

VALUE CREATION MODEL OF THE ONLINE  
MEAL-KIT DELIVERY SERVICE

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Abstract: The online meal-kit delivery service (OMDS) is one of the growing retail business models in the retail industry. Consumers attribute value to OMDS purchases based on a combined assessment of their personal resources and the firm's resources. Hence, resources play a significant role in the value creation process of OMDS. The purpose of this study is to understand the value involvement in the products and services of OMDS created by both consumers and firms and understanding the role of perceived value on adoption intentions for the service offerings. The specific research objectives were (a) to identify the potential firm resources and consumer resources to determine the value of OMDS as perceived by consumers and (b) to examine the impact of consumers' value creation on the adoption intention of OMDS. The conceptual model used in this study was adopted from Barrutia and Gilsanz (2013) that examines value creation in a business to consumer e-commerce context. Integration of consumer resources and firm resources is the basic underlying concept of the value co-creation model developed by Barrutia and Gilsanz (2013). This research employed a quantitative survey research approach. The targeted sample for this study was U.S. consumers aged 18 or older. The questionnaire was distributed among participants using the Amazon Mechanical Turk ([www.mturk.com](http://www.mturk.com)) website. Scales to measure each of the constructs in the model were adopted from the previous literature to address OMDS. A combination of descriptive statistics and inferential statistics was used to analyze the data in the study. Multiple regression analysis was used to test the research hypotheses. The results suggested that variety and convenience did not significantly influence OMDS value creation while consumer and firm resources demonstrated significant relationships to OMDS value creation.

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## CHAPTER I

### INTRODUCTION

To introduce the research topic, the first chapter begins by providing background about online meal-kit delivery service including recent trends in the market and research gaps in literature. The following section discusses the purpose and significance of the current study.

#### **Background**

Digital commerce has enabled consumers to experience a new kind of grocery shopping in which retailers offer a meal plan and deliver the ingredients to consumers who then prepare the meals in their home. The online meal-kit delivery service (OMDS), which bridges the gap between home-cooked meals and dining out, has received much attention as one of the growing retail businesses in the past few years (Packaged Facts, 2016). OMDS provides a service that caters to consumers' meal needs by delivering ingredients for a variety of dishes with easy to follow and detailed cooking instructions. Currently, there are more than 150 OMDS providers in the United States including Amazon and other specialized OMDS providers such as Blue Apron, Hello Fresh, Home Chef, and Plated (Packaged Facts, 2016). According to recent industry data, 1 in 100 U.S. consumers have used OMDS (Fibre Box Association, 2016) and approximately 5% of the U.S. households have adopted OMDS (NPD Group, 2017). Another recent survey conducted by Nielsen Company indicates that 1 in 4 U.S. adults have purchased a meal-kit in 2016, and 70% of respondents continue to buy OMDS after making their first purchase (Nielsen, 2017).

The industry reports suggest that consumers perceive great value from purchasing OMDS; they perceive that meals provided by OMDS are healthier than other prepared meals sold

at grocery stores (Nielsen, 2017; Sifferlin, 2017) and believe that OMDS can save time on meal planning, preparation and cooking, while allowing customers to try new recipes (Nielsen, 2017). It is evident that OMDS retailers create value for consumers through their product and service offerings. OMDS consumers' perceive value mainly based on the resources that the firms offer and the consumers' own resources. Therefore, resources play a significant role in the value creation process of OMDS. Resource-advantage theory (R-A theory) defines resources as "the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering for some market segment(s)" (Hunt 2000, p.138). Based on this view, Hunt (2000) identified two types of resources; operand resources and operant resources. Operand resources are basically physical and tangible in nature which include goods or raw materials (Hunt, 2011). Operant resources are intangible in nature and may include human (e.g., skills and knowledge), organizational (e.g., competences), informational (e.g., knowledge about technology) and relational (e.g., relationship with customers, suppliers etc.) (Hunt, 2011). Further, Constantin and Lusch (1994) viewed operant resources as competences and capabilities. Therefore, OMDS resources can be defined as tangible and intangible entities available to the firm and delivers to the consumer, and in turn consumers engage themselves in the value creation process based on their resources (e.g., knowledge, skills, experience, and capabilities). More specifically, firm resources are defined as the tangible and intangible entities available to the firm, which enable the firm to produce market offerings efficiently and effectively (Madhavaram & Hunt, 2008). Therefore, OMDS consider its products and service offerings as tangible and intangible entities available to the firm.

However, in addition to the resources that the firm provides to consumers, the perceived value of OMDS may also be largely affected by consumers' own resources. Based on the Resource-advantage theory (R-A theory), skills, knowledge, experience, competences, relationships, and capabilities are considered as operant resources. OMDS considered consumers' intangible resources or operant resources as consumer resources. That is, the more resources

consumers perceive, the greater value of OMDS. The integration of firm resources and consumer resources is especially important for understanding the value of OMDS because OMDS consumers' perceive value mainly based on the resources that the firms offer and the consumers' own resources. Therefore, to fully understand the value of OMDS, this study identifies consumer resources and firm resources relevant to the context of OMDS and examines their effects on the value of OMDS, which in turn influences consumers' adoption intention of OMDS.

### **Purpose of the Study**

The purpose of this study is to understand the value of OMDS created by both consumers and firms and its impact on adoption intention of OMDS. The specific objectives of the study are (a) to identify the potential firm resources and consumer resources to determine the value of OMDS as perceived by consumers and (b) to examine the impact of consumers' value creation on the adoption intention of OMDS.

### **Significance of the Study**

Despite the recent significant growth of OMDS, academic research in this area is extremely limited. In addition, consumers' value perceptions of OMDS without considering their own resources may provide only a partial picture of the value created by OMDS. Therefore, this study attempts to fill the gaps in the literature by incorporating both firm resources and consumer resources into the understanding of the OMDS value.

The results of this study will provide OMDS retailers with strategies to develop effective, quality services for the target customers and to attract potential customers to adopt OMDS. By understanding the consumers' perspectives on the value of OMDS and behavioral intentions, retailers can improve their services, support consumers' decision making process and enhance the shopping experience.

## CHAPTER II

### REVIEW OF LITERATURE

This chapter aims to provide the review of relevant literature for the current study. The first section explores the online meal-kit delivery service. Next, the value creation model as a theoretical framework is discussed. Lastly, based on the existing research and theoretical framework, research hypotheses are proposed.

#### **Online Meal-kit Delivery Service (OMDS)**

The online meal-kit delivery service first started in 2012 in the U.S. with the launch of Blue Apron (Packaged Facts, 2016). OMDS is considered as a great fit for consumers who do not have time to shop for groceries or go to restaurants (Packaged Facts, 2016). OMDS delivers ingredients with detailed recipes to the doorstep with adjustable delivery times (Business Insider, 2015). Consumers can pick several meals from a list of offerings on a company's website and receive a packed box with premeasured ingredients and cooking instructions. OMDS meets consumers' shopping needs through convenience and customized product offerings (Nielsen, 2017). OMDS is a unique retail service model, because not like online grocery stores that provide the base ingredients for consumers, OMDS provides both ingredients (meal kit) and meal preparation service for consumers. It is a combination of products and service. Therefore, consumers' value perception leads until consumers receive the meal kit and prepare the meal. Thus, compared to other retail businesses (e.g., online grocery retailing) for which consumers perceive value mainly based on the resources that firms offer, consumer participation in OMDS is more intense and crucial.

Researchers argued that firms and consumers co-create value by integrating their resources (Grönroos & Voima, 2013; Vargo et al., 2008). Vargo et al. (2008), explained in their study how an automobile manufacturing firm creates value for customers through the manufacturing and delivery of an automobile. That is, the automobile manufacturing firm embeds value in the automobile by transferring raw materials into something that customers want. In this view, value is created by the firm in the form of a goods (i.e., automobile) and transfer to the consumer in terms of money. Also, Vargo et al. (2008) highlighted that the automobile would have no value and it is only an input into the value creation unless customer use it and integrates it with other resources. In this view, researchers claimed that firms use their resources to transform raw materials into a product while customers also apply their resources (e.g., knowledge, skills, and capabilities) into the value creation. However, many studies only focus on perceived value based on the resources that companies are able to contribute. To address this limitation, the current study identifies appropriate firm and consumer resources that fit into the OMDS context and suggests that the value of OMDS is co-created through resource integration of consumers and firms.

Given the nature of resources as presented above, OMDS firms create value for consumers through their products and services. First, for firm resources, the quality of food may be one of the main components that consumers evaluate when using OMDS. Consumers generally believe that OMDS offers fresh ingredients (Lee, 2016a) and healthy ingredients (Sweetphi, 2017). Consumers may also value a wide variety of menu options, which is otherwise impossible. The menu options provided by OMDS include specific dietary meals like vegetarian, gluten free, and dairy free (Food For Net, 2017). Another important value consumers may perceive is the service component of OMDS offering. What consumers receive from OMDS is not merely ingredients but the whole service package that involves planning a meal, preparing the ingredients, and providing a recipe. Further, OMDS delivers ingredients along with other services such as free detailed recipe cards with a helpful photo guide. Lastly, literature consistently

indicates that convenience is a key value provided by OMDS (Noah, 2017). Having pre-measured ingredients delivered right to the doorstep enables consumers to utilize their time and effort more efficiently (Noah, 2017).

Secondly, for consumer resources, OMDS consumers use their resources, specifically capabilities, to adopt OMDS. Consumers' own capabilities (e.g., to browse the OMDS website, to order what they want, and use the OMDS ingredients to cook) which may positively influence their value perception of OMDS. Consumers' perceived capabilities in online shopping may also positively affect the perception of OMDS since consumers with these resources may be more likely to relate personally to OMDS and accomplish their buying tasks more easily (Barrutia & Gilsanz, 2013). In addition, consumers' social context and innovativeness may also affect how they perceive the values provided by OMDS. Specific firm resources and consumer resources will be discussed more in detail in the hypotheses development section.

### **Theoretical Background**

The conceptual model used in this study was adopted from Barrutia and Gilsanz (2013) that explains value perception in a business to consumer e-commerce context. Integration of consumer resources and firm resources is the basic underlying concept of the value co-creation model developed by Barrutia and Gilsanz (2013). According to their theoretical framework, the concept of value co-creation is derived from the service dominant logic (SDL) and related disciplines (i.e., service logic and service science). SDL provides a mind-set to understand value creation as a mutual service process in which firms and consumers contribute and integrate their resources which is known as "value co-creation." The following sections provide the review of relevant literature about value creation, SDL, and the value co-creation process.

### **Value Creation**

The main goal of any business entity is to satisfy customers by creating and maximizing value through satisfactory delivery of products and services (Kim, 2016). Value of the product or service of a company depends on consumer perception (Sam & Dhanya, 2012). If the product or

service is perceived by consumers as having value, then that perception will result in a purchase of that particular product or service (Sam & Dhanya, 2012). Value has been conceptualized as “the consumer’s overall assessment of the utility of a product based on what is received and what is given” (Zeithaml, 1988, p. 14). Thus, value can be described as “the customer’s overall appraisal of the net worth of the product or service, based on the customer’s assessment of what is received (benefits provided by the service), and what is given (costs or sacrifice in acquiring and utilizing the service)” (Hellier et al., 2003, p. 1765).

Value creation is multidimensional in nature and has been studied in various disciplines such as marketing (Prahalad & Ramaswamy, 2004; Ballantyne & Varey, 2008), service science (Vargo & Akaka, 2009), service logic (Vargo & Lusch, 2004), and innovation and product development (Prahalad & Ramaswamy, 2003). These studies indicate that value creation is not explicitly defined in previous literature and value is used in different ways. Value-in-use and value-in-exchange are the different ways of thinking about value (Grönroos & Voima, 2012; Vargo et al., 2008). Smith (1776) brought the discussion of value and value creation in to the development of economics and the study of market exchange. He emphasized the word “value” has two different meanings. It is expressed as the utility of a particular object (value-in-use) and sometimes the power of purchasing other goods which the possession of that object conveys (value-in-exchange). With this basic approach, researchers have discussed the terms “value-in-use” and “value-in-exchange” more broadly.

The traditional view of value creation argued that value is created (manufactured) by the firm and distributed in the market, usually through exchange of goods and money. From this perspective, the roles of ‘firm’ and “consumer” are distinct, and value creation is often considered as a series of activities performed by the firm. This process is known as value-in-exchange (Vargo et al., 2008).

Later, this view was changed into value-in-use and the role of firms and consumers is not distinct, meaning that value is always co-created jointly and reciprocally, in interactions among

firms and consumers through the integration of resources and application of competencies (Vargo et al., 2008). The integration of resources by the firm and consumer is the key of the value-in-use approach. The traditional view and contemporary view of value creation more broadly will be explained in following section.

### **Service-Dominant Logic**

The traditional views of value creation assume that the firm or the retailer controls value creation by making life easier for the consumer, solving consumer problems, letting the consumer achieve more than the sum of the individual resources, and satisfying consumer needs (Grönroos & Voima, 2013). Simply put, it was believed that value was created by the firm and flowed toward the consumer. This traditional view of value creation known as “Goods Dominant Logic” (GDL), considered only the firm resources (Anker et al., 2015). According to GDL, consumer value is delivered by and through products and the product delivers value to the consumer through usage of the product (Anker et al., 2015). Value is thereby created and defined by firms and delivered to consumers. But the contemporary view of value creation recognized that creation of value is actually a joint process that occurs between consumer and firm (Agrawal & Rahman, 2015).

Service Dominant Logic (SDL) is one of the fundamental approaches in the service marketing discipline to address this argument and conceptualize value creation as a mutual service process in which the firm and consumers contribute and integrate their resources (Vargo & Lusch 2004; 2008). Further, SDL stresses that isolated resources are unable to create value unless they are used in a specific context and integrated with other resources (Lusch et al., 2008). This view claims that value is not created solely by the consumer but by both the firm and the consumer together (Grönroos, 2011). According to the SDL approach, this function of interaction between the consumer and the firm is known as “co-creation.” SDL describes a situation where service is the basis of economic and social exchange that creates value through the consumers' and the firms' involvement in the interaction process (Vargo & Lusch 2004; 2008). The core

concept of SDL is that the consumer is always a value co-creator and the firm is a value facilitator and value co-creator (Grönroos, 2008; Grönroos & Voima, 2013). The firm supplies the necessary resources for consumers' own value-creating processes while interacting with them, thus, interaction within the consumption process is critical. In SDL, consumers determine value which is described as value-in-use because it is perceived only when the service is consumed. Therefore, value is created when a consumer consumes goods or services and perceives there is value embedded in them (Vargo & Lusch, 2004). During value-in-use, the consumer is not merely a receiver, but rather a collaborative partner who "creates value for the firm" (Lusch et al., 2007, p. 6); the firm provides a platform for improving consumer experience (Rowley, 2007) and drives the innovation process toward new service development (Edvardsson et al., 2012; Matthing et al., 2004). Therefore, theoretical views of SDL highlight the notion that consumers must experience ultimate service (Vargo & Lusch, 2008a), and represent a drive for value co-creation.

There are few studies that provide insights about the value creation process and offer specific theories explaining the integration of consumer resources and firm resources. Therefore, this study aims to develop a conceptual model of value creation that identifies key elements needed to understand and specifically to analyze both the consumer's and the firm's value creation in the OMDS context. Barrutia and Gilsanz (2013) proposed model of value co-creation and their research approach was taken into account as the foundation for this study. To avoid unnecessary complexity and lack of clarity in the analysis, this study only focused on consumers' and firms' direct effects on total value creation in OMDS.

### **Value Co-Creation Model**

Barrutia and Gilsanz (2013) developed the value co-creation model based on the notion that SDL gives the consumer a prominent role in the creation of value, particularly in the e-commerce context, by suggesting that firms and consumers co-create value through the integration of resources. They argued that previous research was only focused on consumer value perceptions that adopted traditional Goods Dominant Logic (GDL) by considering only the firm

resources. In GDL approach, goods are the fundamental unit of exchange focused on a co-product concept, and emphasizes a firm-centric view in the traditional goods-centered paradigm (Kim, 2016). Therefore, Barrutia and Gilsanz (2013) claimed that it is important to consider consumer resources in empirical research intended to explain consumer value perceptions in value co-creation settings. Due to the absence of physical contact in e-commerce settings, SDL sees consumer participation is more intense and relevant (Barrutia & Gilsanz, 2013).

In their model, consumer expertise is considered as the major consumer resource and the direct predictor of value. The effects of other consumer resources such as social expertise and innovativeness on value is mediated by consumer expertise. Similarly, Electronic Service Quality (ESQ) is considered as the main firm resource and the direct predictor of value. The ESQ effects on value is determined by the process quality and outcome quality of the e-commerce provider. Finally, consumer expertise and ESQ interact to create value and this interaction effect leads to satisfaction and behavioral intention of e-commerce. The authors claimed that sub variables of consumer expertise such as cognitive effort, analysis, elaboration, and memory along with social expertise (social resource) and innovativeness (personality trait) influence value perception while process quality variables such as efficiency, system availability, design and information and outcome quality along with ESQ influence value perception from the firm's side.

Results indicate that consumer expertise and ESQ have a positive significant influence on value and both social expertise and innovativeness seem to be significant predictors of consumer expertise. Moreover, process quality and outcome quality have a direct effect on ESQ. The main consideration of Barrutia and Gilsanz's (2013) study was to test for interaction effects between consumer expertise and ESQ. The authors used the latent moderated structural equations (LMS) approach to estimate the interaction effect. Results indicate that the interaction was significant and the main effects of both ESQ and consumer expertise on value were also significant. Barrutia and Gilsanz (2013) found a significant, negative, small interaction effect between consumer expertise and ESQ claiming that some resources might not be used to their full potential during

the interaction process due to overlapping resources. Authors suggest that consumer expertise and ESQ might behave as substitutes to some extent.

### **Research Hypotheses Development**

This section is devoted to justifying the specific hypotheses underlying the proposed research model. The research model suggests that consumer resources (i.e., social expertise and innovativeness) and firm resources (i.e., product quality, variety, service quality and convenience) are integrated together to co-create value of OMDS, which positively effects on OMDS adoption intention.

#### **Consumer Resources**

As described in the SDL approach, consumers are viewed as an operant resource or a collaborative partner who co-creates value with the firm (Vargo et al., 2008). Madhavaram and Hunt (2008) viewed operant resources are typically the skills and knowledge of individuals, competences, and relationships. Based on this view, Barrutia and Gilsanz (2013) identified knowledge resources (i.e., consumer expertise), social resources (i.e., social expertise) and personality resources (i.e., innovativeness) as consumer resources applicable to their study of electronic service quality and consumer value perception in an e-commerce context. Built on the previous literature, the current study identifies two consumer resources (e.g., social expertise, and innovativeness) as the most relevant consumer resources to OMDS.

In addition, Barrutia and Gilsanz (2013) study claims that these consumer resources have a direct effect toward the consumer perceived capability. As described by Chandler & Hanks (1994), a capability is the capacity for a coordinated set of resources to perform some task or activity. Based on the operant resource view, capability is defined as an integrative process of applying collective knowledge and skills to perform functional activities (Ngo & O'Cass, 2009). This study investigated the effects of perceived capability of consumers on perceived value of OMDS. Therefore, it is proposed that the more resources consumers have, the more capabilities

they will demonstrate. The following sections discuss the positive effects of two consumer resources on consumer perceived capability.

**Social expertise.** Social expertise is defined as the degree to which individuals learn from their peers, neighbors, friends, and from other members of virtual communities (Blazevic & Lievens, 2008). According to electronic commerce context, social expertise is considered as the degree to which consumers receive intelligent social support for electronic commerce purposes (Barrutia & Gilsanz, 2013). Individuals may use their social relations to access information in relation to perform e-shopping tasks. Likewise, OMDS consumers will obtain information from people around them such as colleagues and friends to perform OMDS related shopping tasks along with consumers' own capabilities. Therefore,

**H1:** Social expertise will have a positive effect on consumers' perceived capability in OMDS.

**Innovativeness.** Although many researchers have used various ways to define innovativeness, the most appropriate definition for the OMDS context can be viewed as the degree to which an individual adopts an innovation before other members of his or her social system (Rogers & Shoemaker, 1971). Innovativeness refers to a tendency to be a technology pioneer or leader (Parasuraman, 2000). As described by Eastlick and Lotz (1999), innovators are heavy users of electronic- shopping media (i.e., internet) and the strongest predictors of potential online shopping innovations over traditional shopping channels. Therefore,

**H2:** Innovativeness will have a positive effect on consumers' perceived capability in OMDS.

### **Firm Resources**

Resources are defined as the tangible and intangible entities available to the firm, which enable the firm to produce market offerings efficiently and effectively (Madhavaram & Hunt, 2008). Researchers claimed this view is based on the Resource-Advantage Theory. Based on this view, current study focuses on product quality, variety, service quality, and convenience as firm

resources in OMDS. Current study suggests that if consumers perceive that meal-kits and the service provided by OMDS fit their needs and expectations, they will more likely perceive the quality of OMDS. Therefore, it is proposed that firm resources provided by OMDS enhance the perceived quality of consumers toward the OMDS.

**Product Quality.** Product Quality is defined as the collection of features and characteristics of a product that contributes to its ability to meet given requirements (Sam & Dhanya, 2012). More broadly, perceived product quality can be defined as the customer's perception of the overall quality or superiority of a product with respect to its intended purpose relative to alternatives (Aaker, 1992). Consumers may be more concerned about the product freshness rather than ingredients offered by OMDS, and whether they are visually attractive or appealing to them. Some consumers, especially millennials, are willing to spend more time preparing food because they value freshness, but they still want to get out of the kitchen fairly quickly. Also, consumers are always looking for some other product features such as healthy options and the taste of ingredients offered by OMDS. There are options that are healthy and cater to specialty diets of consumers. Some OMDS offer plans for organic, vegetarian, and vegan meals (Shaw, 2016). As an example, Green Chef offers a wide range of diet-specific kits including vegetarian, carnivore, paleo, and gluten free options (Lee, 2016b). For all these plans, ingredients are organic and organic standards prohibit the use of GMOs. The meat and poultry are from animals raised without antibiotic or synthetic hormones (Lee, 2016b). Consumers who purchased meal-kits also claimed that OMDS provides recipes for them with greater taste (Lee, 2016a). Green Chef's dishes earned some of the best taste scores in the study conducted by Lee (2016b). Consumers were impressed with the good combination of flavors, textures, and uniqueness of the meals. Several other consumers felt that some of HelloFresh recipes were less appealing to them and had simple taste. It is evident that OMDS consumers are more concerned about quality aspects (i.e., product freshness, health and taste) of the products delivered by the service provider. Therefore,

**H4:** Product quality will have a positive effect on perceived quality of OMDS.

**Variety.** Variety of meal offerings allows service providers such as Blue Apron, HelloFresh, and other large players, to reach the maximum number of consumers in order to increase the sales. This is the main strategy used by OMDS providers, which cater to various tastes by offering meat, seafood, vegetarian, and other meal options (Zaytsev, 2017). Moreover, OMDS involves expanding beyond dinner to breakfast, lunch, and snacks. As examples, both HelloFresh and Green Chef partnered with Quaker Oats, having recently branched into meal-kits for breakfast (Zaytsev, 2017). Offering products for multiple daily meals enables meal-kit delivery companies to drive greater revenue from an existing user base. Blue Apron introduced a wine delivery service and sells a selection of cooking tools, utensils, and pantry items through Blue Apron market. Plated sells specialty cuts of meat and seafood, while Home Chef also offers options to purchase snacks, fruit baskets, and kitchenware. By delivering a variety of product options for consumers, OMDS has a positive effect on perceived quality of OMDS. Therefore,

**H5:** Product variety will have a positive effect on perceived quality of OMDS.

**Service Quality.** Service quality is the gap between what the customers want and what they actually get or perceive they are getting (Berry et al., 1988). Consequently, many companies would attempt to offer a high service quality in order to retain their customers. There is empirical evidence that high service quality motivates positive customer behavioral intentions to repurchase, and in turn, promotes customer retention (Zeithaml et al., 1996). OMDS provides detailed recipe cards for consumers along with meal preparation ingredients. These recipe cards include the quantities of each ingredient and steps needed in order to come up with the final dish. By looking at the given instructions in the recipe card, consumers may be able to recreate that meal using delivered ingredients. As a part of service offerings, OMDS firms address customer concerns and deliver products on a timely basis. Therefore,

**H6:** Service quality will have a positive effect on perceived quality of OMDS.

**Convenience.** Zaytsev (2017) claimed that value proposition in the meal-kit industry has been focused on convenience, and convenience is a key selling point for companies in the OMDS. Many OMDS companies used an extra step to differentiate themselves among other OMDS competitors in the industry. As an example, FreshRealm is providing preparation work by chopping, grating, and peeling the ingredients to make the home cooking process more convenient for consumers (Zaytsev, 2017). Gobble is another service provider which offer kits that can be prepared into a meal in 10 minutes. Martha & Marley Spoon differentiates itself by offering same-day delivery through Amazon Fresh (Zaytsev, 2017). Although OMDS has easy-to-follow instructions and pre-measured ingredients, it can be labor intensive and some recipes require more than an hour to prepare and clean up (Sifferlin, 2017). Moreover, OMDS saves average cooking time in a couple of ways. First, ingredients are delivered directly to the consumer's door step in which consumers do not need to go searching for ingredients, simply less shopping. Time is also saved in the preparation stage of making a meal (Yates, 2016). Most delivery services have already measured and packaged the necessary ingredients though there might be some rinsing, chopping, or thawing that require consumer preparation time (Yates, 2016). Moorhead (2016) in her article tried to compare the process of grocery shopping and meal-kits. She compared the total time spent for cooking in each method. The total time for preparing a particular meal-kit is approximately 20 minutes while the grocery store trip took about 40 to 50 minutes excluding cooking time (Moorhead, 2016). It is evident that OMDS is more convenient for consumers in terms of relative time and energy to acquire and consume OMDS. Therefore,

**H7:** Convenience will have a positive effect on perceived quality of OMDS.

**Perceived Value of OMDS.** Perceived value is defined as “the consumer’s overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given” (Zeithaml, 1988). OMDS consumers’ value perception is influenced by the products and services offered by OMDS providers and consumers’ own resources (i.e., social expertise and innovativeness). Therefore, perceived value of OMDS is the interaction effect of

both firm resources and consumer resources, which is known as value co-creation. In the OMDS context, perceived value is determined by the perceived capability derived from consumer resources and perceived quality derived from firm resources. Simply, perceived value of OMDS is the collective effect of consumers' capability and perceived quality perception.

**H3:** There is a positive relationship between perceived capability and perceived value of OMDS.

**H8:** There is a positive relationship between perceived quality and perceived value of OMDS.

**Adoption Intention.** Perceived value is an important concept, as it is believed to have an influence on behavioral intentions (Cronin et al. 2000). According to Arts and Bijmolt, (2011), adoption intention refers to a consumer's expressed desire to purchase a new product in the near future. It relates to the consumer's state of mind before actual purchase behavior has occurred and is based on the information and perceptions the consumer has in mind (Arts & Bijmolt, 2011).

Therefore,

**H9:** There is a positive relationship between perceived value and adoption intention of OMDS.

Figure 1 depicts the research model with corresponding hypotheses.

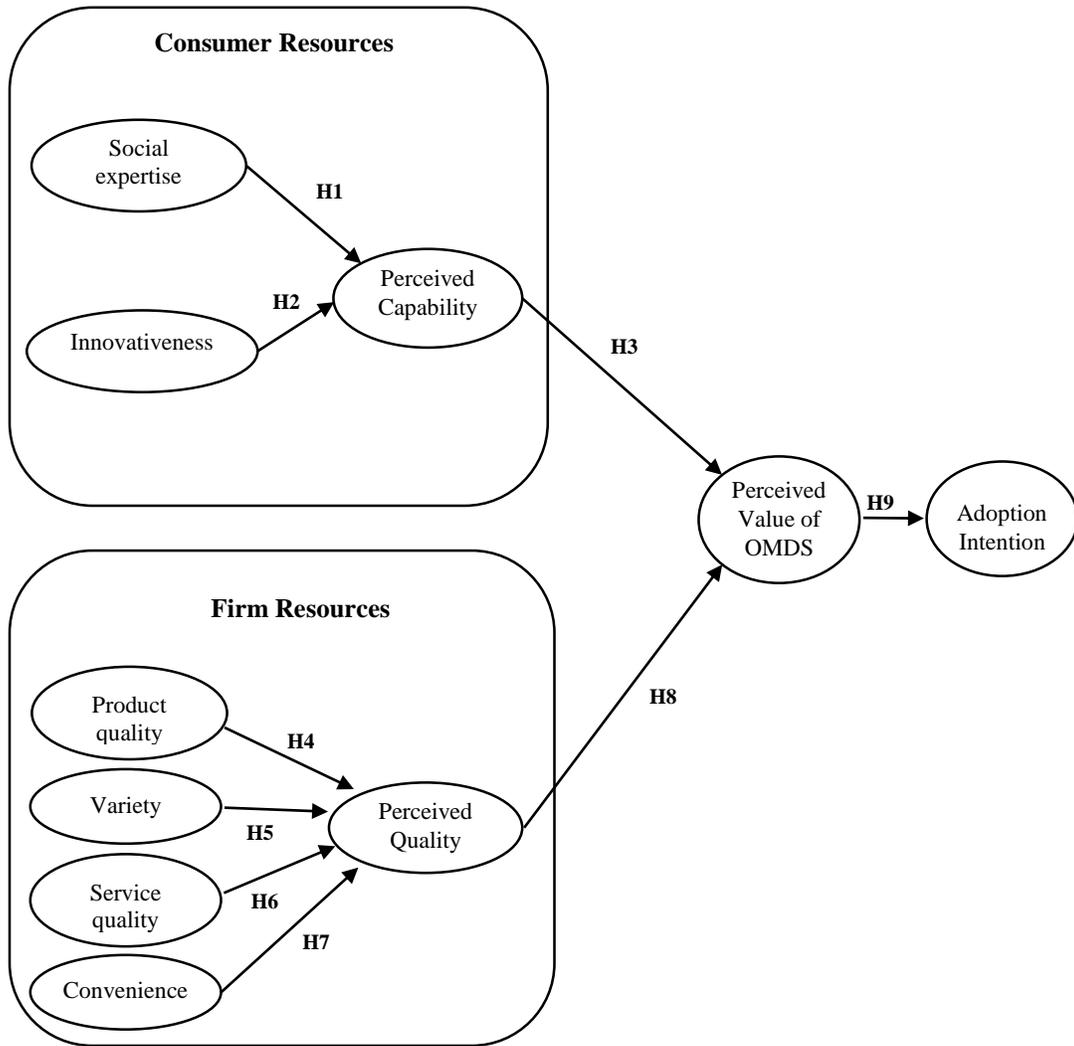


Figure 1. Research Model

## CHAPTER III

### METHODOLOGY

This chapter explains research methods used in the study. The first section summarizes the research hypothesis proposed in chapter 2 and the strategy for designing and conducting the study. The next section describes the data collection method including sampling methods, survey instrument development, reliability and validity of scale items. The subsequent sections explain the data analysis techniques used in the study.

#### Research Design

The purpose of this study is to examine the value of OMDS created by both consumers and firms, and its impact on OMDS adoption intention. Therefore, the research model hypothesized the relationships among OMDS resources (consumer resources and firm resources), OMDS value perception, and adoption intention. The proposed hypotheses in chapter 2 are summarized and presented in Table 1 including research constructs.

Table 1. Summary of Proposed Research Hypotheses and Variables

	<b>Hypotheses</b>	<b>Independent Variables</b>	<b>Dependent Variables</b>
H1	Social expertise will have a positive effect on consumer's perceived capability in OMDS.	Social expertise	Perceived capability
H2	Innovativeness will have a positive effect on consumer's perceived capability in OMDS.	Innovativeness	Perceived capability
H3	There is a positive relationship between perceived capability and perceived value of OMDS.	Perceived capability	Perceived value
H4	Product quality will have a positive effect on perceived quality of OMDS.	Product quality	Perceived quality

H5	Product variety will have a positive effect on perceived quality of OMDS.	Product variety	Perceived quality
H6	Service quality will have a positive effect on perceived quality of OMDS.	Service quality	Perceived quality
H7	Convenience will have a positive effect on perceived quality of OMDS.	Convenience	Perceived quality
H8	There is a positive relationship between perceived quality and perceived value of OMDS.	Perceived quality	Perceived value
H9	There is a positive relationship between perceived value and adoption intention of OMDS.	Perceived value	Adoption intention

This research utilized a quantitative approach, where data were collected through a questionnaire. The main reason for designing a survey questionnaire was to gather information related to consumers' value perception, adoption intentions to use OMDS, and consumers' demographic information.

### **Data Collection**

#### **Data Collection Procedure**

Before collecting the data, research information and survey instruments were submitted to the Institutional Review Board (IRB) at Oklahoma State University. Upon the IRB approval, a questionnaire was developed in the survey software Qualtrics and submitted to the Amazon MTurk website.

The target population for this study was U.S. consumers aged 18 or older. The questionnaire was distributed among participants using the Amazon Mechanical Turk website ([www.mturk.com](http://www.mturk.com)). MTurk is an online crowdsourcing web service that enables companies and individuals to gather market research data through recruiting participants. MTurk allows participants to be categorized based on location (i.e., United States) and by different age groups. In order to create a project in MTurk, project requester (i.e., the researcher) must create a task by posting the survey link to the design layout available in the MTurk website. The design layout contained the project title along with project description, amount of compensation, and the work

requirements. Once the researcher provides the project requirements and set the amount of compensation, MTurk will distribute the survey to participants.

Each participant received an anonymous invitation link to the questionnaire through MTurk website. Data were collected from 408 consumers in total from the MTurk website within three days. The average time taken by each respondents to complete each questionnaire was less than six minutes.

### **Instrument Development**

Scales to measure each of the constructs in the model were adopted from the previous literature and modified to fit into the current study context. The measurement items for each construct are discussed in this section.

***Social expertise.*** Alavi and Leidner (2001) claimed that individuals use their social relations to access information and enhance their expertise. Therefore, social expertise defined as the degree to which consumers receive intelligent social support for electronic commerce purposes. Social expertise items were adopted from the study conducted by Barrutia and Gilsanz (2013) to measure the consumer value perception in e-commerce context.

***Innovativeness.*** Innovativeness refers to a person's tendency to be a technology pioneer or leader (Parasuraman, 2000). Innovativeness affects a person's technological readiness to adopt new technologies to accomplish their goals (Parasuraman, 2000). Innovativeness items were also included from the study conducted by Barrutia and Gilsanz (2013).

***Product quality.*** Product quality can be viewed differently based on the context. As defined by Sam and Dhanya (2012), product quality is the collection of features and characteristics of a product that contribute to its ability to meet given requirements. Therefore, OMDS involves different product quality features including product freshness, health and taste, and all of these dimensions collectively determined the OMDS product quality. The product quality items in this study were adopted from the Spratt & Shimp (2004) study. Consumers' perceptions of store brand quality were measured using the scale items.

**Variety.** Product variety can be described as the number of different versions of a product offered by a firm at a single point in time (Randall & Ulrich, 2001). Based on the product characteristics, there are different drivers of product variety including form (size, shape, and structure), feature (options provided), and style (color, appearance). The measurement items for the topic of variety were selected from the study conducted by Kahn and Wansink (2004) to measure the influence of assortment structure on perceived variety and consumption quantities. The selected items were modified as appropriate to measure the OMDS context.

**Service quality.** The concept of service quality is defined as a comparison between customers' expectations and perceived performance of a service (Zeithaml et al., 1996). This study adopted service quality items from the study conducted by Jeon (2009) about the impact of perceived website service quality on customer e-loyalty on a lodging website.

**Convenience.** While the literature contains different views on convenience, Brown and McEnally (1992) argued that convenience is consumers' evaluation of relative time and energy to acquire and consume a particular offering (i.e., product or service). With this background, the authors proposed the definition of convenience "as a reduction in the amount or consumer time and/or energy required to acquire, use, and dispose of a product or service relative to the time and energy required by other offerings in the product/service class". According to OMDS context, convenience refers to time and energy saving in relation to OMDS meal preparation. The scale items used to measure convenience is taken from the Wagner, et al. (2009) study used to measure convenience benefits gained from being a customer of airline service.

**Perceived capability.** Capability is defined as an integrative process of applying collective knowledge, and skills to perform functional activities (Ngo & O'Cass, 2009). Perceived capability items are adopted from the Köhler et al. (2011) study which measures the impact of online agents on accounts performance in the banking industry.

**Perceived quality.** As viewed by Aaker (1992), perceived quality can be defined as the customer's perception of the overall quality or superiority of a product or service with respect to

its intended purpose relative to alternatives. Perceived quality items in this study were adopted from the study conducted by Hess et al. (2003) which measures the consumers' quality perception in a restaurant environment.

**Perceived value.** Perceived value is the consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given (Zeithaml, 1988). Perceived value items were taken from the study conducted by Kim & Niehm (2009) in relation to perceived value of apparel online shopping. These items were modified as appropriate for OMDS context.

**Adoption intention.** Adoption intention refers to a consumer's expressed desire to purchase a new product in the near future (Arts & Bijmolt, 2011). Adoption intention items are adopted from the study conducted by Kim et al. (2007). This study examines the consumers' adoption of Mobile Internet (M-Internet). Using the theory of consumer choice and decision making, this study develops the Value-based Adoption Model (VAM) and explains customers' M-Internet adoption from the value maximization perspective.

Table 2 presents the modified scale items in this current study's context, along with the source of original items. Wording of questions and clarity of instructions in survey questionnaire were also evaluated by content experts. Each construct was measured on a 7-point Likert scale (1= "strongly disagree", 7 = "strongly agree").

Table 2. Summary of Measurement Items

<b>Construct</b>	<b>Measurement items</b>	<b>Source</b>
Social expertise	<ul style="list-style-type: none"> <li>• People around me know much about how to acquire products or services online.</li> <li>• I usually speak with colleagues and friends about how to use the internet for purchasing products or services.</li> <li>• I get useful information on the Internet through colleagues and friends.</li> </ul>	Barrutia and Gilsanz (2013)
Innovativeness	<ul style="list-style-type: none"> <li>• Other people come to me for advice on new technologies.</li> <li>• I know more about the newest technologies than those around me.</li> <li>• I am among those people who want to know when a new technology appears.</li> </ul>	Barrutia and Gilsanz (2013)

	<ul style="list-style-type: none"> <li>• I keep up with the latest technological developments on products I am interested in.</li> <li>• I have fewer problems than other people in making technological devices work.</li> </ul>	
Product quality	<ul style="list-style-type: none"> <li>• All things considered, I would say the meal kits provided by online meal-kit delivery service have excellent overall quality.</li> <li>• The meal kits provided by online meal-kit delivery service would have good quality.</li> <li>• Overall, the meal kits provided by online meal-kit delivery service would be excellent.</li> </ul>	Sprott & Shimp (2004)
Variety	<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would give me a variety of food for me to enjoy.</li> <li>• The online meal-kit delivery service would offer more ways to enjoy food.</li> </ul>	Kahn & Wansink. (2004)
Service quality	<ul style="list-style-type: none"> <li>• Overall, the online meal-kit delivery service (e.g., recipes, meal planning) would be excellent in quality.</li> <li>• The online meal-kit delivery service would provide the exact service quality that I expect.</li> </ul>	Jeon (2009)
Convenience	<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would make my meal preparation more convenient.</li> <li>• The online meal-kit delivery service would make me save time and effort.</li> <li>• The online meal-kit delivery service would allow me to prepare meals with lesser effort.</li> <li>• The online meal-kit delivery service would make my meal preparation easier.</li> </ul>	Wagner, et al. (2009)
Perceived capability	<ul style="list-style-type: none"> <li>• I believe that ordering and using online meal-kit delivery service is a task that I can perform better.</li> <li>• I can master ordering and using online meal-kit delivery service for my meal needs.</li> <li>• I believe I can order and use online meal-kit delivery service for my meal needs as well as I would like.</li> <li>• I am certain I can order and use online meal-kit delivery service for my meal needs well.</li> </ul>	Köhler et al. (2011)
Perceived quality	<ul style="list-style-type: none"> <li>• The quality of the ingredients and service provided by the online meal-kit delivery service would be excellent.</li> <li>• The ingredients and quality provided by the online meal-kit delivery service would be outstanding.</li> </ul>	Hess et al. (2003)
Perceived value of OMDS	<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would offer good value for the money.</li> <li>• I would consider online meal-kit delivery service to be a good buy.</li> <li>• I would think that the prices that I pay for the online meal-kit delivery service are worthwhile.</li> </ul>	Kim & Niehm (2009)
Adoption intention	<ul style="list-style-type: none"> <li>• I plan to use the online meal-kit delivery service in the future.</li> </ul>	Kim et al. (2007)

	<ul style="list-style-type: none"> <li>• I intend to use the online meal-kit delivery service in the future.</li> <li>• I predict I would use the online meal-kit delivery service in the future.</li> </ul>	
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In the final survey, the first four sections of the questionnaire measured respondents' opinions about OMDS. The total of 31 statements was included in the first four sections of the survey questionnaire, and each measured respondents' social expertise, innovativeness, perceived capability, perceived value, product quality, product variety, service quality, convenience, perceived quality and adoption intention.

The next two questions were mainly about respondents' OMDS usage and their familiarity with OMDS retailers. Then, respondents were asked some general questions about their household grocery shopping frequency and average meal preparation time. The last section of the questionnaire measured the demographic information of each respondent including income, age, level of education, gender, and ethnic background.

### **Data Analysis**

A combination of descriptive statistics and inferential statistics were performed to analyze the data in the study. The statistical analysis software SPSS 23.0 was used in the data analysis. The purpose of using the descriptive statistics was to analyze the characteristics of the sample. Inferential statistics were used to examine the relationships between variables within a sample and then make predictions about how those variables may relate to a larger population. In order to test the research hypotheses, multiple regression analysis was conducted using SPSS 23.0. Multiple regression analysis examined the statistical significance of the independent variables, variance in the dependent variables as explained by the model, and the contribution of each independent variable on the prediction of the dependent variable. Prior to main data collection, a pre-test with a smaller size sample was conducted to refine the developed survey instruments. The results of the pre-test will be presented in chapter 4.

## CHAPTER IV

### FINDINGS

This chapter presents the results of the pre-test and main data analyses. The first section summarizes the pre-test results. Then, the results of the analyses with the main study data will be discussed. The main data analysis involved a reliability test, descriptive statistics focusing on demographic information of the participants, and the inferential statistics to examine the research hypotheses.

#### **Pre-Test**

After receiving the Institutional Review Board approval (Appendix B), the pre-test survey questionnaire was distributed to research participants available in the Mturk website. The purpose of the pre-test was to refine the developed research instruments. A total of 71 usable responses were collected. A monetary incentive was given to each respondent for their participation.

To evaluate the internal consistency of the scale items, reliability test (in terms of the Cronbach alpha value) was performed for all constructs included in the research model. Pallant (2007) defined the Cronbach alpha as the degree to which the items that made up the scale are combined together or all measuring the same underlying constructs. In other words, it indicates how closely a set of items are related with each other as a group. It is generally agreed that the higher the value of the Cronbach alpha, the greater the internal consistency of the factor; and the Cronbach alpha value should not be lower than 0.6 (Robinson et al., 1999). The result of reliability test indicated that the Cronbach alpha values of constructs in this study ranged from

.606 to .914, demonstrating satisfactory levels of reliability. Given this result, no further modifications were made to the survey instruments.

### **Main Data Analysis**

The data for the main study were collected again using MTurk website. Among 414 respondents who completed the survey, six respondents were removed due to incomplete or missing information. Thus, a total of 408 responses were used in the main data analysis. The data analysis began by calculating the reliabilities of research constructs in terms of the Cronbach alpha values. With a larger number of sample (n = 408), the reliabilities of constructs increased compared to those of the pre-test, ranging from 0.701 to 0.941, indicating a good internal consistency (Nunnally, 1978). Table 3 presents the reliabilities of all research constructs in this study.

Table 3. Reliabilities of Constructs: Main Data Analyses

<b>Scale items</b>	<b>Cronbach's Alpha</b>
Product quality	0.853
Variety	0.779
Service quality	0.751
Convenience	0.893
Perceived quality	0.773
Social expertise	0.701
Innovativeness	0.901
Perceived capability	0.818
Perceived value	0.914
Adoption intention	0.941

Descriptive statistics were used to analyze the demographic characteristics of the research sample. 62.7% of participants were female and 37% were male. A majority of the participants were aged between 25 to 29 (38%) and the second largest group was aged between 30 to 39 (31%). Moreover, 44% of respondents were college graduates and approximately 21% of respondents were masters or PhD degree holders. Among all participants, 42.6% were Caucasian and 40.9% were Asian or Pacific Islander. Remaining were African-American (6.1%), Hispanic (5.6%), and Native American (2.5%). The annual house hold income of the respondents was

evenly distributed from below \$20,000 to over \$100,000. Among them, 19.1% had income below \$20,000, 16.2% had income between \$20,000 to \$29,999, 15% of the respondents had income between \$30,000 to \$39,999, and 11.5% of them had income between \$40,000 to \$49,999. Table 4 summarizes the respondents' demographic characteristics.

Table 4. Demographic Information of the Sample

<b>Demographic Characteristics</b>		<b>Frequency</b>	<b>Percent (%)</b>
Gender	Female	254	62.7
	Male	151	37.3
Age	18 to 24	59	14.5
	25 to 29	154	37.7
	30 to 39	128	31.4
	40 to 49	35	8.6
	50 to 59	24	5.9
	60 to 69	6	1.5
	70 to 79	2	0.5
	Over 80	0	0.0
Education level	High school or less	18	4.4
	Vocational/technical school (2 year)	14	3.4
	Some college	80	19.6
	College graduate (4 year)	180	44.1
	Graduate degree (Master's, PhD)	87	21.3
	Professional degree (MD, JD, etc.)	27	6.6
	Other (please specify)	1	0.2
Ethnic background	Caucasian	174	42.6
	African-American	25	6.1
	Hispanic	23	5.6
	Asian or Pacific Islander	167	40.9
	Native American	10	2.5
	Other (please specify)	9	2.2
Annual household income (before taxes)	Under \$20,000	78	19.1
	\$20,000 to \$29,999	66	16.2
	\$30,000 to \$39,999	61	15.0
	\$40,000 to \$49,999	47	11.5
	\$50,000 to \$59,999	31	7.6
	\$60,000 to \$69,999	33	8.1
	\$70,000 to \$79,999	24	5.9
	\$80,000 to \$89,999	19	4.7
	\$90,000 to \$99,999	13	3.2
	Over \$100,000	34	8.3

## Hypotheses Testing

Multiple regression analysis was conducted to test the research hypotheses. Each independent variable was transformed into an average (mean) to form a single variable using the compute option available in SPSS 23.0. As an example, the average value of five scale items used to measure independent variable 'innovativeness' was taken into account to form a single variable in order to compute the regression analysis. Prior to conducting the hypotheses testing, several assumptions of multiple regression were checked. First, multicollinearity was checked by examining the correlations between the variables in the research model. Multicollinearity exists when the independent variables are too highly correlated ( $r = .9$  and above) (Pallant, 2005). For each multiple regression analysis, Pearson correlation coefficient was evaluated. Second, the presence of outliers and normality were checked. These results are discussed along with the test result of each hypothesis in the following sections.

### Antecedents of Consumer Resources (H1-H2)

H 1 and H2 suggested that social expertise and innovativeness will have a positive effect on consumer's perceived capability in OMDS. The correlations of both social expertise ( $r = 0.39$ ) and innovativeness ( $r = 0.42$ ) to perceived capability were within the range of the recommended threshold value ( $r < .9$ ) (see Table 5), confirming that multicollinearity assumption was not violated.

Table 5. Pearson Correlation for Consumer Resources

<i>Variables</i>	(1) Perceived Capability	(2) Social Expertise	(3) Innovativeness
(1) Perceived Capability	1.00		
(2) Social Expertise	0.39	1.00	
(3) Innovativeness	0.42	0.40	1.00

In addition, in order to determine the normality of the data, a normal P-P plot and a scatter plot were generated for social expertise, innovativeness, and perceived capability. Statistical analysis results confirmed that the data were distributed in a normal distribution. This

can be identified by the high coefficient of determination ( $R^2 = 0.99$ ) in normal P-P plot (Figure 2) and the rectangular distribution of the data points in the scatter plot illustrated (Figure 3) (Pallant, 2005). Also, there were no major outliers in the data set since 99% of the data points distributed in the range of -3.3 to 3.3 in a scatter plot.

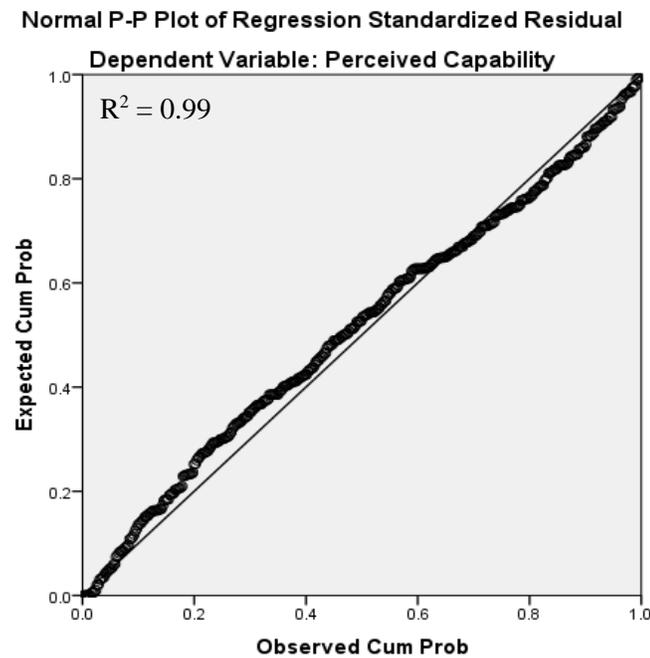


Figure 2. Normal Probability Plot (P-P) for Consumer Resources

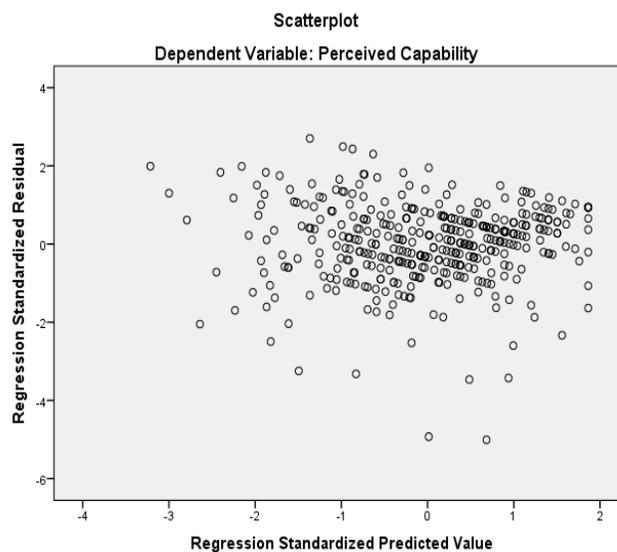


Figure 3. Scatterplot for Consumer Resources

Multiple regression analysis indicated that social expertise had a positive effect on perceived capability ( $\beta=0.258$ ,  $p=0.000$ ), supporting H1. Innovativeness also had a positive effect on consumer's perceived capability in OMDS ( $\beta=0.313$ ,  $p=0.000$ ). Thus, H2 was also supported.

Table 6 summarizes the results of regression analysis for H1 and H2.

Table 6. Regression Analysis for Social Expertise and Innovativeness

Independent Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
Social Expertise	.216	.258	5.422	.000
Innovativeness	.247	.313	6.580	.000

#### Antecedents of Firm Resources (H4-H7)

H4 through H7 suggest the positive impacts of firm resources including product quality, variety, service quality, and convenience on perceived quality. Again, all four independent variables exhibited proper correlations (less than .9) (Pallant, 2005) with perceived quality (dependent variable), as seen in Table 7.

Table 7. Pearson Correlation for Firm Resources

<i>Variables</i>	(1) Perceived Quality	(2) Product Quality	(3) Variety	(4) Service Quality	(5) Convenience
(1) Perceived Quality	1.00				
(2) Product Quality	0.84	1.00			
(3) Variety	0.61	0.68	1.00		
(4) Service Quality	0.73	0.74	0.65	1.00	
(5) Convenience	0.55	0.61	0.59	0.61	1.00

The normal P-P plot and scatter plot confirmed that the data were normally distributed by demonstrating the high coefficient of determination ( $R^2 = 0.98$ ) in the normal P-P plot (Figure 4) and the rectangular distribution of the data points (residuals) in the scatter plot (Figure 5). Most of the data points distributed in the range of -3.3 to 3.3 in the scatter plot confirmed that there were no major outliers in the data set.

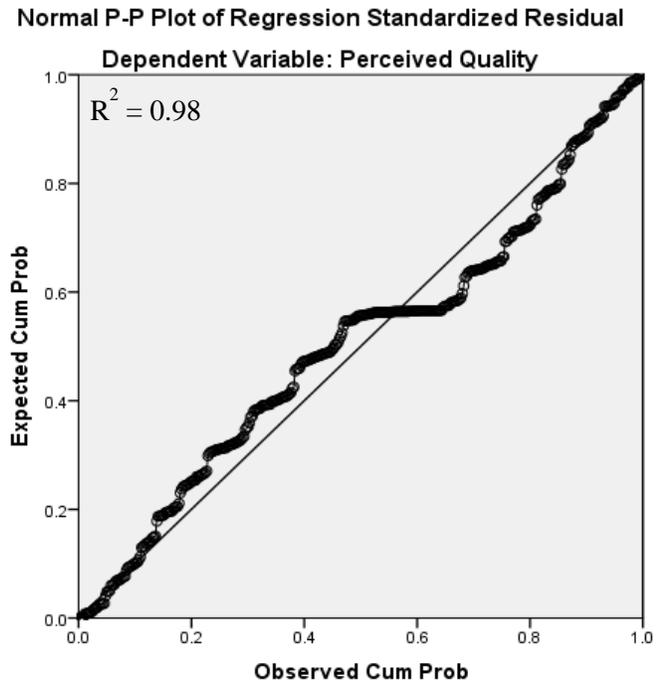


Figure 4. Normal Probability Plot (P-P) for Firm Resources

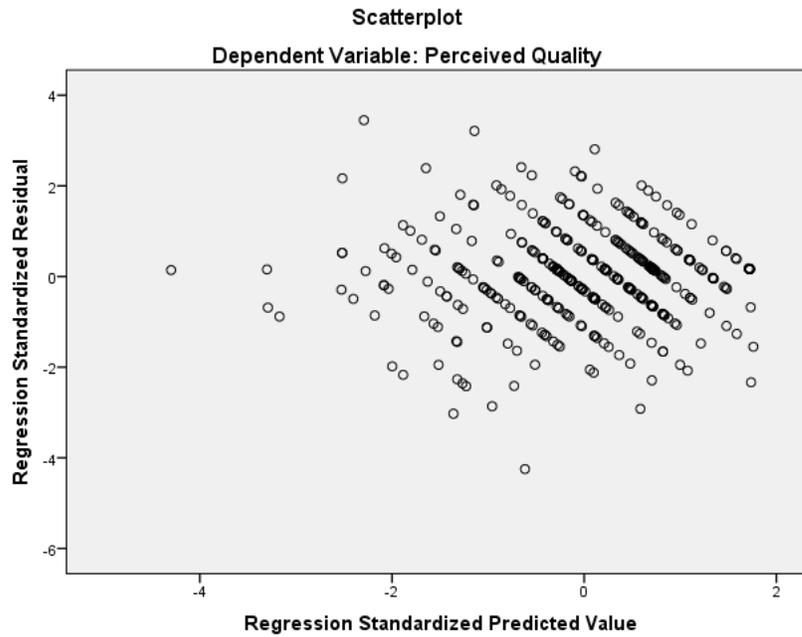


Figure 5. Scatterplot for Firm Resources

Given these results, hypothesis testing proceeded. H4 predicting the positive impact of product quality on consumer's perceived quality ( $\beta=.653$ ,  $p=0.000$ ) was supported. H5 suggested that product variety will have a positive effect on perceived quality of OMDS. However, this relationship was not significant ( $\beta=.024$ ,  $p=0.523$ ), rejecting H5. H6 predicting the impact of service quality on perceived quality was supported ( $\beta=0.241$ ,  $p=0.000$ ). However, there was no significant relationship between convenience and perceived quality ( $\beta=-0.015$ ,  $p=0.672$ ). Thus, H7 was rejected. The results of H4 through H7 are summarized in Table 8.

Table 8. Regression Analysis

Independent Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
Product Quality	.724	.653	15.345	.000
Variety	.026	.024	.639	.523
Service Quality	.264	.241	5.845	.000
Convenience	-.016	-.015	-.423	.672

### Antecedents of OMDS Value (H3, H8)

The correlation analysis indicated that both perceived capability ( $r=.63$ ) and perceived quality ( $r=.57$ ) were moderately correlated with perceived value ( $r < .9$ ), indicating that multicollinearity assumption was not violated (see Table 9).

Table 9. Pearson Correlation for perceived Capability, Perceived Quality and Perceived Value

<i>Variables</i>	(1) Perceived Value	(2) Perceived Capability	(3) Perceived Quality
(1) Perceived Value	1		
(2) Perceived Capability	0.63	1	
(3) Perceived Quality	0.57	0.59	1

H3 suggested that perceived capability will have a positive relationship with perceived value of OMDS. This relationship was significant ( $\beta=0.447$ ,  $p=0.000$ ), supporting H3. H8 suggesting the impact of perceived quality on consumer's perceived value of OMDS was also

supported ( $\beta=.304$ ,  $p=0.000$ ). Table 10 summarizes the results of multiple regression analysis for H3 and H8.

Table 10. Regression Analysis for Perceived Quality and Perceived Value

Independent Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
Perceived Capability	.617	.447	9.792	.000
Perceived Quality	.358	.304	6.658	.000

### The Impact of OMDS Value on Adoption Intention (H9)

The correlation between perceived value of OMDS and adoption intention ( $r = .78$ ) lied within the recommended range (less than .9), confirming that the multicollinearity assumption was not violated. H9 suggested that there is a positive relationship between perceived value and adoption intention of OMDS. Regression analysis indicated a significant positive relationship between perceived value and adoption intention ( $\beta=0.777$ ,  $p=0.000$ ), supporting H9 (Table 11).

Table 11. Regression Analysis for Perceived Value and Adoption Intention

Independent Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
Perceived Value	.880	.777	24.885	.000

Figure 6 summarizes the result of hypotheses testing in this study.

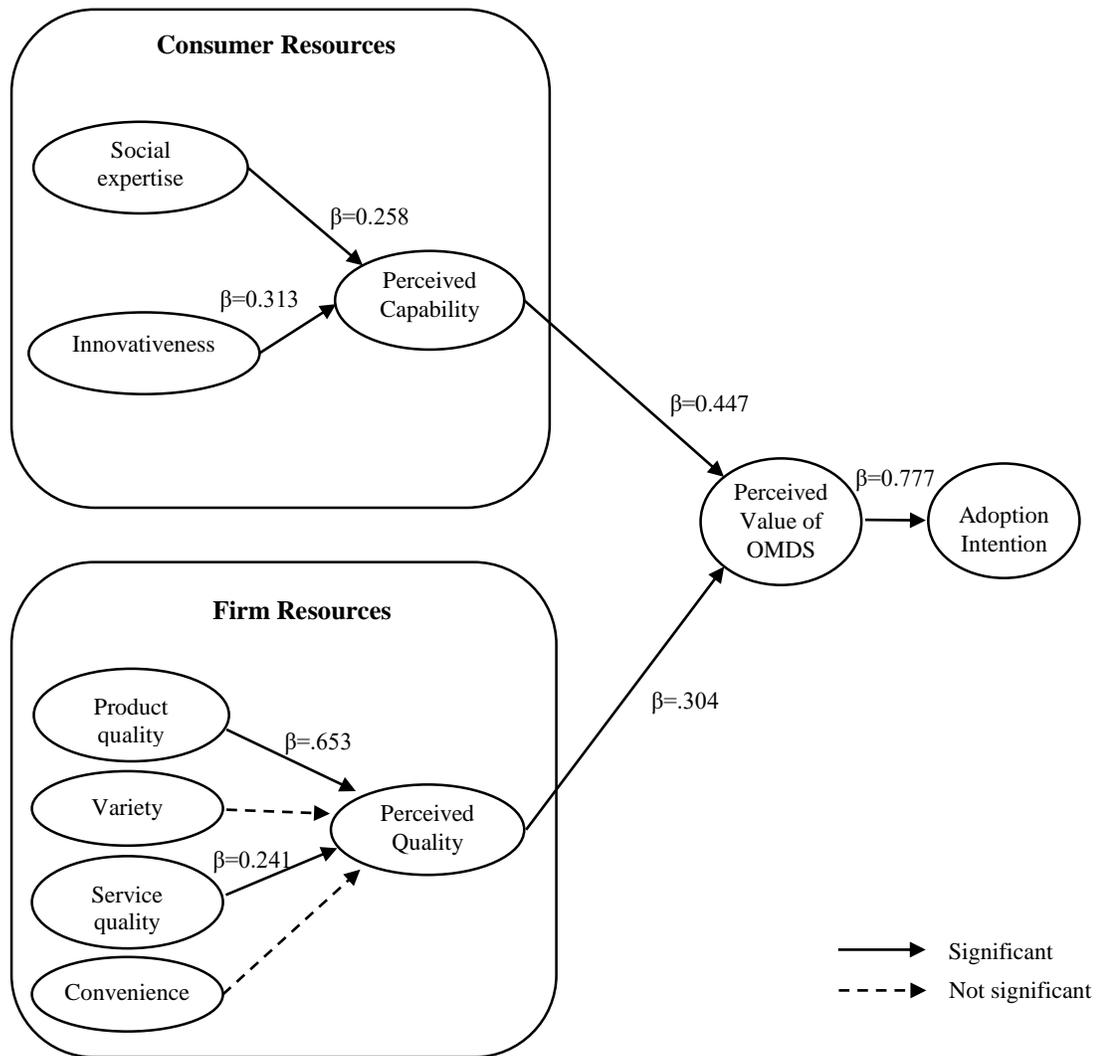


Figure 6. Summary of the Multiple Regression Analyses Results

## CHAPTER V

### DISCUSSION AND IMPLICATIONS

The purpose of this study was to understand the value of OMDS created by both consumers and firms and its impact on adoption intention of OMDS. The specific research objectives were (a) to identify the potential consumer resources and firm resources to determine the value of OMDS as perceived by consumers, and (b) to examine the impact of consumers' value creation on the adoption intention of OMDS. Overall, the results highlight that the value of OMDS cannot be explained by only firm resources. Rather, consumer resources should also be taken into account in understanding the consumer's value perceptions of OMDS, confirming the value co-creation model (Barrutia & Gilsanz, 2013).

Theoretically, this study attempted to fill the gap in the literature by developing and testing a value creation model of OMDS that incorporates both firm resources and consumer resources. Resource-advantage theory (Hunt, 2000) provides theoretical evidence for integrating these two types of resources as the predictors of perceived value of OMDS. As previously discussed, one of the contributions of this study to the existing literature is that it accounts for consumers' resources in understanding the value creation of OMDS. Consumers' value perceptions of OMDS without considering their own resources may provide only a partial picture of the value created by OMDS. Therefore, the research model tested in this study may provide new theoretical insight for further research on OMDS.

The following section mainly discusses research findings along with managerial implications derived from each hypothesis. Then the last section will discuss limitations and suggestions for future research.

### **Discussion of Findings**

First, regarding the impact of consumer resources on the perceived value of OMDS, both social expertise and innovativeness positively influenced consumers' perceived capability, which in turn positively affected the perceived value of OMDS. This result indicates that consumers' social relations to access information about online shopping in general enhances their knowledge about OMDS, and it eventually increases their perceived value of OMDS. Thus, the information received from their peers, neighbors, and friends in relation to OMDS adoption may influence consumers' decision about what to buy (which meal-kit to purchase) and how to buy (which retailer or which meal plan to choose). Innovativeness was also positively related to the consumer's perceived value of OMDS, indicating that consumers' knowledge on acquiring new technologies may influence their perceived value of OMDS. Thus, consumers who like to buy new products and services through online retailers may be more likely to perceive OMDS as a new innovation for them to adopt.

As for the impact of four firm resources on the perceived value of OMDS, mixed results were discovered. That is, while product quality and service quality presented a significant relationship with the perceived quality, variety and convenience did not have a significant influence on the perceived quality. First, product quality was found as the most significant predictor ( $\beta=.653$ ) of perceived value of OMDS, supporting the previous findings that perceived quality is one of the important predictors of perceived value (Zeithaml et al., 1996; Snoj et al., 2004). This result suggests that, in order to increase the value of OMDS offerings, retailers should first ensure the quality of their products (i.e., ingredients). Literature identifies multiple aspects of product quality that can be offered by OMDS, such as product freshness (Ness & Gerhardy, 1994; Ricque et al., 1998), healthy ingredients (Kozup et al., 2003), and taste (Zeithaml, 1988; Glanz, et

al., 1998). Thus, to increase perceived value of their service, OMDS should emphasize that their food is superior in quality and provide detailed information about their quality offering (e.g., vegan meals, less calorie meals, and organically-sourced ingredients). This way, OMDS retailers can increase perceived value of OMDS products, which in turn increases adoption intention.

Because OMDS provides both tangible products (e.g., ingredients) and intangible services (e.g., recipe cards, delivery of kits), this study distinguished these two components of OMDS offerings (product vs. service), and measured the impact of service quality on perceived quality separately. The significant impact of service quality on perceived quality found in this study supports previous findings that service quality is an important driver of perceived customer value (Cronin et al., 2000; Parasuraman & Grewal, 2000).

On the other hand, perceived product variety did not predict perceived quality of OMDS. This result suggests that a variety of food menu offered by OMDS may not necessarily increase perceived value of OMDS. It is possible that, as in the case of many other consumer products (e.g., clothes), consumers may already have their own preference for certain kinds of food. Therefore, trying a variety of food for their everyday meals may not be attractive for average consumers. Thus, OMDS retailers may focus on customizing menu options for different groups of consumers to tailor their needs, rather than simply advertising a variety of food that they offer.

Surprisingly, convenience that was indicated as one of the biggest benefits of OMDS in the literature (e.g., Sifferlin, 2017; Glanz et al., 1998) did not predict perceived value of OMDS. One of the reasons for this result might be that time- and energy-saving benefits of OMDS can be only perceived by those who spend a decent amount of time in cooking or have at least willingness to cook in their household. If consumers never or rarely cook, they may perceive that OMDS simply adds more work since OMDS does require labor (i.e., cooking) regardless of meal preparation work (e.g., chopping, grating, and peeling the ingredients) provided by OMDS. This perception might have negatively influenced convenience of OMDS as a predictor of value of OMDS. In fact, marketers have indicated that one of the challenges that OMDS retailers currently

face is the consumers' perception that OMDS does require time and labor and is not as convenient as other options like microwave meals or eating out (Demeritt, 2018; Hartman Group, 2018). Therefore, OMDS retailers may carefully segment their target market in terms of perceived convenience of their service, and cater to the demands of different consumer groups. Quick and easy cooking to one group of consumers (e.g., housewives) may not be true to the other group of consumers (e.g., single, male professional). Customized messages in terms of the convenience benefits for different market segments will be crucial in increasing the perceived quality of OMDS.

Perceived value of OMDS was predicted by both perceived capability and perceived quality of OMDS. As for perceived capability, consumers who perceived more knowledge and expertise in OMDS were more likely to highly value OMDS. This result directly supports the value co-creation model (Barrutia & Gilsanz, 2013) by demonstrating that consumer expertise is the major consumer resource and the direct predictor of value. The significant relationship between perceived quality and perceived value is well-established in the literature (e.g., Snoj et al., 2004; Zeithaml, 1988). This study supports these previous findings by demonstrating that consumers' overall quality perception of OMDS increased perceived value of OMDS.

Lastly, in line with previous research findings (Taylor & Todd, 1995; Kuo et al., 2009), perceived value of OMDS, predicted by consumer resources and firm resources, was significantly related to the adoption intention of OMDS. With strong competition in the current food retailing markets (Duff & Phelps, 2016), OMDS retailers should provide clear values of this new retail service that is distinguished from other similar retail services like grocery delivery services (e.g., Amazon Prime Now) or online grocery pickup services (e.g., Walmart Pickup) (Walmart, 2016). The results of this study will help OMDS retailers to better understand how value of OMDS is created, which can in turn increase the consumer's adoption of OMDS. Despite some mixed results found in the impacts of firm resources on perceived value of OMDS, this study provides

empirical evidence that consumer resources and firm resources are equally important in OMDS value creation.

### **Limitation and Future Studies**

This study has several limitations that highlight the need for further research. First, two firm resource factors (variety and convenience) that did not influence perceived quality of OMDS warrant further investigation. As for product variety, if this construct is not a significant predictor of perceived value, future research may identify other compelling firm resources that can impact perceived value of OMDS. Price may be one of the factors that might influence consumers' value perception since value is often evaluated as perceived benefits given price (Zeithaml, 1988; Kerin et al., 1992). About the convenience construct, as previously discussed, the impact of convenience on perceived value may vary by different consumer groups (e.g., those who frequently cook vs. those who rarely cook). Thus, future research may conduct a group comparison in terms of the impact of convenience on perceived value to clarify this issue.

Also, this study considered only two consumer variables (social expertise and innovativeness) related to OMDS value creation. However, investigating more consumer variables may provide interesting insights into OMDS value creation. For example, consumers' novelty seeking behavior may positively influence perceived capability related to OMDS. That is, consumers with high novelty seeking behavior may look favorably on new ways of shopping in general, so they may have stronger motivations to try OMDS as a new way of their grocery or food shopping. Another potential consumer variable might be consumers' tendency to be dependent on online shopping (e.g., "Internet helps me to decide where to buy certain products or services"). If consumers believe that the internet as a shopping channel enables them to accomplish their shopping tasks more quickly, this tendency may also increase the perceived capability related to OMDS.

Also, although target population for this study is U.S. consumers aged 18 or older, descriptive statistics found that the majority of respondents were Caucasians (42.6%) and Asians

or Pacific Islanders (40.9%). More variety of consumers in terms of ethnicity may be considered in future research. In addition, consumers' food consumption patterns and meal preparation techniques may vary among different demographic groups (e.g., ethnicity, age, income). Therefore, future research can compare the research model with different demographic variables.

Although multiple regression analysis is a useful multivariate data analysis technique for evaluating constructs and relationships between constructs, it does not evaluate construct relationships simultaneously. Also, multiple regression does not account for measurement error, resulting in the lack of power of predictive variables (Hair et al., 2005). With a complex research model with a large number of research constructs used in the current study, it is recommended to use structural equation modeling (SEM) that can overcome some limitations of multiple regression.

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## APPENDICES

### Appendix A

#### Survey Questions

In this survey, the term **online meal-kit delivery service (OMDS)** retailers refer to the online retailers that provide consumers with pre-portioned ingredients and recipes (step-by-step directions). You can personalize your meal plans including recipes and delivery schedule tailored to your preferences and get the box delivered to your home. Some examples of OMDS retailers include HelloFresh, Plated, and Blue Apron.

Questions	Scale
<ul style="list-style-type: none"><li>• People around me know much about how to acquire this product/service online.</li><li>• I usually speak with colleagues and friends about how to use the internet for this product/service.</li><li>• I get useful information on the Internet through colleagues and friends.</li></ul>	Strongly Disagree    Strongly Agree 1    2    3    4    5    6    7
<ul style="list-style-type: none"><li>• Other people come to me for advice on new technologies.</li><li>• I know more about the newest technologies than those around me.</li><li>• I am among those people who want to know when a new technology appears.</li><li>• I keep up with the latest technological developments on products I am interested in.</li><li>• I have fewer problems than other people in making technological devices work.</li></ul>	Strongly Disagree    Strongly Agree 1    2    3    4    5    6    7

<ul style="list-style-type: none"> <li>• All things considered, I would say the meal kits provided by OMDS have excellent overall quality.</li> <li>• The meal kits provided by OMDS would have good quality.</li> <li>• Overall, the meal kits provided by OMDS would be excellent.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would give me a variety of food for me to enjoy.</li> <li>• The online meal-kit delivery service would offer more ways to enjoy food.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• Overall, the online meal-kit delivery service (e.g., recipes, meal planning) would be excellent in quality.</li> <li>• The online meal-kit delivery service would provide the exact service quality that I expect.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would make my meal preparation more convenient.</li> <li>• The online meal-kit delivery service would make me save time and effort.</li> <li>• The online meal-kit delivery service would allow me to prepare meals with lesser effort.</li> <li>• The online meal-kit delivery service would make my meal preparation easier.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• The quality of the ingredients and service provided by the online meal-kit delivery service would be excellent.</li> <li>• The ingredients and quality provided by the online meal-kit delivery service would be outstanding.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• The online meal-kit delivery service would offer good value for the money.</li> <li>• I would consider online meal-kit delivery service to be a good buy.</li> <li>• I would think that the prices that I pay for the online meal-kit delivery service are worthwhile.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<ul style="list-style-type: none"> <li>• I believe that ordering and using online meal-kit delivery service is a task that I can perform better.</li> <li>• I can master ordering and using online meal-kit delivery service for my meal needs.</li> <li>• I believe I can order and use online meal-kit delivery service for my meal needs as well as I would like.</li> <li>• I am certain I can order and use online meal-kit delivery service for my meal needs well.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>

<ul style="list-style-type: none"> <li>• I plan to use the online meal-kit delivery service in the future.</li> <li>• I intend to use the online meal-kit delivery service in the future.</li> <li>• I predict I would use the online meal-kit delivery service in the future.</li> </ul>	<p>Strongly Disagree      Strongly Agree</p> <p>1    2    3    4    5    6    7</p>
<p>Have you used online meal-kit delivery service before?</p>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<p>If yes, please name the OMDS retailer</p>	<input type="text"/>
<p>Are you the one who mainly shops for groceries in your household?</p>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Somewhat</li> </ul>
<p>How often do you shop for groceries?</p>	<ul style="list-style-type: none"> <li>• Daily</li> <li>• 2-3 times a week</li> <li>• Once a week</li> <li>• 1-2 times per month</li> <li>• Less than 1-2 times per month</li> </ul>
<p>Are you the one who mainly prepares/cooks meal in your household?</p>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Somewhat</li> </ul>
<p>On average, how much time do you spend cooking per day?</p>	<ul style="list-style-type: none"> <li>• Less than 20 minutes</li> <li>• 20-40 minutes</li> <li>• 40 minutes – 1 hour</li> <li>• More than 1 hour</li> </ul>
<p>What is your annual household income (before taxes)?</p>	<ul style="list-style-type: none"> <li>• Under \$20,000</li> <li>• \$20,000 to \$29,999</li> <li>• \$30,000 to \$39,999</li> <li>• \$40,000 to \$49,999</li> <li>• \$50,000 to \$59,999</li> <li>• \$60,000 to \$69,999</li> <li>• \$70,000 to \$79,999</li> <li>• \$80,000 to \$89,999</li> <li>• \$90,000 to \$99,999</li> <li>• Over \$100,000</li> </ul>
<p>What is your age?</p>	<ul style="list-style-type: none"> <li>• 18 to 24</li> <li>• 25 to 29</li> <li>• 30 to 39</li> <li>• 40 to 49</li> <li>• 50 to 59</li> <li>• 60 to 69</li> <li>• 70 to 79</li> <li>• Over 80</li> </ul>
<p>Please indicate the highest level of education completed.</p>	<ul style="list-style-type: none"> <li>• High school or less</li> <li>• Vocational/technical school (2 year)</li> </ul>

	<ul style="list-style-type: none"> <li>• Some college</li> <li>• College graduate (4 year)</li> <li>• Graduate degree (Master's, PhD)</li> <li>• Professional degree (MD, JD, etc.)</li> <li>• Other (Please specify)</li> </ul>
What is your gender?	Female                      Male
What is your ethnic background?	<ul style="list-style-type: none"> <li>• Caucasian</li> <li>• African-American</li> <li>• Hispanic</li> <li>• Asian or Pacific Islander</li> <li>• Native American</li> <li>• Other (please specify)</li> </ul>

## Appendix B



### Oklahoma State University Institutional Review Board

Date: 04/27/2018  
Application Number: HS-18-23  
Proposal Title: Value Creation Model of the Online Meal-kit Delivery Service

Principal Investigator: Dhammika Chandradasa  
Co-Investigator(s):  
Faculty Adviser: June Park  
Project Coordinator:  
Research Assistant(s):

Processed as: Exempt

#### Status Recommended by Reviewer(s): Approved

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 223 Scott Hall (phone: 405-744-3377, [irb@okstate.edu](mailto:irb@okstate.edu)).

Sincerely,

A handwritten signature in black ink, appearing to read 'Hugh Crethar'.

Hugh Crethar, Chair Institutional  
Review Board

## VITA

Gairana Gamage Dhammika Maheshani Chandradasa

Candidate for the Degree of

Master of Science

Thesis: VALUE CREATION MODEL OF THE ONLINE MEAL-KIT DELIVERY SERVICE

Major Field: Design, Housing and Merchandising

Biographical:

Education:

Completed the requirements for the Master of Science in Design, Housing and Merchandising at Oklahoma State University, Stillwater, Oklahoma in July, 2018.

Completed the requirements for the Bachelor of Business Administration in Business Management at Sheffield Hallam University, Sheffield, United Kingdom in 2010.

Experience:

Graduate research assistant (Aug, 2016- May 2018)  
Dept. of Design, Housing and Merchandising  
Oklahoma State University, Stillwater, Oklahoma.

Teaching Assistant (December, 2009- December, 2012)

Dept. of Business  
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