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ABSTRACT

The food system in Vietnam is changing whilst the middle class is growing. Agri-food smallholders have the strengths of responding to the changing needs of the middle class by offering freshness, proximity and convenience but they also face increasing competition from larger and international firms. At the same time, issues with food safety are prevalent and a rising concern among consumers. For this study we completed sixteen co-creation workshops between local agri-food smallholders and consumers. The goal of these workshops was to explore the value of participatory processes, non-hierarchical decision making and creativity for smallholder firms in Vietnam through co-creation workshops focused on sustainability. The outcomes show that the workshops can stimulate customer understanding and participatory processes among the smallholder businesses, but creativity in the form of novel ideas less so. The workshops did not result in directly feasible or manageable product and service concepts. The topic of sustainable food opened a dialogue: insights between the firms and customers on this topic were mutually rich. The outcomes suggest that co-creation workshops can create a sense of community and urgency for sustainability. In the future, the challenge for smallholders is to invest in participatory processes with a long-term view on sustainability as well as come to practical design outcomes on the short term.

KEYWORDS

participatory design
urban middle class
food
transitions
sustainable
consumption
co-design
local knowledge

INTRODUCTION

The Vietnamese middle class is growing fast, especially in urban areas. The middle-class accounts for 13 per cent of the population, or 15 million in 2020, but is expected to double by 2026 (World Bank 2020). The prosperity brings new consumption patterns that are not always sustainable, also in terms of food: diets become more meat-based, consumption of processed foods increases as well as single-use plastics. Next to that, the agri-food sector in Vietnam is transforming, from being dominated by smallholder farming, short value chains and produce sold at local informal markets, towards a system with long, closed and controlled value chains, dominated by international food standards. At the same time, prevalent issues with food safety cause consumers to have little trust in the Vietnamese agri-food sector and turn towards alternative food sources.

For local smallholder agri-food firms in Vietnam, the changing consumption patterns and transforming system structures could serve as a threat but also as an opportunity. There lies an opportunity to be a frontrunner of a new food system that responds to the changing needs of the middle class, accordingly and sustainably. They have the strengths of offering freshness, proximity and convenience to their customers. But, when the connection with the growing middle class is not made or lost, competition from large national and international players will become hard to withstand. This duality forms the basis for this study. To claim their place in a new sustainable food system, local agri-food smallholders need to maintain and build relationships of trust and mutual exchange. There is a basis to establish such a relationship, local firms are geographically and culturally close to their customers. They are potentially able to understand and serve their Vietnamese customers best and form decentralized networks of trust.

The survival and flourishing of local farmers and smallholders are crucial for a future sustainable food system that is characterized by diversity, a certain level of self-organization and attention to the complexity of agro-ecological systems. Smallholders have a critical role to play in sustaining local economic growth but also in maintaining diversity in the food system, preserving local knowledge about indigenous crops, and sustaining local practices of cultivation. It is important to empower smallholder firms in their role in the transition towards a new food system. Traditional top-down and linear design approaches are not appropriate for the development of such a new system (Meynard et al. 2017) but more open, decentralized, context specific and participatory approaches are needed (Berthet et al. 2018). This article is an exploration of such participatory processes, in the specific context of Vietnam.

For this study, sixteen co-creation workshops were conducted in 2014 and 2015. Despite that fact that this was some years ago, recent publications on the Vietnamese food industry (i.e. Faltmann 2019; Figuié et al. 2019; Raneri et al. 2019; Wertheim-Heck et al. 2019) show that the problems addressed in this study are still relevant, and issues of trust, sustainability and food safety still prevail in the sector (see also the background section). The cited studies show that the insights from the workshops are still relevant for the current situation in Vietnam and relevant for practitioners in the agri-food sector that are interested in developing and deploying more participatory processes, ultimately aiming for a thriving local and sustainable food system.

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The Vietnamese food system and transition context

The Vietnamese food system is transitioning. Industrialization and migration from rural to urban areas is changing social structures. For consumers, especially in urban areas, direct contact with farmers and traceability of food are often no longer a given (Faltmann 2019). Food chains are lengthening and increasing the dependency on the market for food supply (Faltmann 2019; Figuié et al. 2019). In most of the country, the dominant value chain is still dominated by small-scale production and produce sold at traditional or informal markets. But, the penetration of international food standardization and management, combined with large-scale investments by the Vietnamese private sector is driving transformation in the agri-food sector. From predominantly smallholder farming, the sector is moving towards more large-scale enterprise-oriented farming, with value chains that are increasingly closed and controlled (Raneri et al. 2019).

Next to the rising middle class, one of the great drivers in changing consumer needs are the prevalent issues of food safety in Vietnam. It greatly influences what and where consumers purchase (Raneri and Wertheim-Heck 2019). Food safety was even ranked first of the two highest concerns (above employment), and higher than education or healthcare (Ha et al. 2019; USAID 2015). In local newspapers, on the radio, television or in social media there are frequent reports on the discovery of high amounts of toxic substances, unhygienic production facilities or the abuse of pesticides and fertilizers. And for a reason: a ten-year monitoring programme showed that pesticide use is increasing on farms in Vietnam and that many toxic and illegal pesticides are still being used (Raneri et al. 2019). In a 2013 study, Vietnam was also among the top ten countries with the most food safety violations (Lanier 2013). Outbreaks of food poisoning still occur regularly (e.g., more than 4000 in 2016), infecting hundreds of thousands of people (Raneri et al. 2019). Food safety is also a central topic on the political agenda (Nguyen-Viet et al. 2017a). However, the lack of enforcement mechanisms makes that trust among stakeholders and between producers and consumers is very low (Mergenthaler et al. 2009; Nguyen-Viet 2017b).

The increasing use of chemicals means that 93 per cent of consumers in the Vietnamese capital Hanoi consider the consumption of fresh vegetables problematic (Wertheim-Heck et al. 2014; Hoi et al. 2016). On top of that, urban consumers feel that they are more at risk of consuming unsafe food, because they have limited or no access to self-produced food, which is often regarded as the only guaranteed source of safe food. Retail outlets are often mistrusted (Ha et al. 2019; Wertheim-Heck et al. 2014). This lack of confidence in food safety can influence consumers towards favouring more imported and packaged foods (Nguyen-Viet et al. 2017b), often produced by larger and international firms.

In the current Vietnamese food system, there are different niche groups that respond to the need for trustworthy, safe and chemical free food. Declared organic food is still a rather new phenomenon in Vietnam and constitutes a dynamic and high-priced niche market in the country's urban centres (Faltmann 2019). In the organic market, debates around trustworthiness, certification and responsibility are also influenced by power structures and relations between state, society and market (Faltmann 2019). Characteristic of local agri-food companies is that they often have a small circle of customers

that have been engaged through their personal network. Participatory guarantee systems (PGS) are therefore upcoming in Vietnam, with their low cost and great potential for education and dissemination, they could become powerful instruments (Moustier and Loc 2015).

Despite these upcoming initiatives, most smallholder farmers are struggling to produce 'safe' or safer foods (organic or low-agricultural use) (Raneri et al. 2019), while facing increasing competition. This study sets out to explore more participatory processes for smallholder businesses towards non-hierarchical decision making, creativity and empowerment in taking their role in a new sustainable food system.

Participatory design and co-creation

This study is rooted in the tradition of Scandinavian participatory design (Ehn 1993) and the ideas of democratic processes that bring about more resilient systems. In the late 1960s in Northern Europe, joint decision-making and work practices started to receive attention, resulting in the movement of participatory design. One of the key words of this movement was *empowering*. Essential was the belief that the ones who are affected by design should have a possibility to influence the design (Mattelmäki and Sleeswijk-Visser 2011).

Co-creation is a specific method for a participatory design process. When taken literally, the meaning of the word 'co-creation' is together (co-) make or produce something new (creation). Organizing a co-creation workshop requires specific skills, such as defining different roles, stepping in stepping out, and creating/providing the right tools at the right moment to the right people (Mattelmäki and Sleeswijk-Visser 2011). The complexity of the process also makes that time is needed, which can be a barrier for implementing co-creation (Kouprie and Sleeswijk-Visser 2009).

In literature the discussions on the benefits of co-creation are abundant (Roser et al. 2009), but it often fails to raise critical issues. Co-creation is believed to increase the number of ideas in a creative process, to provide different angles for ideas, to give access to a wider pool of ideas, to enable better understanding of the user, to reduce the speed to market and reduce the risk of innovation (Gulari et al. 2011; Anon. 2016). Co-creation is also found to improve creativity and increase enthusiasm for innovations within an organization in general (Sandberg 2012). In business and service marketing co-creation is praised for increasing customer loyalty, providing greater consumer satisfaction, commitment and increasing the likelihood of positive word-of-mouth (Dong and Evans 2008; Auh et al. 2007; File et al. 1992; Bettencourt 1997). Here, the overall value of co-creation is often referred to as a competitive advantage (Prahalad and Ramaswamy 2002). In planning, the value of co-creation is said to be the creation of sustainable relations (Ryan 2012) or joint responsibility (Lelieveldt et al. 2009). Here, the value of citizen involvement and the process of co-creation is implicitly seen a virtue itself (Voorberg et al. 2015).

Most of the literature on co-creation is based on experiences in European or North American contexts, but in recent years more studies are being published where participatory methods are adapted to different contexts, such as Japan (Yasuoka and Sakurai 2012) and South Korea in East Asia (Van Rijn et al. 2006), and different countries in Africa (see the work of IDEO.org). These studies teach us that the success of certain participatory methods is highly influenced by contextual and cultural differences. Methods that work

well in certain settings do not work in others; they must be adapted or even completely re-designed. Despite this trend, we have only been able to find a few experiences with participatory methods in the specific context of Vietnam or wider South East Asia (Nguyen and Dang 2020; Gregg et al. 2020). With this study we hope to give some practical insights into implementing participatory design processes in the specific context of Vietnam, to teach us about the contextual influence and (non)transferability of participatory methods.

METHOD

Based on the extensive literature on co-creation from this field, the basis for this study is that participatory design processes could help guide smallholder firms towards more participatory and non-hierarchical processes of decision making and creativity, and establish a relationship of trust and exchange with their consumer. Between February 2014 and July 2015 sixteen co-creation workshops were conducted between local agri-food firms and groups of urban middle-class consumers in Vietnam. This section presents the different people involved in the workshops, the details of the co-creation set-up, and the data gathering and analysis method. The sixteen workshops were executed to explore participatory methods and skills with smallholder food companies. The research goal was to understand how co-creation can work in the given context and what it could bring to the local food system. The workshops were centred around sustainability so, inevitably, results were also produced on the perception of sustainability and food by the Vietnamese urban middle class.

Table 1 gives an overview of the participants in the sixteen workshops: the companies, their product group, whether sustainability was a core value or

Table 1: Co-creation workshops: type of companies and customers.

	Company		Customers	
	Company name	Product focus	Sustainability as a core value	GG trained / NT not trained
1	Uncle Co (Pilot)	Kim chi	No	GG
2	Plantit	Vegetables	Yes	GG
3	Dr Green	Vegetables	Yes	NT
4	Yellow Fish	Fish sauce	Yes	NT
5	Happy Farm	Vegetables	Yes	NT
6	Moringa	Tea	Yes	NT
7	Sang Tao	Coffee	No	GG
8	Golden Sun	Chicken	No	GG
9	White Silk	Porridge	No	GG
10	Don Dep	Clams	No	GG
11	Dang Na	Mushrooms	No	GG
12	Lang Life	Vegetables	Yes	GG
13	Arigato	Vegetables	Yes	NT
14	Oriental	Tea	Yes	NT
15	Rice Fever	Vegetables	Yes	GG
16	Sour Gai	Kim chi	No	GG

aspiration, and the type of consumer group involved. Data is anonymized with altered company names. Following, details are given on each of these aspects.

The local food companies

Over thirty local smallholder food companies were approached for a co-creation workshop around sustainable food consumption. The initial contact with the companies was established by e-mail or phone through the network of the EU-funded projects GetGreen Vietnam (GGVN) and Sustainable Product InnovationN (SPIN). Twenty companies agreed on a first problem definition meeting. After this, the process was discontinued with two companies because their interest was to develop their international customer base rather than local, and with two other companies because the planning did not align. In the end, including the pilot studies, sixteen co-creation workshops were organized. The sixteen companies were based in north (3), south (9) and central (2) Vietnam.

The consumer participants

In each workshop eight to twenty urban middle-class consumers participated, between the age of 18 and 55. They were recruited either from the company's own circle of customers or from the GGVN network, a training programme on sustainable consumption for consumer. This resulted in two different participant groups: groups that were more knowledgeable about sustainable consumption through trainings of GGVN and groups that were less knowledgeable. Participants were invited for a half-day workshop with a specific company, directly either by the company or by their GGVN group leader.

The facilitators

There were nine workshop facilitators: three main facilitators and six co-facilitators. For each workshop one main facilitator and at least one, but up to three, co-facilitators were present. The three main facilitators were all selected for their participatory design skills, they all had a product design background: (1) the author (not Vietnamese), (2) an experienced product design student (not Vietnamese) and (3) a product designer from the GGVN project staff member (Vietnamese). There were no significant differences in outcomes between the workshops facilitated by the different lead facilitators. The six co-facilitators (all Vietnamese) were selected from the GGVN project staff for their experience in leading and organizing workshops as well as their communication skills. They had diverse backgrounds such as communication studies, English language or sustainability management.

Pilot studies

Workshops 1 and 2 functioned as pilot studies, where the approach and programme were tested and shaped. The main lesson learned from the pilot studies was that a concrete activity was needed to kick off the workshop. Starting with a more abstract question was too difficult and drained energy and confidence with the participants. Starting with a round of feedback on a tangible and specific object worked well but brought lowered the levels of abstraction. During some activities several idea generator questions were added to make people think more 'outside the box' and to have more time to express their ideas. Last, the pilot studies showed that more time was

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needed for individual expression as well as equal opportunities for everyone to present and talk. Therefore, more presentation time was organized into the schedule of the co-creation workshop to make sure that everyone could have their say. Practically, this meant that the time scheduled for the workshops was 3.5 hours rather than 2.5.

Workshop set-up

Besides the two pilot studies, the fourteen workshops all followed the same basic programme, see Table 2. The last set of four workshops demonstrated mostly repetitive results from the previous ones. This showed that based on the sixteen workshops, despite the variety of people and various contextual factors, a general and consistent view on the value of the co-creation workshops could be formed. Based on the workshop experiences and outcomes, a booklet was published about the specific method of co-creation that was developed in this study: *Co-Design and Sustainable Food in Vietnam* (Anon. 2016). In this booklet a very detailed account of the workshops can be found; it can be accessed here: <https://repository.tudelft.nl/islandora/object/uuid:4bcf2198-14f4-4058-9cdd-dc19f893482b?collection=research> (Accessed 6 April 2023).

Table 2: Workshop activities and set-up.

		Activity	Purpose	Outcomes
Part 1 Explorative	1	Opening the workshop and introductions	Setting the scene	Non-hierarchical / flat environment
	2	Like and dislike feedback round on a concrete company product	Feedback for the company + making participants aware of their expertise as a customer	Post-it's with positive and negative aspects
	3	Open discussion on motivations and desires for sustainable consumption	Creating a dialogue on sustainability for mutual understanding	Insights written down on flip-overs
	4	Guided discussion on 'skills and knowledge for sustainable consumption'	Deepening the dialogue on what companies could do to help the consumers	Insights written down on flip-overs
	5	Formulating 'How-to' questions for design	Creating a starting point for Part 2	2–5 How to questions written down on top of A3 papers
Part 2 Generative	6	Energizer	Giving energy	Fun
	7	Brainstorming ideas based on the 'How to' questions	In 2–5 smaller groups, coming to as many ideas as possible	Various ideas written down on A3 papers
	8	Individuals giving 'dots' to ideas	Idea selection	2–5 ideas selected in total, 1 per group
	9	Making and presenting the concept posters	Deepening the ideas, create details and visualize concepts	2–5 posters and presentations
	10	Group closing of the workshop	Leave with a positive feeling	Short comment of every individual on what they learned

Data collection timeline

In Table 3 there is an overview of the different data collection moments during this study. All sixteen workshops, including the two pilot workshops were executed between February 2014 and July 2015. Before the workshops, a preparatory meeting was held between the facilitators and the companies. In this meeting the workshop programme was detailed, and the product selected that would be the focus of the workshop. A week before the workshop an e-mail or letter was sent to the consumer participants with information about the workshop, a short introduction about the company and a sensitizing exercise.

One to two weeks after the workshop, a company evaluation was held. For this meeting a company workshop report was produced, a summary of these sixteen reports can also be found in the booklet: *Co-Design and Sustainable Food in Vietnam* (Anon. 2016). For each cluster of four workshops an expert evaluation meeting was held. Three to six months after the workshops there was a second company evaluation to evaluate what ideas and methods had been continued and incorporated. This was only executed with ten of the sixteen companies. For the six other companies the opportunity

Table 3: Data collection activities, timeline and methods.

Data collection activities				
Activity (language)	Method	Data produced	Who was involved	Goal/topic
16 prep meetings (EN)	1–2 hours in-depth interview	Audio recordings, transcribed	Company CEO 1–2 employees 1–2 facilitators	Prepare workshop Select product focus
16 co-creation workshops (VN)	3–4 hours workshop	Video recordings, transcribed, translated to English Pictures of tangible outputs Company report*	Company CEO 1–4 employees 8–20 customers 1–3 facilitators	Co-creation and interaction 2–5 concepts per workshop
16 company evaluations (EN)	1–2 hours in-depth interview	Audio recordings, transcribed	Company CEO 1–2 employees 1–2 facilitator	Evaluation of the workshop and outcomes
4 expert evaluations per workshop clusters (EN)	1.5–2.5 hours lively group discussion	Audio recordings, transcribed	4–6 facilitators	Evaluation of individual workshops + in-between comparison of 4 workshops
10 company evaluations 3–6 months later (EN)	1–2 hours in-depth interview	Audio recordings, transcribed	Company CEO 1–2 employees 1–2 facilitators	Assessment of follow up (workshop and outcomes)
1 final expert evaluation (VN)	Online survey	Feedback on 14 co-creation statements Evaluation of workshop ideas based on pictures	9 facilitators	Assessment of the workshops (process and outcome)

*Summary of the different company reports is available in the published booklet: <https://repository.tudelft.nl/islandora/object/uuid:4bcf2198-14f4-4058-9cdd-dc19f893482b?collection=research>. Accessed 29 March 2023.

to evaluate these workshops in person was not presented due to limited opportunities of travelling back to Vietnam by the author. After all workshops were done, a final online evaluation was conducted with all facilitators and co-facilitators.

Data outcomes and analysis

The workshop group discussions and presentations were audio or video recorded and all tangible outcomes photographed: evaluation post-its, brainstorm ideas and concept posters. The workshop recordings were transcribed by a (co-)facilitator present at the workshops. The different co-facilitators also took notes during the work in smaller groups. The notes and insights were used as input during the evaluation meetings. Data collection of evaluations was mostly done in face-to-face conversations. Co-creation workshops are complex processes because different stakeholders are involved (together or alone) at different moments in time. This makes data collection equally complex and time-consuming. Several trials with online or paper communication and evaluation were executed but these resulted in short or shallow or even unanswered questions. Personal interviews resulted in discussion and deeper understanding of the companies' perception of the results and process of the co-creation workshop.

A thematic analysis was used to analyse the data. An inductive approach let to the coding of quotes according to seven main themes: 'Perception of Sustainable Food', 'Existing Company–Customer Relationship', 'Existing Channels of Interaction', 'Perceived Value of the Workshop Interaction', 'Perceived Value of New Products and Services Ideas', 'Continuation of the Product and Service Ideas' and 'Barriers and Motivators to Replication of Co-creation'. These codes were iteratively discussed with two other researchers to ensure inter-coder reliability.

Role of the author

The author of this article has a background in product design and experience in organizing co-creation workshops. This dual role of the author, as researcher and designer, is also reflected in the results: there are results on the co-creation method and on design for sustainable food. One could say these dual results must be taken apart but there is value in discussing both results together because they are so intertwined and greatly influence each other.

RESULTS AND DISCUSSION

The results and discussion of this study are presented in six parts, they represent the insights from sixteen co-creation workshops towards sustainable food innovation in Vietnam.

1. perception of sustainable food by the urban middle class;
2. the existing relationship between agri-food companies and their customers;
3. an evaluation of the set-up of the co-creation method;
4. different effects in company–customer interaction;
5. perceived value of the design outcomes and continuation of ideas;
6. replication of the co-creation method.

Perception of sustainable food by the urban middle class

From the sixteen workshops, *health*, *freshness*, *convenience* and *tradition* showed to be important factors for sustainable food.

Health, connected to security and safety and the fear of 'unsafe' food, was often heard as an argument for buying certain types of food or avoiding others. Green, organic or food from natural sources are believed to be safer. Some participants had special lots of vegetables that they grew for their children, to make sure that these vegetables were safe. Some also bought premium or organic vegetables only for their young kids while eating regular vegetables themselves. Participants used words or terms such as 'fresh', 'safe', 'natural', 'nutritious', 'green', 'chemical free' or 'traditional'. They were often more familiar with these terms than the term 'sustainable' in Vietnamese. But for the participants it all came down to the same thing. Issues with food safety make that claims of quality with words such as 'safety' or 'natural' are received with scepticism. Food safety issues are so numerous that many customers do not know who to believe anymore and only trust food sources where they have a personal connection.

Freshness is a key factor for good food and the best predictor of quality. This was shown in the workshops for example when the expiry date came up. When it was missing, or not readable people always marked it as a very important point of improvement. The use of chemicals in the form of preservatives, pesticides, fertilizers are feared by the Vietnamese consumer and often regarded as a sign of a product not being fresh.

Convenience was another key factor. In urban Vietnam, most groceries for the family are still bought on the corner of their street. Market food stalls unfold every morning and the food for breakfast is bought in the early morning to make sure the ingredients are as fresh as can be. The same belief drives the lunch and dinner routines. Because freshness is such a key factor in the quality of food, ingredients need to be readily available three times a day, which makes that convenience becomes crucial too.

Last, 'traditional' in Vietnam refers to traditions of agriculture that were used before agricultural intensification and the use of pesticides and other chemicals came into vogue. The Vietnamese consumers tend to appreciate traditional and local agriculture firms, not only because of the ecological and sustainable point of view also because they preserve local culture and bring a sense of pride.

During the workshops, very concrete recommendations were derived about what is important in designing sustainable food for the urban middle class of Vietnam. These have been formulated as implications in Table 4. This list is by no means complete but should give guidance in designing food for the sustainability-oriented consumer in Vietnam.

The existing relationship between agri-food companies and their customers

Before the workshops, none of the sixteen companies directly involved customers in their design processes. Some mentioned they could envision being a user themselves or that a technically perfect product would bring customers automatically.

The existing relationship between the sixteen Vietnamese agri-food companies and their Vietnamese consumers was often determined by trust, established through personal connections. This relationship guarantees the

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Table 4: Sustainable food insights from the co-creation workshops.

Implications for the sustainable food designer in Vietnam			
Product	Service	Packaging	Brand story
Product(ion) • Least chemicals are used as possible. • The product is locally produced • The product is produced with techniques based on either long-standing traditions or new (over-seas) technology.	Availability • Convenience is key, people are used to buying fresh food for every meal. Delivering only once a week does not suit many families. • People are expecting more and more to be able to have access to everything 24 hours a day. Channels • People should be able to connect through different channels. • The older generation should be able to connect over the phone and have conversations about the product. • The younger generation is all about social media. Make sure the Facebook page is up to date and feedback is given to the comments and questions of people. • Also, offer the possibility for customers to visit the production facilities or farm.	Packaging design • Freshness is embodied in your design. • Use 'fresh' colours; for Vietnamese customers this means intense, highly saturated colours. • Use natural elements, such as flowers. • With Tet (Vietnamese New Year) make sure you have something special, a new packaging design, gift package or special edition. Packaging information • The expiry date of the food products is clearly visible. • If certified, make certifications clearly visible, possibly explain what the certifies mean and who issued it. • If guidelines from column 1 are met, show that. • Show how to store and use the product (avoiding spillage of energy and product).	Brand story • Share information about the company. • If the company has existed for a long time and has a long history, tell this story of the company. • If the company does not have a long tradition or history, show that it is built on a tradition that has existed for a long time. • If the company does not have a long tradition, nor is it based on any, show the personal story of the leader and how this person fought to make the company a success. Channels • Make use of social media on a daily basis. • Stimulate word-of-mouth advertising of your product.

quality of freshness. Trust between families and their favourite shop is built over the years and passed on to family and friends. This also means that local food suppliers are beloved. Companies are trying to build long-lasting and personal relationships to (try to) solve trust issues. Often, this is done by organizing farm visits that enable personal interaction as well as an opportunity for consumers to see 'good conduct' with their own eyes. Broadening customer circles is mostly done through friends and family and word-of-mouth promotion. Direct and personal interaction at the farm and brand awareness through word-of-mouth are also seen as effective ways to strengthen the relationship and increase loyalty among customers.

Besides farm visits, some companies had other structured or planned interaction with customers. Some had invited users for a test panel or asked for feedback during promotional activities. Some make use of surveys to understand their customers, because it is perceived as a low effort and low-cost type of method. These surveys mostly focus on closed questions and feedback through yes/no questions, not on generating new ideas. This short coming was recognized by these companies. Most interactions however are informal and unstructured, through direct contact, by phone, e-mail or social media, often based on friendships and personal relationships. The perceived downside of these personal and friend-based relationships is that friends do not always dare to be negative.

An evaluation of the set-up of the co-creation method

In general, the co-creation method was positively received by the companies. Participants said that the method was well adapted to the context of Vietnam.

In the co-creation workshop, feedback on current products was always the first activity after a short opening. This was done by giving simple likes and dislikes. Companies found this very valuable because it was rather concrete, positive and constructive feedback. The facilitators also concluded that concrete and tangible activities led to more valuable insights for companies. This made workshops on packaging often received more positive than those around a strategy for example. Packaging contains information people can react on and it is a part of product that easily provokes feedback and creativity. Participants also felt more restrained when it was not clear what was expected from them, creating a fear of doing it wrong. This confirms that control, in the form of boundaries and structure are important for co-creation workshops in Vietnam. The most requested improvement by the companies was also to have more intense and better preparation for the workshop, as well as a clearer structure presented to them and the customers. Companies were not used to a process like this so they felt somewhat unprepared; they said a more detailed programme could have helped them, giving the feeling of control.

The open nature of the discussions was appreciated by the companies, as well as the effort customers took to give actual feedback and not just 'tick off some boxes' (as often done in surveys). This open atmosphere was created through games (see Figure 1), playful tools, and a neutral location; this often resulted in the desired openness and flattened hierarchy. After the workshops most consumer participants said they felt free to speak and that they felt no dominance of people in the room. Sometimes it did not work out to flatten the hierarchy, often when in the beginning of the workshop too much time was taken for introductions. People would then elaborate on their positions or expertise which could make others feel like less of an expert. Overall, like



Figure 1: Workshop energizer 'human knot'.

reported by Van Rijn et al. (2006), we had expected 'participants to be reserved and cautious in their presentations', but they surprised us by being inventive and enthusiastic in their presentations.

Most negative comments were about the organization and setting. Frustration was expressed about people being late or the room being too hot. It shows that the conditions and setting that co-creation takes place are very important.

Different effects in company–customer interaction

After the workshops almost all companies said they gained new insights about their customers, in a different way than they were used to. However, the selection of specific consumers in combination with specific companies resulted in different types of results and network building, see Table 3. It shows the importance of a careful selection process and being aware of the consequences for co-creation. Following these different effects are discussed.

For GGVN-trained consumers in combination with sustainability *centred* companies a sense of community building was experienced; it strengthened the belief that they were heading in the right direction. A bit of a euphoric vibe was experienced. GGVN-trained consumers in combination with sustainability *aspiring* companies, increased the feeling of urgency for the companies as well as better understanding of the sustainable consumer. However, sometimes companies would be defensive which meant that they did not hear the comments of the customers but were busy defending. Non-trained customer groups in combination with sustainability *centred* companies, made the interaction became more educational. Customers felt very grateful to be part of the workshops because they had learned about sustainability. However, in these cases the untrained consumers placed themselves more into the role of

Table 5: Co-creation effects on company–customer interaction.

	Non-trained consumers	GGVN-trained consumers
Sustainability aspiring companies	X (there were no co-creation sessions with this set-up).	Increased feeling of <i>urgency</i> for the companies as well as better <i>understanding</i> of the sustainable consumer, but sometimes companies became <i>defensive</i> .
Sustainability-oriented companies	Interaction became more <i>educational</i> , less generative or based on mutual exchange.	A sense of <i>community building</i> was experienced, and a <i>strengthened belief</i> that they were all heading in the right direction.

a student (subordinate hierarchy), while equal hierarchy or even superior hierarchy from the consumer as an expert of her/his own experiences is desired in co-creation activities. These workshops achieved lower results in terms of product ideas. In the expert evaluations it also came forward that sometimes companies regarded the co-creation workshop more as a marketing or promotional opportunity. Companies would take up much time to speak and less time to listen to the customers. This pitfall was already found in the pilot studies and therefore a more limited role for company input was built in. However, in some workshops this pitfall remained an issue. On the other hand, the possibility for companies to showcase their production techniques, process and knowledge on sustainable production made the issues a lot more tangible for the untrained consumers. They understood the companies' processes better during the workshop; this made them trust the sustainability of the company's products more. This shows that companies potentially have a role in educating customers. For customers, the sustainability aspect was also much appreciated and had been a reason for customers to join. However, this type of interaction was for the co-creation an undesired effect.

There was also an educational effect for some of the more junior company staff. They felt more confident about their knowledge after the workshop. The topics were sometimes outside of the employee's expertise area, normally they would not have been confident enough to give the feedback, because of the fear of being judged or not taken seriously. It was an opportunity to express their ideas on an equal level towards participating senior staff or the CEO. Sometimes the enthusiasm of the staff also had a negative effect on the workshop because they would be too focused on their own ideas, not listening to those of the customers.

Perceived value of the design outcomes and continuation of ideas

During the co-creation activities several concepts were generated in each workshop (example in Figure 2). However, overall, the needed formal design skills to translate these generated ideas into actual feasible product ideas were not present in the company. Companies thought many ideas were not feasible and did not initiate new product development afterwards. Indeed, ideas were not always extremely innovative or feasible, but the more feasible ideas were not translated into feasible concepts either. An often-heard argument was that companies did not know *how* to continue or with which idea to continue first. Some companies that said they were too busy to implement other ideas right now, said they would do it later, or when they would have more money. Often the companies had a more short-term plan for innovation and the ideas were



Figure 2: Customer concept presentations during the co-design workshops.

more for the long-term plan. Some companies said they would implement ideas later, because now they still had products in stock and needed to sell that first.

Some of the generated concepts were new to the companies, but most had already been on the companies' radar. These ideas often functioned as a confirmation and stimulated to reconnect with these ideas. Other concepts helped focusing on values or parts of the product that did not receive much attention before, such as the packaging of a product or the environmental aspect of the product.

In the end, a few companies did follow up on generated ideas. Two companies ordered a different type of packaging, like in a generated idea. Three companies changed their website content or visual identity based on workshop insights. One company continued with a food flavour that was tested during the workshop. One company sought collaboration with a nutrition centre as suggested during the workshop. Another company fired their designer because the designer refused to use the input from the users. They hired a new designer to develop a packaging concept based on the results of the co-creation workshop. Another company developed a special gift package for New Year's, much like one of the outcomes of the co-creation workshop. However, this company did not attribute this development directly to the workshop.

Replication of the co-creation method

After the workshops, the companies all said they felt confident replicating the method. However, some companies had different ideas about what effective co-creation was: they referred to applying co-creation for educating consumers which was not the intention of the study. Other companies intended applying co-creation in the future for input and insights from consumers towards innovation. Some companies expressed the wish to ask for more feedback in less traditional ways than surveys and test panels. Other companies had ideas about replicating the methodology in a way that was a mix between the 'old' and 'new' way of connecting and receiving feedback or input from customers. They planned to do a test panel combined with a discussion, or a survey with a discussion meeting afterwards to gain deeper insights.

In the final online evaluation with the facilitators, it was expressed that a lack of knowing how to organize a workshop was in their view not a barrier for the companies anymore. After the workshops, most of the companies asked for a detailed methodology guide of 'how to do it' which they received. (A co-creation booklet was published and handed to the sixteen companies;

it was referred to before in the method section.) Interestingly, the companies said this information booklet would help them not only to repeat but also to train others in using the methodology. Most companies, unrelated to their attitude towards co-creation, saw barriers for implementing co-creation. These resemble the ones found in literature: lack of time and budget, lack of skills and lack of knowledge and motivating consumers to join. However, the main perceived barrier for companies to organize another co-creation workshop was to interest enough (and the right) consumers to join. The facilitators expressed that being 'too busy with other work', i.e. lack of time and headspace, was in their view the main barrier for the companies to replicate co-creation.

CONCLUSION

The co-creation workshops resulted in a better understanding of sustainable food preferences of the urban middle class of Vietnam. Health, freshness, convenience and tradition showed to be important factors for sustainable food among the urban middle class of Vietnam. When designing for these factors freshness is especially key to convey since it represents many of the other qualities of food for the consumers.

The workshops made companies gain understanding of sustainable food preferences of consumers. It also resulted in anticipation of more participatory inquiry in the future. The companies' tangible knowledge, the ability to showcase practicalities of food production and the direct contact sometimes resulted in an appreciated educational effect. This unintended effect of the workshops can be the starting point for new research on the educational role of companies in sustainability transitions of the food system in Vietnam. Last, this study showed that co-creation can create a sense of community and sense of urgency for sustainable food.

A final aim of the workshop was to move towards more participatory design skills and creativity. However, the effect on a more participatory decision-making process was not observed. In Vietnam it is often the CEOs of the agri-food companies that make most of the design decisions and takes on the role of creative designer. Also, the intended effects on product innovation and creativity were not reached because of limited design skills present in the companies. In Vietnam design methods do not play an important role yet in product development of agri-food companies. In other countries, such as in Europe, design beyond packaging in the agri-food sector is also not a given. However, recently, the role of design, beyond aesthetics, is starting to be acknowledged in Vietnam: different educational design programmes are being established. Next to that, companies are becoming larger, more structured and institutionally organized. This context means that participatory design could have an important role to play in the future. This makes it quite attractive to start talking about the potential role of participatory design and creativity in Vietnam now, while companies are maturing and defining their organizational structures, their processes and divisions of roles. This study is a first exploration towards these participatory processes in the specific context of the food system in Vietnam.

Finally, for the future success of smallholder firms in Vietnam it is important that the sector recognizes the value of participation and becomes skilled in facilitating participatory processes; that creativity becomes a vital part of innovation processes; and that decision making processes are more transparent and distributed. Future research should point out how these local agri-food companies can help in creating networks of trust that support an increase

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in sustainable consumption in Vietnam, by supporting Vietnamese agri-food firms to develop their own methods.

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