of the boxes based on their customers' answers about their appearance via questionnaires: do they have blonde or brown hair, their skin type, etc. Based on that information, the company makes decisions on what to include in their monthly subscription box. These factors drive one common theme: loyalty. As subscriptions are based on repeat purchases, the most important value driver is to gain loyalty among customers. Without loyalty there is no repeat purchase, and no essential need to subscribe to a product or service.

### 2.3.1 Loyalty / Lock-in

Loyalty is a factor in Subscription-based Business Models. When consumers subscribe to a product or service they have the intention to repeat purchases, which is the most important factor of loyalty. Loyalty is also related to an important factor of value creation in business models: lock-in. Lock-in tactics motivate customers to repeat purchases from the same business (Amit & Zott, Value creation in e-business, 2001). Loyal customers have particular habits that make them extra profitable for companies. These benefits also resonate in the benefits of using a SBM. First, loyal customers result in lower acquisition costs. In the age of online consumers, this is an important factor, as many new customers typically get acquired by investing in online advertising like Google Adwords, which can be very expensive. Second, loyal customers spend more over a longer period of time. In the case of apparel resellers, customers buy twice as much after 2-3 years compared to their first orders as a new customer (Reichheld & Schefter, 2000).

Dick & Basu (1994) took a closer look at the definition of loyalty and developed a conceptual framework. This framework helps us to give a definition of loyalty and the different phases that occur when becoming a customer of a company. Loyalty can be described as a relative attitude towards entities, which means that customers compare companies and products before deciding to make a purchase. This relative attitude exists of two dimensions: attitudinal strength; how much the service or product differentiates from other competitors and attitude strength: how much the customer prefers the product or brand. These two dimensions do not exclude each other: they come in different strengths of loyalty. We can speak of no loyalty, spurious loyalty, latent loyalty and loyalty, where loyalty is the strongest attitude. Dick & Basu see that relationship between relative attitude and repeat patronage as the definition of customer loyalty. When this repeat patronage is building up between a customer and companies there are different phases:

- Cognitive: mostly based on brand loyalty only. The way customers think of repeating purchases in terms of accessibility: how easy is it to recognize the benefits to buy a product, confidence: what were the earlier experiences with the product, centrality: is the brand preferred by a customer and clarity: how easy is it to find alternatives for the designated product.
- Affective: the affective outcome is different from the cognitive decision process. This phase develops the customer's loyalty. It is based on emotions: the feeling a customer has when buying a product, which can be realized by the shop personnel for example. Or on moods: the mood someone has for a brand created by advertising. And primary affect: the customer is stimulated when buying or checking out products in a store

environment that uses fragrant aromas. Or satisfaction: this antecedent comes in when the customer is using the bought product, does it match the expectations?

- Conative: this is a lower level of abstraction than cognitive and affective. Conation has the intention to re-purchase a product based on for instance switching costs: how easy is it to switch from one supplier's product to another. Or on sunk costs: raising or lowering prices can have an effect on loyalty. And on expectations: customers' future expectations can influence if they repurchase a product or not.
- Oliver (1999) adds a fourth phase: Action loyalty. This is the phase where the customer commits to a product by buying the product repeatedly.

The last phase, action loyalty, is the moment SBMs need to let customers subscribe to a product. Without the commitment to make repeated purchases there is no motivation to start a subscription.

When analyzing all these components of loyalty Harris & Goode (2004) suggest that trust is the most important driver. Now that customers are increasingly buying online, trust has become even more important because often there is no physical store or person where you can buy the product. That means especially online companies need trustworthy processes to be successful (Kim, Song, Braynov, & Rao, 2005). If the customer has trust and is satisfied with his/her online purchase that will directly have an effect on the longer-term relationship (Kim, Ferrin, & Rao, 2009). Trust is probably an obvious driver for loyalty. When looking further Srinivasan et. al (2002) identify eight additional tangible factors that potentially impact e-loyalty: customization, contact interactivity, care, community, cultivation, choice and character. Customization, community and convenience can be directly linked to SBMs, which will be shown in the next paragraphs. Contact interactivity, care, customer cultivation, choice as well as character drive loyalty and can be linked to SBMs but are less exclusive to SBMs themselves. When analyzing other business models there is a big chance these factors can be recognized. Care is a good example driver of loyalty that is applicable to multiple companies and more than one business model: companies who do not answer questions of customers will almost always score negatively in terms of customer relationships. Because of this generality, these factors will not be considered as important factors for SBMs.

As mentioned earlier, lock-in is strongly related to loyalty. Farrell (2007) points out that lock-in has two important factors which hinder customers from switching to other suppliers: switching costs and network effects. Switching costs arise when customers buy other products that need to be compatible, often they will be stimulated to buy them from the same firm. For example Apple is a company that creates a very good integration of functionalities between different devices like a laptop and a smartphone. This way customers are more likely to buy an Apple product than any other brand. Network effects are visible when a product needs to

be compatible with products from other people in their network, e.g. to send an iMessage. These lock-in factors can be visible with subscriptions too: when people have a subscription to a product or service, these can be discounted because of the repeated use, using another product from another company could be expensive compared to the products from the subscription service. The network effect is also visible with subscription services that offer exclusive products, for example when people in the network are watching a particular show that is only available at Netflix, there is a network effect.

Another term that can add an extra barrier to the lock-in of a customer is exclusivity. When the product is exclusive to the company, customers don't have a choice to buy the product or service from someone else. But the circumstances for a specific product and exclusivity can be critical for success. The duration of exclusivity and the group of customers who are interested in the exclusive product are important when offering an exclusive product. When customers in a market consider only one or a few suppliers or are already locked with a company, exclusivity may not make a big difference. But when word of mouth is important and when exclusive products can engage opinion leaders, it can be worth having an exclusive offer (Peres & Van den Bulte, 2014).

The brand of an SBM is also a factor for loyalty: a strong brand experience creates loyal customers (Brakus, Schmitt, & Zarantonello, 2009). For this research it is difficult to oversee all aspects of the brands used by the SBMs, but we can distinguish some factors that give us more insights in companies with an SBM. For instance, a company can choose to launch a new brand for the subscription they offer, or the subscription service is a new company and therefore needs a brand to communicate to their customers. We can make a distinction between 'New brands,' that are completely new but can be introduced by an existing company, 'Brand extensions,' where product categories are added to a brand or 'Established brands,' those who have already built up their presence and are still trying to raise their popularity among customers (Keller, Sternthal, & Tybout, 2002). Another way to strengthen the brand presence is by creating communities around products. Customers can see other people's activities or want to be part of the community itself. Netflix for example offers exclusive content, only people who have a Netflix subscription can talk with other people about the latest *House of Cards* season. When customers have a good relationship with a brand, they tend to also be open to engaging in a brand community. This engagement can have positive benefits for the company like loyalty to the brand and recommendation of the products (Algesheimer, Dholakia, & Herrmann, 2005). Another way online customers get influenced by other customers is by showing reviews or recommendations. When a product on a website is recommended, customers will buy it twice as often compared to products without a recommendation (Senecal & Nantel, 2004).

### 2.3.2 Personalization, mass customization and curation

Customer data brings many opportunities for companies: how much they know about what a customer likes or buys can be crucial for online success. Personalization does not stop with a personal offer alone, SBMs are combining products in special subscription boxes every month based on the subscribers' preferences or even a personal character profile. Rust & Lemon (2001) already named personalization as one of the areas where consumer expectations shift due to the online economy. They explain that consumers' expectations will continue with the enhancement of technological capabilities. Personalization really has to be personal, a collaborative filtering will not be enough. Companies need to be able to respond to different sets of needs and preferences of the same individual.

Personalization comes in many variations and definitions. First, personalization is a way to communicate with customers in a personal way. That is where most companies start with a personal approach. "Personalization is a segmented form of communication that sends (groups of) different recipients different messages tailored to their individual preferences." (Postma & Brokke, 2002). Second, personalization brings a new dimension to the marketing mix. Since the 1950s we've known mass marketing as a tool to reach a large group of potential customers. After that marketing enhanced with more individually focused approaches to customers. Goldsmith (1999) says that companies need to consider the factor of personalization in the same way as they do for product, price, promotion and place.

Personalization can have a role in personnel involved in delivery of the product, physical assets that accompany and surround the product and the procedures by which buyers acquire and use the product. Third, when you stretch personalization to fabricated products it results in customization. Not only the way a company interacts with a customer is unique, also the product itself gets personal. This form of personalization is visible in the car industry where people can customize the looks of a car, but Nike also customizes running shoes for their customers in various colors or with the customer's name on it.

Vesanen (2007) made an overview of the existing literature resulting in five types of personalization:

- Segment marketing: the simplest version. Matching customer preferences a little bit better than mass marketing. For example: offering products to different groups such as teens, retired people or parents
- Adaptive personalization: letting the customer choose by giving a lot of options. For example: the results of a search task in Google
- Cosmetic personalization: presenting the same products in a different order
- Transparent personalization: presenting products based on a customer profile. For example, Amazon suggests new products based on your purchasing history

- Collaborative customization: the organization and customer are together building the product. For example, at the hair salon between hairdresser and customer.

These types of personalization are very helpful to compare the level of personalization for different companies. The typologies cover all the current possibilities companies have to approach their customers in a personal, or even customized, way.

Customization also drives customers loyalty, as it increases the probability customers find something they look for. It can also lead to a better match between customer and product. And it helps customers to complete the transaction, for example when a website offers many products (Srinivasan, Anderson, & Ponnayolu, 2002). There is no doubt that personalization is still very important in companies interacting with customers. To use Jeff Bezos' (Amazon's CEO) words: "If we want to have 20 million customers, then we want to have 20 million 'stores.'"

### 2.3.3 Convenience

Convenience also exists in many shapes and forms. The product itself can be convenient for a consumer, like meals that can be prepared in a microwave. Or the distribution can be convenient: is it possible to buy the product at a nearby store or is it easy to buy online? When buying online many more convenience factors appear: is the website simple and easy to use, can customers register an account to save their address and delivery preferences?

"The convenience of a service is a judgment made by consumers according to their sense of control over the management, utilization and conversion of their time and effort in achieving their goals associated with access to and use of the service." (Farquhar & Rowley, 2009)

Convenience is an important factor for customers to buy products online or as a service, or as we are looking for in this research: subscriptions. It is not surprising consumers are willing to pay even more in exchange for high quality service and convenience (Page & Lepkowska-White, 2002). Convenience is also a factor in consumer behavior towards meal preparation, although it depends on many variables like time to prepare meals and alternatives like take-away or restaurants (Candel, 2001). That relates to subscriptions businesses with recipe delivery services.

Farquhar and Rowley (2009) try to unravel the various dimensions of convenience and come to the conclusion that a definition can be given to convenience but there is no consensus on particular dimensions. In addition, they say no further research is needed on dimensions of convenience because a potential list of dimensions have weaknesses: a customer probably will not use all the dimensions, the dimensions are very dependent on type of convenience and the customer's judgment and such dimensions offer little insight into convenience.

Despite their conclusion, it is possible to distill convenience dimensions from their literature review that can be relevant to SBMs:

- Time- and effort saving aspects: a subscription can save up time and effort for a customer. For example it is no longer needed to go to a store to buy the same product every week, month or year.
- Decision convenience: when the subscription business makes the selection for the customer what he or she needs, the customer does not need to take any buying decisions anymore.
- Transaction convenience: by taking a subscription it is likely that payments will happen automatically every week or month, in that case the customer always knows what he/she is going to pay for the product beforehand.

#### **2.3.4 Expert role/curation**

We know the idea of curation from museums, but it is popular in omni-channel strategies too. For example Amazon curates its products so customers do not have to search themselves in the endless number of products they offer (Brynjolfsson, Hu, & Rahman, 2013). This kind of selling is comparable to the offline shopping experience in a boutique, the owner searches and recommends fashion items that match your taste, that is the reason you come and buy clothing. Customers often do not spend time themselves to find out the latest trends in fashion or new product lines from fashion labels. Translating this to the online world: many online shops are curating their products too. The buzzword for this phenomenon is ‘curated commerce’, searching for this word on Google delivers many popular articles on how to practice this kind of commerce. In the academic literature curated commerce is not mentioned yet, and curation points out many ways to organize libraries but not how to sell products to customers.

A predictor for what curated content can be worth is the value of product reviews on websites. Consumers read product reviews before they decide to buy a product, but not only the outcome of the reviews are important for their buying decisions. When deciding if the review is helpful or not consumers also look at other contextual information like the reviewer’s reputation (Hu, Liu, & Zhang, 2008). When reputation and experience are important before someone trusts a review advice, consumers could be open for curated content.

Wijnberg (2004) developed a framework of the selection system, it describes and analyzes the characteristics of particular processes of competition and competitive arenas by focusing on the characteristics of the actors who are being selected, the actors who are selecting, the selectors and the nature of the relations between those groups. In the framework of selection

systems, there are three ideal types possible of selection systems, each with a different type of selector:

- Market selection: the traditional type where consumers are the selectors and producers the selected
- Peer selection: where the opinions of other producers, the peers, determine the outcome of the competitive process
- Expert selection: where competitive success or failure is determined by the opinions of a category of people who are neither consumers nor producers but to whom particular knowledge or expertise is ascribed

The expert selection is also used by SBM businesses and specifically with subscription boxes. Consumers subscribe to a service where they receive a box every week or month. The box contains products selected by experts. This can also be considered as a form of bundling. Bundling is known within various product markets like energy or telecom, when consumers buy more than one product, for example Internet plus TV services, they get a discount. Subscription boxes work the same way. Bundling goods can be very profitable for companies, it does not only bring economies of scale, but also gives space to innovate, protects a market from competition or could open new markets for competition (Brynjolfsson & Bakos, 2000).

## 2.4 Summary

Considering the literature review, we expect to find typologies in our research based on the following four factors: Loyalty/Lock-in, Personalization, Convenience and Curation. The expected typologies are visualized in Figure 1.

First, Loyalty or lock-in is a requirement for subscriptions, without the will to return, customers will not subscribe to any business. The literature review pointed out various factors like switching costs, brand and community that can be related to the loyalty type of SBMs. Second, we

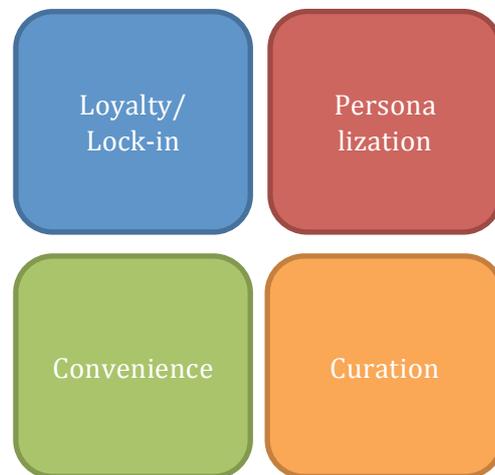


Figure 1

expect personalization to be a typical factor for SBMs. Personalization is not only an upcoming trend in marketing but also a logic way to make subscriptions more relevant to customers. Third, we see a role for convenience. When subscribing to a product or service, customers get their products automatically. They do not have to think about what to buy, make time to choose or experience the hassle of repeated (online) transactions. Finally, a factor of SBMs should be their curation role. We already see many subscription boxes where

experts handpick the products customers receive every month. This curation variable can be a good combination when bundling a variety of products.

## 3 Research design

The factors related to SBMs collected in the literature review will be analyzed with a database of 84 companies (see appendix 8.1) that have an SBM. The outcome of this analysis will be tested with a Confirmatory Factor Analysis to find out if it is possible to name types of SBMs.

### 3.1 Research data

By using a checklist for SBM typologies, an observation will be performed on 84 companies in three industries: Food, Cosmetics and Media/Entertainment. These companies were selected by searching for SBM companies in different sources:

- Google: companies were found by searching on Google. A selection of the search words: subscription, subscription box, subscription service, subscription economy and subscription business model. Also the Google alert function was used to monitor articles about SBMs published daily.
- Publications: many U.S. magazines write about new SBM initiatives such as FastCompany, People Magazine, US Weekly etc.
- News websites: new SBM introductions appear on news websites regularly, especially sites who write about tech and entrepreneurship give a lot of attention to these business models. E.g. The Next Web, Inc, BuzzFeed, The Verge and The Observer.
- Subscription review websites: My Subscription Addiction and Maaltijdbox-vergelijken.nl
- Social media: Some U.S.-based celebrities promote subscription boxes on their Instagram accounts and Facebook features SBMs by showing in a user's timeline which of their friends have subscribed to a certain service (e.g. HelloFresh)

While collecting subscription-based companies, it was very clear that some industries are more matured in subscription models than others. The industries for food, beauty and media were overrepresented when collecting companies with an SBM. For that reason this research focuses on those industries. Other markets that also use subscriptions but do not have enough companies for this data sample are household products such as toilet paper or dog food.

More criteria for the data collection were that the SBM should be operational at the moment of research and that it was possible to buy a subscription for a consumer. Companies who sell products that were very similar to a subscription model were excluded. For example: the food SBMs mostly sell boxes with ingredients and recipes, some grocery stores copy this formula

by selling a box with ingredients and recipes but do not offer this as a subscription. There was no exception for countries where the SBM operated or specific subscription characteristics such as price or terms of notice.

We analyzed the variables from the literature review on the assembled set of companies with an SBM. One person spread over four days conducted this review. The observations were made using a checklist that contained the variables collected in the literature review (see appendix 8.2). Variables were noted in categories (for example market, home country), Yes/No (for example exclusivity, switching costs) and 5-point likert scales (for example convenience questions and personalization). The observation started by visiting the website of the SBM, a large part of the observations was filled out with the information offered about the subscription, pricing and package options. Most SBMs also offered an FAQ page with specific information about curated products or delivery options. When not all the variables were filled out with the information on the website, we searched for specific variables using Google, for example to discover the founding year of the SBM. All results were listed in Excel (see appendix 8.3).

### 3.2 Measures

The independent variables are based on the literature review and visualized in Figure 2 below.

**Loyalty/lock-in** is operationalized as the existence of *switching costs* for the subscription a consumer can buy. Switching costs can appear as a price to be paid when ending the subscription or a starting price for taking the subscription. There can also appear a *network effect* for customers, when a subscription has to be compatible with other people in the customers' network. When people want to share media of their subscription with friends, for example to talk about a new movie, their network needs the same subscription. Switching costs and network effect are linked to lock-in but do not always represent the lock-in phenomenon completely, that is why *Lock-in* is another variable in our research. Most of the times it is visible via discounts for getting subscriptions for longer than a month. The *brand* of an SBM also influences loyalty/lock-in: we check whether the SBM is new, an extension of a brand or an existing brand. We use the definition of Keller et al. (2002) to analyze this variable. We also check if the *brand is exclusive* to the SBM. Is the subscription the only offer or do they also sell products without a subscription? Furthermore, we want to know if the SBM is giving an *exclusive* offer: does the subscription give access to unique products or is it also possible to buy the products from another supplier? Finally, we want to know if subscriptions use a *community* around their product or service. This is operationalized in the existence of a community where customers can have a conversation with each other.

**Personalization/mass customization** will be operationalized following the levels defined by Vesanen (2007): First, Segmented marketing; Second, Adaptive personalization; Third, Cosmetic personalization; Fourth, Transparent personalization; Fifth, Collaborative personalization. SBMs can offer one subscription for all customers or can go into a lot of detail to personalize the subscription for the customer.

**Convenience** can be measured with different factors that bring convenience to the customer when taking the subscription. *Time/effort* convenience is applicable when the subscription saves time or effort for the customer, for example when they don't need to go to a physical shop to buy something. *Decision* convenience saves the customer from making choices to buy a product, when the subscription makes a selection of the products that will likely match the customers' taste or need. *Transaction convenience* can be recognized when the number of transactions a customer has to make will be reduced. For example, paying for the same product every week or automatically pay for consuming the subscription.

**Curation** is operationalized by the way a subscription selects products for the customer. In advance the customer does not know what he/she exactly will get, only that the subscription offers a product or service in a specific category, for example a prepared meal everyday. The *curation itself* is a factor, is it part of the subscription or not. Furthermore *peers* or *experts* can do the curation. Because curation can also lead to delivering more than one product at a time we also confirm if subscriptions *bundle* their products.

### Expected SBM typologies + variables

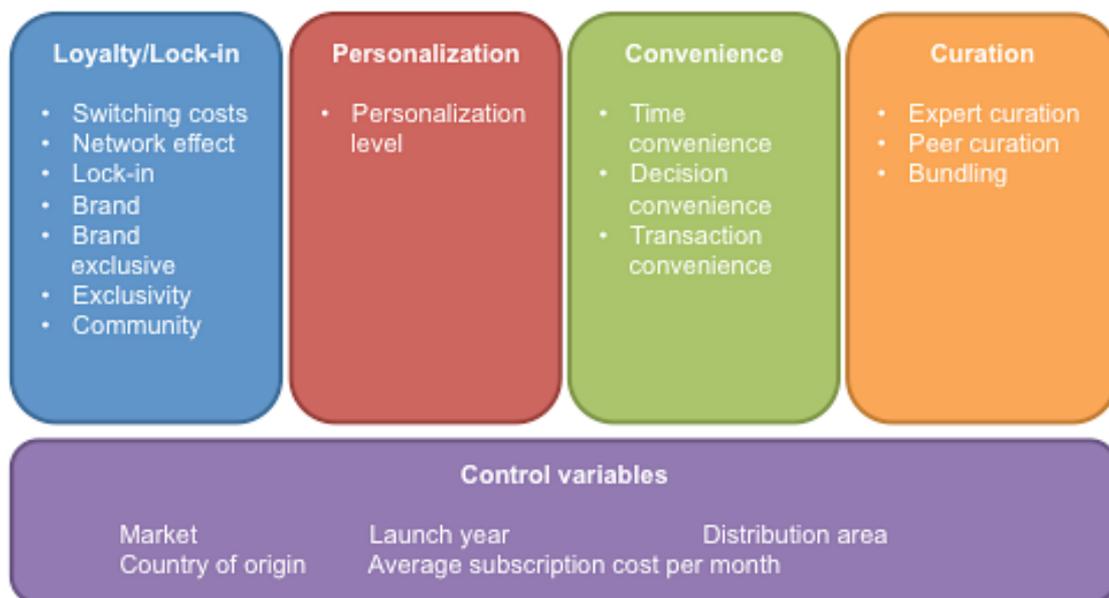


Figure 2

Control variables will also be applied to this research to see if we can relate any variables of SBM companies to specific characteristics they have. The first control variable is the *market* where the SBM is operating. In this research we focus on food, cosmetics and media/entertainment. We also check the *age* of the SBM. When the subscription is part of a longer existing business, the year that the subscription started will be noted. The *distribution area* is another variable, this is a range from 1 to 10+ countries. By serving more than 10 countries we consider the business as a global player. We also confirm the *country of origin* of the SBM. And as a last control variable, we will compare the *price of the subscriptions*.

The outcome of this analysis will be the dependent variables. We expect to see a confirmation of loyalty/lock-in, personalization/mass customization, convenience and curation. Our goal is to confirm that SBMs consist of different typologies. In that way an SBM is not only described as a subscription anymore but can be defined with more specific characteristics of this business model.

### 3.3 Factor analysis

The analysis of the data needs to result in typologies for SBMs, for that reason a Confirmatory Factor Analysis (CFA) was applied using STATA 14. A CFA is an analysis that can be used when we want to know if the hypothesized construct can be matched with the underlying variables. In this case it means that we want to know if the underlying variables from the literature review can be matched with the hypothesized typologies. To let STATA talk with the data from Excel, some modifications were made to get the right classifications for a factor analysis. Furthermore we installed the polychoric command because our data does not only consist of continuous variables but also dichotomous, ratio and ordinal variables. The normal factor command in STATA will not be able to interpret these variables. The STATA FAQ from UCLA was a clear guide for this approach.<sup>1</sup>

Nominal variables cannot be analyzed with a CFA, for that reason we were not able to use the variables Market, Country of origin and Brand (new, existing and extension). By starting the CFA in STATA we need to drop some more variables: Peer curation, Community, Network effect and Switching costs. The observations within these variables were mostly zero, they did not apply to the SBMs in this research. STATA reports errors and cannot generate a correlation matrix. Research on this error explained that it is better to drop these variables to get a stable outcome of the factor analysis.<sup>2</sup> A CFA without these variables was successful.

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<sup>1</sup> [http://www.ats.ucla.edu/stat/stata/faq/efa\\_categorical.htm](http://www.ats.ucla.edu/stat/stata/faq/efa_categorical.htm)

<sup>2</sup> <http://www.stata.com/statalist/archive/2013-01/msg01268.html>

(see appendix 8.4) We were able to use the control and independent variables in the same CFA because they are all independent from each other.

### **3.4 Cluster analysis**

Finally, because we were not able to analyze all collected variables (including the nominal variables), we tried to see if a cluster analysis could give us more insights. Several cluster analyses were performed on all variables and we were able to get several clusters as a result, but none of the clusters were useful for our research. We were only able to categorize the companies from our data collection, which resulted in two, three or more clusters. However, this did not result in clusters of specific variables, nor did it show categorized clusters for typologies. When taking a closer look at the clustered companies we were not able to see any patterns like industry, a common variable like curation or any other patterns that could explain why these companies were clustered together. We also tried to cluster the companies based on the typologies from the factor analysis, but this did not give any significant results either. The cluster results were not significant or did not show any clustering at all.

## 4 Research results

The CFA retained three factors, all with Eigenvalues greater than 1, in our data. The Eigenvalue for factor 1 is 3.509, for factor 2 is 2.326 and for factor 3 is 1.955. The fourth factor also had an Eigenvalue greater than 1 but was very close to the fifth factor and in the elbow of the screeplot, as you can see in Figure 1. Furthermore, the fourth factor did not show significant factor loadings that are relevant enough for a typology: it had a negative loading on Brandexclusive and a positive loading on Age. For that reason, we chose three factors. To find out if it is possible to get higher values, we also rotated both factors orthogonal (varimax) and oblique (promax). The varimax rotation gave higher factor loadings and kept all variables independent. The promax rotation allowed correlating variables, which made them less independent, but does not bring much difference compared to the varimax rotation. That means the varimax rotation gave the best results.

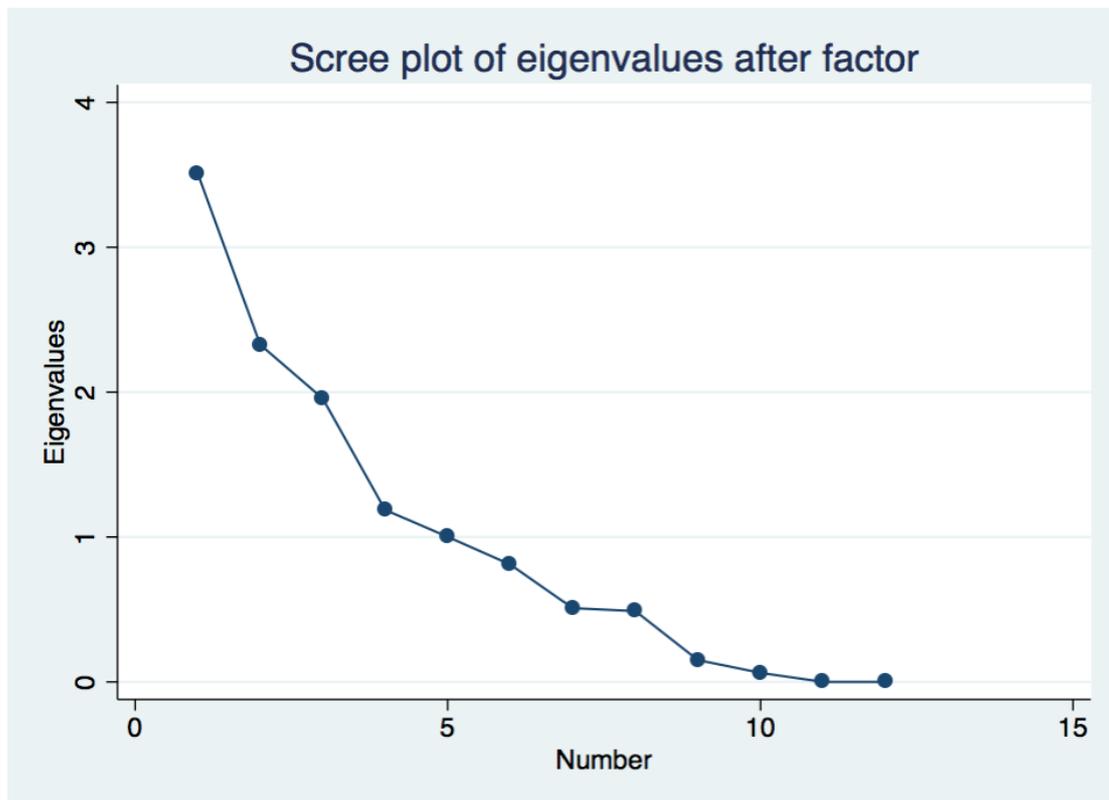


Figure 3

When we take a look at the factor loadings in Table 1 below we see several significant variables for each factor. Stevens (1992) constructed a rule for factor loadings depending on the number of observations, when the observation number is lower than 100 the loading should be  $>.512$ , for 300 observations the loading should be  $>.298$ . In Table 1 we marked the significant factor loadings in bold.

Variable	Factor1	Factor2	Factor3	Uniqueness
Bundling	0.1914	-0.1095	<b>0.9454</b>	0.0575
Expertcuration	<b>0.7252</b>	<b>-0.5434</b>	0.1980	0.1396
Transactionconvenience	0.1946	<b>0.8690</b>	-0.0164	0.2067
Decisionconvenience	<b>0.8047</b>	0.1357	0.2476	0.2727
Timeconvenience	<b>0.8228</b>	-0.0901	-0.3972	0.1572
Personalization	-0.0930	0.1301	<b>0.7107</b>	0.4693
Exclusivity	-0.0235	<b>0.6562</b>	-0.2744	0.4935
Brandexclusive	-0.2378	<b>0.5891</b>	0.0283	0.5955
Lockin	0.0695	<b>-0.7317</b>	-0.1718	0.4303
Pricepermonth	<b>0.8805</b>	0.1277	0.1306	0.1914
Distribution	<b>-0.6721</b>	0.2864	0.4067	0.3009
Age	0.0145	0.2959	0.1365	0.8936

**Table 1**

Factor 1 consists of a negative loading on distribution and positive on Expertcuration, Decisionconvenience, Timeconvenience and Pricepermonth. That means a type of SBM like factor 1 is based on expert curation, brings decision and time convenience and calculates a higher price for their subscription. Most of these SBMs operate in a small number of countries. This factor partly confirms some variables of the Curation typology and some of the Convenience typology.

Factor 2 consists of negative loading on Expertcuration and Lockin and positive on Transactionconvenience, Exclusivity and Brandexclusive. That means a type of SBM like factor 2 is a brand which only executes a subscription model, brings exclusive products and transaction convenience. This SBM does not offer expert curation or any lock-in barriers to switch to another SBM. This factor partially confirms the loyalty/lock-in type of SBM and one variable of the Convenience typology.

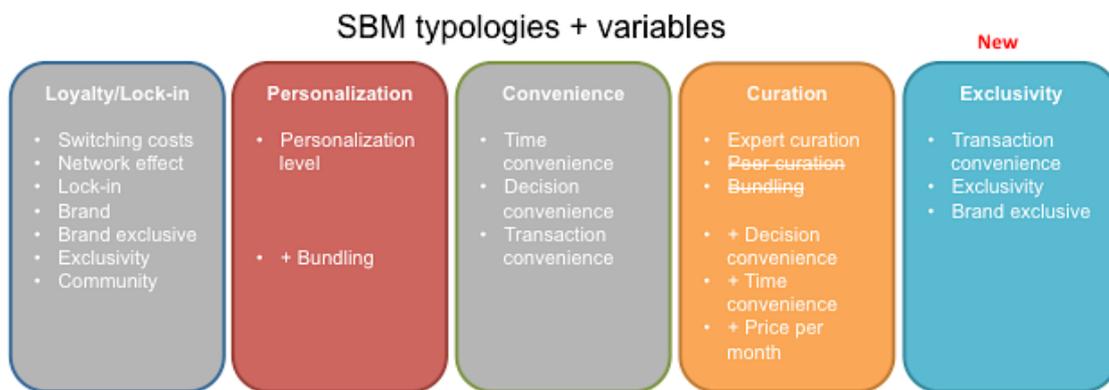
Factor 3 consists of positive factor loadings on Bundling and Personalization. This type of SBM mainly focuses on delivering products that matches your taste or other preferences. This factor confirms the personalization type SBM. This factor confirms the personal type of SBM added with the Bundling variable from the Curation typology.

The Age variable did not gave any significant result in all three factors loadings. The factors and their variables are shown in Table 2

<b>Curation</b>	<b>Exclusivity</b>	<b>Personalization</b>
Expert curation .725	Transaction convenience .869	Bundling .945
Decision convenience .805	Exclusivity .656	Personalization .711
Time convenience .823	Brand exclusive .589	
Price per month .881	Lockin <b>-.731</b>	
Distribution <b>-.672</b>	Expert curation <b>-.543</b>	

**Table 2**

These results partly confirm the hypothesized SBM typologies from the literature review. The Personalization and Curation typology can both be confirmed and include more variables than expected. On the other hand, we could not confirm the existence of a Loyalty/Lock-in and Convenience typology, although we see some of their variables in the other typologies. Figure 4 compares the typologies from the literature review and the outcome of the factor analysis.



**Figure 4**

This outcome shows us:

- No confirmation of the Loyalty/Lock-in typology. Companies with an SBM are not focused on creating barriers to switch to another competitor by building in switching costs or Lock-in strategies. Instead, they try to attract customers by offering exclusive products and under an exclusive subscription brand (see Exclusivity typology).
- A confirmation of the Personalization typology with an addition of the Bundling variable. These variables match very well because most of these SBMs offer personalized boxes every month with a mix of products.
- There is not a typology specifically focused on Convenience, although Decision convenience and Transaction convenience are part of two other typologies.
- A confirmation of the Curation typology with other variables than expected. The Peer curation and Bundling variables did not load significantly in this typology. However, we can add three other variables to Curation based on the analysis: Decision convenience, Time convenience and Price per month.

- A new typology called Exclusivity, which contains two of the loyalty variables: Exclusivity and Brand exclusive

The final outcome with the developed typologies is visualized in Figure 5.

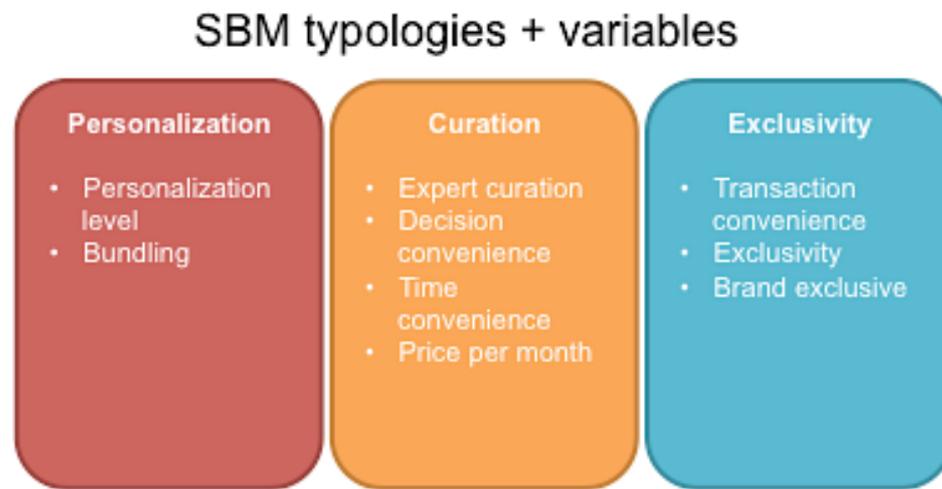


Figure 5

## 5 Discussion

In this paper we examined if it is possible to define typologies to classify SBMs. We tested 84 businesses with an SBM against 14 factors based on a literature review. This resulted in three validated typologies for SBMs: Curation SBM, Exclusivity SBM and Personalized SBM.

The three validated typologies confirmed variables resulting from the literature review. We see that variables related to loyalty and lock-in, personalization, convenience and curation significantly loaded the typologies in the factor analysis.

First, the Curation typology confirms that these SBMs offer products selected by experts. Customers subscribe to a product or service and let the curator decide which products they will receive. Decision convenience and Time convenience also significantly loaded on this typology. This means that offering curated products is strongly linked to offering convenience to customers. These SBMs tend to save customers time by letting the company's experts take decisions and select products for them. We also see a significant loading on the price per month variable. Subscriptions in this typology mostly have a higher price per month than other subscription services. A negative loading was found on distribution, most SBMs in this typology focus on a small number of countries and do not operate globally.

Second, Exclusivity surprisingly showed up as a typology. We expected Exclusivity, and Brand exclusive to be part of a loyalty typology but the variables are strong enough to create a typology on its own. The lock-in variable even has a negative loading on this typology. And combined with the absence of other lock-in related variables we found a new insight: these SBMs do not create any barriers to unsubscribe. In addition to exclusive products, these SBMs also bring transaction convenience and operate in a brand that exclusively offers subscriptions. A possible explanation to why transaction convenience is an important factor for the Exclusivity typology is because consumers might perceive their subscription service as more trustworthy than having to buy these exclusive products from an unknown vendor online or offline. The confirmation of bringing exclusive products under an exclusive brand name should be logical.

Third, the Personalization typology is very clear: offering a bundle of products strongly personalized to the customers' preferences. These companies let customers create personal profiles where they can indicate their preferences e.g. for specific products or appearance in case of cosmetic subscriptions. Based on this profile, the subscription brings a bundled box of products adjusted to every individual customer.

The typologies resulted from our analysis did not confirm a Loyalty/Lock-in or Convenience typology. We expected a Loyalty/Lock-in typology based on the fact that a subscription is

focused on creating loyal customers. As explained earlier in this Discussion section we did find confirmation for the Exclusivity focused variables in the expected Loyalty/Lock-in typology. SBMs do not focus on creating barriers. Instead, they try to retain their customers by offering an exclusive experience. We expected a Convenience typology because of the way many companies with an SBM use the subscription to save time for their customers, we confirmed this in the results of our analysis but were not able to point out a typology completely focused on convenience. However, we do see variables related to convenience show up in the Curation and Exclusivity typology.

Furthermore, the analyzed companies with an SBM did not contain the factors Peer curation, Community, Network effect and Switching costs. Peer curation and Community are strongly related to each other, both variables suggest that other customers influence customers when they make a choice to buy a product. Companies with an SBM do not offer any contact between their customers, although they sometimes even try to suggest that customers are becoming a member of a 'club' when subscribing. With the absence of Network effect, Switching costs and also a negative loading of lock-in on the Exclusivity typology, we see that SBMs do not create any barriers for customers to unsubscribe. This is a new insight in this research as we expected to see at least one variable that creates a lock-in for subscribers.

We have identified role models for all three typologies resulting from this research. They achieved the highest valuations for the underlying variables of their typology. In the Curation typology, HelloFresh is a role model that demonstrates how a subscription can curate products for customers and also bring a lot of convenience. Customers who subscribe to HelloFresh receive a box with ingredients and recipes every week. They never know in advance what they will cook for dinner the following week because the experts of HelloFresh<sup>3</sup> selected the meals. In addition, this brings Decision convenience, the customer does not have to think about what to cook for dinner, and Time convenience because going to a grocery store is not necessary anymore for food items. Other role models for the Curation typology are Flavrbox<sup>4</sup> and Plated<sup>5</sup>. In the Exclusivity typology, Netflix<sup>6</sup> is the role model. Prior to our analysis, we suspected to see more significant variables creating a lock-in, but Exclusivity is the strategy for SBMs to create loyal customers. Netflix is the Exclusive brand for subscriptions: it does not offer other options to watch its content than subscribing to its streaming service. Furthermore, Netflix produces its own TV-series and films, which are exclusive to their subscribers. Other role models for the Exclusivity typology are 52teas<sup>7</sup> and

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<sup>3</sup> <http://www.hellofresh.nl>

<sup>4</sup> <http://www.flavrbox.com>

<sup>5</sup> <https://www.plated.com>

<sup>6</sup> <http://www.netflix.com>

<sup>7</sup> <http://52teas.com>

Dollarshaveclub<sup>8</sup>. Finally, Birchbox<sup>9</sup> represents the Personalization typology. This SBM company brings a very personalized experience to its customers by selecting a bundle of cosmetic products, a subscription box, based on the profile of the customer. When subscribing to Birchbox customers are asked to answer several questions about what products they prefer and their appearance. Based on this information, Birchbox will send a personalized bundle of products every month. Other role models for the Personalization typology are Julep<sup>10</sup> and Ipsy<sup>11</sup>. These role models can be valuable for companies and researchers who are searching for best practices in SBMs.

This research contributes to the literature on business models by adding insights on SBMs. Until now there was no academic research of SBMs, while mainstream and specialized media are starting to pay attention to this phenomenon. Zott, Amit & Massa (2011) encourage to employ more precise concepts of business models, to better understand what the business model in the respective study is meant to denote. This is what we have done with this research.

This research also contributes to the implementation of an SBM by existing companies and entrepreneurs. Offering subscriptions is an upcoming trend in North America and is now gaining exposure in Europe too. Anyone who wants to start in this business will now be able to use insights into existing typologies used by other companies with an SBM. These typologies can help to make a choice whether a subscription would add any value, and if so, what factors could be applied. We also know now that creating barriers for customers to unsubscribe is not a popular factor to consider.

## 5.1 Limitations and future research

This research has some limitations that can be valuable for future research on SBMs. The data collection and analysis were completely done by desk research. We did not conduct interviews or a survey with SBM companies, nor with their customers. Future research could focus on the motives for companies to use an SBM or for customers to subscribe. The typologies generated by this research are based on observations, we cannot confirm if a customer chooses an SBM for convenience or instead for exclusive offerings.

This research focused on three industries where we could find a significant enough number of SBM examples. Future research could focus on other industries once they get larger in size and scale and in the future it is likely more new companies with SBMs will have been founded so will be more examples to compare. All kinds of new examples are popping up e.g.

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<sup>8</sup> <https://www.dollarshaveclub.com>

<sup>9</sup> <http://www.birchbox.com>

<sup>10</sup> <http://www.julep.com>

<sup>11</sup> <https://www.ipsy.com>

hair extensions, dog food and home services. On the other hand we passed over some large industries with longer existing subscription services like dating websites, e.g. Match.com and eHarmony, and online data storage services, e.g. Dropbox and iCloud. Future research could help to find out how these industries compare to the ones we analyzed in this research.

We also see some SBMs going out of business like a dumpling snack subscription box or others stop with a paid subscription but continue their service like WhatsApp. It might be interesting to research the 84 companies in this research and see which ones have survived, thrived or died in a number of years, and which factors might have been at play. This is also a limitation of this research, we did not look at the performance of SBMs to see if they are successful. We can only judge their success based on the fact they still exist.

The market of SBMs is currently dominated by start-ups, further research could focus on the opportunities for existing companies to start with an SBM and what they can learn from the ones that are expanding their business now.

## 6 Conclusion

Companies with a subscription-based business model (SBM) are classified in three typologies: Curation, Exclusivity and Personalization. These typologies are the result of a factor analysis on 84 companies with an SBM. For each typology, we proposed role model companies that clearly exemplify the key variables. The role models were HelloFresh for Curation, Netflix for Exclusivity and Birchbox for Personalization. Results also showed that companies with an SBM generally do not use any lock-in strategies to prevent their customers from unsubscribing. Furthermore, they let customers subscribe but do not tend to be a community or a peer network where customers can interact with each other. The outcome of this research is a foundation for companies and academic researchers to further explore this growing business model.

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## 8 Appendices

### 8.1 List of Subscription-based companies

Name	Industry	URL
Goldbely	Food	<a href="https://www.goldbely.com/subscriptions">https://www.goldbely.com/subscriptions</a>
Blue Apron	Food	<a href="https://www.blueapron.com">https://www.blueapron.com</a>
Beebox	Food	<a href="https://beebox.nl">https://beebox.nl</a>
BeterBio	Food	<a href="http://beterbio.nl/default.aspx">http://beterbio.nl/default.aspx</a>
De Krat	Food	<a href="https://www.dekrat.nl/nl/homePage">https://www.dekrat.nl/nl/homePage</a>
Odin	Food	<a href="http://www.odin.nl">http://www.odin.nl</a>
Streekbox	Food	<a href="http://www.streekbox.nl">http://www.streekbox.nl</a>
Zinner Dinner	Food	<a href="http://zinnerdinner.nl">http://zinnerdinner.nl</a>
HelloFresh	Food	<a href="https://www.hellofresh.nl">https://www.hellofresh.nl</a>
WeightWatchers Foodbox	Food	<a href="https://www.weightwatchers.com/be/nl/foodbox">https://www.weightwatchers.com/be/nl/foodbox</a>
Best Owed	Food	<a href="http://www.bestowed.com/products/join-bestowed">http://www.bestowed.com/products/join-bestowed</a>
52teas	Food	<a href="http://52teas.com/subscribe/">http://52teas.com/subscribe/</a>
NoToxBox	Food	<a href="http://www.notobox.com.au">http://www.notobox.com.au</a>
Abel&Cole	Food	<a href="http://www.abelandcole.co.uk/?">http://www.abelandcole.co.uk/?</a>
Bean & Ground	Food	<a href="https://www.beanandground.co.uk">https://www.beanandground.co.uk</a>
Beer Bods	Food	<a href="https://beerbods.co.uk">https://beerbods.co.uk</a>
Le Petit Ballon	Food	<a href="http://www.lepetitballon.com/be_fr">http://www.lepetitballon.com/be_fr</a>
Farm Fresh To You	Food	<a href="http://www.farmfreshtoyou.com/">http://www.farmfreshtoyou.com/</a>
Candy Japan	Food	<a href="http://www.candyjapan.com">http://www.candyjapan.com</a>
Flavrbox	Food	<a href="http://www.flavrbox.com">http://www.flavrbox.com</a>
Club W	Food	<a href="https://clubw.com">https://clubw.com</a>
GlobeIn	Food	<a href="https://globein.com/the-artisan-gift-box">https://globein.com/the-artisan-gift-box</a>
Raw Spicebar	Food	<a href="https://rawspicebar.com">https://rawspicebar.com</a>
Graze	Food	<a href="https://www.graze.com/">https://www.graze.com/</a>
Plated	Food	<a href="https://www.plated.com">https://www.plated.com</a>
Mix cups	Food	<a href="http://www.mixcups.com">http://www.mixcups.com</a>
Love with food	Food	<a href="https://lovewithfood.com/subscriptions/">https://lovewithfood.com/subscriptions/</a>
Linás Matkasse	Food	<a href="https://www.linasmatkasse.se/campaign-ab6/">https://www.linasmatkasse.se/campaign-ab6/</a>
Mathijs Maaltijdbox	Food	<a href="https://www.mathijsmaaltijdbox.nl">https://www.mathijsmaaltijdbox.nl</a>
Birchbox	Cosmetics	<a href="https://www.birchbox.com">https://www.birchbox.com</a>
Glossybox	Cosmetics	<a href="http://www.glossybox.com">http://www.glossybox.com</a>
Play by Sephora	Cosmetics	<a href="http://www.sephora.com/play">http://www.sephora.com/play</a>
BeautyBox5	Cosmetics	<a href="http://www.beautybox5.com">http://www.beautybox5.com</a>
Testtube	Cosmetics	<a href="https://mytesttube.newbeauty.com/">https://mytesttube.newbeauty.com/</a>
Blissmo	Cosmetics	<a href="https://blissmo.cratejoy.com">https://blissmo.cratejoy.com</a>
Julep Maven	Cosmetics	<a href="http://www.julep.com/maven.html">http://www.julep.com/maven.html</a>
Beautyfix	Cosmetics	<a href="http://www.beautyfix.com">http://www.beautyfix.com</a>
Beauty Army	Cosmetics	<a href="https://beautyarmy.com">https://beautyarmy.com</a>
Good Being	Cosmetics	<a href="http://www.joingoodbeing.com">http://www.joingoodbeing.com</a>

Ipsy	Cosmetics	<a href="https://www.ipsy.com/">https://www.ipsy.com/</a>
Curlbox	Cosmetics	<a href="http://www.curlbox.com/16/home.htm">http://www.curlbox.com/16/home.htm</a>
Beautybox	Cosmetics	<a href="http://www.beautybox.nl/abonnement">http://www.beautybox.nl/abonnement</a>
FabFitFun	Cosmetics	<a href="https://fabfitfun.com/get-the-box/?step=getbox">https://fabfitfun.com/get-the-box/?step=getbox</a>
LoveLuLa	Cosmetics	<a href="https://www.lovelula.com/beauty-box">https://www.lovelula.com/beauty-box</a>
Luke Box	Cosmetics	<a href="https://ca.myluxebox.com">https://ca.myluxebox.com</a>
MakeUp Monthly	Cosmetics	<a href="http://www.makeupmonthly.com">http://www.makeupmonthly.com</a>
DollarShaveClub	Cosmetics	<a href="http://www.dollarshaveclub.com">http://www.dollarshaveclub.com</a>
Gillette Shave Club	Cosmetics	<a href="https://www.gilletteshaveclub.com">https://www.gilletteshaveclub.com</a>
Harry's	Cosmetics	<a href="https://www.harrys.com">https://www.harrys.com</a>
Boldking	Cosmetics	<a href="https://www.boldking.com">https://www.boldking.com</a>
Boka	Cosmetics	<a href="https://boka.com">https://boka.com</a>
Quip	Cosmetics	<a href="https://www.getquip.com">https://www.getquip.com</a>
Vegan cuts	Cosmetics	<a href="http://vegancuts.com/beautybox">http://vegancuts.com/beautybox</a>
ScentBird	Cosmetics	<a href="https://www.scentbird.com/">https://www.scentbird.com/</a>
Color me monthly	Cosmetics	<a href="http://colormemonthly.com">http://colormemonthly.com</a>
The Honest	Cosmetics	<a href="https://www.honest.com/">https://www.honest.com/</a>
Netflix	Media	<a href="http://www.netflix.com/browse">http://www.netflix.com/browse</a>
Amazon Prime	Media	<a href="https://www.amazon.com/">https://www.amazon.com/</a>
Spotify	Media	<a href="http://www.spotify.com/">http://www.spotify.com/</a>
Apple Music	Media	<a href="http://www.apple.com/benl/music/">http://www.apple.com/benl/music/</a>
Deezer	Media	<a href="http://www.deezer.com">http://www.deezer.com</a>
YouTube Red	Media	<a href="https://www.youtube.com/red">https://www.youtube.com/red</a>
HBOGo	Media	<a href="http://www.itshbo.nl/ondemand">http://www.itshbo.nl/ondemand</a>
WatchESPN	Media	<a href="http://www.espnplayer.com/espnplayer/console">http://www.espnplayer.com/espnplayer/console</a>
Google Play Music	Media	<a href="https://play.google.com/music/listen?authuser#/sulp">https://play.google.com/music/listen?authuser#/sulp</a>
Utomik	Media	<a href="http://utomik.com">http://utomik.com</a>
Shomi	Media	<a href="http://discover.shomi.com">http://discover.shomi.com</a>
Soundcloud Go	Media	<a href="https://soundcloud.com/go">https://soundcloud.com/go</a>
Groove Music	Media	<a href="https://www.microsoft.com/nl-BE/groove">https://www.microsoft.com/nl-BE/groove</a>
Tidal	Media	<a href="http://tidal.com/">http://tidal.com/</a>
Playster	Media	<a href="https://www.playster.com">https://www.playster.com</a>
Rhapsody	Media	<a href="http://www.rhapsody.com">http://www.rhapsody.com</a>
Slacker radio	Media	<a href="http://www.slacker.com">http://www.slacker.com</a>
Napster	Media	<a href="http://be.napster.com">http://be.napster.com</a>
Qobuz	Media	<a href="http://www.qobuz.com/be-nl/discover">http://www.qobuz.com/be-nl/discover</a>
Hulu	Media	<a href="http://www.hulu.com/start">http://www.hulu.com/start</a>
Mubi	Media	<a href="https://mubi.com">https://mubi.com</a>
Spuul	Media	<a href="https://spuul.com">https://spuul.com</a>
Docclub	Media	<a href="http://www.docclub.com">http://www.docclub.com</a>
Viki	Media	<a href="https://www.viki.com">https://www.viki.com</a>
Crunchyroll	Media	<a href="http://www.crunchyroll.com">http://www.crunchyroll.com</a>
Fandor	Media	<a href="https://www.fandor.com">https://www.fandor.com</a>
Starz	Media	<a href="https://www.starz.com">https://www.starz.com</a>
Origin	Media	<a href="https://www.origin.com/en-be/store/origin-access">https://www.origin.com/en-be/store/origin-access</a>

## 8.2 Checklist observations

Type	Factor	Code	Scale	STATA	Measure	Explanation
Control variables						
	Market	Market	F, C, M	F 1, C 2, M 3	Nominal	Three markets in this industry: Food, Cosmetics and Media/Entertainment
	Launch year	Launch	YEAR	Age in years	Interval	Launch year of the subscription model or the subscription business
	Distribution area	Distribution	1 to 10+	1 to 10	Ratio	In how many countries is it possible to subscribe to this subscription service? 10+ is globally.
	Country of origin	Home country	Country	1 USA, 2 NL, 3 UK, 4 AUS, 5 CAN, 6 GER, 7 FRANCE, 8 JAPAN, 9 SWEDEN, 10 SINGAPORE	Nominal	Home country of the SBM
	Average subscription cost per month	Price	Euro	price	Ratio	How much does the subscription cost. We take a median, the recommended option or the subscription we think is most popular. For food subscriptions we take prices for 2 persons.
Loyalty/Lock-in						
	Does the SBM have switching costs?	Switching costs	Yes/No	0 No 1 Yes	Dichotomous	Switching costs can appear as a fee to start the subscription, unique products which will cost extra to switch to another brand or product or costs to end the subscription.

	Does the SBM have a network effect?	Network effect	Yes/No	0 No 1 Yes	Dichotomous	The network effect appears when products can be exchanged with friends or family. Is there any reason to take a product because the social environment uses one? The effect can be measured physically: you need the same product to use it together with someone else. Or measured psychologically: you want the same product to engage in the conversation about the product.
	Does the SBM have a lock-in?	Lockin	Yes/No	0 No 1 Yes	Dichotomous	Lockin appears when the SBM is taking any actions to keep customers for a longer time. A common strategy is giving a discount for getting the subscription for 1 year.
	Is the SBM part of an existing brand, a brand extension or a new brand?	Brand	1 to 3	1 to 3	Nominal	1. New Brands. 2. Brand Extensions. 3. Existing brands.
	Is the brand presentation only for the subscription service or also for other products	Brand exclusive	Yes/No	0 No 1 Yes	Dichotomous	Is the subscription a brand on itself, or is the subscription part of a brand that also offers other products or services.
	Is the product or service offered by the SBM exclusive to the company?	Exclusivity	Yes/No	0 No 1 Yes	Dichotomous	Some or all of the products offered with the subscription are exclusive.
	Does the SBM have a community of customers who interact with each other?	Community	Yes/No	0 No 1 Yes	Dichotomous	Is it possible as a customer to get in touch with other customers? For example to share knowledge or experiences. This can be done by reviews which offer a discussion feature, a discussion board or another two-way possibility to connect with other customers. If it is only possible to see reviews/text from other customer and not reply to it, it does not count as a community.
Personalization						

	What is the level of personalization of the SBM?	Personalization level	1 to 5	1 to 5	Ordinal	Levels defined by Vesanen (2007): 1. Segmented marketing 2. Adaptive personalization 3. Cosmetic personalization 4. Transparent personalization 5. Collaborative personalization
Convenience						
	Does the SBM bring time/effort convenience?	Time convenience	1 to 5	1 to 5	Ordinal	Is the customer experiencing less effort or time in doing things with this subscription? Does the subscription help to spend less time to go to a store to buy a product. Does the subscription save time for consumers who buy the same product every week/month.
	Does the SBM bring decision convenience?	Decision convenience	1 to 5	1 to 5	Ordinal	Is the customer experiencing less decision making with this subscription? When taking the subscription a consumer does not have to make a decision anymore to buy a particular product, like groceries. Or the consumer can trust on the choice of an expert or other consumers when choosing a product.
	Does the SBM bring transaction convenience?	Transaction convenience	1 to 5	1 to 5	Ordinal	Is the customer experiencing less transactions with this subscription? With the subscription the consumer doesn't need to make single payments anymore. The subscription has automatic payments, based on a weekly/monthly fee or based on the usage of the subscription. Normally the consumer needs to make single payments for the product offered by the subscription.
Curation						

	Is the product or service curated by an expert?	Expert curation	Yes/No	0 No 1 Yes	Dichotomous	Is there curation of products, delivered with the subscription, by experts? Curation means that the some or all of the products are not selected by the customer but by the supplier. Curation is often marked as 'hand-picked' products.
	Is the product or service curated by peers?	Peer curation	Yes/No	0 No 1 Yes	Dichotomous	Is there curation of products, delivered with the subscription, by peers? When peers select the products delivered to the customer.
	Does the SBM use any bundling strategies	Bundling	Yes/No	0 No 1 Yes	Dichotomous	Do they bundle products. Is there always 1 product or 1 brand with the subscription or do they combine different products and different brands. Most of the times called a 'subscription box'

### 8.3 Observations/data collection

	Scale	Goldbely	Blue Apron	Beebox	BeterBio	De Krat	Odin	Streekbox	Zinner Dinner
Number		1	2	3	4	5	6	7	8
Market	F, C, M	F	F	F	F	F	F	F	F
Launch	YEAR	2013	2012	2012	2011	2010	1994	2012	2011
Distribution	1 to 10+	1	1	1	1	1	1	1	1
Home country	Country	USA	USA	NL	NL	NL	NL	NL	NL
Price per month	Euro	60,28	209,66	32,5	63,8	152	35	156	198
Switching costs	Yes/No	No	No	No	No	No	No	No	No
Network effect	Yes/No	No	No	No	No	No	No	No	No
Lockin	Yes/No	Yes	No	No	Yes	No	No	No	No
Brand	1 to 3	1	1	1	3	1	2	1	1
Brand exclusive	Yes/No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Exclusivity	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community	Yes/No	No	No	No	No	No	No	No	No
Personalization level	1 to 5	1	4	1	2	2	2	2	1
Time convenience	1 to 5	4	4	4	3	4	3	4	4
Decision convenience	1 to 5	4	4	3	4	4	3	4	4
Transaction convenience	1 to 5	4	4	4	4	4	4	4	4
Expert curation	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peer curation	Yes/No	No	No	No	No	No	No	No	No
Bundling	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

HelloFresh	WeightWatchers Foodbox	Best Owed	52teas	NoToxBox	Abel&Cole	Bean&Ground	BeerBods	LePetitBallon	FarmFreshtoYou	CandyJapan
9	10	11	12	13	14	15	16	17	18	19
F	F	F	F	F	F	F	F	F	F	F
2011	2016	2012	2015	2013	2000	2012	2012	2009	1992	2011
7	1	1	10+	10+	1	1	1	3	1	10+
Germany	USA	USA	USA	Australia	UK	UK	UK	France	USA	Japan
156	279	20	18	25,29	199,1	10,15	15,31	24,9	28,83	21,84
No	No	No	No	No	No	No	No	No	No	No
No	No	No	No	No	No	No	No	No	No	No
No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
1	3	1	1	1	3	1	1	1	1	1
Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
No	Yes	No	Yes	No	No	No	No	No	Yes	No
No	Yes	No	No	No	No	No	No	No	No	No
1	1	1	1	2	3	1	1	1	2	1
4	4	3	3	3	4	4	3	3	4	3
4	5	3	4	4	4	4	4	4	4	3
4	4	4	4	4	4	4	4	4	4	4
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No	No	No	No	No
Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

Flavrbox	Club W	GlobeIn	RawSpiceBar	Graze	Plated	Mixcups	Lovewithfood	Linan Matkasse	Mathijs Maaltijdbox	Birchbox
20	21	22	23	24	25	26	27	28	29	30
F	F	F	F	F	F	F	F	F	F	C
2016	2012	2013	2014	2008	2012	2012	2012	2008	2014	2010
1	1	10+	10+	2	1	1	1	3	1	1
UK	USA	USA	USA	UK	USA	USA	USA	Sweden	NL	USA
31,91	39,31	34,94	5,24	10,48	251,59	23,59	6,99	217,37	156	8,74
No	No	No	No	No	No	No	No	No	No	No
No	No	No	No	No	No	No	No	No	No	No
No	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes
1	1	1	1	1	1	1	3	1	1	1
Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	No
No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes
No	No	No	No	No	No	No	No	No	No	No
2	4	4	1	5	2	2	1	2	2	5
4	3	3	3	4	4	3	3	4	4	3
4	3	3	3	4	4	3	3	4	4	3
4	4	4	4	4	4	4	4	4	4	3
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Glossybox	Play! By Sephora	Beautybox5	TestTube	Blissmo	Julep	Beautyfix	Beautyarmy	Good Being	Ipsy	Curlbox
31	32	33	34	35	36	37	38	39	40	41
C	C	C	C	C	C	C	C	C	C	C
2011	2015	2012	2014	2010	2011	2009	2012	2012	2012	2012
10	1	2	1	10+	1	1	1	6	2	1
Germany	USA	USA	USA	USA	USA	USA	USA	USA	USA	USA
18,35	8,74	10,48	16,99	21,8	17,47	21,8	10,48	15,63	8,74	21,7
No	No	No	No	No	No	No	No	No	No	No
No	No	No	No	No	No	No	No	No	No	No
Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
1	2	1	2	1	1	2	1	1	1	1
Yes	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes
No	No	No	No	No	Yes	Yes	No	No	Yes	No
No	No	No	No	No	No	No	No	No	No	No
4	4	4	1	2	5	1	4	4	5	1
3	3	3	3	3	3	3	3	3	3	3
3	3	4	2	2	4	2	3	3	3	2
3	3	3	3	3	3	3	3	3	3	3
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Beautybox	Fabfitfun	LoveLuLa	Luxebox	MakeUpMonthly	DollarShaveClub	Gillette Shave Club	Harry's	Boldking	Boka	Quip
42	43	44	45	46	47	48	49	50	51	52
C	C	C	C	C	C	C	C	C	C	C
2012	2010	2014	2010	2013	2012	2014	2012	2013	2016	2012
1	2	10+	1	1	3	1	1	1	1	10+
NL	USA	UK	Canada	USA	USA	USA	USA	NL	USA	USA
14,95	14,75	15,91	10,41	15,62	5,21	3,04	13,02	10	4,2	4,35
No	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes
No	No	No	No	No	No	No	No	No	No	No
Yes	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes
1	1	1	1	2	1	3	1	1	1	1
No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No	No	No	No	No
1	1	1	1	4	2	2	2	2	1	1
3	3	3	3	3	4	4	4	4	4	4
2	2	2	2	3	3	3	3	3	3	3
3	3	3	3	3	4	4	4	4	4	4
Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
No	No	No	No	No	No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No

Vegan cuts	Scentbird	Colormemonthly	The Honest	Netflix	Amazon Prime	Spotify	Apple Music	Deezer	YouTube Red	HBO Go
53	54	55	56	57	58	59	60	61	62	63
C	C	C	C	M	M	M	M	M	M	M
2011	2014	2012	2011	1998	2005	2006	2015	2006	2015	2010
10+	1	1	1	10+	10+	10+	10+	10+	1	10+
USA	USA	USA	USA	USA	USA	Sweden	USA	France	USA	USA
19,95	12,99	6,08	69,54	9,99	9,55	9,99	9,99	9,99	8,8	14,95
No	No	No	No	No	No	No	No	No	No	No
No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	No	No	No	No	No	No	No	No
2	1	1	3	3	2	1	2	1	2	3
No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	Yes	No	No	Yes	No
1	1	1	1	5	3	5	5	3	3	3
3	3	4	4	2	2	2	2	2	2	2
2	2	3	2	3	2	3	3	2	2	2
3	3	4	4	4	4	4	4	4	4	4
Yes	No	Yes	No	No	No	No	Yes	No	No	No
No	No	No	No	Yes	No	Yes	No	No	Yes	No
No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

ESPNplayer	Google Play Music	Utomik	Shomi	Soundcloud	Groove Music	Tidal	Playster	Rhapsody	Slacker	Napster
64	65	66	67	68	69	70	71	72	73	74
M	M	M	M	M	M	M	M	M	M	M
2015	2011	2014	2014	2007	2012	2014	2014	2010	2006	2003
10+	10+	10+	10+	10+	10+	10+	10+	10+	10+	10+
USA	USA	USA	Canada	Germany	USA	USA	Canada	USA	USA	USA
21,99	9,99	5,21	7,81	4	8,68	17,37	29,95	8,68	3,47	9,95
No	No	No	No	No	No	No	No	No	No	No
No	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No
Yes	No	No	No	No	No	No	No	No	No	No
3	2	1	1	1	1	1	1	1	1	3
No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No
No	No	Yes	No	Yes	No	No	No	No	No	No
1	4	3	3	3	3	4	4	3	1	1
1	2	2	2	2	2	2	2	2	2	2
1	3	2	3	3	2	3	3	2	3	2
4	4	4	4	4	4	4	4	4	4	4
No	No	No	Yes	No	No	Yes	No	Yes	Yes	Yes
No	No	Yes	No	Yes	No	No	No	No	No	No
No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

Qobuz	Hulu	Mubi	Spuul	Docclub	Viki	Crunchy Roll	Fandor	Starz	Origin
75	76	77	78	79	80	81	82	83	84
M	M	M	M	M	M	M	M	M	M
2007	2006	2010	2012	2012	2007	2006	2011	2016	2011
10+	10+	10+	10+	10+	10+	10+	10+	1	10+
France	USA	UK	Singapore	USA	Singapore	USA	USA	USA	USA
9,95	6,94	4,99	4,34	4,34	4,34	4,99	8,69	7,82	3,99
No	No	No	No	No	No	No	No	No	No
Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Yes	No	No	No	Yes	Yes	No	Yes	No	No
1	1	1	1	2	1	1	1	3	1
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
No	No	Yes	No	No	Yes	Yes	Yes	No	No
1	1	1	3	1	4	3	3	1	3
2	2	2	2	2	2	2	2	2	2
2	2	4	3	3	4	3	3	2	3
4	4	4	4	4	4	4	4	4	4
No	No	Yes	No	Yes	No	No	Yes	No	No
No	No	Yes	No	No	Yes	Yes	Yes	No	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## 8.4 STATA results

### STATA results for

polychoric Bundling Expertcuration Transactionconvenience Decisionconvenience Timeconvenience Personalizationleve  
> 1 Exclusivity Brandexclusive Lockin Pricepermonth Distribution Age

Polychoric correlation matrix

	Bundling	Expertcuration	Transactionconvenience
Bundling	1		
Expertcuration	.4406107	1	
Transactionconvenience	-.09298086	-.52678584	1
Decisionconvenience	.32302742	.58968535	.42149022
Timeconvenience	-.25644154	.50747357	-.06634402
Personalizationlevel	.5854969	-.21116531	-.13210285
Exclusivity	-.3573125	-.45072091	.52507247
Brandexclusive	.02061827	-.36873198	.33562612
Lockin	-.11543399	.42990273	-.5439204
Pricepermonth	.35937891	.84813843	.53548993
Distribution	.18905831	-.51078855	.3179823
Age	-.0173043	-.02281603	.26558813

	Decisionconvenience	Timeconvenience	Personalizationlevel
Decisionconvenience	1		

Timeconvenience	.62231833		1
Personalizationlevel	.19577079	-.2288368	1
Exclusivity	-.02648984	-.00581739	.20011008
Brandexclusive	-.11353618	-.17673978	-.06692133
Lockin	.05968717	.10200832	-.20715702
Pricepermonth	.57625229	.6423298	-.08970085
Distribution	-.34589726	-.80525882	.20833248
Age	.03424679	-.0881234	.13372738

	Exclusivity	Brandexclusive	Lockin
Exclusivity	1		
Brandexclusive	.21840444	1	
Lockin	-.19440668	-.57411419	1
Pricepermonth	.03690754	-.17895957	-.00756845
Distribution	.02308385	.32366244	-.11367914
Age	.15310756	-.05904605	-.15319348

	Pricepermonth	Distribution	Age
Pricepermonth	1		
Distribution	-.44669127	1	
Age	.00035707	.14228228	1

```
. display r(sum_w)
```

84

```
. global N = r(sum_w)
```

```
. matrix r = r(R)
```

```
. factormat r, n(84) forcepsd factors(4)
```

```
2 negative eigenvalues (-.03202173,-.43656109) found and replaced by 0
```

```
(obs=84)
```

```
(collinear variables specified)
```

```
Factor analysis/correlation          Number of obs   =          84
Method: principal factors           Retained factors =           4
Rotation: (unrotated)              Number of params =          42
```

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	3.50913	1.18234	0.2924	0.2924
Factor2	2.32679	0.37094	0.1939	0.4863
Factor3	1.95586	0.76912	0.1630	0.6493
Factor4	1.18673	0.18596	0.0989	0.7482
Factor5	1.00077	0.19039	0.0834	0.8316
Factor6	0.81038	0.30143	0.0675	0.8991
Factor7	0.50895	0.02042	0.0424	0.9416

Factor8		0.48854	0.33769	0.0407	0.9823
Factor9		0.15084	0.08885	0.0126	0.9948
Factor10		0.06200	0.06200	0.0052	1.0000
Factor11		0.00000	0.00000	0.0000	1.0000
Factor12		0.00000	.	0.0000	1.0000

-----  
LR test: independent vs. saturated:  $\chi^2(66) = 5825.15$  Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable		Factor1	Factor2	Factor3	Factor4		Uniqueness
Bundling		0.1768	0.1100	0.9482	-0.1649		0.0303
Expertcura~n		0.8884	-0.0891	0.2512	-0.1035		0.1289
Transactio~e		-0.2556	0.8436	-0.1276	0.0173		0.2064
Decisionco~e		0.6227	0.5417	0.2147	0.0653		0.2684
Timeconven~e		0.7786	0.2805	-0.3972	-0.0265		0.1565
Personaliz~l		-0.1774	0.1494	0.6906	0.3837		0.3221
Exclusivity		-0.3293	0.5227	-0.3533	0.4219		0.3156
Brandexclu~e		-0.4970	0.3947	-0.0409	-0.5955		0.2409
Lockin		0.4269	-0.6172	-0.0808	0.3263		0.3238
Pricepermo~h		0.6979	0.5584	0.0983	-0.0726		0.1861
Distribution		-0.7441	-0.0359	0.3797	-0.0135		0.3007

Age | -0.1386 0.2784 0.0984 0.5931 | 0.5419

---

. factormat r, n(84) forcepsd factors(3)

2 negative eigenvalues (-.03202173,-.43656109) found and replaced by 0

(obs=84)

(collinear variables specified)

Factor analysis/correlation	Number of obs	=	84
Method: principal factors	Retained factors	=	3
Rotation: (unrotated)	Number of params	=	33

---

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	3.50913	1.18234	0.2924	0.2924
Factor2	2.32679	0.37094	0.1939	0.4863
Factor3	1.95586	0.76912	0.1630	0.6493
Factor4	1.18673	0.18596	0.0989	0.7482
Factor5	1.00077	0.19039	0.0834	0.8316
Factor6	0.81038	0.30143	0.0675	0.8991
Factor7	0.50895	0.02042	0.0424	0.9416
Factor8	0.48854	0.33769	0.0407	0.9823
Factor9	0.15084	0.08885	0.0126	0.9948

Factor10		0.06200	0.06200	0.0052	1.0000
Factor11		0.00000	0.00000	0.0000	1.0000
Factor12		0.00000	.	0.0000	1.0000

-----  
LR test: independent vs. saturated: chi2(66) = 5825.15 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

Variable		Factor1	Factor2	Factor3		Uniqueness
Bundling		0.1768	0.1100	0.9482		0.0575
Expertcura~n		0.8884	-0.0891	0.2512		0.1396
Transactio~e		-0.2556	0.8436	-0.1276		0.2067
Decisionco~e		0.6227	0.5417	0.2147		0.2727
Timeconven~e		0.7786	0.2805	-0.3972		0.1572
Personaliz~l		-0.1774	0.1494	0.6906		0.4693
Exclusivity		-0.3293	0.5227	-0.3533		0.4935
Brandexclu~e		-0.4970	0.3947	-0.0409		0.5955
Lockin		0.4269	-0.6172	-0.0808		0.4303
Pricepermo~h		0.6979	0.5584	0.0983		0.1914
Distribution		-0.7441	-0.0359	0.3797		0.3009
Age		-0.1386	0.2784	0.0984		0.8936

```
. rotate, varimax horst
```

```
Factor analysis/correlation      Number of obs   =      84
Method: principal factors        Retained factors =      3
Rotation: orthogonal varimax (Kaiser on)  Number of params =     33
```

Factor	Variance	Difference	Proportion	Cumulative
Factor1	3.22275	0.61792	0.2686	0.2686
Factor2	2.60483	0.64065	0.2171	0.4856
Factor3	1.96419	.	0.1637	0.6493

```
LR test: independent vs. saturated:  chi2(66) = 5825.15 Prob>chi2 = 0.0000
```

```
Rotated factor loadings (pattern matrix) and unique variances
```

Variable	Factor1	Factor2	Factor3	Uniqueness
Bundling	0.1914	-0.1095	0.9454	0.0575
Expertcura~n	0.7252	-0.5434	0.1980	0.1396
Transactio~e	0.1946	0.8690	-0.0164	0.2067





Brandexclu~e		-0.1933	0.5739	0.0253		0.5955
Lockin		0.0147	-0.7296	-0.1689		0.4303
Pricepermo~h		0.8973	0.2030	0.1335		0.1914
Distribution		-0.6648	0.2225	0.4032		0.3009
Age		0.0357	0.2973	0.1355		0.8936

-----

Factor rotation matrix

		Factor1	Factor2	Factor3
Factor1		0.9096	-0.5579	-0.0378
Factor2		0.4153	0.8214	0.1425
Factor3		-0.0108	-0.1185	0.9891

. loadingplot

. screeplot