THE UNIVERSITY of ADELAIDE

Engagement with Novel Products

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Engagement with Novel Products

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Ayi, Diana, Conduit, Jodie and Plewa, Carolin. (2017), "Initiating Actor Engagement with New Service Offerings", proceeding of the Australian and New Zealand Marketing Academy (ANZMAC) Conference "Marketing for Impact", RMIT University, 4-6 Dec, Melbourne, Australia.

Ayi, Diana, Conduit, Jodie and Plewa, Carolin. (2018), "Initiating Actor Engagement with Novel Products", proceeding of the European Marketing Academy (EMAC) Conference "People Make Marketing", University of Glasgow, May 29-June 1, Glasgow, United Kingdom.

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Ayi, Diana. (2016). "Actor Engagement with New Products", Doctoral Colloquium, The University of Adelaide Business School, 23-24 September, Adelaide, Australia.

Ayi, Diana. (2017), "Engagement with Novel Food", Doctoral Colloquium, The University of Adelaide Business School, 1-2 September, Adelaide, Australia.

Ayi, Diana. (2017), "Initiating Actor Engagement with New Products", Doctoral Colloquium, RMIT University, 1-3 December, Melbourne, Australia.

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ABSTRACT

Organisations are increasingly under pressure to launch novel products and get customers to adopt them in order to remain relevant in competitive markets. Despite prolific research into the motivations and processes for products, and despite recognition that individuals have an innate pre-disposition to try or buy new products, firms still experience high failure rates when launching novel products. Hence, to better understand the process of product adoption and improve adoption success, this thesis introduces the concept of actor (customer) engagement to the literature on novel foods.

While scholars have investigated customer engagement with brands and within online communities, little is known about engagement with novel products. This research comprises three papers that investigate the engagement with novel products. The first paper proposes a conceptual framework to understand the process by which actor engagement with novel products occur. This framework explains how actor engagement is facilitated through vicarious learning that occurs in a non-physical interaction, which is engendered through actor-to-actor interactions. Further, it explains the role of legitimacy in both building and embedding engagement with novel products. This conceptual paper not only introduces the lens of actor engagement to help organisations successfully launch the product into competitive markets, it also extends knowledge on actor engagement.

Building on the conceptual paper, the second paper empirically tests the role of customer engagement for novel food adoption. The research uses the context of novel food as it provides an example of novel products that have the tendency to fail in the market due to consumer resistance. Specifically, this research investigates the mediating

effect of the engagement dimensions, including emotional, cognitive, behavioural and social facets, on the relationship between product adoption barriers (subjective knowledge and perceived risk) and the intention to try and buy. The findings reveal that engagement plays an important mediating role. Specifically, while cognitive engagement is not critical for food adoption, emotional engagement and social engagement facilitate novel food adoption. This study contributes to both food and marketing literatures by introducing customer engagement as an important construct to the context of novel food adoption.

Finally, the third paper empirically examines the role of legitimacy as a perception for engagement with a novel product. Specifically, it investigates the mediating effect of different dimensions of legitimacy (instrumental, moral and relational) between the relationship of subjective knowledge and customer engagement in the context of novel food. Instrumental legitimacy relates to the judgement of whether the novel product achieves practical outcomes. Moral legitimacy reflects moral and ethical values (Scott, 1995) and relational legitimacy represents the degree by which the value proposition of the novel product affirms social identities and reinforces the sense of self-worth within a group (Tost, 2011). This research examines two kinds of legitimacy judgments: propriety and validity legitimacy. The propriety judgment reflects an individual's belief of whether the value proposition is legitimate or illegitimate for the specific content. The validity judgment, on the other hand, captures the individual's judgement of the collective evaluation of the value proposition, and thus of other relevant actors (Bitektine and Haack, 2015).While the propriety legitimacy emerges as an important mediator, the validity legitimacy did not show to be critical except for the instrumental legitimacy on the relationship between subjective knowledge and cognitive engagement. This paper contributes to the marketing literature by introducing

legitimacy as an explanatory factor that drives engagement when consumers have low or high subjective knowledge.

In summary, this research offers unique and meaningful theoretical and practical implications to facilitate the adoption of novel products through engagement. Organisations that are seeking to launch new products into the market can benefit from this research by facilitating different engagement facets and focusing on legitimacy to engage consumers to the novel product.

STATEMENT OF DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Diana Ayi Wong

14th December, 2018

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CHAPTER 1. INTRODUCTION

1.1. BACKGROUND

Customer engagement has received significant interest from academics and practitioners in marketing and business for the last few years, including recognition by the Marketing Science Institute as one of its Research Priorities (MSI, 2010; MSI, 2016). This prevalence is due to the significant benefits suggested to arise from engaging customers, establishing a relationship with the focal object (Harmeling et al., 2017), as well as bringing consequences such as loyalty (Bowden et al., 2013), trust, value and affective commitment (Vivek et al., 2012) and leading to organisational outcomes such as sales growth and profitability (Kumar and Pansari, 2016; Pansari and Kumar, 2017). The concept of customer engagement is defined as a "psychological state that occurs through interactive, co-creative consumer experiences with a focal agent/object" (Brodie et al. 2011 p.9), which is comprised of cognitive, emotional, behavioural (Van Doorn et al., 2010; Dessart et al., 2016) and social (Vivek et al., 2014) dimensions.

Despite prolific research on customer engagement, its constructs, and its phenomenological network, literature is limited in that it focuses predominantly on existing products and the engagement of customers with those products beyond purchase (van Doorn et al., 2010; Brodie, et al., 2013). This means that little is known about engagement with novel products and thus about such engagement as a pathway to product adoption. This is despite product innovation comprising one of the top strategic priorities for companies seeking to successfully compete within a changing and competitive environment (Andrew et al., 2010). Previous literature suggests a resistance towards novel products (Heiskanen et al., 2007), which causes low success rates when these products are introduced into the market (Nielsen, 2016). Indeed, consumers have the tendency to reject unfamiliar products given the lack of interaction between the new

product and the potential adopter (Aqueveque, 2015). Without such interaction, customers cannot learn about novel products and develop an intention to adopt them. As interaction is an underlying foundation of customer engagement (Brodie et al., 2011), this research seeks to understand its relevance for novel products. Therefore, the research first presents a conceptual framework for engagement with novel products introducing vicarious learning as a facilitator of engagement and explicating the role of legitimacy as both building and engendering engagement with novel products. Second, an empirical study is conducted to examine the role of engagement in facilitating the consumers' intention to adopt novel products. Finally, the research investigates empirically the role of legitimacy on customer engagement in the context of novel products.

While scholars investigated customer engagement with brands (Bowden, 2009; De Vries and Carlson, 2014), within online communities (Dessart et al., 2015), and product development processes (Fernandes and Remelhe, 2015), little is known about the non-physical, indirect engagement with a novel product. Existing research has proposed frameworks conceptualising engagement based on a dyadic perspective, and thus considers only the interaction between the customer and the focal object (Dessart et al., 2016; Vivek et al., 2012). These models are insufficient to explain how customers initiate engagement with novel products; products with which they have not experienced a direct, dyadic interaction. However, recent literature increasingly recognises that a network perspective of engagement is necessary, allowing for a more holistic view of actor engagement (Storbacka et al., 2016; Chandler and Lusch, 2015). This paradigm shift suggests the need for further theoretical development to understand the engagement process among multiple actors in a network. This research provides a conceptual framework which studies the interactions between the individual, the focal

product (i.e., novel product) and other actors in the network (i.e., actor engagement) (Storbacka et al., 2016). It proposes the facilitating mechanism of vicarious learning and legitimacy perceptions and thus provides greater understanding of the process which initiates engagement among multiple actors. These interactions exist within established social structures, which enables a holistic view of the psychological and sociological perspective of engagement with novel products in this research (See Chapter 2).

Specifically, this research uses the context of novel food. This context was chosen because of a strong consumer demand for novelty in the food context, and a resulting increase in food companies producing novel foods (Nielsen, 2015). Novel foods containing unfamiliar ingredients may be rejected by potential adopters. Whilst subjective knowledge in novel food is known as positively correlated to attitude, consumption (Pieniak et al., 2010), and intention (willingness) to buy (House et al., 2004), high perceived risk negatively influences product acceptance and intention to buy (Baker et al., 2016). Despite the extensive research on, and resulting understanding of, the relevance of subjective knowledge and perceived risk in novel food (House et al.2004; Aertsens et al., 2011), consumer acceptance of novel food remains low (Steenis and Fischer 2016; Tan et al., 2017). Therefore, it is imperative to understand the mechanism underlying the effects of subjective knowledge and perceived risk on the intention to adopt so as to elucidate opportunities for enhancing new product success. It is suggested that this mechanism is customer engagement, where a non-physical interaction with the novel food (e.g., imagining eating the cookie) occurs. Potential adopters indirectly experience emotions and cognitive associations and create meanings related to food through engagement (Schifferstein, 2016). Thus, it is important to empirically examine the role of customer engagement in the context of novel food as it may be a facilitator of novel food adoption. The term ‘customer engagement’ is used in

this thesis (rather than actor engagement) as the empirical testing is based on the individual's perspective rather than on a network perspective of engagement (See Chapter 3).

Engagement drivers are mainly described from an individual perspective (Marbach et al., 2016; Solem et al. 2016; De Vries and Carlson, 2015), and few studies consider the role of social structures within customer engagement literature. Drawing from the ecosystem perspective lens of engagement, it is evident that other actors and institutions influence the engagement of the focal actor (Storbacka et al., 2016). Therefore, it is necessary to adopt a sociological lens to understand how engagement with novel food occurs. It is acknowledged that institutional structures have an underlying role in facilitating adoption of new products or services through legitimacy (Humphreys, 2010). Prior to adoption, novel products have to go through a legitimisation process (Johnson et al., 2006; Marberg et al., 2017). In other words, a generalised perception or assumption that the product is desirable, proper or appropriate within a scheme or system of norms, values, beliefs and definitions is necessary for adoption (Suchman, 1995; Denegri-Knott and Tadajewski, 2017; Johnson et al., 2006). Hence, this study proposes that legitimacy encourages potential adopters to engage with a novel product. Few studies, if any, empirically explain the engagement process through the legitimisation of novel food. To better understand the drivers of engagement with novel products, this research draws on the suggestion of previous literature that knowledge is conducive to customer engagement (Hollebeek et al., 2016). It suggests that this knowledge is mediated through a process of legitimation to facilitate engagement with novel food. Although this thesis takes an ecosystem perspective, the study uses the term 'customer engagement' as the study measures legitimacy perception, which comes from an individual perspective (See Chapter 4).

In summary, building on the current engagement literature and its focus on existing products (Dessart et al., 2015; de Vries and Carlson, 2015), this research introduces the concept of engagement with novel food as a focal concept with the potential to facilitate product adoption. As this research refers to novel products as products that an individual has not experienced, this research conceptualises how such engagement occurs by means of a non-physical interaction through vicarious learning. In turn, an empirical investigation is undertaken to examine how engagement influences the intention to adopt novel products (e.g., novel food), taking into account subjective knowledge and perceived risk, and also investigate the role of legitimacy as a driver of engagement in the context of novel food.

1.2. RESEARCH OBJECTIVES

This research seeks to expand our knowledge of customer engagement beyond the current focus on existing products and brands, seeking to understand how potential adopters engage with novel products, and thus those products they have not previously experienced. Specifically, this research is comprised of three main, interrelated, research questions:

1) How do potential adopters initiate engagement with novel products?

2) What is the role of customer engagement with novel food in facilitating the adoption of novel products?

3) What is the role of legitimacy perception for facilitating customer engagement with novel products?

In order to address the research questions, three studies were conducted. The first study provides extensive conceptual development of the process of actor engagement with

novel food, with the resulting conceptual framework outlining the role of vicarious learning and legitimacy as critical elements in the process. While the second study empirically examines the role of customer engagement in facilitating consumer intentions to adopt novel food, the third study offers an empirical investigation into the role of legitimacy perception in encouraging customer engagement with novel products.

In line with the first research question, the objectives are:

1. To examine the actor-to-actor interactions in relation to a novel product.
2. To examine the role of vicarious learning on actor engagement.
3. To investigate the influence of perceived legitimacy of a products' value proposition on engagement with novel products.
4. To investigate the influence of engagement with novel products on product legitimacy.

To address the second research question, the objectives are:

5. To investigate the role of customer engagement (emotional, cognitive, behavioural and social facets) for novel food adoption.
6. To examine the mediating role of individual emotional, cognitive, behavioural and social facets of engagement in the relationship between subjective knowledge and perceived risk with the outcome variables of intention to try and buy novel food products.

In accordance with the third research question, the objectives are:

7. To examine the role of legitimacy on engagement with a new product.
8. To empirically test the mediating effect of legitimacy perception (instrumental, moral and relational) on the relationship between subjective knowledge and customer engagement (emotional, cognitive, and behavioural).

1.3. RESEARCH FRAMEWORK

To investigate engagement with novel foods and meet the research objectives set for this research, three separate papers were developed. Paper one provides a conceptual framework, developing our understanding of the theoretical framework of engagement with novel products and thus providing a strong conceptual foundation for the remaining two papers. Paper two empirically examines the role of customer engagement for new product adoption decisions, specifically investigating customer engagement with novel food as a mediator between known novel product adoption barriers (low subjective knowledge and high perceived risk) and intentions to adopt. Following on from the demonstrated relevance of engagement evidenced in paper two, paper three empirically tests the role of legitimacy for facilitating the engagement with novel foods. Specifically, it investigates the mediating role of legitimacy perception on the relationship between subjective knowledge and customer engagement with novel products.

Although several studies investigate engagement in an ecosystem perspective (e.g., Storbacka et al., 2016), the focus of the literature on existing products as compared to novel products means that the interaction between the potential adopter and focal object has never been considered. Indeed, little is known about engagement with a novel product, neither from a dyadic nor from an ecosystem perspective. Hence, it was necessary for this research to first develop a conceptual framework of customer engagement with novel products and subsequently develop an understanding of how actors engage with a novel product through a new way of interaction. This research adds a body of knowledge to the existing literature on engagement by introducing both vicarious learning and legitimacy perception as underpinning theoretical concepts.

Building on the first conceptual paper, the research presents two studies that empirically test the role of engagement on intention to adopt, and the role of legitimacy on customer engagement. The studies place an emphasis on human behaviour to explain the reality of the social world by recruiting a panel of anonymous participants and conducting an online survey. The studies built hypotheses and verified them utilising structural equation modelling (Guba and Lincoln, 1994).

A short description of each paper is presented below:

Paper one: Initiating actor engagement with novel products

This paper investigates the concept of actor engagement with novel food and proposes a conceptual framework and four accompanying propositions to explicate the role of vicarious learning and legitimacy in the engagement process. Specifically, the paper explores the nature of vicarious learning as an underlying component to understand engagement with novel products and how it enables potential adopters to produce emotional and cognitive associations with the novel product (Schifferstein, 2016; Desmet and Hekkert, 2007). Additionally, the study extends the research by conceptualising how engagement with a novel product is both facilitated through, and facilitates, the legitimisation of the product, utilising insect-based products as an example. Hence, by adopting a holistic network view of engagement, this paper recognises a new form of interaction in the engagement literature, which refers to the indirect interaction with the novel product through other actors (Desmet and Hekkert, 2007).

The objectives of the paper are: 1) To examine the actor-to-actor interactions in relation to a novel product; 2) To examine the role of vicarious learning on actor engagement; 3) To investigate the influence of perceived legitimacy of a products' value proposition on

engagement with novel products; 4) To investigate the influence of engagement with novel products on product legitimacy.

This paper provides an agenda for future research that builds on the four propositions from this study. This conceptual paper thus contributes to marketing theory by extending actor engagement knowledge by utilising the lens of actor engagement to help organisations to successfully introduce novel products to the competitive market. Paper one provides the theoretical foundation for empirical research in papers two and three, as it explains the process by which engagement with novel products occur.

Paper two: Engagement with novel food

Building on the conceptual paper, paper two examines the role of engagement in facilitating customer intentions to adopt novel food. Specifically, the study investigates the mediating effect of eight engagement dimensions (encompassing emotional, cognitive, behavioural and social facets of engagement) on the relationship between two underlying product adoption barriers (subjective knowledge and perceived risk) and intention to try and buy. Hence, this paper demonstrates the underlying role of engagement in facilitating the adoption of novel food products. Such information will enable firms to increase consumer product adoption through facilitating engagement with novel foods.

The objectives for paper two are: 1) To examine the role of customer engagement (emotional, cognitive, behavioural and social facets) for novel food adoption. Specifically, we examine emotional (enjoyment and enthusiasm) cognitive (attention and absorption), behavioural (sharing, endorsing, learning) and social engagement. 2) To examine the mediating role of individual emotional, cognitive, behavioural and

social facets of engagement in the relationship between subjective knowledge and perceived risk with the outcome variables of intention to try and buy novel food products.

The study was conducted with Australian consumers recruited by a panel provider (Qualtrics). Two novel foods were utilised as a context for this study: insect-based products and products utlising nanotechnology ingredients. The data analysis was conducted using structural equation modelling with AMOS to understand the mediating role of engagement between perceived risk, subjective knowledge and intention to try and buy. In summary, this paper provides an understanding of the role of different engagement facets building a foundation for theoretical and managerial implications.

Furthermore, paper two provides the underpinning to paper three, as it confirms that engagement plays an underlying role in product adoption outcomes. Specifically, though cognitive engagement is not critical for food adoption, emotional engagement and social engagement facilitate novel food adoption. Hence, food organisations may focus on the underlying facets of engagement to enhance product adoption.

Paper three: The role of legitimacy on engagement with novel food

Paper three examines the role of legitimacy perception on engagement with novel food. Specifically, it investigates the mediating effect of different dimensions of legitimacy between the relationship of subjective knowledge and customer engagement in the context of novel food. This paper explains how engagement can be achieved through the legitimisation of novel food.

The study was conducted with Australian consumers recruited by a panel provider (Qualtrics). Two novel foods were utilised as a context for this study: insect-based products and products utilising nanotechnology ingredients. The data analysis was conducted using structural equation modelling with AMOS to understand the mediating role of types of legitimacy perception (instrumental legitimacy, moral legitimacy, relational legitimacy). In summary, while the propriety legitimacy emerges as an important mediator, the validity legitimacy did not show to be critical except for the instrumental legitimacy on the relationship between subjective knowledge and cognitive engagement. This paper contributes to the marketing literature by introducing legitimacy to explain the factor that drives engagement when consumers have low or high subjective knowledge. Managers could benefit by focusing on the types of legitimacy to engage consumers to the novel product. Overall, these three papers contribute towards a holistic understanding of engagement with novel food by providing a conceptual framework of how engagement with novel products initiates, an empirical study that examines the role of customer engagement on product adoption, and an empirical study that investigates the role of legitimacy on customer engagement with novel food.

1.4. RESEARCH CONTEXT

Firms are increasingly launching novel products to remain competitive in the market. However, only a low percentage of new products persist in the market after a year (Nielsen, 2014). Given the increasing pressure on firms to innovate, the importance of an alternative marketing strategy continues to be relevant. Hence, this research has the potential to be highly valuable, introducing the concept of actor engagement to facilitate product adoption.

The food industry in particular has embraced novel products, with utilisation of new technologies and raw materials on the rise (Nielsen, 2015; Shelomi, 2016). Novel technologies and ingredients are utilised by organisations to develop novel food to stay competitive in the market. For example, both nanotechnology ingredients and insect-based products are examples of novel foods. Previous studies have identified determinants, such as subjective knowledge and perceived risk, of consumer resistance towards novel food (Barrena, et al., 2013; Ronteltap et al., 2007; Siegrist, 2008; Sodano et al., 2016). However, despite the insights gained in such studies, the acceptance of such novel foods remains low. Hence, this research introduces the 'customer engagement' concept to explain the interaction between the potential adopter and the novel food.

While the engagement literature has focused solely on existing products such as online communities (Dessart et al., 2015) and services (Bowden et al., 2015), food is a product category that has never been considered as a focal object in engagement research. Similarly, the concept of engagement has never been utilised to explain intention to adopt novel food. Therefore, this research offers important theoretical and managerial implications as it expands upon the marketing and food literature, making a new contribution to the field.

1.5. RESEARCH CONTRIBUTIONS

This research extends the existing literature on marketing and novel food by expanding the concept of customer engagement with novel - as compared to existing - products, while at the same time introducing the concept of customer engagement into the literature on adoption of novel products. This thesis provides a conceptual framework on how potential adopters initiate engagement with a novel product. Drawing on existing engagement literature, this research introduces a new form of interaction (Desmet and Hekkert, 2007) into the engagement literature, in which individuals interact in a non-physical way with the novel product.

Indeed, potential adopters imagine the novel product prior to trialing it, constituting one way in which engagement is initiated between the potential adopter and the novel product. Specifically, introducing the concept of vicarious learning, the research suggests that the social connections of the focal actor are critical to understanding engagement with the novel product. Vicarious learning is also a critical component to enhance engagement with novel products. Furthermore, this research introduces legitimacy theory to the engagement literature, as it explains how the initiation of engagement with a novel product is influenced by, and influences, the perceived legitimacy of the novel product. Marketers may focus on encouraging vicarious learning and reinforcing legitimacy strategies to enhance people to initiate or maintain the engagement with the novel product.

Another significant contribution of this research lies in its empirical investigation of the role of engagement with a novel food. Drawing from the conceptual framework the study empirically examines the role of engagement with new products, specifically

novel foods. Specifically, the research builds on extant knowledge on subjective knowledge and high perceived risk as adoption barriers (Costa-Font et al., 2008; Piha et al., 2016; Baker et al. 2016, Bieberstein et al., 2013). It significantly contributes to both food and marketing literatures by introducing customer engagement as an important construct to the context of novel food adoption. Specifically, insights suggest the importance of emotional and social engagement, rather than cognitive engagement, to enhance product adoption, demonstrating differential effects between various engagement dimensions in the context of novel food.

The context of novel food has been studied in an ecosystem perspective (Storbacka et al., 2016), in which the potential adopter and other actors exist in the society with institutional structures (Scott, 1995). The novel food might maintain, disrupt, or change social structures (Vargo et al., 2015) depending on the legitimacy perception. This research provides a better understanding of engagement with a novel food by conceptualising the cyclical process of engagement and legitimacy with novel products.

Furthermore, building on the findings of the role of engagement with novel food on product adoption, this research is the first to empirically confirm the role of legitimacy in stimulating engagement with novel products. Specifically, propriety legitimacy emerges from this research as more important than validity legitimacy in making individuals engage with novel products; with the exception of the role instrumental legitimacy plays in stimulating cognitive engagement. These findings contribute to the marketing literature by introducing legitimacy as perception measures to explain the factor that drives engagement with novel product. Managers could focus on the propriety legitimacy to enhance potential adopters to engage with novel products.

1.6. THESIS OVERVIEW

The thesis begins in Chapter 1 with an introduction to the research, including an explanation of the purpose of the overall research, the research context, the summary of research papers presented in this thesis, as well as the contributions of this research. Chapters 2, 3 and 4 build the body of this thesis, with each of these chapters outlining one of the three research papers presented in this thesis. A revised version of Chapter 2 has been resubmitted to Marketing Theory following an invitation to revise and resubmit. Chapters 3 and 4 will be submitted to relevant journals following the final submission of this thesis. Chapter 5 concludes this thesis, presenting the overall research contributions, managerial implications, limitations and future directions.

CHAPTER 2. INITIATING ACTOR ENGAGEMENT WITH NOVEL PRODUCTS

Diana Ayi, Jodie Conduit and Carolin Plewa

Statement of Authorship

Title of Paper	Initiating Actor Engagement with Novel Products
Publication Status	☐ Published ☐ Accepted for Publication ☑ Submitted for Publication ☐ Unpublished and Unsubmitted w ork w ritten in manuscript style
Publication Details	The paper has been resubmitted to the Journal of Marketing Theory following and invitation to revise and resubmit.

Principal Author

Name of Principal Author (Candidate)	Diana Ayi Wong		
Contribution to the Paper	Developed conceptual paper, wrote manuscript and revised manuscript.		
Overall percentage (%)	60		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	13/12/18

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Jodie Conduit		
Contribution to the Paper	Supervised and contributed to the conceptual development and writing of the paper. Edited manuscript, revised/edited manuscript.		
Signature		Date	13/12/18

Name of Co-Author	Carolin Plewa		
Contribution to the Paper	Supervised and contributed to the conceptual development and writing of the paper. Edited manuscript, revised/edited manuscript.		
Signature		Date	13/12/18

Please cut and paste additional co-author panels here as required.

ABSTRACT

While organizations continue to face extensive pressure to introduce novel products to the market, the question of how customers initiate engagement with novel products remains unanswered. This paper draws on the ecosystem perspective of engagement, utilizing the lens of actor engagement, to develop a conceptual framework for actor engagement with novel products. In doing so, it is the first to examine the indirect interaction actors have with a focal object through other actors. It demonstrates that through vicarious learning, actors establish cognitive, emotional, behavioural and social interactions with the novel product. Further, it explicates a process in which legitimacy judgements, at the micro- and macro-level, play a central role in facilitating and evaluating ongoing engagement with products. As such, this framework offers an important contribution to theory by elucidating the facilitating role of learning, and introducing the concept of legitimacy to the engagement literature. A set of research propositions is presented, and a future research agenda proposed for each of these propositions.

Keywords: Actor Engagement, Legitimacy, Vicarious Learning, Novel Products

2.1. THE ROLE OF LEGITIMACY IN INITIATING ACTOR ENGAGEMENT WITH NOVEL PRODUCTS

Only 24% of new product launches remain in the market after one year (Nielsen, 2014). Such high failure rates of new products have not improved significantly, despite decades of research on product adoption (Castellion and Markham, 2013; Dijksterhuis, 2016; Cooper, 1980) and product/brand engagement (Brodie et al., 2011; Bowden, 2009; van Doorn et al., 2010). Indeed, initiating engagement with consumers from the moment of product launch remains a challenge for novel products, defined here based on Rogers' (2003) as "*an idea, practice, or object that is perceived as new by an individual*" (Rogers, 2003, p.12). Hence, there is a need to consider new conceptual approaches, such as actor engagement, to understand this phenomenon. Thus, this paper considers the perspective of the focal actor and investigates how a focal actor initiates engagement with novel products. It provides a conceptual framework reflecting the process of initiating actor engagement, specifically outlining the roles of vicarious learning and legitimacy in this process.

Actor engagement is defined as "*both the actor's disposition to engage, and the activity of engaging in an interactive process of resource integration within a service ecosystem*" (Storbacka et al., 2016, p. 3008). Hence, it recognises the interaction between the individual focal actor, the focal product/brand, and other actors in the ecosystem. It is important to note that the term interaction is used in this paper. While acknowledging the lack of reciprocal action in the context of a food product, the term interaction aligns with much of the academic literature on customer or actor engagement related to brands (i.e., Hollebeek and Chen, 2014; Hollebeek, 2011; So et al., 2014) and is used here synonymously to the term "interactive experiences" utilised

by Brodie et al. (2011) in their foundational paper. The ecosystem is a "*relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional logics and mutual value creation through service exchange*" (Vargo and Akaka 2012, p. 2007), and thus as "*loosely coupled, interconnected, and nested*" systems (Vargo, Wieland and Akaka, 2015, p. 70). By examining actor-to-actor interactions in the ecosystem, we consider how indirect, non-physical interaction with the novel product enables individuals to learn about the product, imagine using it, and anticipate the relevant outcomes of its use. It is through this process that actors establish emotional and cognitive associations with the novel product, and create meanings (Schifferstein, 2016) about its value propositions, hence initiating engagement with the novel product.

While scholars have investigated engagement with brands (Bowden, 2009; De Vries and Carlson, 2014), within online communities (Dessart et al., 2015; Marbach et al., 2016; Vivek et al., 2012), and even in the new product development process (Fernandes and Remelhe, 2015; Zhang et al., 2015), little is known about the initiation of engagement with novel products. Indeed, scholars have noted that individuals have a pre-disposition to engage with an established product (Brodie et al. 2013). Yet, little consideration has been given to how consumers engage when they have had no previous experience with that product. We argue that vicarious learning occurs as actors engage with each other in relation to the novel product. Although Hollebeek et al. (2016) propose that learning is conducive to engagement, they fail to discuss the mechanism that learning plays in facilitating engagement. We thus explore the nature of vicarious learning as an important mechanism in initiating engagement with novel products.

Hence, our first research question:

RQ1: What role does vicarious learning play with respect to initiating actor engagement with novel products?

After establishing a conceptual understanding of how individuals initiate engagement with novel products, this paper then proposes that ongoing engagement will only occur when there is congruency in the consumers' legitimacy judgement of the novel product. Previous research has established that a novel product has to develop legitimacy prior to adoption; as such, there needs to be a generalised perception or assumption that the product is desirable, proper or appropriate within a socially constructed system of norms, values, beliefs and definitions (Suchman, 1995; Denegri-Knott and Tadajewski, 2017; Johnson et al., 2006). We extend this research by illustrating how engagement with a novel product is both facilitated through, and facilitates, the legitimisation of the product, using an insect-based product as an illustrative case study (Siggelkow, 2007). Researchers consider insect-based food products as "food of the future" due to environmental benefits (Shelomi, 2016), nutritional content (Payne et al., 2016) and the potential to be a meat substitute with its high protein content (Van Huis, 2016). However, an individual might not see these products as legitimate, as they not commonly used in their society.

Legitimacy is a socially constructed concept and acknowledges the interactions and reciprocal influences between the individual and collective levels of analysis (Johnson et al., 2006). Taking an ecosystem perspective enables us to consider what is occurring at the collective, or meso/macro-, level which provides a greater understanding of the situational and transformational mechanisms at play (Storbacka et al., 2016). Indeed, such perspective is critical not only in the context of engagement but also more broadly

when examining the collaborative process of innovation (Vargo et al., 2015). When actors in the ecosystem interact and engage with each other in product-related interactions at a micro-level, they build the legitimacy of the product at a collective, or meso/macro-level. In turn, individuals consider this collective, meso/macro-level legitimacy when deciding whether or not to continue to actively engage with the novel product. If the value proposition of the novel product is considered legitimate, then an individual is more likely to engage with other actors in relation to the novel product and learn vicariously from them. However, if the value proposition is not considered legitimate, the individual will not further actively engage. As such, we propose a process where actor engagement is both influenced by, and builds the legitimation of the novel product.

RQ2: How does the concept of legitimacy expand our understanding of actor engagement within an ecosystem?

This paper is the first to utilise an actor engagement lens to consider the process of initiation of engagement with a novel product rather than existing products. Doing so generates not only a unique conceptual advancement of the actor engagement literature but also offers important insight for researchers and practitioners seeking to place novel products into their chosen markets utilising engagement as a marketing strategy. Further contributions of this research lie in the theoretical framing of how actor engagement with novel products emerges within the ecosystem, drawing on both the concept of vicarious learning and the theory of legitimacy as components of the engagement process. The resulting conceptual framework offers a solid foundation for future research in this area, framed by our presentation of an extensive research agenda.

The remainder of this paper details the conceptual development and related propositions, starting with a discussion of actor engagement with novel products before an elaboration of the role of vicarious learning and legitimacy and followed by an illustrative case study using insect-based novel foods to explicate how legitimacy both influences and is influenced by actor engagement. This case has been selected as it provides a plausible illustration of the theoretical constructs and relationships presented in this paper. Considered as a novel food in Western countries, and thus food that is not commonly consumed throughout the history by humans (FSANZ, 2017; European Commission, 2017), insect-based food products provide an insight on how individuals initiate engagement with a product and explicate how legitimacy both influences and is influenced by actor engagement, which makes it adequate to illustrate the conceptual framework presented in this study (Siggelkow, 2007). This conceptual paper concludes with theoretical and managerial implications, while also laying out an agenda for future research that builds on the propositions put forth in this paper. It thus contributes to marketing theory and in particular engagement theory in several important ways.

2.2. ACTOR ENGAGEMENT WITH NOVEL PRODUCTS

Extant engagement literature focuses on the internal disposition and interactive process that occurs between the focal actor and the focal object (Brodie et al., 2011; Storbacka et al., 2016). Consistent with the view of Chandler and Lusch (2015, p. 11), we define the actor's disposition to engage as their "*internal proclivities, or psychological states*", which refer to the capacity of actors to appropriate, reproduce, or potentially innovate upon connections with respect to their personal and collective ideals, interests, and commitments (Emirbayer and Goodwin 1994). These dispositions may be unexercised, or nullified by other mechanisms (Sayer, 1997) and hence we propose to consider

legitimacy as a mechanism which may influence an actor's disposition to engage. However, we firstly recognise that this state can only be achieved when an actor experiences an interaction with the focal novel product (Brodie et al., 2011).

Engagement is a multidimensional concept that constitutes cognitive (Dessart et al., 2016; Vivek et al., 2014), emotional, behavioural (Dessart et al., 2016) and social engagement (Vivek et al., 2014). Previous research proposed that the psychological processes of engagement for new and repeat customers are different (Bowden, 2009). As actors have not previously experienced novel products, they lack associated knowledge structures and therefore tend to engage more cognitively to process information associated with the product (Hirschman, 1980). However, repeat customers possess the relevant knowledge and develop an emotional bond with the service or product more easily (Bowden, 2009). In line with this research, we propose the need to specifically examine engagement with a novel product. While customer engagement with the new product development process has recently been considered (Hoyer et al., 2011; Fernandes and Remelhe, 2015; Zhang et al., 2015), scholars are yet to examine customer, or actor, engagement with novel products.

Embedded in our understanding of a novel product is the notion that an individual has not previously experienced it. However, the notion of customer engagement is grounded on the premise that individuals are involved in an interactive experience with a focal object (i.e., a product) (Brodie et al., 2011). Hence, it must be questioned at what point an actor interacts with, and therefore engages with, a novel product. Desmet and Hekkert (2007) articulate three dimensions of interaction: instrumental interaction, non-instrumental interaction and non-physical interaction. Instrumental interaction is where a person uses, operates and manages the product in the form it is intended. Non-

instrumental interaction is not related to the function of the product but still relates to a physical interaction with the product (e.g., "someone can be delighted by the soft touch of a seat or inspired by the brilliant shine of a car"). Non-physical interaction refers to having thoughts related with the imagination of having the product, using it, as well as the consequences of it. Fantasising about the product and anticipating the use of the product are examples of non-physical interaction (Desmet and Hekkert, 2007).

As novel products are ones that individuals have not previously experienced, initial actor engagement often takes the form of non-physical interaction. Based on information from other actors and messages from marketers, actors produce cognitive associations and emotions, as well as create meanings associated with the product (Hekkert and Schifferstein, 2008; Schifferstein, 2016). Such non-physical interaction constitutes engagement; engagement that has yet received little attention in the literature despite being critical to engagement with novel products. In the context of insect-based products, the majority of the population in Western countries are not yet familiar with the consumption of insect-based products (Caparros et al., 2016). However, a trend in luxurious restaurants to serve insect-based products can be observed (Penberthy, 2016). Individuals that have tried the novel food may comment with other actors that are not so knowledgeable about these products. This is an example of a non-physical interaction between two actors, where the acquaintances imagine the flavour and texture of the product while the other person comments about his/her experience (Schifferstein, 2016). This kind of interaction might facilitate the engagement of the other actors with the insect-products.

Proposition 1. Interaction with other actors in relation to a novel product facilitates focal actor engagement with the novel product.

2.3. LEARNING ABOUT NOVEL PRODUCTS THROUGH OTHER ACTORS

In the context of novel products, individuals have not experienced the product themselves, and therefore 'live the experience' through the experiences of other actors. The need to consider other actors aligns with recent conceptualisations of engagement, which recognise that multiple actors exist in a connected system and interact with each other (Akaka et al., 2012; Frow et al., 2014). Indeed, the notion of actor engagement extends the focus of engagement beyond the dyadic customer-firm interaction and takes an ecosystem perspective; thus, providing a more holistic view which captures the sociological alongside the psychological understanding of engagement (Storbacka et al., 2016). To better understand engagement with novel products from this perspective, we consider how actors initiate engagement with novel products through their interactions with, and learning from other actors.

Specifically, we propose vicarious learning as a valuable theoretical framework to understand the mechanism of engagement with novel products. Vicarious learning involves learning through observing and experiencing indirectly the consequences of others (Bandura, 1977) without taking the risk to experience it themselves (Hirschman, 1980). Within social cognitive theory, vicarious capability is explained as the human's capacity for "*observational learning that enables them to expand their knowledge and skills*" through information conveyed by various actors around them (Bandura, 2001, p. 271). Hibbert et al., (2012) explicate this process by identifying that individuals within a service system deploy their own operant learning resources (i.e., intelligence and imagination) with the operant (e.g., specialist knowledge, lived experiences) and operand resources (e.g., documented information) of organisations and other actors in

the network. Thus, a focal actor gathers information and builds his/her knowledge structures through interactions with other actors in the ecosystem (e.g., friends, experts, celebrities, and the firm itself), and hence vicariously learns from the direct experiences of other actors with the novel product.

As the focal actor learns about the other actor's perceptions of the product characteristics, its functionality, and the emotional connection between the actor and the product, the focal actor starts to visualise the product and its use (Schifferstein, 2016). As part of this process, the focal actor makes cognitive and emotional investments in the novel product and thus engages with it by means of a non-physical interaction (Desmet and Hekkert, 2007). The focal actor gathers insight and develops mental rules and guidelines for processing relevant information about the novel product (Hollebeek et al., 2016; Sinkula et al., 1997). As a result of this process, they develop expectations and emotions about the novel product prior to its use (Wood and Moreau, 2006); thus reflecting cognitive and emotional engagement. Further, as new knowledge develops ensuing behavioural modification based on this knowledge occurs (Hollebeek et al., 2016).

The importance of vicarious learning for novel products comes to the fore when consideration is given to the emergence of value propositions. Indeed, a value proposition invites actors to engage with one another in order "*to attain value, whether it is economic, financial, or social value or some combination of these*" (Chandler and Lusch, 2015, p. 6). Value propositions need to be sufficiently intense to elicit engagement (Chandler and Lusch, 2015). Uniquely and phemenologically assessed by each actor; it is the actor who determines the value of a novel product for themselves (Vargo et al., 2008) within its existing market contexts and social structures (Bolton et

al., 2004). While unique to the individual actor, value propositions are socially constructed through interactions with the wider ecosystem. Indeed, while traditionally customers were deemed to create meaning about a value proposition through interactions with the firm (e.g., product advertising), it is now understood that value propositions are shaped in conjunction with other actors in the ecosystem (Chandler and Lusch, 2015; Cova and Salle, 2008). Hence, actors learn vicariously from each other and shape the meaning and value proposition associated with the new product through these interactions (Akaka et al., 2012).

Previous literature has recognised that customers rely on vicarious experience as an indicator of potential service performance (e.g., Edvardsson, Holmlund, and Strandvik, 2008), however, an examination of the role of vicarious learning and the development of value propositions in the context of actor engagement with new products is missing. While Hollebeek, et al. (2016) recognise learning as an important complementary condition for engagement, we argue that vicarious learning is the *mechanism* that enables actor engagement with a novel product. For example, these products might experience resistance by individuals as they are not familiar with the product. While the individual who has experienced insect-based products interact with a potential adopter, the latter learns vicariously through the experience of the other. Sensory attributes are important factors that might influence the acceptance of the novel food. Therefore, as the individuals that already tried insect-based products communicate the positive consequences of eating the product, the potential adopters become aware of such consequences and, in turn, engage with product. Consequently, vicarious learning facilitates actor engagement with the insect-based product (see Figure 1).

Proposition 2. Vicarious learning facilitates focal actor engagement with the novel product.

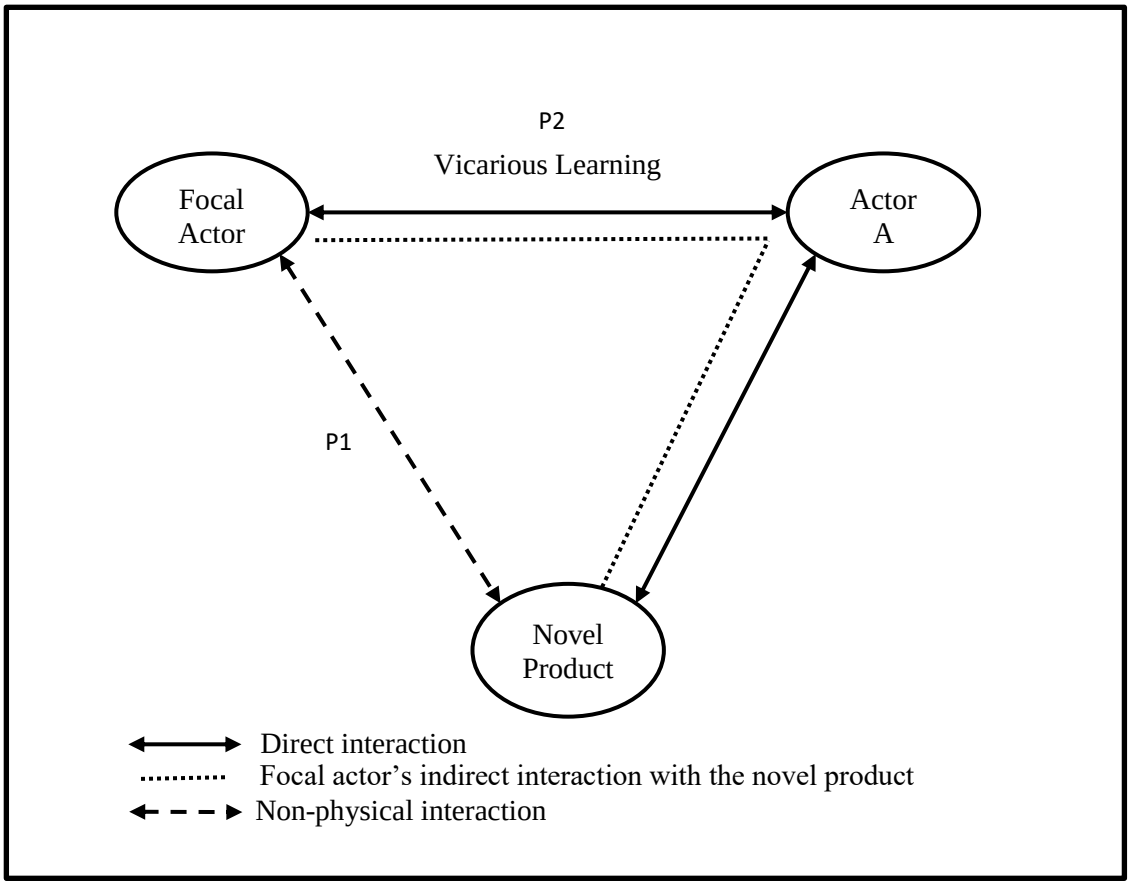

Figure 1. Actor-to-actor interactions facilitate engagement through vicarious learning

Table 1: Key Definitions in the Conceptual Framework

Concept	Definition	Theoretical hierarchy
Actor Engagement	*"both the actor's disposition to engage, and the activity of engaging in an interactive process of resource integration within a service ecosystem"* (Storbacka et al., 2016, p. 3008),	*Actor Engagement* is the focal construct under investigation. The purpose of this paper is to provide a conceptual framework for how to initiate actor engagement with novel products
Novel Product	*"an idea, practice, or object that is perceived as new by an individual"* (Rogers, 2003, p.12).	The *novel product* is the focal object of the actor engagement. The focal actor (indirectly) interacts with the focal object through other actors in the ecosystem.
Vicarious Learning	*"observational learning that enables individuals to expand their knowledge through information conveyed by various actors around them"* (Bandura, 1977; 2001)	*Vicarious learning* is the mechanism by which the focal actor receives knowledge from other actors in the ecosystem and hence is able to construct meaning for the value proposition of the novel product
Legitimacy	*"generalised perception or assumption that the [product is] desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions"* (Suchman, 1995, p.574).	The *legitimacy* of the novel product is evaluated by the focal actor to determine whether to engage with the novel product in an ongoing manner.
Ecosystem	*"relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional logics and mutual value creation through service exchange"* (Vargo and Akaka 2012).	The *ecosystem* is the conceptual frame that enables us to consider the interaction among actors and the level of aggregation at which these interactions occur.

2.4. THE ROLE OF LEGITIMACY

Drawing on the concept of legitimacy, for product adoption to occur, an individual needs to legitimise the value proposition of the product (Denegri-Knott and Tadajewski, 2017; Aarikka-Stenroos and Sandberg, 2012). This means that the actor has a "*generalised perception or assumption that the [product is] desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions*" (Suchman, 1995, p. 574). Typical of most contingency views, legitimacy is understood to occur through a perceived degree of fit between the legitimacy object and its context. A focal actor will consider the value proposition of a novel product and determine its congruency with their individual norms, values and desires, and those of the collective, to evaluate its legitimacy. Legitimacy has been a widely researched phenomenon in the management literature, yet has been less frequently considered in the marketing literature (e.g., Yang, Su and Fam, 2012).While previous research states that consumers' legitimacy affect market dynamics (Scaraboto and Fischer, 2013) and influences the development of emerging markets (Humphrey, 2010), we propose that legitimacy not only impacts the engagement with novel products but that such engagement affects legitimacy at a collective level.

While acknowledging different perspectives of legitimacy, namely legitimacy-as-property, legitimacy-as-process, and legitimacy-as-perception (Suddaby et al., 2017), this paper specifically draws on legitimacy-as-perception. This perspective understands legitimacy as a form of socio-cognitive perception or evaluation undertaken by an individual actor. It thus recognises that legitimacy is socially constructed, and acknowledges the interactions and reciprocal influences between the individual and collective levels of analysis (Johnson et al., 2006). Hence, it is conceptually congruent

with the concepts of actor engagement, vicarious learning, and the ecosystem perspective adopted in this paper.

Legitimacy-as-perception adopts a multi-level approach, because the assumption that the process is socially constructed recognises interactions and reciprocal influences between the individual and collective levels of analysis (Johnson et al., 2006). At the micro level, legitimacy is an individual judgment (Suddaby et al., 2017), or assessment of the legitimacy of an object (e.g., a novel product). An individual evaluates the novel product and forms a judgment about its legitimacy, leading to engagement behaviours based on that judgment. At the micro-level, there are three main types of legitimacy that have been explored, instrumental, relational and moral legitimacy (Tost, 2011).

At the macro-level, legitimacy represents a shared opinion by the majority of actors in the ecosystem about the legitimacy or validity of an object. Multiple actors in the ecosystem observe the actions of individuals and evaluate this to form a legitimacy judgment at a collective level (Bitektine and Haack, 2015). Indeed, legitimacy evaluations include the sense-making of collective actors, who then act upon this judgment forming institutional behaviours and norms (Bitektine and Haack, 2015). The individual actors perceive macro-level properties, consult the opinions of other actors, make their own legitimacy judgments, and then act upon those judgments, in a dynamic process further influencing the macro-level (Bitektine and Haack, 2015). At the macro-level, there are two main types of legitimacy that have been explored; regulative and cognitive legitimacy (Bitektine and Haack, 2015). The micro-to-macro translation of legitimacy remains largely underexplored (Suddaby et al., 2017).

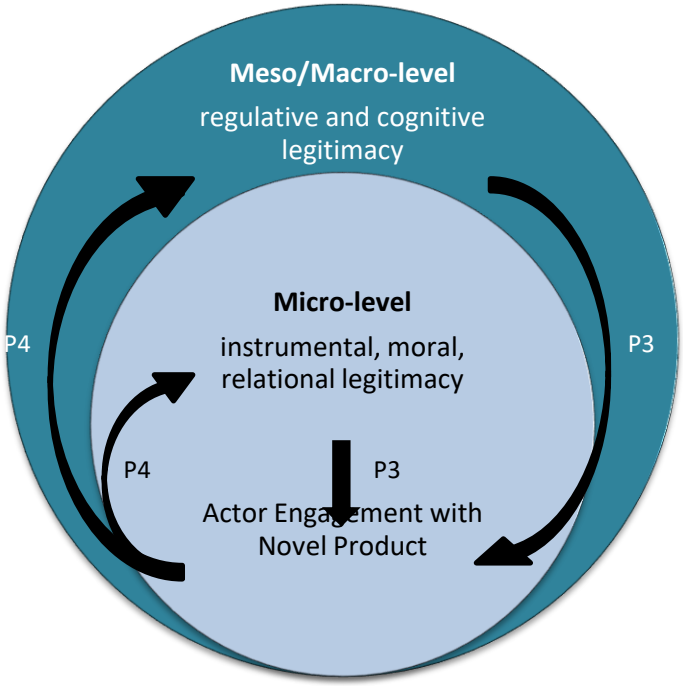

Figure 2. The role of legitimacy in facilitating actor engagement

Consistent with the social psychologists who typically consider legitimacy as perception (e.g., Tost 2011), we first consider the evaluation of legitimacy at the micro-level and illustrate its facilitation of actor engagement using our illustrative case of an insect-based food product as a novel product. An insect-based product would be a new value proposition for many customers in the Western World and would challenge the legitimacy perspectives of many potential consumers.

Instrumental legitimacy assesses whether the novel product achieves the practical outcomes or utility for which it was intended, i.e., its effectiveness and efficiency (Suchman, 1995; Tost, 2011). Considering the steps to legitimise a new product (Johnson et al., 2006), instrumental legitimation is important as it consolidates that the benefits that the novel product offers to the individual are aligned to the individual's needs and wants (Rogers, 2003). For example, insect-based food products are a source of proteins that could substitute for conventional meat such as beef (Deroy et al., 2015)

and has nutritive value (Rumpold and Schlüter, 2013). Although it is a product that is not considered appropriate within some countries (Tan et al., 2016), entities such as governments, research institutes, and industry bodies could communicate these utilitarian benefits to individuals, building knowledge and congruent legitimacy. Such legitimacy is important for stimulating engagement with a novel product, as it facilitates the actor's awareness and interest, necessary for engagement with the new product to occur. Without instrumental legitimacy, it is difficult for an actor to establish an ongoing cognitive, emotional or behavioural engagement with a novel product, as they do not believe that the novel product will be of benefit to them.

Moral legitimacy refers to the degree to which the novel product is considered congruent with the norms and values of the individual (Scott, 1995; Tost, 2011). Taking the insect-based food products context, there is a growing awareness of greenhouse gas emissions in meat production (Belluco et al., 2013), and hence an increasing focus on alternative, environmentally friendly sources of proteins in the food market (Nielsen, 2014). Individuals with environmental concerns would be willing to learn more about the novel product, reflecting the values and norms that the value proposition represents to them. Novel products with moral legitimacy provide an actor with a sense of security that a broader group with similar moral values has accepted the novel product; hence facilitating emotional engagement with the product. If an actor finds that the novel product is incongruent with the values and norms of the ecosystem, they will question its consistency with their personal values and moral obligations. Hence, a fear of shame and discrimination will act as a barrier to engagement.

Relational legitimacy represents the degree by which the value proposition of the novel product affirms social identities and reinforces the sense of self-worth within a group

(Tost, 2011). Currently, more and more consumer groups are looking for products that identify them as belonging to a social group. Individuals belonging to groups associated with local food produce, organic products, and sustainable products share a social identity and a status in the society associated with these groups. Consuming insect-based food products will give them a sense of acceptance and reputation within these social groups, which translates into a sense of self-worth (Tyler, 1997). This will provide actors with emotional and social engagement in the context of the novel product, stemming from the need to build their identity by connecting with others from the group. Alternatively, if an actor perceives the novel product to lack relational legitimacy, negative implications for their self-worth will act as a barrier to engagement.

In addition to the individual giving consideration to the legitimacy of their own individual value proposition of the novel product at the micro-level, they are also influenced by their perceptions of the value proposition at the collective or macro-level. Legitimacy at the macro-level represents the collective legitimacy judgment of all actors in the network and is comprised of regulative and cognitive legitimacy.

Regulative legitimacy rests on the novel products' conformity with the rules and regulations that can regulate individuals behaviours with legal punishments or rewards (Johnson et al., 2006; Scott, 1995). Regulative legitimacy provides social cues that indicate collective-level legitimacy but does not represent a substantive domain of judgment content in itself (Tost, 2011). It demonstrates the focal object is validated by institutions that create regulations and comprises the legal system (Bitektine and Haack, 2015). In the case of novel food, regulative legitimacy is congruent when the novel food accomplishes legal, regulations or standards from an organisation (e.g., Food Standards

Australia New Zealand) (Scott, 1995). These regulatory achievements are perceived to be an indication of a collective agreement regarding the validity of the novel food product. Standards and regulations are important in the food industry, as actors perceive an associated high degree of risk when ingesting novel foods (Steenis and Fischer, 2016). To draw on the example of insect-based food products, regulations in some countries and continents, such as Europe, consider insects as evidence of food deterioration and classify insects as a foreign body (Belluco et al., 2013). This perspective makes insect-based products difficult to commercialise due to the lack of clarity surrounding the regulative legitimacy of these products (Marberg et al., 2017). In such circumstances, the perceived lack of regulative legitimacy would likely see an individual not engage with the novel product, for fear of self-harm or punishment within the ecosystem (Scott, 1995). Engagement could thus be facilitated by the development of a norm or regulation governing these products and assuring actors that the product is safe and legal.

Cognitive legitimacy occurs when there is a high knowledge or understanding of the novel product (Suchman, 1995; Aldrich and Fiol, 1994) and it becomes so well known that it is taken for granted, and therefore is often characterised by a lack of questions or content (Tost, 2011). This is often manifested when the media make judgments about the novel product and the knowledge is common among the individuals in the society (Bitektine and Haack, 2015). For example, eating insects is widely accepted in some Asian countries but has not been broadly adopted in Western countries (Verbeke, 2015). Novel food such as insect-based food products potentially challenge cognitive legitimacy, as they possess a certain amount of newness and hence are not 'taken for granted' (Marberg et al., 2017). The relationship between cognitive legitmacy and engagement is potentially complex. Indeed, if perceived as not appropriate, they have

the potential to generate disgust and fear, in turn negatively influencing the willingness to engage with, or adopt, insect-based products (Tan et al., 2016). The integration of more cognitively legitimised products in Western countries such as hamburgers and cookies with insect-based products could minimise the negative emotions towards insect-based products (Tan et al., 2016; Caparros et al., 2016), and thus encourage engagement. In contrast, while the existence of cognitive legitimacy can mean that individuals interact with a novel product (if other legitimacy types are present), the lack of cognitive legitimacy could lead to an actor cognitively engaging with the product to learn more or understand why it is not commonly accepted.

A focal actor develops a propriety legitimacy judgement, based on their judgment of the instrumental, moral and relational legitimacy of the novel product. The propriety judgment occurs when the individual assesses whether the value proposition (e.g., product attributes) is legitimate or illegitimate for the specific social context (Bitektine, 2011; Tost, 2011). In other words, the new product is legitimate if the individual's own judgment of the product is desirable, correct and appropriate (Tost, 2011). The overall legitimacy judgement will also be influenced by the collective-level regulative and cognitive legitimacy as described above (Bitektine and Haack, 2015). A validity judgment is made based on the individuals´ beliefs that the collective evaluation of the value proposition (Bitektine and Haack, 2015) of the novel product is correct and it is aligned with the social norms (Thomas, 2005). This judgment is influenced by a shared majority opinion and it is frequently represented by entities in the society such as media and government (Bitektine and Haack, 2015).

The overall legitimacy judgement, informed by its constitutional parts, will influence the engagement of the focal actor. As a result of the perceptions of the value proposition

and the evaluation of its legitimacy, the individual will enact various engagement behaviours (Chandler and Lusch, 2015). These engagement behaviours could include seeking further information, engaging in word-of-mouth behaviours, or even trialling the novel product. While an evaluation of the value proposition that is congruent with the values and needs of the focal actor results in a positive overall legitimacy judgment and enhances engagement with the novel product, non-congruency could result in a negative legitimacy judgment and result in a decision to disengage with the novel product. That means in the case of insect-based products that individual actors will have a perception of the instrumental, moral and relational legitimacy which in turn will influence engagement. For example, if the actor perceives positively the nutritional benefit of consuming the product or the environmental outcome of consuming it, the actor might recommend the product or gift to friends, increasing the feeling of self-worthiness by supporting the consumption of these products. As a consequence, the potential adopters will have a positive overall perceived legitimacy of the value proposition, which might influence positively actor´s engagement with a novel product.

Proposition 3. The perceived legitimacy of a product's value proposition influences an actor's engagement with a novel product.

Johnson et al. (2006) suggest the following stages to legitimation of a new social object: innovation, local validation, diffusion, and general validation. First, a need and a desire for the novel product exists among the actors (i.e., at the micro level). There would be an awareness of the product, in response to the needs of the actor. Then, the novel product is validated by these actors, who may be initiators that have influence in the system. Once the local group of actors validates the novel product, it can diffuse to other groups and eventually the whole community, at the meso-level, takes for granted

the novel product (Johnson et al., 2006). In this way, legitimacy is a social process that can create markets for the novel product. (Humphreys, 2010; Scaraboto and Fischer, 2013).

If actors who are unfamiliar with the novel product witness behavioural engagement, and the focal actor shares their knowledge with such actors, widespread vicarious learning occurs. We argue here that the extent to which engagement occurs, and whether the engagement is positive or negative is a product of the legitimacy of the emerging value prepositions of the novel product. Indeed, engagement plays a critical role in the legitimisation of novel products due that the diffusion of innovation through engagement is an institutional process where the legitimacy dimensions lie (Humphrey, 2010). For example, in the case of high resistance to try insect-based product in some countries due to the fact that cognitive legitimacy is incongruent (i.e., they are not commonly accepted), facilitating word-of-mouth behaviours and proactive sharing of experiences related to insect-based products will help enhance the diffusion of innovation and hence, changing people´s mindset about insect consumption.

These product-related interactions will facilitate behavioural, cognitive and emotional engagement but will also help to legitimise the novel product. The social interaction and discussions pertaining to the product influence the individual's collective legitimacy judgment (Bitektine and Haack, 2015). This will prompt them to further engage and vicariously learn about the novel product from the other actor who had previously experienced the novel product. If the value proposition is legitimised by more people, the diffusion of the novel product occurs and a new market may open (Scaraboto and Fischer, 2013). This creates a recurrent process of initiating engagement with novel products among different actors, in which vicarious learning and legitimacy play an

underlying role to enhance engagement. Specifically, engagement behaviours will be visible to people that have not experienced the product, such as insect-based food products. For example, word of mouth about the environmental or nutritional advantages of such ingredient helps diffuse the benefits of the product; therefore, instrumental legitimacy is likely to increase. Thus, as more people are engaged, the product will be more familiar towards potential adopters, facilitating cognitive legitimacy.

Proposition 4: Engagement with other actors regarding a novel product builds the legitimacy of that product.

While the congruency of the overall legitimacy judgment enhances the engagement with the novel product, the incongruence in the overall legitimacy judgment will create a conflict in the individual´s judgment and will increase the reluctance to vicariously learn about the novel product and not to initiate engagement, or if engagement has commenced, to disengage with the novel product. Individuals have varying judgments regarding legitimacy.

Different legitimacy types may be stronger than other types, therefore, where one actor assesses the value proposition and deems the novel product to be legitimate, another actor applies an evaluation with a stronger emphasis on a different legitimacy type, or with different personal needs and wants, and determines the novel product to be illegitimate and thus disengages.

2.5. THEORETICAL IMPLICATIONS

The conceptual development presented in this paper offers several important theoretical contributions. Specifically, while engagement with established products and other focal objects is well understood in the literature, previous conceptualisations built on the assumption of an actor's previous experience with the product. This paper is the first to offer a conceptual framework framing an actor's initial engagement with a novel product. Building on current engagement literature, we introduce to the engagement discourse a new form of interaction (Desmet and Hekkert, 2007), in which individuals interact indirectly with the novel product through other actors. We then explicate the mechanisms of vicarious learning and legitimacy to explain the process of initiating engagement with a novel product.

Drawing on the ecosystem perspective of engagement (Storbacka et al., 2016), actors are interconnected and interact with each other. If these interactions revolve around a novel product, such interaction offers an opportunity for the unexperienced actor to vicariously learn from the actor already engaged with the novel product. Vicarious learning is facilitated by social engagement where the actor feels connected to other people (Vivek et al., 2014), which in turn encourages the actor to exchange experiences and knowledge about the novel product and learn from others. While learning has previously been noted as a complementary condition for engagement (Hollebeek et al., 2016), its critical nature for stimulating engagement with novel products offers an original and important contribution.

Further, introducing the concept of legitimacy to engagement research offers a novel and crucial contribution to theory. We propose that initiating engagement with the novel

product is influenced by, and influences, the legitimacy of the novel product. Consistent with the perspective of dispositional properties of actor engagement (Groff, 2013), the disposition to initiate engagement with the novel product depending on the legitimacy judgment that exists is more likely to learn vicariously from other actors and the disposition to engage will be effectuated. Yet, if the value proposition is seen as illegitimate, the individual's disposition to engage will not be effectuated. If the actor initiates engagement and cognitively and emotionally engages with the novel product, this will manifest in behavioural engagement, which will play an important role in the legitimisation of the novel product affecting the collective judgment of legitimacy. This conceptualisation of the process of legitimacy and engagement with novel products offers an important foundation for future empirical research.

By adopting an ecosystem perspective, we provide an understanding of the transformation mechanism at a micro-level (i.e. vicarious learning and engagement), which builds legitimacy at both a micro- and meso-level and hence facilitates the diffusion of engagement with the novel product at a collective level. In this way, we provide an illustrative case which support the argument by Humphreys (2010) that legitimacy is a social process that can create markets for the novel products.

2.6. MANAGERIAL IMPLICATIONS

A range of managerial implications arise from the findings, supporting practitioners in generating initial engagement and, in particular, initial engagement with their novel products. Specifically, the argument presented above suggests the need for marketers to encourage vicarious learning and embrace its role in initiating engagement with a novel product. In addition to creating buzz around novel products feeding communication

about it amongst individuals, companies may pay more attention to blogger, celebrities and other actors that could influence potential customers to learn vicariously. Another way to enhance vicarious learning is by communicating potential benefits of the novel product, leading to a wider dissemination of knowledge and therefore a more congruent legitimacy judgment (Aldrich and Fiol, 1994).

Indeed, another recommendation arising from this research is the need for marketing strategies to reinforce legitimacy in order to enhance people to maintain and extend their engagement with the novel product as well as to discuss the product with others. For example, consider the trend of developing insect-based food products (e.g., cricket flour). Although insect-based products have beneficial nutrients, an individual might not see the benefit of eating it due to his/her personal interests. The individual will view the product as incongruent on the grounds of instrumental legitimacy. However, insect-based products have a strong basis to be considered as an ethical product that contribute to a more sustainable environment (Shelomi, 2016). Marketers may emphasise these benefits in their communication and therefore the individual may view the moral ground as legitimate. Additionally, the individual might also be surrounded by people conscientious about the environment and hence feel that their social identity would gain status and respect among their peers by consuming the novel product. In this case, the individual might feel that his/her feelings of self-worth within a group are important and hence view the novel product as having relational legitimacy. Again, marketers could reinforce this through showing the product used in group settings or rewarding advocacy. Due to the dominance of the moral and relational legitimacies, the individual would then view the instrumental legitimacy as congruent after all and/or make an aggregate evaluation and consider the novel product as legitimate.

2.7. FURTHER RESEARCH AGENDA

The conceptual framework (Figure 2) developed in this paper is the first to examine actor engagement with novel products, offering important insights into the relevance of vicarious learning and legitimisation in this context. It thus serves as an important starting point for research examining initial stages of engagement and, in particular, engagement with a novel product. Given the speed of innovation and the increasing pressure on organisations to stay relevant in a competitive global marketplace, the importance of understanding engagement with new products is stronger than ever. Hence, the development of a clear and comprehensive set of future research directions is of value to help inform the ongoing conceptual development of the area. Specifically, future research is required to further elaborate on the role of various actors in the ecosystem, the process of engaging with novel products through vicarious learning and evaluating the legitimacy of the product, and the changing nature of the firm with respect to facilitating engagement with novel products. Furthermore, such research will benefit greatly from a close conceptual integration with the emerging market innovation and shaping literature to further extend the theoretical development across the ecosystem. Specifically, future research may draw and build on learning frameworks developed in this context, such as that offered by Storbacka and Nenonen (2015). Table 2 outlines a set of proposed research questions, framed around the propositions of this paper, examining these foundations of engagement with novel products.

While this research opens up several areas for future research, close attention should be paid to the various roles of the different types of legitimacy. This paper acknowledges that ongoing engagement will only occur when there is congruency in the consumers' legitimacy judgement of the novel product. However, with different types of legitimacy,

these are often going to be in conflict with each other. Why and when will different types of legitimacy congruency override other dimensions? Even though the congruency of the overall legitimacy judgment plays an important role, there might be exceptions. For example, personality traits have an influence on engagement (Marbach et al., 2016); thus, it might overcome incongruent legitimacy judgments as well. The openness to experience trait makes an individual more open-minded and curious about new things and experiences leading to novelty seeking (Hirschman, 1980). This might overcome the incongruent overall legitimacy judgment and the potential adopter might engage with the novel product.

Table 2. Research Agenda – Engagement with a novel product

Propositions	Proposed research questions
Proposition 1: *Interaction with other actors in relation to a novel product facilitates focal actor engagement with the novel product.*	1. What is the role of different actors (e.g., government, industry, individual actors) in engaging customers with novel products? 2. What is the role of each dimension of engagement (i.e., cognitive, emotional, behavioural and social engagement) with respect to initial engagement novel products? 3. Given the range of emotional responses to novel products, which facets of emotion best capture emotional engagement with novel products? 4. How does the engagement with novel products differ across contexts (food, technological products)? 5. To what extent does (positive and negative) engagement with novel products facilitate product adoption in a social network?
Proposition 2: *Vicarious learning facilitates focal actor engagement with the novel product.*	1. How does the nature of the actor (e.g.,known actor, perceived expert) influence the impact of vicarious learning on actor engagement? 2. Which forms of vicarious learning (e.g., reading, hearing, or directly observing), jointly and independently facilitate engagement with the novel product? 3. Which cognitive and/or learning processes are effectively enacted when vicarious learning facilitates engagement with novel products? 4. How can firms manage knowledge sharing platforms to facilitate vicarious learning for engagement with novel products? 5. How will artificial intelligence and machine learning influence the process of facilitating engagement through vicarious learning? 6. How can higher-level learning, including proactive unlearning, be facilitated by organisations?
Proposition 3: *The perceived legitimacy of a products' value proposition influences an actor's propensity to engage with a novel product*	1. Which types of legitimacy are most relevant in stimulating engagement with a novel product? 2. How does the influence of legitimacy change over time, as the novel product is adopted throughout the ecosystem? 3. Does the influence of different types of legitimacy differ across contexts (e.g., food, technological products)? 4. How does engagement at a micro level build engagement at a meso, or collective, level through different forms of legitimacy? 5. To optimize marketing performance, should firms always seek to maximise the legitimacy of novel products?
Proposition 4: *Engagement with other actors regarding a novel product builds the legitimacy of that product*	1. Which actors (e.g., government, product experts, industry, and individual actors) are more credible for building different types of legitimacy? 2. How do actors resolve conflicting valences of engagement (i.e., positive and negative engagement) within an ecosystem when seeking to establish the legitimacy of novel products product? 3. Which social interactions among actors are more effective at building product legitimacy? 4. What product designs and/or marketing strategies will build legitimacy of novel products? 5. Over time, how does engagement with the product throughout the ecosystem cause the legitimacy of that product to change?

2.8. CONCLUSION

This conceptual paper utilises the lens of actor engagement to bring a unique perspective on the well acknowledged need of organisations to successfully place novel products into competitive markets. Specifically drawing on the ecosystem perspective of engagement, we develop a conceptual framework examining engagement with novel products. This framework explains how actor engagement is facilitated through the vicarious learning that occurs in actor-to-actor interactions. Further, this paper is the first to consider the role that legitimacy plays in both building and engendering engagement with novel products. Thus, this ecosystem perspective helps to identify more meaningful theoretical and managerial implications for actor engagement in the context of facilitating acceptance of novel products. The resultant research propositions put forth provide a framework for a future research agenda, which would expand the theoretical understanding of the connecton of actor engagement, vicarious learning, and legitimacy.

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CHAPTER 3. ENGAGEMENT WITH NOVEL FOOD

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Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
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By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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ABSTRACT

The introduction of novel food into the market is challenging due to consumer resistance. A lack of subjective knowledge and heightened perceived risk, in particular, are barriers known to prevent consumers from adopting novel food. In this study, we utilise the lens of customer engagement, exploring its role to facilitate consumer intentions to adopt food with novel ingredients such as cricket flour and ingredients using nanotechnology Specifically, we investigate the mediating effect of eight engagement dimensions, including emotional, cognitive, behavioural and social facets, on the relationship between product adoption barriers (subjective knowledge and perceived risk) and intention to try and buy. The findings reveal that engagement plays an important mediating role. An analysis of individual facets reveals that emotional engagement and social engagement are more critical to the adoption of the novel food tested than cognitive engagement. In addition to advancing the engagement and food marketing literatures, the current paper offers important insights for managers on how to utilise engagement with novel food to facilitate adoption.

Keywords: Engagement, novel food, intention to adopt

3.1. INTRODUCTION

The introduction of innovative food products to the market has risen in recent years due to a competitive market and the expansion of consumer demand for affordable, convenient, healthy, novel and environmentally friendly products (Nielsen, 2015; Shelomi, 2015). Such demand has driven organisations to create innovative food products utilising novel food technologies and ingredients. However, consumer acceptance of these innovative products has been low (Steenis and Fischer 2016; Tan et al., 2017). Indeed, despite prolific research on consumer acceptance of, and resistance to, novel foods (Barrena, et al., 2013; Ronteltap et al., 2007; Siegrist, 2008; Sodano et al., 2016), food producers' ability to improve adoption remains limited, partly due to an inadequate understanding of the underlying mechanisms that drive acceptance and intention to buy new food products.

Previous studies have identified subjective knowledge and perceived risk as major determinants of consumer resistance towards novel food. Subjective knowledge, or the level of knowledge that the consumers think they have regarding a product (Flynn and Goldsmith, 1999), has a strong influence on consumer attitudes towards novel food (Costa-Font et al., 2008; Piha et al., 2016) and is known to better predict the support of new food technologies, such as nanotechnology, than objective knowledge (Cobb and Macoubrie, 2004; Park and Lessig, 1981). On the other hand, perceived risk is known to be negatively related to one's intention to adopt (Kleijnen et al., 2009), as it influences product acceptance and intent to buy, for example in the context of insect-based products (Baker et al., 2016). In the context of novel food, subjective knowledge is low and perceived risk is high due to the uncertainty of the novelty (Cowart et al., 2008), limiting the success of novel products in the marketplace.

While the existing literature on novel foods indicates that subjective knowledge and perceived risk are related to acceptance (e.g., intention to try) and intention or willingness to buy, there are few studies, if any, that explain the mechanisms underlying these effects. This research thus draws on customer engagement as a central construct in marketing theory to overcome this limitation. Customer engagement focuses on the customers' interactive experiences with a product or service (Brodie et al., 2011). Such interactive experiences may be physical, and thus happen through direct contact, such as eating a cookie. They may also be non-physical, where one engages with the product by anticipating the usage of the product (Desmet and Hekkert, 2007). While not commonly examined, in the context of novel food adoption non-physical interactions are critical, as the customer can engage with the novel food without directly and physically interacting with it. Indeed, potential adopters may already experience emotions and cognitive associations and create meanings attached to the novel food during the distant exploration (Schifferstein, 2016). Similarly, they may share their feelings or thoughts with others prior to actually trying the product. Such interactions reflect the customers' engagement with the novel product. This research will empirically examine customer engagement as mediating the relationship between subjective knowledge and perceived risk, with the outcome variables of intention to try and buy novel food products.

This study is the first to examine the role of engagement in facilitating customer intentions to adopt novel products. Specifically, we investigate the mediating effect of eight engagement dimensions, incorporating emotional, cognitive, behavioural and social facets, on the relationship between two key product adoption barriers (subjective knowledge and perceived risk) and intention to try and buy. Hence building on the extant understanding of the impact subjective knowledge and perceived risk have on

product adoption, we demonstrate the role of engagement in facilitating the adoption of novel food products.

3.2. THE CONTEXT OF NOVEL FOODS

According to Food Standards Australia and New Zealand, novel food refers to non-traditional food that does not have a consumption history by humans (FSANZ, 2017). Consistently, the European Commission defines novel food as: "Food that has not been consumed to a significant degree by humans in the EU prior to 1997, when the first regulation on novel food came into force" (European Commission, 2017). This includes ingredients that have not been used before in Western countries such as insect-based products, or products produced through new technologies such as nanotechnology. Food containing unfamiliar ingredients may be rejected by potential adopters due to a lack of subjective knowledge and high-perceived risk, which make consumers reluctant to try the novel food (Caparros et al., 2016; Lusk et al., 2014).

Food researchers consider insect-based products the "food of the future" due to the environmental benefits that it might provide compared to traditional meat production (Shelomi, 2016). Nowadays, consumers are seeking more environmentally friendly products (Nielsen, 2015), and insect-based products might constitute a suitable alternative product for this trend. While the willingness to try new ingredients (e.g., cricket flour) can be facilitated by utilising it in familiar products (e.g., cookies) (Caparros et al., 2016; Hartmann and Siegrist, 2017; Tan et al., 2016b), consumer resistance towards insect-based food products in Western countries remains high (Tan, et al., 2016a; Verbeke, 2015).

While insect-based products are a novel food with environmentally friendly attributes, nanotechnology is a food processing technology that is developing of a fast pace due to the numerous potential applications in the food industry (e.g., taste, texture, packaging, shelf life, food safety) (Chaudhry et al., 2008; Sozer and Kokini, 2009). In addition to being beneficial for food development, consumers can also obtain benefits from nanoencapsulation. The nanoencapsulation may enclose nutrients and transport them directly to the intestine, which enhances the absorption of nutrients, thus providing health benefits (Gupta et al., 2013). Despite the mentioned benefits, consumers are reluctant to accept nanotechnology compared to other applications (Bieberstein et al., 2013).

Authors have identified several drivers of consumer resistance to novel products (Claudy et al., 2015; Hirschman, 1987), with perceived risk identified as one of the most important antecedents to innovation resistance (Kleijnen et al., 2009). In contrast, subjective knowledge is known as positively affecting attitudes towards food purchasing (Aertsens et al., 2011; Hsu et al., 2016). Table 1 summarises the scholarly research on subjective knowledge and perceived risk in food products and innovation. Despite such extensive knowledge on the relevance of subjective knowledge and perceived risk in this context, sparse research has investigated the mechanisms through which this effect manifests itself, leading to our introduction of customer engagement to this literature base.

Table 1. Literature overview: Relevant findings of subjective knowledge and perceived risk

	Product type	Relevant findings	Type of paper	Source
Subjective knowledge (SK)	Genetically modified food	Positive determinant on willingness to eat	Quantitative	(House et al., 2004)
	Genetically modified food	Influences rejection or acceptance	Review	(Costa-Font et al., 2008)
	Insect food	Positive effect on willingness to buy for Northern but not in Central Europe	Quantitative	(Piha et al., 2016)
	Organic products	Positive effect on attitude with objective knowledge	Quantitative	(Aertsens et al., 2011)
	Organic products	Positive impact on attitudes and intent to buy	Quantitative	(Hsu et al., 2016)
	Organic vegetables	Positively and directly related to attitude and consumption	Quantitative	(Pieniak et al., 2010)
	Functional food	Individuals with higher previous knowledge tend to offer higher premium price for the healthy attribute.	Quantitative	(La Barbera et al., 2016)
Perceived risk (PR)	New product or service	PR has a positive effect on consumer resistance towards innovation	Qualitative	(Kleijnen et al., 2009)
	Insect based products	High PR, low expected liking and intent to buy	Quantitative	(Baker et al., 2016)
	GM food	High PR, low propensity to buy	Quantitative	(Klerck and Sweeney, 2007)
	Nanotechnology food	High PR of GM food correlates with lower willingness to pay nano-food and nano-packaging in France and Germany	Quantitative	(Bieberstein et al., 2013)
	Nanotechnology food	High PR affects negatively willingness to buy	Quantitative	(Sodano et al., 2016)
	Nanotechnology products	PR has a positive effect on reluctance to buy	Quantitative	(Capon et al., 2015)
	Insect based products	No PR associated	Quantitative	(Lensvelt and Steenbekkers, 2014)
	Organic meat	Health risks produces fear, therefore affects negatively purchasing behaviour	Review	(Aertsens et al., 2009)
	Innovation	Likelihood of adoption is greater when consumer perceive few risks on its adoption	Conceptual	(Ram and Sheth, 1989)

3.3. CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The concept of customer engagement enjoys significant interest in marketing and business literature, with prolific research conducted by scholars examining interactions between customers and focal objects, such as virtual communities (Verhagen et al., 2015), brands (Hollebeek et al., 2014b), and services (Bowden et al., 2015; Jaakkola and Alexander, 2014). Defined as a "psychological state that occurs through interactive, co-creative consumer experiences with a focal agent/object" (Brodie et al. 2011 p. 9), customer engagement emphasises the relationship with the focal object (Harmeling et al., 2017), such as novel food.

Customer engagement may be related to the construct of consumer involvement, which is defined as "the perceived relevance of the object based on inherent needs, values and interests" (Zaichkowsky, 1985, p.342). The degree of involvement can be related to the characteristics of the person (e.g., personality traits, values, goals and needs), type of product and the circumstances in which the product is utilised (Solomon et al., 2002). Involvement also depends on the person's motivation. For example, potential adopters may be interested in different factors such as novelty (Hirschman, 1987) and nutritional facts (Mulders et al., 2018). Although the consumer behaviour literature would classify food as a low involvement product, Bell and Marshall (2003) suggests that involvement may be relevant for multiple stages of food consumption beyond purchase, such as acquisition, preparation, cooking, eating and disposal (Bell and Marshall, 2003). It is clear that potential adopters might have high-involvement with food, which evokes engagement as it produces different emotional (Jaeger et al., 2018), cognitive and behavioural associations (Schifferstein, 2016).

While involvement has been of great interest in market research to explain decision-making and product choice (Mittal and Lee, 1989), engagement goes beyond decision-making, by establishing a stronger relationship between the individual and the new product (Harmeling et al. 2017), bringing consequences such as customer satisfaction (Wirtz et al., 2013), commitment and loyalty (Dessart et al., 2016) and brand connections (Brodie et al., 2013). Whereas involvement may include emotional, cognitive and motivational aspects, engagement goes beyond such interest and includes a proactive and interactive relationship with the focal object, which also includes behaviours (Brodie et al. 2011; Hollebeek, 2011) and the interaction with the product in a social context (Vivek et al., 2014). Indeed, previous research suggests that involvement is an antecedent to engagement (Vivek et al., 2012).

Hence, customer engagement is commonly understood as a multi-dimensional construct, including emotional, cognitive, behavioural (Brodie et al., 2011; Dessart et al., 2016; Vivek et al., 2014) and social (Vivek et al., 2014) dimensions (Table 2).

Emotional engagement involves cumulative and lasting levels of emotions experienced by the potential adopter, such as enthusiasm and enjoyment (Dessart et al., 2016; Vivek et al., 2014). Enthusiasm refers to the excitement about, and interest in, the novel food. Enjoyment refers to the pleasure and happiness when an individual is interacting with the novel food. The cognitive dimension is conceptualised as an enduring mental activity that a person experiences while interacting with the focal object (Dessart et al., 2016; Vivek et al., 2014), including attention and absorption. Attention refers to the time a potential adopter spends thinking about the novel food and how attentive he/she is towards the product (Dessart et al., 2016). Absorption reflects the level of concentration

and immersion the potential adopter experiences with the novel food (Dessart et al., 2016).

Cognitive engagement and emotional engagement are considered a mental state and involve motivational drivers (Brodie et al., 2011). Behavioural engagement, on the other hand, involves actions that are observable to other consumers (Kumar and Pansari, 2016; Van Doorn et al., 2010), commonly conceptualised by the dimensions of learning, endorsing and sharing. Learning is the action of seeking for information, ideas or resources from the novel food brand; Endorsing refers to showing support and referring the novel food to other customers; and sharing is the act of providing content, information, and experiences about the novel food to the brand's company (Dessart et al., 2016). Finally, social engagement refers to the connection that the potential adopter considers with others in a social network through the novel food (Vivek et al., 2014). For instance, potential adopters may consume the novel food together with others.

Table 2. Customer engagement dimensions and sub-dimensions

Emotional	**Cognitive**	**Behavioural**	**Social**
Enthusiasm **Enjoyment** **(Dessart et al., 2016)**	Absorption (Dessart et al., 2016; So et al., 2014) Attention (Dessart et al., 2016; Vivek et al., 2014)	Learning Endorsing Sharing (Dessart et al., 2016)	Social (Vivek et al., 2014)

While the marketing literature accounts for a range of outcomes of customer engagement, these are solely based on research studying existing products, and thus engagement involving a physical interaction. In the case of non-physical interactions with the novel food, customers may think about the ingestion of the product, imagine the taste, smell,

texture and the experience of consuming it. It is through that imagination that they engage cognitively and emotionally with the novel food. Such engagement can also manifest through behavioural engagement (Jaakkola and Alexander, 2014; Brodie et al., 2011; Van Doorn et al., 2010), which means that they share their feelings or thoughts about the food with others. Furthermore, non-physical interaction may be enhanced by connecting with others in relation to the novel food, reflecting social engagement (Vivek et al., 2014). For example, people might bring novel food to social events (e.g., birthdays) and share it with others. Engagement through non-physical interaction can be an important pathway to adoption, as customers imagine themselves using the product, eliciting emotions and cognitive associations and creating meanings (Schifferstein, 2016), thus moving one step closer to trial and purchase.

Engagement is proposed to be influenced by subjective knowledge, and thus the level of knowledge consumers think they have regarding a product (Flynn and Goldsmith, 1999). Specifically, the more consumers believe they know about the product, the more likely they are going to consider or imagine the taste, smell, texture and the experience of consuming it (Aertsens et al., 2011). This means that subjective knowledge is expected to increase the non-physical interaction, and thus engagement, between the potential adopter and the novel food. Indeed, consumers with a high level of subjective knowledge are likely to have higher affective commitment (Bowden, 2009), manifested in positive emotions. They will also be able to share their knowledge and connect with others, which will increase the indirect interaction with the product (Hollebeek et al., 2016). Individuals will use knowledge as a resource to influence others through customer engagement behaviours such as word-of-mouth, recommendations, helping other customers, blogging, writing reviews (Van Doorn et al., 2010) and to contribute to the diffusion of the novel product (Verhoef et al. 2010). For example, previous research found word of mouth

effective in increasing the diffusion of the consumption of organic products by communicating observable benefits to people that have not tried organic products (Leelakulthanit, 2015). In addition, consumers with high subjective knowledge can give ideas to the firm for product development and improvement (Kumar and Pansari, 2016). Additionally, they tend to have more confidence, which may facilitate their decision-making (Brucks, 1985). In turn, they are more likely to engage with the novel food, leading to an increased intention to try and intention to buy. Therefore, we hypothesise that:

H1: Engagement mediates the relationship between subjective knowledge and intention to try novel foods

H2: Engagement mediates the relationship between subjective knowledge and intention to buy novel foods

As compared to the positive effect of subjective knowledge, perceived risk emerges due to consumers´ uncertainty towards new products (Ram and Sheth, 1989), leading to consumer resistance (Baker et al., 2016; Cowart et al., 2008). Extant literature has identified different types of risks, such as physical, health, economic, functional (Ram and Sheth, 1989) and psychological risks, which includes perceived incongruity between product and concept (Baker et al., 2016) or the expectation that the product will give an unpleasant sensory experience (Rozin, 2006). While the types of risk will differ depending on the product, any perceived risk is expected to have a negative effect on acceptance and intention to buy novel products (Baker et al., 2016). However, as food is a product that is ingested, perceived risk related to health consequences is of central concern to consumers in this context (Ueland et al., 2012), likely influencing the intention to try and buy.

In addition, high perceived risk causes negative emotions such as anxiety (Klerck and Sweeney, 2007), disgust (Ruby et al., 2015), and fear (Aertsens et al., 2009), which cause potential adopters to avoid interaction with the novel food. Their interaction with the novel food becomes lower due to the lack of social acceptance caused by ethical concerns or health risks (Kleijnen et al., 2009; Baker et al., 2016). As a consequence, consumer tendency of seeking information about new food technologies decreases (Klerck and Sweeney, 2007). Therefore, consumers are not attentive towards the novel food and are not interested in learning more about the product. Hence, perceived risk is expected to limit interaction with the novel product. We thus hypothesise that engagement with the novel food remains low in the context of high-perceived risk, in turn decreasing potential adopters´ intention to try and intention to buy the product. Therefore, we hypothesise:

H3: Engagement mediates the relationship between perceived risk and intention to try novel foods

H4: Engagement mediates the relationship between perceived risk and intention to buy novel foods

3.4. MATERIALS AND METHODS

3.4.1. Stimuli

Two chocolate chip cookie packages were developed to act as stimuli for this study. They were chosen as suitable for this study, as Australian consumers (where this study was conducted) are familiar with the cookies as a product and with related packaging. Such familiarity is important, as research has shown that while consumers may reject a novel ingredient by itself (e.g., crickets), adding a novel ingredient to a familiar food (e.g., cookies) is likely to result in higher acceptance (Hartmann et al., 2015; Tan et al., 2017).

In this case, the insect ingredient is highly processed in the cookie and it is not evident from sensory perception during eating. Furthermore, several studies used chocolate chip cookies using insect-based products as stimuli (Hartmann et al., 2015; Tan et al., 2015). Even though chocolate chip cookies are a food product that is not typically congruent with environmental and health benefits, its adoption may pave the way for the acceptance of novel ingredients (Hartmann et al., 2016). The hedonic nature of chocolate chip cookies and the rational benefits associated with the product may jointly stimulate both cognitive and emotional responses to the packaging. Two packages were designed: one for chocolate chip cookies using cricket flour and another using nanotechnology. Besides the claim and the images associated with the respective ingredients, the other elements of the packaging were identical for both products (see Figure 1). This approach allows us to validate findings across different types of novel products. We designed the packaging to ensure that it was perceived as new. The name of the new brand "Nutrish" was designed to represent a brand with health benefits and perceived as nutritional. These two attributes were evaluated with a pre-test prior to the online survey with a 5-point differential semantic scale and the results suggested that participants perceived health benefits and nutritious with a score above 3.0.

The packages contained a label that showed the newness of the product and indicated health benefits. Both packages have the claim: "High in Protein and Iron". As insect-based and nanotechnology products are different categories of novel products, we added an extra claim on the packaging describing the characteristic of each innovation. The chocolate chip cookies made with cricket flour had the following description: "Insect-based products are a more sustainable protein alternative" with an image of a cricket. The chocolate chip cookies made with nanotechnology had the following description: "Nanotechnology improves stability and bioavailability of nutrients" with an image of

nanotechnology molecules. The packages were shown to the participants at the beginning of the survey. Half of the sample was provided with packaging of chocolate chip cookies using cricket flour and the other half with packaging of chocolate chip cookies using nanotechnology.

Figure 1. Stimuli used in the experimental design

3.4.2. Data collection

This study was conducted in February 2018 with Australian consumers recruited by a panel provider (Qualtrics). Quota variables were utilised to guarantee a representative sample on gender and age. Participants who completed the survey with a total duration time of less than 5 minutes, incomplete surveys, or participants without any variation in their response were excluded from the quota as these factors indicate that the participant did not complete the survey appropriately. Five participants were excluded and the final sample of 176 participants comprised 88 females and 88 males. It included 53 respondents at the age of 18-34 years, 42 respondents at the age of 35-49 years, 45 respondents at the age of 50-64 years and 36 respondents over 65 years.

Overall, 76.8% of the participants indicated that they consumed chocolate chip cookies at least 2-3 times per month, while 83.6% liked chocolate chip cookies in general. Regarding the interest in healthy food, we asked "To what extent are you interested in food with health benefits?" Overall, 4.5% indicated that they were not interested at all, 9.7%, slightly interested, 18.2% moderately interested, 38.1% very interested, 29.5% extremely interested. This corresponds with the Australian Bureau of Statistics National Health Survey, 2014-2015 which indicated that over half (56.2%) of all Australian's considered themselves to be in excellent or very good health.

3.4.3. Measures

Existing measures were adapted to incorporate references to the stimuli, with half of the sample asked questions pertaining to insect-based food products, or cricket flour, and the other half about nanotechnology. Subjective knowledge was evaluated at the beginning of the survey: "How knowledgeable would you say you are concerning nanotechnology/insect-based food products?" using a 5-point scale, anchored by (1) =

"Not at all knowledgeable to (5) = "Extremely knowledgeable" (House et al., 2004). Perceived risk was evaluated with the following question: "How risky do you perceive the use of the Nutrish chocolate chip cookies using nanotechnology/insect-based food products for consumption?" using a 5-point scale, anchored by (1) = not risky at all to (5) = extremely risky (Siegrist et al., 2008).

To measure intention to try, a statement was given to the participants: "Imagine that there is a free tasting session of the Nutrish chocolate chip cookies using nanotechnology/cricket flour" and was evaluated with three items (Fenko et al., 2015; van Kleef et al., 2005): 1) I am going to taste Nutrish cookies. 2) I am thinking about tasting Nutrish cookies 3) It is likely that I will taste Nutrish cookies. The items were measured on a 5-point scale anchored by (1) = "Strongly disagree" to (5) = "Strongly agree". Similarly, intention to buy was measured by providing the following statement "Imagine that the Nutrish chocolate chip cookies using nanotechnology were readily available in the market" and evaluating responses to three items (Fenko et al., 2015; van Kleef et al., 2005): 1) I am going to buy Nutrish cookies. 2) I am thinking about buying Nutrish cookies. 3) It is likely that I will buy Nutrish cookies. The items were measured on a 5-point scale anchored by (1) = "Strongly disagree" to (5) = "Strongly agree". Existing measures were utilised to capture the emotional (Dessart et al., 2016), cognitive (Dessart et al., 2016; So et al., 2014; Vivek et al., 2014), behavioural (Dessart et al., 2016) and social (Vivek et al., 2014) dimensions of engagement (see Table 3).

Table 3. Measures utilised

Scale	Scale	Item	Measure
Perceived Risk (Siegrist et al., 2008)	1=Very low-5=Very high	RISK	How risky do you perceive the use of the Nutrish chocolate chip cookies using nanotechnology /insect-based food products for consumption?
Subjective Knowledge (House et al., 2004)	1=Little knowledge-5=A lot of knowledge	KNOW_BEFORE	How knowledgeable would you say you are concerning nanotechnology /insect-based food products?"
Enthusiasm (Dessart et al., 2016)	1=Strongly disagree – 5=Strongly agree	ENG_ENTH_1	I feel enthusiastic about Nutrish cookies.
		ENG_ENTH_2	I am interested in anything about Nutrish cookies.
		ENG_ENTH_3	I find Nutrish cookies interesting.
Enjoyment (Dessart et al., 2016)		ENG_ENJ_1	When interacting with Nutrish cookies, I feel happy.
		ENG_ENJ_2	I get pleasure from interacting with Nutrish cookies.
		ENG_ENJ_3	Interacting with Nutrish cookies, is like a treat for me.
Absorption (Dessart et al., 2016) (So et al., 2014)		ENG_ABS_1*	When interacting with Nutrish cookies, I forget everything else around me
		ENG_ABS_2	Time flies when I am interacting with Nutrish cookies.
		ENG_ABS_3	When interacting with Nutrish cookies, I get carried away.
		ENG_ABS_4*	When interacting with Nutrish cookies, it is difficult to detach myself.
		ENG_ABS_5	In my interaction with Nutrish cookies, I am immersed.
Attention (Vivek et al., 2014) (Dessart et al., 2016)		ENG_ATT_1*	I like to learn more about Nutrish cookies
		ENG_ATT_2	I pay a lot of attention to anything about Nutrish cookies.
		ENG_ATT_3	Anything related to Nutrish cookies grabs my attention.
		ENG_ATT_4	I spend a lot of time thinking about Nutrish cookies.
		ENG_ATT_5*	I make time to think about Nutrish cookies
Learning from the product (Dessart et al., 2016)		ENG_LEAR_1	I would like to ask Nutrish questions about the cookies.
		ENG_LEAR_2	I would like to seek information from Nutrish about the cookies.
		ENG_LEAR_3	I would like to seek help from Nutrish.
Endorsing (Dessart et al., 2016)		ENG_ENDO_1	I would like to promote the Nutrish cookies.
		ENG_ENDO_2	I would like to try to get others interested in Nutrish cookies.

Scale	Scale	Item	Measure
		ENG_ENDO_3*	I would like to actively defend the Nutrish cookies from its critics
		ENG_ENDO_4	I would like to say positive things about Nutrish cookies to other people.
Sharing (Dessart et al., 2016)		ENG_SHAR_1	I would like to share my ideas with Nutrish.
		ENG_SHAR_2	I would like to share interesting content with Nutrish.
		ENG_SHAR_3	I would like to help Nutrish.
Social Engagement (Vivek et al., 2014)		ENG_SOC_1	I would love to eat Nutrish cookies with my friends.
		ENG_SOC_2	I would enjoy Nutrish cookies more when I am with others.
		ENG_SOC_3	Nutrish cookies would be more fun if other people around me would eat it too.
		TAST_2	I am thinking about tasting Nutrish cookies
		TAST_3	It is likely that I will taste Nutrish cookies
Intention to Buy (Fenko et al., 2015) (van Kleef et al., 2005)		BUY_1	I am going to buy Nutrish cookies
		BUY_2	I am thinking about buying Nutrish cookies
		BUY_3	It is likely that I will buy Nutrish cookies
Consumption frequency		COOKIES_FREQ	On average, how frequently do you consume cookies? (1)= Once or less a month, (2)= 2-3 times a week, (3)= 2-3 times per month, (4)= once a week, (5)= almost every day.
Likability		LIKE_COOKIES	To what extent do you like cookies, in general? (1) = Completely dislike to (5) = Completely like
Health interest		HEALTH	To what extent are you interested in food with health benefits? (1) = Not interested at all to (5) = Extremely interested

*Item was removed during the measurement model analysis

3.5. DATA ANALYSIS

The data analysis was conducted using structural equation modelling with AMOS (version 23) to understand the mediating role of engagement between perceived risk, subjective knowledge and intention to try and buy. First, one-factor congeneric measurement models were tested to assess whether the measured items contribute to each latent construct (Holmes-Smith, 2015). All items had factor loadings higher than 0.7, indicating ideal convergent validity (Kline, 2011). Each construct was evaluated to meet cut-off values proposed by Hair et al. (2012). The measurement models of absorption, attention and endorsing (Table 3) were reduced to three items for the purpose of parsimony.

Second, a Confirmatory Factor Analysis (CFA) was conducted for the constructs comprising three or more items (enthusiasm, enjoyment, absorption, attention, learning, endorsement, sharing, social engagement, intention to try, intention to buy) to assess whether the constructs met the criteria of discriminant validity, convergent validity and construct validity (Hair et al., 2012). The significance of factor loadings of all items on respective constructs were confirmed, ranging from 0.77-0.96 ($p<0.05$ or 0.01). Construct reliability (CR) scores exceeded the threshold of 0.7 (Fornell and Larcker, 1981). Convergent validity for all constructs was confirmed given that the average variance extracted estimate (AVE) values were greater than 0.7 (De Vaus, 2002; Hair et al., 2012). Finally, the results demonstrate discriminant validity, given that AVE exceeds the highest squared correlation for each construct (Table 4). Given the small sample size, composites were created based on factor score weights prior to proceeding with further analysis. The factor score weight for each item was divided by the sum of weights of the construct to produce a proportionally weighted scale score for each item (Rowe, 2002; Plewa et al., 2015). The final composite scores were utilised to build the path model.

To elucidate on the mediation role of engagement, we used bootstrapping in AMOS 23 (2000 samples) to test the direct and indirect effects of subjective knowledge and perceived risk on intention to try and intention to buy.

Table 4. Psychometric properties of the items utilised

Items	Mean	Standard Error	FL	CR	CA	AVE	HSC
ENTHUSIASM				0.92	0.92	0.79	0.70
ENTH_1	3.54	0.08	0.866				
ENTH_2			0.942				
ENTH_3			0.847				
ENJOYMENT				0.96	0.96	0.88	0.68
ENJ_1	2.93	0.09	0.944				
ENJ_2			0.947				
ENJ_3			0.923				
ABSORPTION				0.96	0.96	0.88	0.69
ABS_2	2.35	0.09	0.951				
ABS_3			0.953				
ABS_5			0.913				
ATTENTION				0.92	0.92	0.79	0.69
ATT_2	2.80	0.09	0.928				
ATT_3			0.930				
ATT_4			0.802				
LEARNING				0.90	0.90	0.75	0.60
LEARN_1	3.42	0.09	0.917				
LEARN_2			0.926				
LEARN_3			0.723				
ENDORSING				0.95	0.95	0.85	0.80
ENDO_1	2.86	0.08	0.930				
ENDO_2			0.929				
ENDO_4			0.911				

Items	Mean	Standard Error	FL	CR	CA	AVE	HSC
SHARING				0.94	0.94	0.85	0.80
SHARE_1	2.88	0.09	0.887				
SHARE_2			0.964				
SHARE_3			0.915				
SOCIAL ENGAGEMENT				0.96	0.96	0.88	0.69
SOC_1	3.10	0.09	0.914				
SOC_2			0.952				
SOC_3			0.953				
INTENTION TO TRY				0.94	0.94	0.84	0.82
W_TRY_1	3.51	0.09	0.945				
W_TRY_2			0.855				
W_TRY_3			0.947				
INTENTION TO BUY				0.97	0.97	0.90	0.82
W_BUY_1	3.27	0.09	0.951				
W_BUY_2			0.946				
W_BUY_3			0.955				

FL = Factor Loadings *CR = Construct Reliability*
AVE = Average Variance Extracted *HSC = Highest Squared Correlation*
CA= Cronbach's Alpha

3.6. RESULTS

The direct effect of subjective knowledge and perceived risk on intention to try and intention to buy in model 1 (Table 5) reflects the relationship as it is commonly accepted in the literature (House et al, 2004; Hsu et al., 2016; Baker et al., 2016; Bieberstein et al., 2013). This relationship, tested first, demonstrates a significant effect of both subjective

knowledge and perceived risk on intention to try and intention to buy consistent with previous research. Squared correlations suggest that the antecedents explain 26% of the variance of intention try and 23% of the variance of intention to buy.

The following analysis then introduced eight engagement dimensions to the model (model 2), changing the squared multiple correlations significantly to explaining 69% of the variance of intention try and 73% of the variance of intention to buy. The model demonstrates a reasonable fit (Hair et al. 2012; Kline 2011), with all direct and indirect effects presented in Table 5. With the introduction of customer engagement dimensions into the model, the direct effect of subjective knowledge on intention to try and intention to buy emerged as no longer significant. Instead, the results show significant indirect effects of subjective knowledge onto intention to try and intention to buy via individual dimensions of engagement. Hence, our finding is that engagement mediates the association between subjective knowledge and intention to try and intention to buy, providing support for H1 and H2.

Similarly, with the introduction of engagement, the direct effect of perceived risk on intention to buy becomes insignificant. The significant indirect effect on intention to buy illustrates that the engagement dimensions fully mediate the relationship between perceived risk and intention to buy , providing support for H4. The results demonstrate significant direct and indirect effects of perceived risk on intention to try, suggesting that engagement dimensions partially mediate the relationship between perceived risk and intention to try; providing partial support for H3.

Examining the results in detail, individual engagement dimensions differ in their relevance as mediators. Specifically, six dimensions emerge as significant mediators of

the relationship between subjective knowledge and intention to try or intention to buy respectively. Enjoyment, learning and social engagement mediate the relationship between subjective knowledge and both intention to try and intention to buy, while enthusiasm and sharing mediate the relationship with intention to try only. Finally, endorsement is only relevant for the association between subjective knowledge and intention to buy. The results also demonstrate five engagement dimensions as significant mediators for perceived risk. With enjoyment, learning and social engagement mediating the relationship between perceived risk and both intention to try and intention to buy, endorsement is only relevant for intention to buy, and sharing only relevant to intention to try (see Figure 2 for the respective results).

These results indicate the importance of understanding the role of individual engagement dimensions, as various emotional and behaviousral dimensions play different roles within the adoption process. The emotional engagement dimension of enjoyment, for example, exerts universal influence in the model, while the effect of enthusiasm is specific to mediating the association between subjective knowledge and intention to try. Similarly, when examining behavioural engagement, learning has universal relevance in the model, in that it mediates all tested relationships. On the other hand, endorsement and sharing each only mediate the relationships with one of the intention to adoption outcomes examined, namely intention to buy and intention to try respectively (See Figure 2).

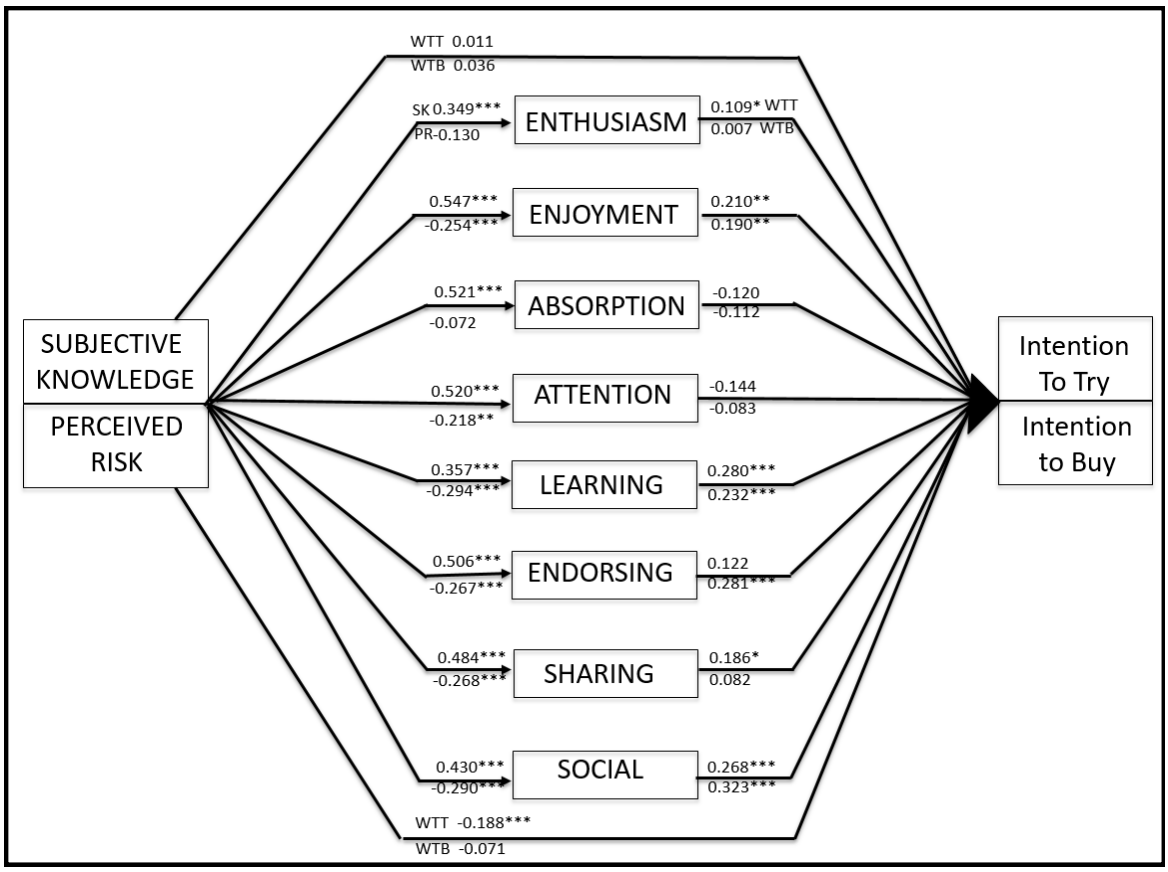
The results show social engagement as an important engagement dimension, as it mediates the relationships between both subjective knowledge and perceived risk and the outcomes intention to try and intention to buy. The strength of the relationships between social engagement and the outcomes are higher than many of the other relationships, indicating its significant influence on intention to try and intention to buy (See Figure 2).

Interestingly, cognitive engagement as manifested in absorption and attention does not emerge as a significant mediator for any of the intention to adoption outcomes measured. While subjective knowledge positively influences absorption and both antecedents are associated with attention, neither of these engagement dimensions significantly relate to intention to try and intention to buy (See Figure 2).

Table 5. Standardised regression weights of direct and indirect effects and mediation analysis

Model 1 (IV-DV)						
IV	DV	Direct effect (β)	sig			
Subjective knowledge	Intention to try	0.461	***			
Subjective knowledge	Intention to buy	0.518	***			
Perceived risk	Intention to try	-0.438	***			
Perceived risk	Intention to buy	-0.338	***			
Fit statistics (GFI 0.98 AGFI 0.92 NFI 0.977 CFI 0.986 CMIN/DF 2.489 p 0.058 RMSEA 0.092 SRMR 0.0568)						
Model 2 (IV-MV-DV)						
IV	DV	Direct Effect (β)	sig	Indirect Effect (β) IV-DV		
Subjective knowledge	Intention to try	0.011	n.s.	0.383	***	Full mediation **H1**
Subjective knowledge	Intention to buy	0.036	n.s	0.408	***	Full mediation **H2**
Perceived risk	Intention to try	-0.188	***	-0.270	***	Partial mediation **H3**
Perceived risk	Intention to buy	-0.071	n.s.	-0.282	***	Full mediation **H4**
Fit statistics (GFI 0.991 AGFI 0.925 NFI 0.994 CFI 1.000 CMIN/DF 0.982 p 0.460 RMSEA 0.000 SRMR 0.0393)						

n.s = not significant; *p<.05; ** p<.01; *** p<.001



*p<.05; ** p<.01; *** p<.001

Figure 2. Path model.

3.7. DISCUSSION AND IMPLICATIONS

3.7.1. Theoretical implications

This research contributes to both the food and marketing literatures by merging the two literature streams: While the novel food literature has focused solely on antecedents and resistance to adopting novel food, the marketing literature to date has studied customer engagement exclusively with existing, rather than novel, products and services. This research thus offers unique theoretical and managerial insights, by introducing customer engagement as an important construct to the context of novel food adoption. Furthermore, an important contribution of this paper lies in its empirical investigation of a diverse set of engagement dimensions as mediators between commonly studied antecedents, namely subjective knowledge and perceived risk, and individuals' intention to try and buy the

novel food product. Hence, building on the extensive research on subjective knowledge and perceived risk in this context, this study is the first to explain their role on novel food adoption through the lens of engagement, and thus understand the role of non-physical interactions as a mechanism for why these constructs influence a consumer's propensity to adopt novel food products. Interestingly, this study also unearthes important differences between various engagement dimensions.

3.7.1.1. Emotional engagement

Previous research on dual processing, evidenced that with unexperienced situations individuals rely on reasoning (Evans, 2010) Additionally, Bowden (2009) argued that for new customers to adopt products, knowledge structures about the product need to be developed,which means that calculative commitment, or rational thought, is key to purchase. However, our findings illustrate that enthusiasm and enjoyment in the interaction with the novel product (i.e., emotional engagement) form critical mechanisms in the context of novel food product adoption. Importantly, our findings demonstrate that once emotional engagement is accounted for in the statistical modelling, subjective knowledge no longer influences intention to try directly. This suggests that it is not the rational, or calculative commitment, processes proposed by Bowden (2009) that lead to new customers trialling a novel product, but rather the emotional engagement, stimulated by subjective knowledge yet lessened by perceived risk. This is also aligned with previous findings suggesting that individuals relied more on affect than cognition in the attitude formation toward nanotechnology at an initial stage (van Giesen, 2018).

While both enthusiasm and enjoyment mediate the relationship between subjective knowledge and intention to try, enthusiasm is insufficient to facilitate intention to buy; here emotional engagement needs to manifest in the customers' enjoyment of the novel

product. In effect, high subjective knowledge about the novel food leads to enjoyment and enthusiasm, fostering strong affective bonds (Bergami and Bagozzi, 2000; Dessart et al., 2015), which is a trigger or influence on a customer's intention to try. The strong positive feelings about the product (i.e., enjoyment) also lead to greater intentions to buy (Blasco-Arcas et al., 2016); this is consistent with Bäckström (2004), who found that food enjoyment predicted the willingness to try organic products.

Emotional engagement also plays a mediating role between perceived risk and intention to try and intention to buy, albeit only through the dimension of enjoyment. Previous research (e.g., Chaudhuri, 1997), identified a relationship between perceived risk and negative emotions in the consumption experience. Further, Juric et al. (2016) argue that the likelihood of a customer engaging negatively with a brand or product is associated with the level of perceived harm or risk. While this study only examined postive emotional attributes of enthusiasm and enjoyment, the results suggest a negative influence of perceived risk on positive emotions (i.e., enjoyment). The low levels of enjoyment and enthusiasm, in turn, result in an ambiguous or overall negative feeling toward the novel food product (Aertsens et al., 2009), and decreases the consumers' intention to adopt.

3.7.1.2. Cognitive engagement

Literature on food consumption indicates that knowledge frameworks influence food purchases (Worsley 2002). Consistent with this, Bowden (2009) argued that for new customers to adopt products, knowledge structures about the product need to be developed and therefore calculative commitment, or cognitive engagement, is central to the adoption of new products. While not diminshing the need for subjective knowledge, our findings do not support this proposition. An examination of the dimensions of

cognitive engagement suggest that absorption and attention, while facilitated by subjective knowledge, are not the mechanism that influence a customer's intention to try or buy novel products. Further, while perceived risk influences consumer attention, it does not lead to absorption, and neither of these dimensions of cognitive engagement lead to novel food adoption. These findings align with food research, which demonstrates that emotions rather than cognition play an important role in novel food adoption due to the risks that are perceived in the food (Le Goff and Delarue, 2017). However, some studies suggest that the impact of cognition on overall attitude may increase over time (van Giesen, et al., 2018).

3.7.1.3. Behavioural engagement

In this study, learning emerges as an important mediator of the relationships between subjective knowledge as well as perceived risk with intention to try and intention to buy. While extant literature notes the role of knowledge in developing a stronger disposition to learn about new products (Wood and Stacy, 2002), with this research we extend our understanding of the role of learning by examining it as a key mechanism to explain why consumers with high subjective knowledge have a greater propensity to adopt new products. Customers must acquire the necessary skills and knowledge [i.e., learn] to be effective in brand interactions (Hibbert et al. 2012, p. 247). This learning develops deeper connections and emotional bonds (Brodie et al., 2013), which in turn would lead to a greater intention to try and intention to buy products. Learning thus emerges as the mechanism explaining the relationship between subjective knowledge and intention to try and intention to buy, respectively.

On the other hand, while low perceived risk causes individuals to learn more about the product, high perceived risk decreases their desire to learn. High perceived risk generates

negative emotions such as anxiety (Klerck and Sweeney, 2007), disgust (Ruby et al., 2015), and fear (Aertsens et al., 2009), which sees consumers avoid interactions with novel food and, in turn, decreases the likelihood of learning. Consumers interacting with novel food products often have low subjective knowledge and high perceived risk (Cowart et al., 2008). The perceived benefit of the product sometimes is not visible for consumers, which might cause potential adopters to lose interest in the product or in learning more about its origin, causing the intention to adopt to decrease. This contributes to the low rate of adoption of novel products often seen in the market.

Usually, adopters influence other actors´ perceptions about novel food products by providing knowledge of their own personal experiences with the novel food (Jaakkola and Alexander, 2014). This endorsing behaviour contributes to the diffusion of the product, as it influences a consumer's willingness to buy through word-of-mouth referrals (Jaakkola and Alexander, 2014). In contrast, people who experience a negative interaction may dissuade customers or endorse competitors' products (Azer and Alexander, 2018). However, our findings are unique in that we establish this effect of endorsing behaviours now for potential adopters of novel foods, where customers have not had a direct interaction with the product. Moreover, the results demonstrate endorsing as the mechanism that explains the relationship between subjective knoweldge and intention to buy, rather than intention to try. This suggests that these potential adopters feel that they have acquired a high degree of subjective knoweldge about the product through the behavioural engagement, and they already show commitment to purchase, without a trial stage in the adoption process.

Sharing is the act of providing content, information, feedback, ideas or other resources about the novel product to the company that brings the novel food to the market (Dessart

et al., 2015; Brodie et al., 2013). Frequently consumers are interested in improving the product during the product development stage and contribute with feedback (Akman et al., 2018), which facilitates their intention to try. In sharing information, the potential adopters gain social, emotional and utilitarian value (Akman et al., 2018), and develop a closer connection with the novel product. hence facilitating their intention to try.

3.7.1.4. Social engagement

Social engagement is an essential dimension of engagement that emerges in this study as mediating the relationship between the antecedents and consumers' intention to try and intention to buy. High subjective knowledge enhances the use of novel food as a focal object to connect with other people (Vivek et al. 2014). Specifically, inclusion of others can enhance one's interaction with the novel food, as such mutual experience of the novel food can provide the potential adopter with a sense of belonging (Brodie et al., 2013) and may also positively impact on their social identity (Kozinets, 1999); thus highlighting the importance of the social aspect of consumer engagement. As the novel food is the means to connect with other actors in a network, the sense of belonging forms strong positive associations with the novel product, and enhances the intention to try and intention to buy. Additionally, the design of the packaging and the type of product (e.g., chocolate chip cookies) were ideal for sharing. Indeed, the packaging is small and it could be transported easily to social events. Furthermore, chocolate chip cookies are a product that is easy to eat and share, enabling social engagement.

This study offers a new lens for managers in the food industry that would like to launch a new product or novel food to the market. While the food industry has focused on engagement with brands and product development, managers should seek to focus on

encouraging the relevant facets of engagement with novel foods to encourage first trial and purchase. The following section provides some practical suggestions for this purpose.

3.7.2. Practical implications

This research explains the role of customer engagement in facilitating customer intentions to try and buy novel food products. Customer engagement enhances the effects of subjective knowledge on intention to try and intention to buy, while reducing the negative influence of percived risk on the same outcomes. This effect occurs because consumers emotionally engage (i.e., enjoy interacting with the product), behaviourally engage (through activities such as learning, sharing and endorsing) and socially engage with other actors with respect to the novel product. These findings have implications for the food industry seeking to launch novel foods.

While novel foods often contain attributes that address consumer demand (Nielsen, 2015; Shelomi, 2015), such as being environmentally friendly or healthy, resistance and low acceptance of these products remains (Steenis and Fischer 2016; Tan et al., 2017). Firms have typically focused on traditional advertising methods to try and entice consumers to buy new products. This study, however, suggests that managers should focus their efforts on creating opportunities for the potential adopter to engage with the novel food (Harmeling et al., 2017).

Enhancing enjoyment while interacting with the novel food is one of the facets of engagement that may be considered by managers. For example, creating events that incorporate the novel ingredient (Deroy et al., 2015) can elicit the enjoyment. The presentation of the novel food should create unique experiences (Ortiz, 2014), with the

packaging illiciting positive emotions to potential adopters to enhance enjoyment and subsequently facilitate willingness to try (Bäckström et al., 2004).

On the other hand, our study shows that cognitive engagement is not an important aspect. Therefore, capturing attention or getting the potential adopter immersed in information about the novel food, does not emerge as critical. However, encouraging consumers to share their knowledge helps build the social legitimacy of the novel product and should be an effective strategy to drive product adoption.

Managers can facilitate behavioural engagement by providing platforms for customers to interact and share information, knowing that sharing, endorsing and learning will facilitate consumers' intention to try and intention to buy. Consumers get more engaged with the product while they share their ideas and provide feedback to the company (Fernandes and Remelhe, 2015). Companies could also create contests engaging individuals with the development or launch of the new product. This engagement will enhance the likelihood of consumers endorsing the product on social media or within their communities. The endorsement of food with novel ingredients could propagate knowledge on the origin of these ingredients and its production methods among other potential adopters, causing a major diffusion of the novel food. By doing so, the company may utilise the consumers as a resource to increase the intention to try.

In the context of novel food, managers should facilitate social engagement, and thus seek to connect potential adoptions with other peers interacting with the novel food. Specifically, strategies should facilitate and build on a social connection between the potential adopter and other peers that are yet to adopt the novel food (Vivek et al., 2014). This social interaction can occur, for example, when integrating the novel product in

television programs showcasing novel food, through social media and other virtual means of social engagement. However, as friends and families are the strongest influence on people in the food context (Shelomi et al., 2015), connections to peers is recommended.

Consequently, the level of engagement for each construct could provide an overview of different consumer groups. Some individuals might be more inclined to engage emotionally rather than socially due to personality differences (Marbach et al., 2016). Thus, different product categories (e.g., protein bar) might have different impact on potential adopters´engagement and consequently the consumer segments will be different. Marketers can identify different profiles of engagement on potential adopters and firms can focus on enhancing the respective engagement construct depending on the segment that the firm wants to target.

3.8. LIMITATIONS AND FUTURE RESEARCH

Despite its significant contribution to understanding the engagement mechanisms that mediate the effect of subjective knowledge and perceived risk on intention to try and intention to buy, we acknowledge limitations in the present study. First, perceived risk was measured as a single item construct. Different novel foods manifest different perceived risks depending on the nature of the product. The literature identifies different kinds of risks, including physical risk, economic risk, functional risk and social risk (Baker et al., 2016; Kleijnen et al., 2009), which could be independently considered in future research.

Second, the customer engagement literature only identifies enjoyment and enthusiasm as sub-dimensions of the emotional engagement facet. However, different kinds of emotions

could be included in future research to understand the broader impact of emotional engagement. Indeed, food-evoked emotions have an underlying role on food choice (Gutjar et al., 2015). For instance, curiosity could enhance willingness to try (Menozzi et al., 2017; Pambo et al., 2018), while disgust (Baker et al., 2016) would likely decrease acceptance. With many facets of emotions identified in previous research (Meiselman, 2015; King et al., 2010), such as satisfaction, enjoyment and desire as the most experienced emotions in relation to food (Desmet and Schifferstein, 2008), more emotional facets should be considered as sub-dimensions of emotional engagement in the future.

Third, while this study suggests that people rely more on emotional than cognitive engagement, previous research found that the role of cognition increases and that of affect decreases over time (van Giesen, 2018). Hence, a combination of emotional and cognitive engagement may occur during the engagement with the novel food and their relative contributions may shift over time. Thus, further research should consider a longitudinal study to capture the dynamic process of engagement, as well as replicate this research across a variety of different food products.

Fourth, while learning is part of the behavioural engagement, we recognise that it requires mental effort, and therefore overlaps with the cognitive engagement definition of Dessart et al. (2016). While absorption and attention did not emerge as having a significant impact on intention to try and intention to buy, future research could seek to understand the effect of these variables on learning and subjective knowledge, perhaps through experimental design.

Fifth, this study only considered positively-valenced customer engagement. However, negative engagement can also be experienced by potential adopters and affect the diffusion of innovation. Negative engagement could enhance negative Word of mouth (Hollebeek and Chen, 2014) that could actually be a barrier for product adoption.

Sixth, the survey method did not allow for an extensive interaction experience with the packaging. Further research should thus allow participants to interact more with the product rather than just observing the packaging stimulus.

Seventh, the majority of the participants indicated an interest for healthy food. However, the stimulus utilized in this study, chocolate chip cookies, is a hedonic product (Tomaseti and Ruiz 2009), which is incongruent with nutritional benefit claims. Previous research suggests that consumers might have negative responses towards the stimuli as they are unlikely to resolve the incongruity between the benefit claim and the hedonic product (Cheong and Kim 2011). The level of engagement in this study might have been affected by the nature of the product, due to the incongruity with the nutritional benefit. Therefore, future research could consider to utilise processed food that is congruent with nutritional benefits as a stimulus to increase the effectiveness of the claim (Feng and Park, 2018) on the engagement with the novel food (Feng and Park, 2018).

Finally, this study only examined two variations of novel ingredients (cricket flour and the use of nanotechnology) in chocolate chip cookies. Consumers have different perceptions of distinct novel foods. Therefore, in future research other novel food ingredients should be incorporated in these and other food categories as well, in order to investigate whether the current results can be generalised to other stimulus settings. Further, a control group without novel ingredients was not included in the study,

therefore the findings may pertain to the broader food category although future research will need to test this.

3.9. CONCLUSION

While the introduction of innovative food products to the market has risen in recent years, challenges remain for food producers, given the common lack of consumer acceptance. By introducing and empirically testing the role of customer engagement for novel food adoption, this research offers unique theoretical and managerial insights. Indeed, the findings offer detailed insight into the role of individual emotional, cognitive, behavioural and social facets of engagement, advancing our theoretical understanding of, as well as managerial options for, improving the adoption of novel food products.

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CHAPTER 4. THE ROLE OF LEGITIMACY ON ENGAGEMENT WITH NOVEL PRODUCTS

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By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

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ABSTRACT

Purpose. This paper examines the role of legitimacy on engagement with a new product. Specifically, we draw on legitimacy as a central construct to explain the effect of subjective knowledge on engagement.

Design/methodology/approach. An online survey was conducted in Australia with 515 complete responses. Structural equation modelling was utilised to analyse the data and a mediation analysis was tested.

Findings. The potential adopters' perceived propriety legitimacy as an important mediator in the relationship between subjective knowledge and emotional, cognitive and behavioural engagement. On the other hand, the role of instrumental based validity judgment is limited to influencing cognitive engagement as compared to emotional and behavioural engagement.

Practical implications. Managers should focus on perceptions of propriety legitimacy to enhance the engagement with new products. Additionally, firms should make an effort to communicate the benefits of the product to potential adopters to encourage cognitive engagement with the novel product.

Originality/value. This is the first paper to demonstrate legitimacy as a precursor to engagement, and specifically to examine the role of legitimacy as a mediator between subjective knowledge and customer engagement with new products.

Keywords. Engagement with new products, legitimacy

Paper type. Research paper

4.1. INTRODUCTION

Customer engagement has received prolific attention in the last few years, from both the academic and practitioner communities (Brodie et al., 2011; Nielsen, 2014; MSI, 2016; MSI, 2018; Harmeling et al., 2017). Emphasising the interaction with a focal object (Harmeling et al., 2017) such as brands (Bowden, 2009) and services experiences (Bowden et al., 2013), a thorough understanding of the concept of customer engagement, its dimensions, antecedents and outcomes have been developed. However, with extant research focusing solely on existing products and brands (e.g., Dessart et al., 2016; Brodie et al., 2011, Hollebeek et al., 2014), the literature remains silent on the question of how individuals may engage with novel products.

This is despite a clear managerial need. Organisations spend significant amounts of resources to develop and introduce new products to the marketplace, only for many of these to fail due to consumers´ lack of interaction with the new product (e.g., value proposition) (Nielsen, 2014). Hence, to support organisations that develop new products, research is necessary to investigate the role of customer engagement through an actor-actor approach lens (Storbacka et al., 2016). Through this perspective, the adoption of innovation depends not only on the potential adopter but also on existing social structures (Vargo et al., 2015).

Common to both the customer engagement and new product adoption literatures is the proposed relevance of subjective knowledge. While remaining at a conceptual level, Hollebeek et al. (2016) propose customer knowledge as conducive for the development of customer engagement. Similarly, the new product adoption literature suggests subjective knowledge to influence interactions with novel products, such as foods (Barrena, 2013).

However, few studies, if any, explain the mechanisms through which knowledge facilitates customer engagement, with empirical evidence lacking to date.

This is due to the current lack of recognition of social structures within the customer engagement literature. To fill this gap, this research draws on legitimacy as a central construct to explain the facilitation of customer engagement with a new product. As new products are integrated in a market, which is comprised of rules, norms, values, meanings and practices (Vargo et al., 2015), they need to develop legitimacy prior to adoption (Denegri-Knott and Tadajewski, 2017). This study thus proposes that legitimacy encourages customers to engage with a novel product and examines the role of legitimacy judgments as a mechanism mediating the association between subjective knowledge and customer engagement, examining the context of novel food. Novel foods include products that have ingredients that have not been used traditionally (e.g., cricket flour), which bring benefits to the food industry and consumers (Shelomi, 2016; Chaudhry et al., 2008).

Hence, this research contributes to the literature in four ways. It offers an important contribution to the customer engagement literature by expanding its focus on extant products and brands to novel and unfamiliar products, empirically testing various customer dimensions in this context. Furthermore, it builds on recent conceptual development in the customer engagement area by investigating the role subjective knowledge plays in facilitating a range of customer engagement dimensions in the context of new products. Importantly, it is the first to examine the role of legitimacy as a mediator between subjective knowledge and customer engagement with new products. In doing so, this paper not only contributes theoretically and empirically to both the customer engagement literature and new product adoption literatures, it also offers

important managerial implications enabling organisations to enhance the success of novel products.

The remainder of this paper is organised as follows. First, we critically analyse the existing literature, leading to the development of a conceptual framework and related hypotheses. An outline of the research methodology and results follows. The research concludes with an outline of theoretical and managerial implications of our findings as well as future research directions.

4.2. CONCEPTUAL FRAMEWORK

The concept of customer engagement has an important role in the marketing and business literature. Brodie et al. (2011 p.9) define customer engagement as a "psychological state that occurs through interactive, co-creative consumer experiences with a focal agent/object," emphasising the relationship with the focal object (Harmeling et al., 2017). This might lead to valuable outcomes such as loyalty (So et al. 2014) and subsequently product adoption may be facilitated (Harmeling et al., 2017). Most prominently, existing research has focused on the engagement of consumers with a range of focal objects, such as online communities (Dessart et al., 2015; Marbach et al., 2016; Vivek et al., 2012) brands (Bowden, 2009a; De Vries and Carlson, 2014; Hollebeek et al. 2014), services (Bowden et al., 2015; Jaakkola and Alexander, 2014) and the product development process (Fernandes and Remelhe, 2015; Zhang et al., 2015). Customer engagement is commonly conceptualised as a multi-dimensional construct, which includes emotional, cognitive and behavioural dimensions (Brodie et al., 2011; Dessart et al., 2016) (See Table 1). While research on customer engagement has commonly focused on the internal disposition and interactive process in a dyadic perspective between the focal actor and the

focal object (Brodie et al., 2011; Storbacka et al., 2016), Storbacka et al. (2016) extend this perspective by considering engagement in an ecosystem where the interaction occurs between multiple actors (i.e., consumers, firms, government bodies).

Table 1. Engagement dimensions and sub-dimensions

	Description
Emotions	***Cumulative and lasting levels of emotions experienced by the potential adopter(Dessart et al., 2016; Vivek et al., 2014)***
Enthusiasm	Excitement about, and interest in the focal object (Dessart et al., 2016; Vivek et al., 2014)
Enjoyment	Pleasure and happiness when an individual interact with the focal object. (Dessart et al., 2016; Vivek et al., 2014)
Cognition	***Enduring mental activity that a person experiences while interacting with the focal object (Dessart et al., 2016; Vivek et al., 2014)***
Absorption	Reflects the level of concentration and immersion the potential adopter experiences with the novel food (Dessart et al., 2016)
Attention	Time a potential adopter spends thinking about the novel food and how attentive he/she is towards the product (Dessart et al., 2016)
Behaviour	***Involves actions that are observable to other consumers (Kumar and Pansari, 2016; Van Doorn et al., 2010)***
Learning	The action of seeking for information, ideas or resources from the novel food brand (Dessart et al., 2016).
Endorsing	Refers to showing support and referring the novel food to other customers (Dessart et al., 2016).
Sharing	The act of providing content, information, and experiences about the novel food to the brand's company (Dessart et al., 2016)

Previous literature has referred to knowledge as a factor facilitating customer engagement, as individuals might use the information to share knowledge and connect with others (Hollebeek et al., 2016). We propose knowledge to be particularly critical for customer engagement with new products, due to the uncertainty that a novel product can create in an individual (Cowart et al., 2008). Indeed, drawing on the new product adoption literature, knowledge, and in particular subjective knowledge, is known to hold

significant influence on consumer attitudes related to such products (Costa-Font et al., 2008), as well as on the acceptance and resistance of novel food (Piha et al., 2016; House et al., 2004). Subjective knowledge refers to the level of knowledge consumers think they have regarding a product (Flynn and Goldsmith, 1999). Furthermore, the greater the consumers' subjective knowledge about the new ingredient in the novel food (e.g., cricket flour), the more interaction with the novel product. In the context of novel food, research suggests that the greater subjective knowledge, the more people will imagine the taste, smell, texture and the consumption (Aertsen et al., 2011).

The role of legitimacy for customer engagement with novel products

Building on the conceptualisation of customer engagement from an ecosystem perspective, it is important to acknowledge that engagement is influenced by social structures that provide meaning to consumers (Palthe, 2014). To capture such social structures in the given context, we draw on legitimacy theory to understand how people engage with novel products. Institutional structures have an underlying role in facilitating the adoption of new products or services through legitimacy (Humphreys, 2010). Suchman (1995, p.574) defines legitimacy as "a generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, and definition." Novel products or services go through a legitimation process when they are inserted in a new market (Johnson et al., 2006; Marberg et al., 2017) and value propositions legitimised by consumers prior to adoption. For example, MP3 players had to pass through sufficient legitimisation to overcome legal sanctions due to the illegal nature of downloading music files in the past (Denegri-Knott and Tadajewski, 2017). Brands also need to attain legitimacy in a specific community group to have high acceptance (Kates, 2004). Consumers play an important role in the success or failure of any new product (Lamberti and Lettieri, 2011).

They recognise the need to make a social judgment when they are exposed to the new product for the first time. When consumers are exposed to the new product, individuals recognise the need to make a social judgment. The potential adopter searches for more information and decides the legitimacy of the product through perceptions (Bitektine and Haack, 2015).

Suddaby et al. (2017) acknowledges different perspectives of legitimacy: legitimacy-as-property, legitimacy-as-process and legitimacy-as-perception. We draw specifically on legitimacy-as-perception here, as we are considering engagement with the novel product from an individual perspective of the consumer. Hence, this perspective explains legitimacy as a form of judgment or evaluation undertaken by the consumer. The perspective of legitimacy-as-perception is viewed as multi-dimensional, comprised of an internal judgment, propriety, and an external judgment, validity (Thomas, 2005). The propriety judgment occurs when the individual assesses whether the value proposition (e.g., product attributes) is legitimate or illegitimate for the specific social context (Bitektine, 2011; Tost, 2011). In other words, the new product is legitimate if the individual's own judgment of the product is desirable, correct and appropriate (Tost, 2011). The validity judgment refers to the individuals´ beliefs that the collective evaluation of the value proposition (Bitektine and Haack, 2015) of the novel product is correct and is aligned with social norms (Thomas, 2005). This judgment is influenced by a shared majority opinion and it is frequently represented by entities in the society such as media and government (Bitektine and Haack, 2015).

While the market is comprised of institutional arrangements (Scott, 1995), innovations go through the process of institutional maintenance, disruption and change, which is driven by the co-creation of value at a collective level (Vargo et al., 2015). Previous research on

legitimacy suggests that validity judgment plays an important role in the individual's compliance with rules, due to the external validity of norms and rules (Hegtvedt and Johnson, 2000). Furthermore, as food is related to health risks, individual perceptions of the propriety depend on personality traits (Baker et al. 2016). Therefore, in order to evaluate how consumers perceive the legitimacy of the product, it is important to take into account both propriety and validity judgments. However, different legitimacy dimensions are associated to propriety and validity judgments.

Previous studies acknowledge different legitimacy dimensions (see table 2). While social psychologists recognise instrumental, relational and moral dimensions (Tost, 2011), institutional theorists recognise pragmatic, moral, regulative and cognitive dimensions (Scott, 1995). Regulative legitimacy refers to conformity within a regulatory or legal framework, which has an external validation (e.g., government). Cognitive legitimacy is when the novel product is 'taken for granted,' and is characterised by an absence of doubt or scepticism in order to be socially accepted. While regulative and cognitive legitimacy are dimensions that do not depend on the individual's perspective, the dimensions used by social psychologists (instrumental, relational and moral legitimacy) take into account the individual´s perspective of the legitimacy of the product. Therefore, the social psychology approach to the issue is considered salient here. Moreover, there are terms that overlap between the disciplines, underlining the nuance that can be attained by taking these perspectives into consideration.

Table 2. Types of legitimacy

	Description
Cognitive	Refers to conformity within a regulatory or legal framework, which has an external validation (e.g., government) (Scott, 1995).
Regulative	Reflects the novel product being 'taken for granted,' and is characterised by an absence of doubt or scepticism in order to be socially accepted (Scott, 1995).
Instrumental	Refers to perceived benefit that is in the interest of the individual (Tost, 2011)
Moral	Reflects moral and ethical values (Scott, 1995).
Relational	Refers to the degree by which the value proposition of the novel product affirms social identities and reinforces a sense of self-worth within a group (Tost, 2011).

Instrumental legitimacy (pragmatic) refers to perceived benefit that is in the interest of the individual (Tost, 2011). Specifically, the novel food must be perceived as better than the food already available to be competitive in the market (Rogers, 2003). Potential adopters with a high level of subjective knowledge are likely to know more about the benefits of the product. That means that the instrumental legitimacy is expected to be higher for individuals with a high level of subjective knowledge. We propose that as the novel food gains instrumental legitimacy, individuals will engage more with the product as their interest, attention, and immersion will be greater (Dessert et al., 2016). Furthermore, emotions emerge based on an indirect experience of imagining the product (Desmet and Hekkert 2007) with individuals also more likely to share their knowledge about the novel product with others if they perceive it to possess high instrumental legitimacy. Hence, they influence other consumers' decision-making through word of mouth or blogging (Verhoef et al., 2010).

Therefore, we hypothesise that:

H1: Propriety *based instrumental legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

H2: Validity based *instrumental legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

Moral legitimacy reflects moral and ethical values (Scott, 1995). The new product must be aligned with the values of the individual and society to have success in the market, as consumers may experience a moral obligation to accomplish the expectations of the group where they belong (Scott, 1995). Subjective knowledge may influence ethical evaluations (Sun et al., 2012). As potential adopters require knowledge about the novel product to be able to reflect on moral legitimacy, subjective knowledge is expected to precede such evaluation. Indeed, the less a potential adopter perceives to know about the novel product the more likely moral legitimacy evaluations will also be low. In turn, individuals that do not perceive an alignment between the new product and the values of the individual and society are unlikely to engage with the product emotionally, cognitively or behaviourally. For example, they will not be interested in the product and will not reflect on the project with other actors.

Hence, it is hypothesised that:

H3: Propriety *based moral legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

H4: Validity *based moral legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

Relational legitimacy refers to the degree by which the value proposition of the novel product affirms social identities and reinforces a sense of self-worth within a group (Tost, 2011). Belongingness is an underlying factor that helps people feel valuable and retain a sense of self-worth. To achieve such belonging within a group, individuals need to feel knowledgeable about the novel products relevant to that group. With a lack of subjective knowledge, and thus a lack of relevant information as to the extent to which the value proposition of the novel product aligns with the social identity of the group, a novel product does not gain relational legitimacy in the eyes of the individual. Without clarity as to how the novel product may enhance the sense of self-worth within the group, potential adopters are unlikely to engage with the novel product in an emotional, cognitive or behavioural manner.

Hence, it is hypothesised that:

H5: Propriety *based relational legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

H6: Validity *based relational legitimacy* mediates the relationship between subjective knowledge and a) emotional engagement, b) cognitive engagement and c) behavioural engagement with novel food.

The conceptual framework integrating all hypotheses is shown in Figure 1.

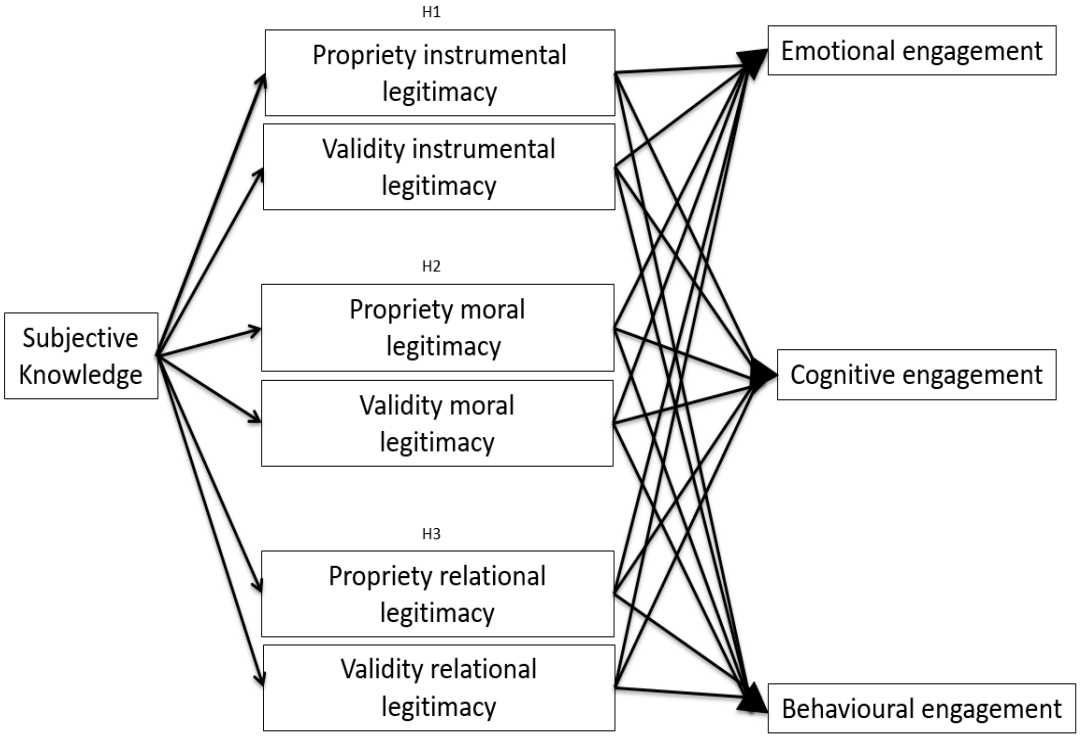

Figure 1. Conceptual framework and hypotheses

4.3. METHOD

This study examines the mediating role of different types of legitimacy on the relationship between subjective knowledge and engagement with novel food. According to Food Standards Australia New Zealand, novel food refers to a non-traditional food and thus food that does not have a consumption history by humans (FSANZ, 2017). In other words, novel food is considered to be a product that has not been commonly consumed in a certain population. For example, countries such as Mexico commonly eat insect based products (NBCNEWS, 2005). However, other countries such as The Netherlands are not yet used to the idea of eating insects. Therefore, insect-based products are considered as a novel food (Marberg, et al., 2017). This definition aligns with Rogers' (2003) definition of innovation as "an idea, practice or object that is perceived as new by an individual"

(Rogers, 2003, p.12). Drawing on the novel food context, in particular cookies made from insect-based and nanotechnology-based ingredients, offers a suitable foundation to examine customer engagement with novel products. Food in particular was chosen as a relevant context, as companies are investing more in innovation to remain competitive in the market and develop new products satisfying consumers' demand for products that are novel and more sustainable (Nielsen, 2015; Shelomi, 2015).

Data was collected through an online survey in Australia, conducted through a panel provider (Qualtrics). While a total of 535 participants completed the survey, data cleaning identified a number of incomplete surveys, surveys that were completed within less than 5 minutes, as well as responses without any variation in their answers. These surveys were excluded from the sample, leading to a usable sample of 515. The final sample is characterised by 48.9% male and 51.1% females. The participants' age ranged from 18 to over 70 years old. The majority of the respondents (82%) stated that they either liked or extremely liked cookies and general, and 64.9% of participants were interested in food with health benefits.

The items for all but one construct were adapted from existing literature. All items used 5-point Likert scales wherein 1 = strongly disagree and 5 = strongly agree. The instrumental and moral legitimacy items were adapted from Thomas, (2005); Díez-Martin et al., (2013). Given that no suitable scale for measuring relational legitimacy existed in the literature, items measuring this construct were drawn from the definition proposed by Tost (2011). The subjective knowledge item was adapted from House et al., (2004), which was used in relation to genetically modified products. We use this measure of genetically modified products as it was considered a new technology used in the food industry, which can be related with novel food. Most of the engagement items that were utilised were adapted from Dessart et al. (2016) as it measures emotional, cognitive and

behavioural engagement. We used Vivek et al. (2014) and So et al. (2014) to complement the items from Dessart et al. (2016). The constructs with the respective items are shown in Table 5 in the appendix.

One-factor congeneric measurement models were tested using AMOS 23 to examine whether the measured items utilised contribute to each latent construct (Holmes-Smith, 2015). All constructs were found reliable given that all composite factor loadings were higher than 0.7, indicating ideal convergent validity (Kline, 2011). Reliability was further ascertained by confirming all Cronbach alpha scores above 0.7 (Hair et al., 1998) and the construct reliability (CR) scores also exceeded the threshold of 0.7 (Fornell and Larcker, 1981; Hair et al., 2012). The absorption, attention and endorsing measurement models were reduced to three items for the purpose of parsimony. Validity of all multi-item constructs was tested by means of a Confirmatory Factor Analysis (CFA) (Hair et al., 2012). The average variance extracted (AVE) estimate values were greater than 0.7, which confirms the convergent validity (Fornell and Larcker, 1981; Hair et al., 2012). Furthermore, discriminant validity is confirmed, with the AVE exceeding the highest squared correlation for each construct. Factor score weights were calculated and divided by the sum of weights of the construct to have a proportionally weighted scale score for each item (Rowe, 2002; Plewa et al., 2015). These factor score weights were utilised to create the composites to build the model path.

4.4. RESULTS

Hypotheses were tested by means of two path models, drawing on Structural Equation Modelling (SEM) principles. The first model sought to empirically asses the influence of subjective knowledge on customer engagement. Demonstrating a reasonable fit (χ^2/df

=0.776; AGFI=0.991 NFI=0.998 ; CFI = 1.000, RMSEA= 0.000), the results reported in Table 3 demonstrate a direct and significant effect of subjective knowledge on emotional, cognitive and behavioural engagement.

To determine the mediation role of legitimacy, propriety and validity dimensions for instrumental, moral and relational legitimacy were introduced to the model, leading to the testing of direct and indirect effects of subjective knowledge on engagement dimensions (emotional, cognitive and behavioural). This extended model demonstrates reasonable fit (χ^2/df =1.001; AGFI=0.997 NFI=0.998; CFI = 1.000, RMSEA= 0.001) (See table 4). With the introduction of legitimacy constructs into the model, only the direct effect of subjective knowledge on cognitive engagement remained significant; that connecting knowledge with emotional and behavioural engagement did not. With the indirect effects of subjective knowledge on emotional and behavioural engagement by means of legitimacy emerged as significant, full mediation is assumed for emotional and behavioural engagement, as well as partial mediation for cognitive engagement.

The importance of legitimacy emerges when examining the difference in squared multiple correlations between the two models. While subjective knowledge by itself explains 12.5% of emotional engagement, 14.2% of behavioural engagement and 16.6% of cognitive engagement, these measures rise to 63.5%, 66.4% and 64, 3% respectively following the introduction of legitimacy into the model.

Table 3. Model 1. Standardised regression weights

Model 1 (IV-DV)			
IV	DV	Direct effect (β)	sig
Subjective knowledge	Emotional engagement	0.354	***
Subjective knowledge	Cognitive engagement	0.407	***
Subjective knowledge	Behavioural engagement	0.377	***

Fit statistics (GFI 0.998 AGFI 0.991 NFI 0.998 CFI 1.000 CMIN/DF 0.776 p 0.507 RMSEA 0.000) (n.s = not significant; *p<.05; ** p<.01; *** p<.001)

Table 4. Model 2. Standardised regression including direct and indirect effects via legitimacy

Model 2 (IV-MV-DV)						
Independent	Dependent	Direct Effect IV-DV	sig	Indirect Effect IV-DV		sig
Subjective knowledge	Emotional engagement	0.025	n.s.	0.329	**	Full mediation
Subjective knowledge	Cognitive engagement	0.062	**	0.345	**	Partial mediation
Subjective knowledge	Behavioural engagement	0.039	n.s.	0.338	**	Full mediation

Fit statistics (GFI 0.997 AGFI 0.977 NFI 0.998 CFI 1.000 CMIN/DF 1.001 p 0.437 RMSEA 0.001)
n.s = not significant; *p<.05; ** p<.01; *** p<.001

Table 5. Standardised regression weight of the direct effects and mediation analysis of the mediation analysis

Model 2 (IV-MV-DV) Independent	Mediating	Direct Effect IV-MV		Mediating	Dependent (Engagement)	Direct Effect MV-DV	
Subjective knowledge	Instrumental legitimacy-propriety	0.326	***	Instrumental legitimacy-propriety	Emotional	0.347	***
Subjective knowledge	Instrumental legitimacy-validity	0.326	***		Cognitive	0.187	***
Subjective knowledge	Moral legitimacy-propriety	0.370	***		Behavioural	0.338	***
Subjective knowledge	Moral legitimacy-validity	0.373	***	Instrumental legitimacy-validity	Emotional	0.080	0.120
Subjective knowledge	Relational legitimacy-propriety	0.467	***		Cognitive	0.152	*
Subjective knowledge	Relational legitimacy-validity	0.433	***		Behavioural	0.088	0.076
				Moral legitimacy-propriety	Emotional	0.243	***
					Cognitive	0.141	*
					Behavioural	0.208	***
				Moral legitimacy-validity	Emotional	-0.015	0.812
					Cognitive	-0.016	0.799
					Behavioural	-0.015	0.809
				Relational legitimacy-propriety	Emotional	0.236	***
					Cognitive	0.350	***
					Behavioural	0.208	**
				Relational legitimacy-validity	Emotional	-0.012	0.861
					Cognitive	0.057	0.401
					Behavioural	0.070	0.286

Fit statistics (GFI 0.997 AGFI 0.977 NFI 0.998 CFI 1.000 CMIN/DF 1.001 p 0.437 RMSEA 0.001)
n.s = not significant; *p<.05; ** p<.01; *** p<.001

A detailed analysis of the results (Table 5) indicates a significant association between subjective knowledge and all legitimacy constructs, including propriety based instrumental legitimacy (0.326, $p < 0.001$), validity based instrumental legitimacy (0.326, $p < 0.001$), propriety based moral legitimacy (0.370, $p < 0.001$), validity based moral legitimacy (0.373, $p < 0.001$), propriety based relational legitimacy (0.467, $p < 0.001$) and validity based relational legitimacy (0.433, $p < 0.001$). Path coefficients suggest a particularly strong association between knowledge and both relational legitimacies, taking into account both the propriety and validity measures.

The role of legitimacy in engagement, however, emerged as more differentiated. In relation to instrumental legitimacy, propriety based instrumental legitimacy emerged as significantly related to emotional (0.347, $p < 0.001$), cognitive (0.187, $p < 0.001$) and behavioural (0.338, $p < 0.001$) engagement, supporting H1a, H1b, and H1c. A significant connection between validity based instrumental legitimacy only emerged for cognitive engagement (0.152, $p < 0.05$) but not for emotional (0.080, $p > 0.05$) or behavioural engagement (0.088, $p > 0.05$). Therefore, H2b is supported but not H2a and H2c.

The role or propriety as compared to validity legitimacy also emerged in the case of moral legitimacy. The direct effects of propriety based moral legitimacy on emotional (0.243, $p < 0.001$), cognitive (0.141, $p < 0.05$) and behavioural engagement (0.208, $p < 0.001$) were all shown as significant, supporting H3a, H3b and H3c. However, none of the associations between validity based moral legitimacy and emotional (-0.015, $p > 0.05$), cognitive (-0.016, $p > 0.05$) and

behavioural engagement (-0.015, p > 0.05) emerged as significant, leading us to reject H4a, H4b and H4c.

A similar picture emerged for relational legitimacy. The results showed significant effects of propriety based relational legitimacy on emotional (0.235, p < 0.001), cognitive (0.350, p < 0.001) and behavioural (0.208, p < 0.01) engagement, supporting H5a, H5b and H5c. However, validity based relational legitimacy is not significantly associated with emotional (-0.012, p > 0.05), cognitive (0.057, p > 0.05) or behavioural engagement (0.070, p > 0.05). Therefore, H6a, H6b and H6c have to be rejected.

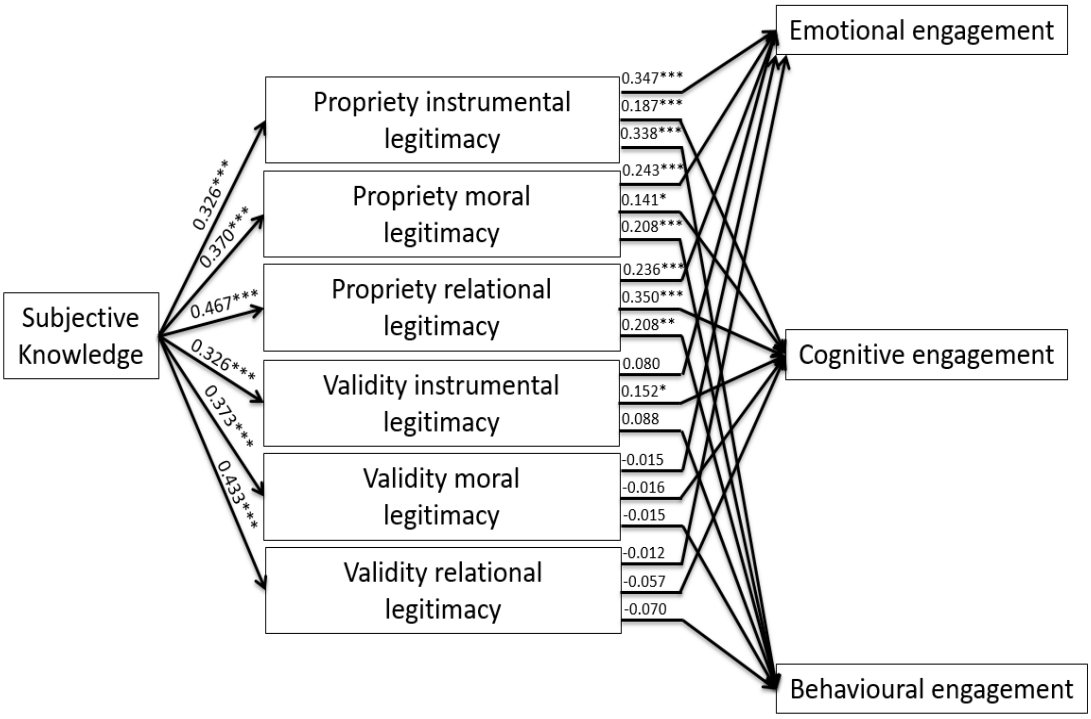

Figure 2. Regression weights path model

4.5. DISCUSSION

This research offers important insights into customer engagement with novel products, specifically examining the role of subjective knowledge and legitimacy in facilitating such engagement. Of particular note is the importance of propriety judgement in relation to all types of legitimacy (instrumental, moral and relational) in the results. Propriety judgement, and thus the potential adopter's own judgement of the legitimacy of the new product, does not only act as a significant facilitator of all customer engagement dimensions. It also emerges in this study as the critical explanatory mechanism as to why people with high subjective knowledge engage with the novel food. That means potential adopters that have a high subjective knowledge rely on their own judgement (propriety legitimacy) over their reliance on collective judgement (validity legitimacy).

Such reliance on oneself may be even more pronounced considering the type of new product examined in this study. The nature of food as being ingested brings with it specific perceived risks (Baker et al, 2016), in particular health consequences. It is plausible that in such situations, individuals with high knowledge rely even more strongly on their own judgement than rely on the judgement of others.

These findings do not align with earlier research in the context of authority legitimacy. While Zelditch and Walker (1984) found that validity judgement tended to have a stronger influence on behaviours than propriety judgment, our research suggests that validity judgement only plays an important role in explaining the relationship between subjective knowledge and cognitive

engagement. The only significant association of a validity legitimacy construct is the association between instrumental validity and cognitive engagement. Hence, the belief that others view the novel food as offering a higher benefit to other available options facilitates one's cognitive interaction with the novel product. Indeed, potential adopters learn from others that the novel product has benefits and they will show interest by being cognitively engaged. Additionally, the relative advantage of the product contributes to the diffusion of innovation by capturing individuals' attention (Rogers, 2003).

When examining the different propriety legitimacy dimensions, the results suggest that subjective knowledge leads to a lower instrumental legitimacy. The internal belief that the product is beneficial and useful will decrease and subsequently the emotional engagement associated with the product will probably decrease due to the uncertainty and perceived risk that novel food causes (Klerck and Sweeney, 2007; Ruby et al., 2015; Aertsens et al., 2009). Verhagen et al. (2015), suggests that the access to knowledge is one of the antecedents of intention to engage. Hence, the potential adopter will be more attracted to the novel food and more attention and immersion will occur during the interaction (Dessart et al., 2015) as they know about the product sensory attributes, nutritional facts and the benefits of consuming the food. However, this is not aligned with Bowden (2009a), who suggests that the more knowledge, the more emotional commitment towards the product. Additionally, the individual will provide information about the benefits and experience with the product to other consumers by endorsing and sharing information (Van Doorn, 2010).

Propriety based moral legitimacy judgement is an essential component that emerges in this study as a mediator in the relationship between subjective knowledge and emotional, cognitive and behavioural engagement. Moral values are a strong motive to feel aversion towards new food technologies such as nanotechnology (Siegrist, 2008) due to the perception that the food has been manipulated by humans, bringing with it a perception of unnaturalness (Rozin et al. 2004). However, low subjective knowledge might bring a predisposition about the novel food and people could consider the food as against their moral values. This feeling regarding the moral foundations of the product causes emotions such as disgust (Haidt, 2001). Therefore, the lack of knowledge leads to a lower moral legitimacy and therefore lower emotional engagement.

When the food is aligned with the individuals' moral values, interest in the product is heightened. In instances where the food is perceived to be against these same moral values, potential adopters' interest in the product decreases. Hence, cognitive engagement decreases. If the product is aligned with their norms and values, people are more likely to develop a positive attitude towards the product, and this attitude breeds initiative to influence and convince others.

With a high subjective knowledge, individuals believe that they will be more accepted by the social group and have a higher social status in the society (Tyler, 1997). This will give them a sense of self-worth, which provides a sense of dignity and respect (Tyler, 1997; Tost, 2011; Bachmann and Ingenhoff, 2017). Furthermore, the individual will feel more accepted by his/her social group as the person will be interesting for other people to establish a connection or relationship

with. When the novel food gains relational legitimacy, all engagement dimensions increase. Individuals will develop an emotional bond, as with relational legitimacy, obtaining a positive feeling due to the interaction with the product. Therefore, potential adopters will be more enthusiastic and more likely to enjoy the novel food. Additionally, individuals will be more interested in the product, as the interaction produces an emotion of a positive character. High levels of interest translate to higher instances of attention and immersion. Therefore, their cognitive engagement will increase. Finally, individuals will tend to influence others and share information with the firm and others to promote the product.

4.5.1. Theoretical implications

This paper offers important contributions to the customer engagement literature. Specifically, it is the first to go beyond the conceptual and empirical framing of engagement in the context of existing products and brands, empirically testing customer engagement with novel and unfamiliar products. Customer engagement research has focused on the conceptualisation of engagement as well as its drivers and consequences with existing focal objects such as brands (Dessart et al., 2015, de Vries and Carlson, 2015, Hollebeek et al., 2014) and communities (Dessart et al., 2015, Verhagen et al., 2015), where the individual has a direct interaction with the focal object under examination. In the context of new products, experience with these focal objects differs substantially, as interaction initially solely occurs through non-physical interaction means (Desmet and Hekkert, 2007), for example by imagining using the new product.

An important contribution this research makes to the field lies in the evidence it provides of the critical relevance legitimacy for customer engagement, and as a mechanism for the influence of subjective knowledge on customer engagement. Indeed, drawing on both the understanding that existing social structures are critical to the context of new products (Vargo et al., 2015), and that legitimacy as a social structure is fundamental to the process of new practices (Coskunner-Balli and Ertimur, 2016), brands (Hakala et al., 2017) and new products (Denegri-Knott and Tadajewski, 2017), this research is the first to demonstrate legitimacy as a precursor to engagement. Indeed, propriety legitimacy is crucial to engagement with novel products rather than the validity legitimacy except for the validity based instrumental legitimacy on cognitive engagement. In other words, this finding adds to our understanding of how people's internal belief (propriety) of the novel product's legitimacy has a stronger influence on engagement.

Furthermore, this research conceptualises and empirically demonstrates the role of legitimacy as a mechanism enabling subjective knowledge as a driver of customer engagement with new products. While recent research comments on the importance of knowledge (Hollebeek et al., 2016), this research is the first to empirically assess this link as well as to demonstrate the means through which knowledge impacts engagement, in the context of novel products.

4.5.2. Managerial implications

This research provides important implications for managers. Indeed, it addresses an important concern of businesses globally, as they seek to advance the

interaction of potential adopters with their new products in a bid to enhance new product adoption. Specifically, this research confirms the importance of developing subjective knowledge widely in the group of potential adopters. Hence, businesses should develop initiatives aimed at informing relevant target groups about the new product or unfamiliar ingredients, such as tested in this study. While such initiatives may seek to build external beliefs (validity judgment), for example in relation to the superiority of benefits, the focus should remain on the individual. Indeed, this research demonstrates the primary importance of the potential adopter's internal beliefs regarding the novel product for encouraging engagement.

The propriety and validity based instrumental legitimacy are both important to enhance cognitive engagement when there is high subjective knowledge. Managers should focus on the benefits that the individuals perceive about the novel food. This includes sensory attributes, as people consume food not only as a source of nutrients but also as a sensory experience (Schifferstein, 2016). As the validity instrumental legitimacy plays an important role on cognitive engagement, managers should also focus on the endorsement of the product benefits. In this way, consumers will receive positive feedback and will gain more instrumental legitimacy and subsequently will give more attention and will be more immersed in the benefits of the novel food.

Therefore, it is important to focus on the benefits of the products such as displaying the product on websites (e.g., source of protein, nutritional facts) and highlighting the positive consequences that the product could bring (Lamberti and

Lettieri, 2011). For example, as insect-based products are related to naturalness, and presented as a solution for the mitigation of carbon dioxide stemming from beef production (Shelomi, 2015), managers could focus on marketing these products as an alternative to meat consumption in order to reduce carbon dioxide. Consequently, consumers will engage cognitively with the product. By applying these strategies, the potential adopters will also engage emotionally and behaviourally.

On the other hand, only the propriety dimension of moral legitimacy influenced engagement with novel food. Individuals have their own moral values that influence their engagement with the novel food. Even though the novel food will be different or even strange for consumers, managers should align moral values to the product. To gain moral legitimacy, managers could differentiate the novel products from existing products by better communicating the social benefits of consuming it (Lamberti and Lettieri, 2011). They can demonstrate that the consumption of the product is "the right thing to do" (Scott, 1995). For instance, the cookies made with cricket flour can be marketed as a more sustainable source of protein with health benefits. With this description, individuals will be attracted to the novel food. As it is aligned with their moral values, potential adopters will be more enthusiastic, will enjoy more the product and consequently could influence others through word of mouth or blogging.

As this research demonstrates that the propriety dimension of relational legitimacy enhances customer engagement, managers could focus on establishing relationships with social groups such as consumers interested in health benefits or

environmental concerns. For example, organising events and workshops that will reunite people of the same mind-set. This way, the novel food can gain relational legitimacy. The potential adopter will have a sense of belongingness to the group by socialising with individuals of the same ideology (e.g., groups concerned about environmental issues). This will give the individual a social identity and produce a feeling of self-worth (Tyler, 1997).

4.5.3. Limitations and future research

The results and contributions of this research should be considered in light of its limitations. For example, single item legitimacy scales were utilised. Despite significant research on legitimacy judgment (Hakala et al., 2017), few studies are based on quantitative analysis (Thomas, 2005; Diez-Martin et al. 2013), thus limiting the availability of suitable scales. While we adapted suitable scales from Thomas (2005) and Diez-Martin et al. (2013), these were limited to a single item.

Furthermore, this study is limited to the food industry. Although we expect the findings reported here to be applicable to other sectors and other instances of novel products, the acceptance of and resistance to novel food is unique due to the ingestion of the product, which could have an effect on consumers' health. Therefore, it is important to study the role of legitimacy on engagement in another context.

An important limitation to this research is its focus on the consumer perception of legitimacy. However, in order to understand the introduction of a novel product, it is necessary to incorporate other legitimacy types such as cognitive and

normative. Although these legitimacy types do not correspond to judgments, they are important in a more holistic point of view if we consider the social structures. Cognitive legitimacy refers to the fact that individuals "take for granted" the product. Regulative legitimacy is based on the regulations and norms that are established in a society most of the time by an entity (e.g., government) that could also influence the overall legitimacy of the product (Scott, 1995). Additionally, other stakeholders also have to be involved in the legitimation process (Marberg et al. 2017; Lamberti and Lettieri, 2011). Future research should thus expand this research by capturing legitimacy across the wider social system. Longitudinal studies would be of particular interest for capturing the legitimisation process and the dynamics between knowledge, legitimacy and engagement over time.

Finally, this research draws on the extant literature on engagement, which suggests that emotional engagement is comprised of enthusiasm and enjoyment (Dessart et al., 2015). While this paper thus aligns with current knowledge in the field, further research may seek to further examine other emotions as relevant to the engagement with novel products in particular. For example, disgust about eating insects has previously been noted in the literature as limiting acceptance of insect-based products (Baker et al., 2016).

4.6. CONCLUSION

While firms are increasing the launch of new products in recent years, there is a lack of knowledge on how to engage potential adopters with the novel product, and therefore, few products are successful in the market. By introducing the

concept of legitimacy perception and empirically testing the role of legitimacy judgment of novel food, this study provides a unique theoretical and managerial contribution. Indeed, the findings offer detailed insight into the two dimensions of legitimacy judgment (propriety and validity) and the different types of legitimacy (instrumental, moral and relational) advancing theoretical and managerial contributions to enhance product adoption.

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APPENDIX

Table 6. Measurement items

Scale	Measure
Instrumental legitimacy (Thomas, 2005; Díez-Martín et al., 2013)	Propriety I believe that Nutrish cookies benefit me
	Validity People believe that Nutrish cookies benefit me
Moral legitimacy (Thomas, 2005; Díez-Martín et al., 2013)	Propriety I believe that Nutrish cookies are consistent with the beliefs and values of my social environment
	Validity People belive that Nutrish cookies are consistent with the beliefs and values of my social environment
Relational legitimacy (Tost, 2011)	Propriety I believe that Nutrish cookies make me feel accepted by my social group
	Validity People believe that Nutrish cookies make me feel accepted by my social group
Subjective Knowledge (House et al., 2004)	How knowledgeable would you say you are concerning nanotechnology /insect-based food products?"
Enthusiasm (Dessart et al., 2016)	I feel enthusiastic about Nutrish cookies.
	I am interested in anything about Nutrish cookies.
	I find Nutrish cookies interesting.
Enjoyment (Dessart et al., 2016)	When interacting with Nutrish cookies, I feel happy.

Scale	Measure
	I get pleasure from interacting with Nutrish cookies.
	Interacting with Nutrish cookies, is like a treat for me.
Absorption (Dessart et al., 2016; So et al., 2014)	Time flies when I am interacting with Nutrish cookies.
	When interacting with Nutrish cookies, I get carried away
	In my interaction with Nutrish cookies, I am immersed.
Attention (Vivek et ak., 2014; Dessart et al., 2016)	I pay a lot of attention to anything about Nutrish cookies.
	Anything related to Nutrish cookies grabs my attention.
	I spend a lot of time thinking about Nutrish cookies.
Learning from the product (Dessart et al., 2016)	I would like to ask Nutrish questions about the cookies.
	I would like to seek information from Nutrish about the cookies
	I would like to seek help from Nutrish .
Endorsing (Dessart et al., 2016)	I would like to promote the Nutrish cookies.
	I would like to try to get others interested in Nutrish cookies.
	I would like to say positive things about Nutrish cookies to other people.
Sharing (Dessart et al., 2016)	I would like to share my ideas with Nutrish.
	I would like to share interesting content with Nutrish.
	I would like to help Nutrish.
Acceptance	To what extent do you like cookies, in general? (1) = Completely dislike to (5) = Completely like

CHAPTER 5. CONCLUSIONS

This research offers substantial theoretical and managerial implications, as it expands existing marketing literature on engagement with novel products. While prolific research has been conducted on customer and actor engagement to date, such research has focused solely on existing products such as brands (e.g.,Brodie et al., 2013), online communities (e.g., Dessart et al. 2015) and services (Bowden et al., 2015), overlooking the initiation of engagement as necessary for novel products. This research is the first to develop a conceptual understanding as well as to empirically test engagement with novel products, in particular considering the role of vicarious learning and legitimisation in initiating engagement.

The research is comprised of three papers aimed at addressing the process by which a potential adopter engages with a new product, including a conceptual paper and two empirical papers. After outlining the theoretical contributions of this research, this chapter discusses managerial implications. It will conclude with an outline of limitations and future research directions.

5.1. THEORETICAL IMPLICATIONS

Customer engagement is a concept that has been utilised over years to understand the relationship between customers and existing products (Harmeling et al. 2017), with a primary focus on customer engagement with brands (e.g., De Vries and Carlson, 2014), online communities (e.g., Dessart et al., 2015), and services (Jaakkola and Alexander, 2014). With existing research focusing on well-established products, however, both conceptual development and empirical testing of engagement with novel products has been neglected. In this research,

the term novel product refers to any object that is perceived as new by an individual, drawing on the definition of innovation suggested by Rogers (2003). By generating a conceptual and empirical understanding of engagement in the context of novel products, and thus by shining light on the initial stages of engagement with an unfamiliar product, this thesis significantly advances the existing literature. Additionally, examining engagement with a novel product also contributes to the innovation literature by introducing actor engagement as an important mechanism that can be stimulated to decrease the failure of products launched into the market.

As the novel product has never been experienced by the individual, the interaction with the focal object is different from the focal objects studied in previous research. Interaction in the existing literature is characterised by a specific physical interaction and/or experiences between a focal engagement object (Brodie et al., 2011). This means that the person uses, operates, manages or touches the focal object physically (e.g., touching a sofa) (Desmet and Hekkert, 2007). In comparison, this research introduces a new, non-physical form of interaction to the engagement literature. Based on Desmet and Hekkert's (2007) categorisation of interaction, non-physical interaction refers to having thoughts about the product, imagining using the product or even thinking about the consequences of using it without experiencing it physically. Based on the information the individual gains from other actors and/or marketing messages, the individual generates cognitive associations and emotions while creating a meaning associated to the product (Hekkert and Schifferstein, 2008; Schifferstein, 2016). This perspective of engagement can only be gained by adopting the

network view of actor engagement that has been adopted in this thesis (Storbacka et al., 2016). Taking this network view and adopting a sociological lens allows us to understand the role of multiple actors in engagement with a focal object.

Specifically, this research is the first to conceptualise how potential adopters initiate engagement with a novel product through non-physical interaction. In doing so, this research introduces the concept of vicarious learning (Bandura, 1977) to understand the mechanism by which individuals interact in non-physical means with a novel product through connections with other actors in the ecosystem. Potential adopters gather information by interacting with other actors, avoiding the risks that experiencing themselves would involve (Hirschman, 1980). Although previous literature recognises the importance of learning to facilitate engagement (Hollebeek, et al., 2016), this research not only elaborates on the relevance of learning but also specifically identifies vicarious learning as a fundamental concept that should be considered to facilitate engagement, especially when there is an occurrence of non-physical interaction.

In addition to the conceptual development, an important contribution of this research lies in the empirical analysis of engagement with novel products, undertaken in the context of novel foods. Similar to other industries (e.g., computers), a range of barriers are known to prevent consumers from adopting novel foods. Specifically, low subjective knowledge and high perceived risk have been identified as factors that prevent consumers to try or buy novel food (Costa-Font et al., 2008; Piha et al.., 2016; Baker et al. 2016, Bieberstein et al., 2013). This research demonstrates that engagement plays an important role in explaining

the relationship between these factors and the intention to try and buy novel food. Furthermore, this research specifies the dimensions that are important to focus on to enhance engagement with novel food. While emotional and social engagements are the most critical dimensions to novel food adoption, cognitive engagement is not an important dimension to focus on.

The ecosystem perspective that builds the foundation of this research also enables another theoretical contribution of this thesis (Storbacka et al., 2016). The individual and other actors exist within a society with institutional arrangements (Scott, 1995), which the new product has to overcome by maintaining, disrupting or changing social structures (Vargo et al., 2015). While previous literature suggests that external factors such as temporal and relational connections affect the internal disposition to engage (Chandler and Lusch, 2015), research is yet to consider how the consumer perception of legitimacy influences engagement in general, and with a novel product specifically. An important contribution of this research thus lies in the introduction of legitimacy theory to the engagement literature, including an elaboration of the way in which perceived legitimacy in its various forms influences and is influenced by engagement with a novel product. Specifically, this research conceptualises a cyclical process of engagement and legitimacy with novel products.

Empirical analysis confirms that legitimacy perception plays an important mediating role in the relationship between subjective knowledge and engagement with novel food. This research is the first to empirically measure legitimacy of a novel product to explain the engagement with novel food. While previous

engagement literature has focused on drivers such as knowledge and intrinsic motives (Fernandes and Remelhe, 2015), this is the first research to demonstrate legitimacy as a precursor to engagement and evidenced the role that it plays as a mechanism for the influence of subjective knowledge on customer engagement. By determining the role of legitimacy for engagement, findings suggest that if potential adopters have a high subjective knowledge about the novel food, they are likely to follow their own judgment (propriety legitimacy) about the product, rather than the judgment of others (validity legitimacy), in order to engage with the novel food. This is an important contribution as it contrasts Zeldtich and Walker (1984), who suggest that validity legitimacy is a critical explanatory mechanism of behaviour.

Overall, the food category has never been considered as a focal object in engagement research, potentially due to its categorisation as a low involvement product. However, recent studies suggest that engagement is not limited to high involvement brands (Vivek et al., 2014), suggesting the need to extend current research beyond such brands, as undertaken in this research.

Finally, literature on food innovation focuses on food preference (Giles et al. 2015), resistance (Barrena and Sánchez,. 2013), and attitudes (Vidigal et al., 2015; O'Connor and White, 2010) to determine whether the novel food will be accepted. However, engagement is a concept that has not previously been investigated in the food marketing literature. This research offers an alternative marketing strategy to introduce novel or new foods in the market.

5.2. MANAGERIAL IMPLICATIONS

Firms commonly use traditional marketing strategies, such as promotions and advertisements, to attract potential customers to try their new products; customer/actor engagement as a way of stimulating adoption of new products throughout the launch process remains an untapped resource. Previous research focused on engagement with brands (e.g., De Vries and Carlson, 2014), online communities (e.g., Marbach et al., 2016), and the product development process (e.g., Fernandes and Remelhe, 2015). Engagement with the novel product establishes a relationship between the product and the individual, which will manifest behaviours that will help in the diffusion of innovation. This research offers important insights for managers on how to utilise engagement with novel products as a way to increase the adoption of novel products, tested here in the context of food.

Specifically, based on this research, managers should seek to enhance vicarious learning when launching the product, to facilitate non-physical interaction with the product across a wide range of individuals. For example, companies could communicate through bloggers, celebrities or main actors that could influence the potential adopter. Managers could also build alliances with research institutes, government entities and media to communicate about the benefits (Marberg et al., 2017; Lamberti and Lettieri, 2011), inducing potential adopters to vicariously learn about the product. Through this method, potential adopters can experience the product by means of non-physical interaction, encouraging the manifestation of emotional and cognitive associations and leading to an increased likelihood of

engagement with the product. At the same time as engagement increases, the product gains cognitive legitimacy as more people will be more emotionally, socially and behaviourally engaged.

Taking into account subjective knowledge and perceived risk as antecedents of adoption barriers (Barrena and Sanchez, 2013), this research suggests that food managers should focus more strongly on stimulating emotional engagement as compared to cognitive engagement. Emotions have been studied extensively in the context of food (Meiselman, 2015; King et al., 2010), therefore, managers should focus their attention on emotions to enhance novel food product adoption. Paired with vicarious learning, managers should encourage users of the product to discuss the enjoyment of eating the product and/or how it made them feel. Further, managers could increase the perceived enjoyment of eating the product with an attractive packaging or by introducing new shapes and flavours, which might stimulate emotional engagement.

This research suggests that social engagement is one of the most critical dimensions of engagement to enhance product adoption. Through the creation of events and platforms, potential adopters are socially connected (Vivek et al., 2014) through the novel food. Managers could create events in strategic places such as food festivals, encouraging visitors to connect with others through the novel food. At the same time, potential adopters learn more about the new products and they will be able to endorse the knowledge and experience with other potential adopters. For example: The Trapholt Museum of Modern Art and Design had an exhibition called Eat Me (Grøn, 2018), which created a fun environment to create consciousness among people through food. A novel foo(e.g., insectbased products) could be incorporated into an exhibition and visitors

encouraged to try the novel food. Another potential way in which social interaction can be enhanced is through television programs showcasing the novel food and its potential to connect friends and families. At the same time, potential adopters experience the novel food vicariously, enhancing the likelihood of social engagement.

Firms could facilitate online communities when introducing a novel product, for customers to enhance their interaction with the novel product through sharing. For example, contests aimed at encouraging individuals to share information, feedback and experiences with the firm are one way to do this. Through the voluntary provision of data, the firm obtains valuable feedback from consumers to improve their products and, additionally, consumers learn about the product, increasing their engagement and subsequently increasing the adoption of the product.

Taking into account legitimacy as a precursor to engagement, managers could position the product within specific institutional structures to overcome the barriers of innovation and introduce the novel product into the market (Vargo et al., 2015). Firms should focus on the benefits that individuals could perceive about the novel food to enhance instrumental legitimacy. This could be a sensory attribute, or nutritional or environmental benefits. For example, naturalness and a reduction of carbon dioxide can be highlighted in insect-based products (Shelomi, 2015). On the other hand, managers should also focus on the moral values of potential adopters and differentiate the novel product from existing products by communicating the advantage aligned with the moral values (Lamberti and

Lettieri, 2011) and demonstrating that the consumption of the novel product "is the right thing to do" (Scott, 1995).

In general, managers should disseminate the product attributes focusing on the individuals' belief. In other words, it is necessary to create messages where the potential adopter will have positive internal beliefs (propriety engagement), rather than focusing on the beliefs of the others. However, the only exception would be with cognitive engagement.

5.3. LIMITATIONS AND FUTURE RESEARCH

The significant contribution this research makes to theory and practice has been discussed in depth; it must also be considered in light of its limitations. First, while the conceptual framework developed as part of this research offers an important first step in developing a thorough understanding of engagement with novel products, further research is necessary to complement this conceptual development. For example, further research should investigate differences in the types and magnitude of influence various stakeholders have on potential adopters and on their non-physical interaction with the novel product. Furthermore, longitudinal empirical research is necessary to investigate the interrelationship between legitimisation and engagement in depth.

Second, this research refers to emotional engagement as long lasting emotions, comprised of enjoyment and enthusiasm, experienced by the potential adopter (Dessart et al., 2016; Vivek et al., 2014). Whilst aligned with the engagement

literature, existing literature in the food domain suggests a different spectrum of emotion in consumer behaviour, including negative emotions (Meiselman, 2015; King et al., 2010). Therefore, research should go beyond the current definition and measurement of emotional engagement and explore a wider range of emotions to ensure comprehensive capture of emotional engagement. Indeed, in addition to examining a wider range of emotions, including negative emotions, future research may also examine negative behaviours and negative engagement manifested in a potential adopter. While previous research suggests that negative word of mouth could occur (Hollebeek and Chen, 2014), empirical research examining negative engagement as a barrier for product adoption remains unexplored, suggesting an important avenue of future research.

Third, the empirical part of this thesis was limited to two underlying adoption barriers (subjective knowledge and perceived risk). However, there are other product adoption barriers, such as personality traits (Marbach, et al., 2016) that could be studied. Some people are more open to trying new products and to seek for novelty (Hirschman, 1987). Therefore, empirical research on other adoption barriers as a precursor of engagement is necessary to investigate in depth the role of engagement on product adoption.

Fourth, although novel food is an important domain of innovation, due to the increasing amount of novel products that the food industry requires to remain competitive, this thesis is also limited to the food context. While the adoption of novel food is difficult for the food industry, other innovations also have similar challenges. Therefore, some implications are applicable to other contexts.

However, some findings are unique to the food context due to the fact that the food is ingested by consumers and people might perceive a higher health risk than other products. Empirical research should be conducted in another context (e.g., technology or services) to determine the role of engagement and legitimacy on product adoption.

Finally, while scales utilised in this thesis were adopted from previous research, and thus had been previously validated, these scales had to be adapted to suit the context of this study. For example, scales were adapted from prior use for focal objects such as online communities (Dessart et al., 2016) and products with recognisable brands (e.g., Apple products). As food is a low involvement product, additional items of some constructs can be developed (e.g., cognitive engagement) to measure engagement. Therefore, a scale development for engagement in a food context is suggested. Furthermore, utilising tools other than questionnaires to measure cognitive engagement could increase the measurement efficacy (e.g., eye-tracking) (Burke and Leykin et al. 2014).

5.4. SUMMARY

Whilst firms are increasingly launching new and novel products to remain competitive in the market, a perceivable resistance to the adoption of novel products remains. This study offers unique theoretical and managerial implications. It is the first to introduce the concept of engagement into context of novel products, and in particular novel foods, empirically testing the role of engagement in novel food adoption and determining the influence of legitimacy on engagement, taking into account adoption barriers (subjective knowledge and

perceived risk). Hence, this research offers a detailed conceptualisation and empirical investigation of engagement with novel food, providing unique insight into the role of engagement for novel products.

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