Asymmetrical Partnerships on Sustainable Innovation: Sustainability Startups and Market Incumbents

Andra Riandita  
KTH Royal Institute of Technology  
Economics  
riandita@kth.se

Anders Broström  
KTH Royal Institute of Technology  
Industrial Economics and Management  
andbr@kth.se

Andreas Feldmann  
KTH Royal Institute of Technology  
Industrial Economics and Management  
andreas.feldmann@indek.kth.se

Abstract

Firms increasingly incorporate sustainability aspects into their value proposition and business operation in response to stakeholder pressure. Business firms react to the new challenges through the implementation of sustainable innovation practices that often involve radical changes. Collaborative efforts for sustainable innovation are, as a consequence, expanding, as firms require external resources to develop the new capabilities.

While the external interactions of large firms were previously primarily oriented towards non-governmental organizations or government agencies, recently opportunities to partner with other firms to promote a sustainability agenda have been recognized. In an emerging form of such collaboration, large incumbents partner with smaller startups on the basis of driving a sustainable innovation agenda. The contrasting and complementary resources of the startup and incumbent lead towards a potential avenue to form a partnership.

This paper further investigates such emerging form of asymmetrical partnership between sustainability startups and market incumbents. Drawing on the resource based theory of the firm, the paper aims to identify the different role of sustainability startups and market incumbents in inter-firm collaboration based on its distinct competitive advantages.

We conducted empirical work in the form of multiple case studies on the existing partnership between small startup and large incumbent firm on sustainable innovation in the Swedish and Italian food sectors. The cases include five partnerships involving six sustainability startups and three incumbents, collaborating on food waste projects. Addressing dyadic interaction as
the unit of analysis, we provide both the perspective from the incumbent’s manager and startup’s owner-manager. Our findings suggest that sustainability startups and incumbent pursue sustainable innovation differently in terms of type, degree, and scope of issue. We identified a dissimilar role between the two groups of firm within the collaboration. The incumbents play a leading role in initiating the partnership formation, while the startups are in charge of the knowledge exchange. This paper contributes to the literature of sustainable innovation and inter-firm collaboration, and provides insights of relevance for both large firm managers and small firm owner-managers.
Asymmetrical partnership on Sustainable Innovation:
Sustainability Startups and Market Incumbents

Andra Riandita, Anders Broström, Andreas Feldmann
Department of Industrial Economics and Management, KTH Royal Institute of Technology, Stockholm, Sweden

Abstract
Firms increasingly incorporate sustainability aspects into their value proposition and business operation in response to stakeholder pressure. Collaborative efforts for sustainable innovation are, as a consequence, expanding, as firms require external resources to develop the new capabilities. This paper documents an emerging form of such collaboration, where small sustainability startups interact with large incumbent firms to change incumbent processes in a sustainable direction. Drawing on the resource based theory of the firm, we document how these partnerships are driven by the contrasting and complementary resources of the startup and the incumbent. Furthermore, we identify how sustainability startups achieve sufficient visibility and credibility to attract incumbents’ interest. We conducted empirical work in the form of multiple case studies on six partnerships targeted to reduce food waste. Our findings suggest that the incumbents play a leading role in initiating the partnership formation, while the startups remain largely in control over development of the product and service around which the partnership is centered. This paper contributes to the literature of sustainable innovation and sustainable entrepreneurship, and provides insights of relevance for both large firm managers and small firm owner-managers.

Keywords: sustainable innovation, startups, incumbents, collaboration

I. Introduction
Responding to changing stakeholder expectations, firms increasingly integrate sustainability aspects into their value proposition and business operation. In particular, large or multinational firms are subject to visibility (Etzion, 2007), and thus are susceptible to external pressure on social and environmental responsibility.

Incorporation of sustainability aspects into firm’s core business transforms the way firm innovates. Innovation motivated by the three pillars of social, environmental, and economic value is referred to as sustainable innovation (Boons and Lüdeke-Freund, 2013, Hansen et al., 2009). A number of studies show that sustainable innovation improves firm performance through, e.g. legitimacy building and cost saving (Bossle et al., 2016, Nidumolu et al., 2009).
Scholars agree that sustainable innovation extends incremental solutions to involve rethinking existing business paradigms (Cagliano et al., 2016). Radical innovation entails firms to build sets of new capabilities. In most cases, firms are not well-equipped to develop a wide range of necessary capabilities on their own. Thus firms seek external resources and capabilities through collaboration. Collaborative efforts for sustainable innovation are, as a consequence, expanding (e.g. Gimenez et al., 2012, Mirvis et al., 2016, Wassmer et al., 2017).

The majority of scholars’ work on the collaboration for sustainable innovation focused largely on its relation with non-governmental organizations or government agencies (Wassmer et al., 2014), recently opportunities to partner with other firms on sustainable innovation have been recognized (Kishna et al., 2017, Niesten et al., 2017). In an emerging form of such collaboration, asymmetrical partnership between small startups and large incumbent firms occurs.

The presence of new small firms born for sustainability purpose, often referred as sustainability startups (Hockerts and Wüstenhagen, 2010), is growing. This population of startups are created with explicit aims to providw social and/or environmental value along with the economic value. Most large firms, in contrast, were born neither for social nor environmental purposes; business as usual for them would mean to aim for economic objectives. Not until relatively recently have incumbents across the economy began to introduce sustainability practices to their new product line and business operations, e.g. launching eco products, adopting clean technology (Bocken et al., 2014), and designing corporate sustainability (Husted and Allen, 2006).

Existing literature discussing sustainability initiatives of firms is separated into two streams. The activities of small firms and startup are discussed in the sustainable entrepreneurship literature (Dean and McMullen, 2007, Cohen and Winn, 2007), while activities of large firms are addressed in the more mature body of literature on corporate sustainability (van Marrewijk, 2003, van Marrewijk and Werre, 2003). Sustainability-related startups are typically value-driven and strongly focused on one particular social or environmental issue. Large firm as the market incumbents may have less grand ambitions, but their established market presence brings them a much broader reach (Hockerts and Wüstenhagen, 2010).

The contrasting and complementary nature of sustainability startups and incumbent firms lead towards a potential avenue to form a partnership. A previous study by Hockerts and Wüstenhagen (2010) paves the way by showing how the interplay of both groups of firm is essential to transform industries towards sustainable development. Drawing on the resource-based theory of the firm, our paper explores the emerging phenomenon of partnerships between sustainability startups and market incumbents leading to sustainable innovation. Specifically, we document how such partnerships enable incumbents to change their business practices in a more sustainable direction. This paper furthermore investigates how sustainability startups attract market incumbents to partner with them.

We designed our empirical work to focus on addressing one particular sustainability issue that affect nearly all entire nations; the issue of food waste. Global population is struggling to tackle the problem not only in developing countries, as European countries generate 179 kg food waste per capita in a year (O’Connor, 2013). Food waste draws immense concern of various stakeholders across industries due to its magnitude of environmental as well as social impact. One third or 1.3 billion tons of produced food for human consumption is lost or wasted globally per year (Gustavsson et al., 2011). Yet, more than 800 million of global population is hungry and under-nourished (FAO, 2017).
The paper proceeds as follows. We discuss the research background including theoretical framework and literature review in the following section (Section 2). Section 3 describes the qualitative methodology carried out for the empirical work, then followed by summary of the case description in section 4. Section 5 provides results and discussion. The final section (section 6) then concludes the paper, accompanied with suggestions for future research and limitations of the paper.

II. Research Background

2.1. RBV as theoretical framework

We use the resource based view (RBV) as the theoretical framework for this study. RBV established as a theory (Barney, 1991) aiming to analyze the competitive advantage and behavior of firm, typically on the relation of organizational resources and firm performance, and collaboration among firms. Inter-firm collaboration provides firms with access to information, resources, markets, and technologies, as well as partner’s resources (Gulati et al., 2000).

According to the RBV, a business firm is best viewed as a collection of resources and capabilities (Mowery et al., 1998). Notably, resource difference is one of the fundamental differences between small startup and large incumbent firm. Past studies have emphasized how small and large firm innovate differently in terms of degree, type, and external involvement (Narula, 2004, Spithoven et al., 2013, Nieto and Santamaria, 2010). Large firms have extensive resources and capabilities to innovate in products or processes, equipped with wide-ranging set of talents. However, they are generally less flexible due to the complex and hierarchical structure that come with size. In the opposite, small firms are limited in resources and capabilities, as they tend to be specialized in serving niche market (Narula, 2004). Small firms are found to be more innovative in new and specific areas, owing to their agility and flexibility to innovate. Nevertheless, due to its size limitation, small firms need to formulate searching strategies for new knowledge and ideas, as well as potential partners and markets. They are more prone to open system approach (Rothwell, 1991) and better positioned to exploit external knowledge (Bougrain and Haudeville, 2002).

Collaboration on innovation between small and large firm is often rationalized by opportunities to combine complementary resources and capabilities while visioning a mutual objective. For small firms, there are more opportunities to collaborate with large firms than to compete successfully against their larger counterparts (Narula, 2004). Partnering with large firms offers smaller firms potential opportunity to scale up their business and to improve their overall innovation performance (Hossain and Kauranen, 2016). Moreover, startups take advantage of their larger counterpart superiority in terms of talent pool and economy of scale (Criscuolo et al., 2012). Large firms are benefiting from the agility of small firms to cover areas where they are lacking.

Studies on small and large firm collaboration have been especially focused on technology-intensive R&D firms. Partnership on the use of external knowledge and technology, including through outsourcing and forming alliances, has provided benefits for both types of firms (Narula, 2004, Hagedoorn et al., 2000). This type of interaction provides firms the mechanisms for exchanging knowledge and learning from the partner to develop new capabilities to innovate.
2.2. Inter-firm collaboration for sustainable innovation

Sustainable innovation generally involves radical changes that require a firm to pursue collaborative and open system approach. The multidimensional goals of sustainability add to the general complexity of sustainable innovation compared to the general innovation activities (Cagliano et al., 2016), creating an unfamiliar and uncertainty situation for the firms. Hence, firms require external sources to tackle the challenge and pursue sustainable innovation through more collaborative approach. Collaboration allows firms to achieve competitive advantage through inter-organizational ties, thus develop resources and capabilities externally (Hagedoorn, 2002, Hagedoorn et al., 2000).

In the scope of collaboration for environmental sustainability, four dominant inter-organizational collaboration forms have been identified: (1) inter-firm collaborations, (2) firm-NGO collaborations, (3) firm-government collaborations, and (4) firm-university collaborations (Wassmer et al., 2014). Firms initiate a partnership to integrate environmental sustainability into the business strategies through three types of environmental partnership depending on their objectives. The partnership may aim to seek innovativeness, build legitimacy, and to influence policy (Wassmer et al., 2017). Different types of partnership influenced by the firm’s motivation and partners they seek; whether with other firms, public sector, or governmental agencies.

The partnership becomes the mean for two or more business entities working together to exploit economic opportunities surrounding social or environmental issues. As past work on the collaboration between firm and NGO has emphasized, the goal of this partnership centers on the improvement of the firm’s reputation (Wassmer et al., 2014). The large firm provides sponsorship for NGO in return for their endorsement, an initiative rather seen as picking the low hanging fruit (Adams et al., 2016). Since businesses increasingly view sustainability as a central component in their value proposition and corporate strategy, more firms opt to collaborate with another firm for sustainable innovation (Kishna et al., 2017, Niesten et al., 2017, Sadovnikova and Pujari, 2017).

In the recent years, we have witnessed the rising of new players in the sustainability-driven market, dominated by smaller firms (Klewitz and Hansen, 2014). Consequently, the interplay between these new entrants and the former player of incumbents leads to a potential partnership formation. Existing studies involving small and large firms collaboration for sustainable innovation has mainly been described vertically as a customer and supplier relationship, where small firms act as “sustainability supplier” to their larger counterpart (Gold et al., 2009, Jernstrom et al., 2017, Moore and Manring, 2009, Roehrich et al., 2017, Yenipazarli, 2017).

2.3. Sustainability startups

The relation between entrepreneurship and sustainability has been discussed in the growing literature of sustainable entrepreneurship. The literature of sustainable entrepreneurship is rather recent and emerging, in particular studies addressing the new entrepreneurial firms driven by the triple bottom-line value of sustainability. Discussion on sustainable entrepreneurship has been dominated by studies investigating the role of individual entrepreneurs in the creation of new firms (e.g. York and Venkataraman, 2010, Kearins et al., 2010, Kuckertz and Wagner, 2010). The notion ‘sustainable entrepreneurship’ has been advanced (Cohen and Winn, 2007, Dean and McMullen, 2007) to emphasize
the process of discovering, evaluating, and exploiting entrepreneurial opportunities out of the growing sustainability pressures.

The term ‘sustainability startup’ was first coined by Hockerts and Wüstenhagen (2010), highlighting how they differ from conventional startups in their pronounced value-based approach and their intention to effect social and environmental change in society. Sustainability startups comprise of small new firms whose environmental and/or social objectives are the same important as economic objectives. This group of firms are highly associated with the distinct value of its owner-manager, directing in a nature-centered and not overly growth-focused business paradigm (Kearins et al., 2010).

For sustainability startups, enhancing environmental quality and social wellbeing are embedded in their core business activities (Parrish, 2010). Operating in a niche market, sustainability startups are often trapped in the limited playground due to their commitment of delivering highest environmental and social standard. Furthermore, they tend to keep the niche at a small and exclusive size to avoid competition from the incumbents (Hockerts and Wüstenhagen, 2010).

On the other hand, these startups are keen to transform the market through a radical approach of sustainable innovation. Typically led by an ambitious entrepreneurial leader, they have the determination to transform the industry towards sustainable development. Being young and small, yet engaging in radical innovation that may disrupt the market, sustainability startups require high interaction with external actors (Klewitz and Hansen, 2014) to scale up the business. Due to the small firm limitation discussed in the previous section, collaboration with external stakeholders help to spread out their sustainability mission to reach larger audience.

III. Methodology

Inter-firm collaboration between sustainability startups and incumbents for sustainable innovation is an emerging practice. We have applied exploratory case study methods to explore this phenomenon. Qualitative research methodologies, such as case studies, can be particularly suitable during the early stages of the investigation of a phenomenon (Yin, 2013). The method allows the use of multiple data types and sources for an in-depth exploration and investigation on the phenomenon of interest. In practice, the twofold challenges of identifying and negotiating access to existing cases limited the availability pool of cases. We applied a purposeful sampling strategy by deliberately select cases based on their ability to reveal important information about the phenomenon of interest (Eisenhardt, 1989).

We conducted multiple case studies as it is commonly better grounded than results from single case study (Eisenhardt and Graebner, 2007). The multiple case studies include five partnerships involving nine firms (six startups and three large firms) operating in European countries.

The case studies include five partnerships involving nine firms (six startups and three large firms). Each partnership should involve at least one sustainability startup and one incumbent firm, formalized under a contractual agreement. We followed Eisenhardt (1989) who suggests that four to ten case studies can be the basis for analytical generalization as well as to ensure external validity.
Food waste has been selected as the empirical context for the study due to its significance on the global sustainability impact. This problem occurs in not only developing countries, but also developed ones such as EU. European countries generate 179 kg food waste per capita in a year (O’Connor, 2013), this would mean in total EU is wasting as much as 20% of the total food produced. The costs associated with this amount of food waste for EU-28 in 2012 are estimated at around 143 billion euros (FUSIONS, 2016). As EU targets to halve per capita food waste by 2030 and formulates extensive action plans on this issue, this case study is designed to focus on the collaboration project on food waste in EU countries.

The unit of analysis for this case study is aimed at the dyad level of the partnership between two firms with different characteristics, sustainability startups and market incumbents, as explained in section 2. We interviewed startup’s owner-manager and project leader as well as sustainability manager or project leader from the incumbent firm. We conducted semi-structured interview that each lasted approximately one hour. Interview questionnaire covered five areas:

1. Contact details and firm description
   The first section was designed to collect general information about the background of the interviewee and the company being interviewed.

2. Sustainability goal of the firm
   This section focused on the firm’s mission related to sustainability, followed by the firm’s strategy towards achievement of the goal.

3. Existing partnership for sustainable innovation
   We asked about what different existing partnerships that the firm has, before focusing on the selected partnership. We asked the motives and drivers for this partnership as well as activities involved within the partnership.

4. Partnership formation process
   This section was designed to understand the process of scouting potential partners, selecting partner, and the step-by-step partnership formation process.

5. Expectations, outcomes, barriers, and challenges
   The last section involved questions about the initial expectation and outcome of the partnership so far. Barriers and challenges of the collaboration are also covered in this part.

The interviews were recorded using a digital audio recorder and transcribed. Other sources of data used include company reports, company websites, and press releases. Multiple sources of evidence help to improve the construct’s validity (Yin, 2013). Collection of data from multiple sources is then analyzed through a manual coding process. Reduction of data was carried out by categorization of codes. We applied thematic coding to group case elements into conceptually relevant categories to facilitate comparisons within and between cases. A detailed description of the cases is provided in Table 1.
## Table 1. Case description

<table>
<thead>
<tr>
<th>No</th>
<th>Company name</th>
<th>Activities</th>
<th>Established</th>
<th>Type</th>
<th># Employee</th>
<th>Project</th>
<th>Initiated</th>
<th>Country</th>
<th>Market</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability startups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Rescued</td>
<td>Juice producer from fruit waste</td>
<td>2014</td>
<td>b2b-b2c</td>
<td>7</td>
<td>ICA Rescued Fruit</td>
<td>2016</td>
<td>Sweden</td>
<td>Sweden</td>
<td>CEO</td>
</tr>
<tr>
<td>2</td>
<td>Nutrient</td>
<td>Foodtech startup, insect protein</td>
<td>2016</td>
<td>b2b</td>
<td>4</td>
<td>Fish feed</td>
<td>2017</td>
<td>Sweden</td>
<td>Sweden</td>
<td>CEO</td>
</tr>
<tr>
<td>3</td>
<td>Karma</td>
<td>Foodtech startup, online platform retailer</td>
<td>2016</td>
<td>b2b,b2c</td>
<td>ICA-Karma</td>
<td>2017</td>
<td>Sweden</td>
<td>Sweden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Winnow</td>
<td>Foodtech startup, food waste technology</td>
<td>2013</td>
<td>b2b</td>
<td>10</td>
<td>Smart tool for IKEA food waste</td>
<td>2015</td>
<td>UK</td>
<td>Global</td>
<td>CEO Operations manager</td>
</tr>
<tr>
<td>5</td>
<td>Leanpath</td>
<td>Foodtech startup, food waste technology</td>
<td>2004</td>
<td>b2b</td>
<td>11</td>
<td>Smart tool for IKEA food waste</td>
<td>2015</td>
<td>US</td>
<td>Global</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>reBox</td>
<td>Doggy bag producer</td>
<td>2016</td>
<td>b2b</td>
<td>3</td>
<td>reBox-Ticket restaurant</td>
<td>2016</td>
<td>Italy</td>
<td>Italy</td>
<td>CEO</td>
</tr>
<tr>
<td><strong>Incumbents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>ICA</td>
<td>Grocery retailer</td>
<td>1938</td>
<td>b2c</td>
<td>22000</td>
<td>(n.a.)</td>
<td>2016-2017</td>
<td>Sweden</td>
<td>Global</td>
<td>CR</td>
</tr>
<tr>
<td>2</td>
<td>Ikea</td>
<td>Home furniture retailer</td>
<td>1943</td>
<td>b2c</td>
<td>163600</td>
<td>Smart tool for IKEA food waste</td>
<td>2015</td>
<td>Sweden</td>
<td>Global</td>
<td>Project leader</td>
</tr>
<tr>
<td>3</td>
<td>Edenred</td>
<td>Ticket restaurant provider</td>
<td>1962</td>
<td>b2b</td>
<td>6000</td>
<td>reBox-Ticket restaurant</td>
<td>2016</td>
<td>UK</td>
<td>Global</td>
<td>CSR</td>
</tr>
</tbody>
</table>
IV. Case summary

1. Edenred with reBox
   Edenred is the leading provider of transactional solutions for companies, employees, and merchants; mostly known for its line of Ticket Restaurant meal voucher. Edenred operates in 42 countries, including Italy. One of its sustainability priorities is reducing the environmental impact, especially on food waste. ReBox produces artists-designed doggy bag to bring home leftover food, called re-food. Edenred collaborates with reBox by providing re-food to over 1000 restaurants in Italy through Edenred chain. Together with an Italian research institute in the consumer study, they develop a joint project to study consumer behavior on the acceptance of doggy bags in Italian restaurants, which was inexistent before. The project aims to raise social awareness of food waste that addresses specifically the restaurants and its consumers.

2. ICA with Rescued
   ICA is the largest grocery retailer in Sweden, with a market share of about 36%. Rescued produces juice from fruit waste. ICA’s main sustainability target is to be carbon neutral in 2020. Rescued collaborates with ICA, particularly the company’s fruit and vegetable division. Rescued produces juice made out of ICA’s fruit waste. ICA and Rescued started the partnership in 2015. ICA supplies its fruit waste; Rescued produces the juice based on the type of fruit they receive and then supplies it back to ICA. The premium juice is sold in ICA as its private brand, labeled ICA Rescued Fruit. Since the juice is made from 100% ICA’s fruit waste, the partnership involves risk of raw material supply uncertainty on both the type and amount of fruits that Rescued receive. In view of this, ICA has agreed to sign a special agreement with Rescued, unlike any of its existing supplier arrangements.

3. ICA with Nutrient
   ICA and Nutrient initiated their partnership in 2017. At the initial stage, it was an open partnership, without predefined scope, activities, or timeframe. ICA is interested in Nutrient potential along with the growing trend in food tech and sustainable food. Since the partnership started, Nutrient has been closely in contact with the innovation team of ICA to explore the possibilities for a joint project. The partnership agreement is based on facilitating innovation for both parties, mainly on knowledge sharing. The partnership advances in an innovation project on a fish feed development as one of the initial joint projects. Nutrient uses the waste from ICA’s suppliers for its farm insects, then produces the fish feed out of the farmed insects.

4. ICA with Karma
   Since its establishment in 2016, Karma served mainly restaurants and cafes before starting the collaboration with ICA. Collaboration between ICA and Karma was initiated in 2017, starting with two ICA stores as the pilot project. Karma works in particular with ICA’s corporate responsibility division, making way to connect them with the individual ICA stores. Karma provides a platform for the consumer to buy ICA products at a discounted price. These products are approaching the expiry date and would otherwise go to waste. There has been an increase in the number of stores signing up to participate in the project. Further plans for the collaboration is to upscale the partnership covering many more ICA stores throughout the country.
5. IKEA with Winnow and Leanpath

Winnow and Leanpath are two startups that provide a solution to tackle the issue of food waste using a smart scale and digital solutions. IKEA, in particular IKEA Food, collaborates with them to solve their food waste issue. In 2014, IKEA went through a major restructuring of its sustainability strategy to set up specified targets and an agenda. Among other things, IKEA targeted to half its food waste by 2020. Thus they sought firm partners specialized in tackling food waste issue to help them achieving the ambitious target. IKEA initiated the collaboration with Winnow and Leanpath at the same time. The collaborations started with a 6-months pilot project in 2015 involving two stores in The UK with Winnow and two stores in the US with Leanpath. Based on the pilot result, IKEA decided to run on a larger scale with the global implementation in 2016. At the moment this technology has been introduced to 140 IKEA stores, with the plan to apply it further in all of its 400 stores worldwide. The current application covers measure and the internal operation of IKEA food. Further work is going to target also waste from the consumer plates.

V. Results and discussion

5.1. Results

5.1.1. Sustainable innovation in sustainability startups and incumbents

Sustainability startups and market incumbents have a different approach in their implementation of sustainable innovation. Although both groups of firm aim to contribute towards social or environmental goals, they invest in different type, degree, and scope of focus when adopting sustainable innovation.

Being highly value-driven, the sustainability startup carries a specific sustainability mission through their business. Their business goal lies beyond economic profitability, strongly related to the messages they aspire to deliver through their product or service.

As company mission, we see that food is too valuable to waste and we want others to see that as well and to manage it and we do that using technology, so our basic offering is a combination of software, hardware and implementation service. (Operation manager – Winnow)

...we started from sustainability, not from the economic goal. I mean, we were interested in an economic return, but everything started from the idea to lower waste. (CEO – reBOX)

A lot of tons of fruits everyday just go to waste. So it’s quite big and its quite practical and its really stupid. We have so many environmental challenges today. But I think wasting food, we should be able to stop wasting food. I can see the challenges in development of different type of fuels, building different type of environmental friendly houses, I can see real the challenges in those area. But I think we should be really able to stop throwing foods away. (CEO – Recrued)

Sustainability startups generally focus on carrying its sustainability mission over a single-issue campaign, often determined by its ambitious and highly motivated entrepreneurial leader. They tend to invest in
more radical innovation rather than the incumbent. Innovation from sustainability startups exists in the form of product or service that are mainly technology intensive.

The incumbents instead focus their effort on a more incremental approach. Larger firm adopts sustainable innovation in the form of corporate sustainability or a more comprehensive CSR. Corporate sustainability always cover a broad range of issues that address both social and environmental goal.

...in 2014 we had a new direction with very clear health and sustainability agenda and that was also when food waste was addressed more or less for the first time within Ikea as a big challenge. (Project leader – IKEA)

Our sustainability goal is that we should be carbon neutral in 2020. In different ways, we are trying to reach the goal and for our department we are trying to make everyday a little bit easier for our consumers... (CR – ICA)

Edenred promotes a healthy lifestyle, as well as more respectful behaviours toward the society, environment, and food. We are working to reduce food and paper waste, and aiming to increase the awareness about the health. Moreover, our sustainability model also includes social responsibility improvement throughout volunteering and charity activities. (CSR – Edenred)

Table 2 summarized the different approach of sustainable innovation by sustainability startups and incumbents.

<table>
<thead>
<tr>
<th>Sustainable innovation</th>
<th>Sustainability startups</th>
<th>Market incumbents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>Radical</td>
<td>Incremental</td>
</tr>
<tr>
<td>Type</td>
<td>Product, service</td>
<td>Process (i.e. CSR, corporate sustainability)</td>
</tr>
<tr>
<td>Scope of issue</td>
<td>Specific, social or environment</td>
<td>Broad, social and environment</td>
</tr>
</tbody>
</table>

5.1.2. Partnership formation

The incumbent took the first step to approach the potential partner for initiating the collaboration opportunity. The large firm perceives the potential and unique proposition that the small firm offer through their product and service innovation, despite being a new player in the market.

Incumbents have a well-defined and structured sustainability strategy designed as an overarching theme to set the prioritized agendas. Within the organizational structure, the firms have a dedicated sustainability or corporate social responsibility (CSR) division. They look for potential partners based on their sustainability priorities, a startup with a unique product or service that contribute to solve a specific sustainability issue. Based on the cases, large firms were the first one taking initiative to invite the partner to collaborate in the specific project. The incumbents are willing to take the risk of partnering with or a new player who offers an innovative product or service that match the large firm’s need.

..at that time we didn't really have any connections with any food waste reduction company, we did not know more or less anything about food waste in the world or how much food waste we had within Ikea and you know, it was really starting from zero. But we did get some names from a person working a lot
with food waste reduction so we received the contact details to Marc Zornes at Winnow and Andrew Shackman at Leanpath. (Project leader – Ikea)

We try to find different types of organizations or partnerships to reach our goal. For example, like Nutrient, Rescued fruit or Karma, we love those type of companies! They are doing something that we can’t do, we love the partnership and if we can help them and they can help us, it’s really good for both of us. (CR – ICA)

On the other hand, the sustainability startups are relatively new in the market. For them the partnership comes as spontaneous events. They respond rather than actively pursue opportunities, relying on the compatibility of the offered projects to their product or service innovation. In most cases, the small firms yet to have a structured strategy to plan for a strategic partnership.

Our facilities and machines were limited, but we come up to a conclusion that ok, if we said out to eliminate all the fruit waste and then we have like main biggest actor in the Swedish food industry in food retail and they are calling us up to save their fruit. Can we turn that down? No, we can’t, we need to try to make this happen. (CEO – Rescued)

..before we have everything we show off whatsoever they can say like "hey, can we do something together?" like they want to have collaboration with us... what could you do so we can sell this basically.. (CEO – Nutrient)

5.1.3. Sustainability startups attract incumbents

We found that the partnership between sustainability startups and market incumbents were first initiated by the latter. Having intention to be part of solution to the food waste issue without sufficient knowledge in the area, incumbents seek out for ideas outside of the firm. Startup’s innovative solution and expertise in the specific issue are major factors attracting the incumbent interest. Geographical proximity between the two partners may also help as an additional factor, which eases the transport and logistic process.

The sustainability startups in our sample are all driven by an ambitious entrepreneurial leader as owner-manager. These entrepreneurs have identified business opportunities in different food waste issues as a potential and growing market globally. They exploit this opportunity by designing a business model that cater other firm to eliminate their food waste problem. Some of the startups intentionally aim to serve larger firms to implement their corporate sustainability activities. For this reason, sustainability startups attempt to increase their visibility and credibility.

Sustainability startups try to improve their visibility in many different ways. They initiate first contacts with the large firm, for example by conducting market research on the firm’s food waste management. They attend various networking events, e.g. startup meetups and exhibitions related to food or sustainability. Particularly on trending issue as food waste, they engage with influencers, i.e. prominent environmentalist, food waste campaigner.

My colleague, he called them up and kind of like research what kind of volume they have and how fruit waste worked in ICA with no particular aim with ICA because we know they were really big and perhaps not ready for it. But ICA kind of like "oh we need to do this", and called us in to a meeting and things start really fast. (CEO – Rescued)

We actually had a contact with a big campaigner in food waste, Tristan Stuart, who was highlighting this opportunity from them just from the sustainability strategy. If you are starting to build the business focusing in this opportunity, you want to meet the key figures and leaders on it, talk to them to know who
might be interested. And ikea came up as one of the those companies who really look for potential solution. (CEO – Winnow)

The startups are aware that visibility does not guarantee credibility. Being new entrants with limited portfolio, these startups need to show their trustworthiness as business partner. Credibility for the startups may come from different sources, on the level of individual and organizational. In individual level, it may include background and professional experience of its owner-manager, e.g. previous experience working in the food sector, working in large firms, and previous startups he/she established. In the organizational level, credibility sources include startup’s previous partnership and its ability to secure investment.

In some cases, the partnership went through an initial pilot project stage. Ikea agreed to adopt Winnow and Leanpath technology in two of its store as a pilot for each in six months. Upon the pilot stage, both startups went through a vendor selection process until eventually securing a contract to scale-up the project towards global implementation. It took two years from the pilot scale until a stage where the technology had been installed in 140 stores, divided between Winnow and Leanpath. As both startups are relatively new entrants in the market, Ikea decided to select two startups instead of one in order to spread and minimize the risk. Likewise, ICA adopted Karma technology in its two stores for the trial period, before agreeing for expansion to other stores.

5.2. Discussion
Small startups and large established firms have contrasting resources and therefore, to some extent, their distinct competitive advantages can complement each other. Matching needs from the opposite sides facilitate the initial interaction between the two organizations. From the incumbent perspective, they seek ways to improve their sustainability performance. On the other hand, sustainability startups strive for means to scale up both the business and impact. The complementary resources and capabilities lead to the partnership formation (Dyer and Singh, 1998) between the new entrants and the market incumbents.

5.2.1. Role of incumbents as the lead in partnership formation
For the established firms, introduction of the triple bottom line of sustainability forms a new challenge for the industry and creates uncertainty where incumbent firms can be disadvantaged (Sharma, 2000). They were born and established since many years aiming for mainly economic growth while running business as usual. Facing the new challenges, incumbents are subject to adjustment and adaptation. The unfamiliarity may put incumbents in a vulnerable position, and thus seeking for information outside of the firm (Eisenhardt and Schoonhoven, 1996).

For some others, sustainability is perceived as the new business opportunity and a potential emerging market at the same time. Eisenhardt and Schoonhoven (1996) demonstrate that the high emergent market leads to a higher rate of alliance formation. Firms are stepping into partnership to develop new capabilities and competitive advantages to fill this gap of knowledge. The large incumbent firms also needs the fast-pace and flexibility of a partner in facing this growing market. These different dynamics, unfamiliarity, and new business opportunity, lead incumbents to the search of sustainability startups to partner with.
Having a comprehensive corporate sustainability strategy is the competitive advantage that the incumbents develop as their adoption of sustainable innovation. To stay competitive in the changing market, businesses are shifting its corporate sustainability strategies from previously reactive to be more proactive (Aragon-Correa and Sharma, 2003, Aragon-Correa, 1998). While a reactive strategy involves only complying with regulations and adopting standard industry practices as a response to stakeholder pressure; proactive strategy involves a consistent pattern of company actions taken to reduce the sustainability impact of operations, particularly beyond fulfilling environmental regulations or conforming standard practices (Sharma, 2000). This initiative leads the incumbent to restructure completely its CSR or redesign its corporate sustainability in the recent years.

The redesigning of corporate sustainability strategy gives the incumbent a clear and measurable target to reach as a social or environmental goal. CSR or sustainability divisions often bear the task to communicate this goal throughout the organization. Each department or division within the organization is given the task to contribute to the achievement of this goal. The common sustainability goal provides a well-defined direction across departments to develop a plan for a strategic partnership. Having clear and measurable agenda in mind, they scout and select partner who can help them to achieve their specific sustainability goal, e.g. halve food waste by 2020, zero carbon emission in 3 years, etc. This goal leads them to encounter startups that match their need. Having identified and selected a potential partner, the incumbent then initiated the partnership formation for a designated collaborative project.

5.2.2. Role of sustainability startups as the lead in knowledge exchange

From our cases, we identify that this group of startups rely on external collaboration to develop their business growth. They design their business model to collaborate with larger firms who aim to improve their sustainability performance. Thus, the startups strive to achieve sufficient visibility and credibility to attract incumbents through different activities. Working exclusively on a single issue, sustainability startups can easily be identified by the incumbents. Its unique and innovative product and service attract incumbents’ interest. Prior to finalizing the partnership formation, they still need to demonstrate their credibility as partner to the incumbent.

Startups were born mainly with a focused objective and started by serving niche market, provides them an in-depth knowledge on the specific market (Bougrain and Haudeville, 2002). For the startups, partnering with incumbents helps their radical sustainable innovation to diffuse from niche to mass market. The partnership allows synergy among sustainability startups who introduce the radical innovation, and incumbents who extend it to the much larger market (Moore and Manring, 2009).

Under the contractual agreement partnership, sustainability startups act as the knowledge provider through their product or service innovation. Although the incumbents may have a broad portfolio of competences, sustainability startups have more advanced knowledge in the sustainability-driven market. However, the incumbents never face issues in terms of tangible resources such as infrastructures and investments, which the startups are lacking. The partnership allows small and large firms to build new competitive advantage through sharing, pooling, and exchanging of resources (Lavie, 2006). In return for the knowledge, the incumbent provides various tangible resources, e.g., access to large consumer database, market research data, and network access for the startup. Knowledge has been identified as the key resource for small firms to perform sustainable innovation (Halme and Korpela, 2014). None of the partnerships in our sample involve any funding nor investment, unlike other typical forms of asymmetrical collaboration between small and large firm.
Sustainability startups are able to further retain the knowledge obtained from the collaboration for its own business development. Having a lean structure, smaller firms are more agile and flexible thus perform a more efficient use of external input than their larger partner (Narula, 2004, Rothwell, 1991). Furthermore, the startups are in favorable position since the incumbents do not regard their small partner as a competitor. This form of partner asymmetries would seem to facilitate knowledge sharing and exchange on sustainable innovation.

VI. Conclusion and limitation

We began this study by noting the importance of joint effort among businesses that address sustainability goal. This paper focused on describing the different role of sustainability startups and market incumbents on the asymmetrical partnership on sustainable innovation – a type of emerging relation which has been largely neglected in the literatures on sustainable entrepreneurship and corporate sustainability. These partnership emerge due to the complementary competitive advantages the two groups of firm own. We also explore how sustainability startups positioned themselves to become credible and visible to potential incumbent partners. Among the key finding of this study is that the incumbent drives the partnership, especially in the formation stage.

Proactive efforts by both small and large firms are essentials for sustainable innovation to diffuse from niche to the mass market. Large incumbent firm can adopt the new and radical sustainable innovation introduced by the startups, thereby this synergy can engage more rapidly in disruptive industrial change (Moore and Manring, 2009). In the bigger picture of industrial sustainability transition, the role of sustainability startups’ radical innovation, large firms’ corporate sustainability, and government’s regulation and supplement enhance the ongoing process (York and Venkataraman, 2010).

This paper shows that startups and incumbents have seen the potential of the joint force. Findings from this study provide interesting avenues for future research. Further study should look at the governance of the partnership to study the dynamics and challenges that arise along the partnership, such as the issue of power balance. Longitudinal qualitative study can be suitable for this type of study. Most of the partnership covered in this study were relatively recent; they were initiated in the past three years. Future study on the performance of the partnership will be relevant to show if the collaboration improves the overall sustainability performance for both parties. Quantitative study may fit this objective in measuring social, environmental, and economic performance of the partnership.

This study has several limitations. The case study partnerships investigated in this research address similar issues, specifically that of food waste. Regional selection is also limited to European countries. Large firms engaged in the cases are also operating in the different stage of the supply chain, e.g. retailer and food service.

This paper contributes to business practice by providing insights to managers of large incumbent firms who seek to improve the firm’s sustainability performance through external collaboration. As such, the paper also provides practical insights for sustainability startup owner-managers who seek to scale up their business through partnership with larger firm.
Aside from practical implications, this paper also offers insights of value to public policy. Our findings would suggest that innovation and sustainability policy may leverage private activities e.g. by stimulating and facilitating emerging forms of asymmetrical partnership between sustainability startups and market incumbents.

References


