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## **Social Entrepreneurship For Sustainable Innovations: A Case Study Of Fairphone**

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### **Abstract**

Over the past several years, social entrepreneurship has been recognized as one of the most powerful tools to achieve sustainable development. Since this relationship is relatively new in the literature, there is a need for deeper examination of its many dimensions. This paper aims at analysis of the current state of the phenomenon that is social entrepreneurship for sustainable innovations in terms of innovations, drivers, and measurement of its social impact. The research has been performed with a case study approach on one company, Fairphone, and resulted in demonstrating the existence of a positive relationship between a social enterprise creating sustainable innovations and achieving both a social and environmental impact. Moreover, the research allowed categorization of sustainable innovations that exist in the company, with reference to existing literature, creation an appropriate set of drivers influencing its actions (with new findings in terms of both internal and external drivers), and broad analysis of the social impact along with its measurement.

**Keywords:** social entrepreneurship, social impact, sustainability, sustainable innovations

**Przedsiębiorczość społeczna dla zrównoważonych innowacji: studium przypadku firmy Fairphone**

Na przestrzeni ostatnich kilku lat przedsiębiorczość społeczna została rozpoznana jako jedno z najpotężniejszych narzędzi służących osiągnięciu zrównoważonego rozwoju. Jako że zależność ta jest względnie nowa w literaturze naukowej, istnieje potrzeba na przeprowadzenie głębszej analizy jej wielu wymiarów. Artykuł ten skupia się na analizie obecnego stanu zjawiska jakim jest przedsiębiorczość społeczna dla zrównoważonych innowacji, w aspektach takich jak: innowacje, czynniki motywujące oraz pomiar wpływu społecznego. Badanie zostało przeprowadzone przy użyciu studium przypadku na jednej firmie - Fairphone, i dowiodło istnienia pozytywnego związku pomiędzy przedsiębiorstwem społecznym tworzącym zrównoważone innowacje, a osiągnięciem wpływu zarówno społecznego, jak i środowiskowego. Ponadto, badanie to pozwoliło na kategoryzację zrównoważonych innowacji istniejących w danym przedsiębiorstwie, w odniesieniu do istniejącej literatury, utworzenie adekwatnych zestawów czynników motywujących zrównoważone przedsięwzięcia w badanym przedsiębiorstwie (wraz z nowymi odkryciami w kategoriach zarówno wewnętrznych, jak i zewnętrznych czynników motywujących), oraz obszerną analizę wpływu społecznego wraz ze sposobami jego pomiaru.

**Słowa kluczowe:** przedsiębiorczość społeczna, wpływ społeczny, zrównoważony rozwój, zrównoważone innowacje

**1. Introduction**

Social entrepreneurship producing sustainable innovations is a new and particularly complex phenomenon that has emerged as a result of advancing environmental changes, the vast extent of continuing social problems, and the increasing awareness of people.

Due to past, adverse decisions by humanity, the pathways available to overcome the global problems and to achieve the desired, sustainable world, may be limited (Urry, 2010, p. 191). Currently, some of the highest hopes are placed on entrepreneurship (Bansal et al., 2019, p. 1). Nonetheless, these efforts will be undermined without additional, socially oriented practices (Eizenberg and Jabareen, 2016, p. 1), as “the concept of sustainable development and social economy are currently undergoing a process of convergence (Picciotti, 2017, p. 233)”. Therefore, it is social entrepreneurship that is perceived particularly as one of the most powerful tools to

achieve sustainable development (Hudon and Huybrechts, 2017, p. 143).

The goal of this study is to examine the current state of the new phenomenon of social entrepreneurship for sustainable innovations in regard to innovations, drivers and measurement of social impact based on an analysis of Fairphone. The research questions concern the types of sustainable innovations the examined company has, drivers influencing the company's performance and the intended social impact the company targets, together with the ways of measuring this and its limitations.

## **2. Social entrepreneurship for sustainable innovations**

Sustainable innovations linked to social entrepreneurship is a new trend in academic research. According to research carried out by Bansal, Garg and Sharma (2019, p. 5), this linkage was scarce until 2005, then up to 2013 its growth was moderate, but soon after researchers' interest has grown remarkably, reaching 43 new papers and 553 citations in 2017, compared to nine and 135 in 2013, and one and eight in 2005 (Appendix 2). Moradi et al. (2016, p. 352) claim there is a need to integrate social enterprises into the mainstream sustainable development literature. Kim and Lim (2017, p. 8) support this statement by stating that sustainability values comprise the framework needed to understand social entrepreneurship, while Di Zhang and Swanson (2014, p. 176) consider social entrepreneurship sustainable by design. To understand the exact meaning of social entrepreneurship for sustainable innovations, it is necessary, in the first instance, to become familiar with its components, namely 'social entrepreneurship' and 'sustainable innovations'.

Social entrepreneurship constitutes a subfield of entrepreneurship. The word 'social' simply modifies the word 'entrepreneurship' (Martin and Osberg, 2007, p. 30), by narrowing its meaning to the areas of social, environmental and cultural issues. Currently, the concept of entrepreneurship has been, to a large extent, formed, however the problem with establishing the boundaries of the field has not yet been solved (Bruyat and Julien, 2000, p. 168). In general, entrepreneurship may be perceived as "the willingness to pursue opportunity, regardless of the resources under control" (Jarillo and Stevenson, 1990, p. 25). It is produced dynamically in social interactions (Anderson and Gaddefors, 2017, p. 278), under a vast diversity of conditions comprising both individual and situational variables (Braga et al., 2014, p. 20) and serves as a change mechanism operated through entrepreneurs – change agents (Anderson and Gaddefors, 2017, p. 272). They work under hard conditions including high risk and uncertainty, yet they are able to ensure productivity in their ventures (Rai, 2008, p. 215) and create something new not only for the sake of profit, but also due

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to their inner passion and desire to create (Weis, 2015, p. 19). According to Glinka and Gudkova (2011, p. 46) entrepreneurs have to be neither inventors nor independent entities running the business, they can be typical employees, managers, or members of the board, as long as they implement new combinations of creative measures.

The term ‘social entrepreneurship’, despite the broad evidence for the existence of manifestations of it over the centuries, was nearly absent in world of academic research on business until the end of the 1990s. Since then, it has significantly grown in importance, becoming one of the most widely studied themes. Similar to entrepreneurship itself, “social entrepreneurship is a phenomenon that has resisted attempts to establish a clear definition” (Mair and Seelos, 2004, p. 1).

The different backgrounds of definitions and many uncertainties referring to the concept resulted in attempts to categorize the existing knowledge. In 2006, Dees and Anderson introduced two schools of thought on social entrepreneurship: **earned income** (social enterprise) and **social innovation** (Dees and Anderson, 2006, p. 41). While both regard the North American context, “the former emphasizes social enterprise as any activity aimed at fulfilling social mission through earning income, the latter focuses on the social change delivered by enterprise through innovation in the Schumpeterian sense” (Starnawska, 2016, p. 40). The second, the social innovation school of thought, has been popularized by Ashoka<sup>1</sup>. Defourny and Nyssens (2012, pp. 10-11), which is supplemented by the third school of thought, namely one rooted in the historical third sector context of Europe (Bahena-Álvarez et al., 2019, p. 3), **the EMES<sup>2</sup> approach**. It is derived from disciplines such as economics, management, political science and sociology, and traditions present in the European Union (Defourny and Nyssens, 2012, p. 11). Basically, it describes an ideal type of social enterprise applying three sets of criteria (economic and entrepreneurial dimensions, social dimensions, participatory governance), simultaneously emphasizing, however, that those social enterprises which do not fulfill all the criteria of the “ideal type” may still be perceived as social enterprises (Kerlin, 2006, p. 107) for these can be specific to the different context of each country (Starnawska, 2016, p. 40). This concept also stresses local community orientation, a participatory nature and continuous economic operations including economic risk (Starnawska, 2016, p. 40).

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<sup>1</sup> Ashoka is an organization that identifies and supports the world’s leading social entrepreneurs. It has been in operation since 1980 and is considered one of the pioneers in the field of social entrepreneurship.

<sup>2</sup> EMES is a research network on social enterprise. It gathers both individual researchers and university research centers in order to build a comprehensive base of knowledge on social entrepreneurship.

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There is also the fourth approach, **the UK approach**, that is distinct from both the American and EMES traditions (Braunerhjelm and Hamilton, 2012, p. 13). According to the UK government, social enterprise is perceived as “businesses with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximize profit for shareholders and owners” (Defourny and Nyssens, 2008, p. 6). It is widely accepted that part of total generated income (usually 50%) must be market-based (Defourny and Nyssens, 2008, p. 6). There is also a regulated form called a “Community Interest Company” (CIC).

Concepts such as ‘social entrepreneurship’, ‘social enterprise’ and ‘social entrepreneurs’ are often used interchangeably in the literature of the field (Brouard and Larivet, 2010, p. 29), yet they represent different meanings, and so they should be defined separately and their relationship clarified (Fayolle and Matlay, 2010, p. 5).

**Social entrepreneurship** is broadly described as a profession, field, movement (Bornstein and Davis, 2010, p. 1) and a tool that aims to address social issues (Iwu et al.; 2014, p. 19). It is an interdisciplinary concept, ‘a hybrid phenomenon’ employing both for-profit and non-profit approaches (Starnawska (2016, p. 39) that can be found in three sectors: the public, private and third sector.

The primary objective of social entrepreneurship is to create social value, rather than personal and shareholder wealth (Austin et al., 2006, p. 371), through identifying specific social problems and possible solutions to them (Robinson, 2006, p. 95), creating innovations (Mair and Martí, 2006, p. 37), establishing a social mission-oriented business entity, enhancing social wealth (Annupreeti and Ghanshyam, 2014, p. 211), evaluation of social impact (Robinson, 2006, p. 95), and sustaining social benefits (Alvord et al., 2004, p. 262). It must always maintain the balance between commercial principles and social concerns. According to Santos (2012, p. 2) social entrepreneurship can impact the economic system and create new industries, corroborate new business models and allocate resources to social problems. Finally, it may be perceived as a continuous interaction between social entrepreneurs and the context (Mair and Martí, 2006, p. 40) and as the way in which a social entrepreneur creates a social enterprise (Defourny and Nyssens, 2008, p. 4).

**Social enterprise** starts with passionate people willing to deliver social change (Moradi et al., 2016, p. 352) and is defined as the outcome of entrepreneurial behavior (Braunerhjelm and

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Hamilton, 2012, p. 27). It is based on innovativeness (Kim and Lim, 2017, p. 2), an independent organization operating at the middle ground between private and public sectors, sharing characteristics of both private and public organizations (Tyrrell, 2018, pp. 3, 5). It can be said that a social enterprise is run like a conventional business, but with a social mission as its essential trait (Hockerts and Kannampuzha, 2019, p. 310) and delivery of social value as a principal goal (Granados et al., 2011, p. 198).

A social enterprise provides goods and services and aims at being self-sustaining, so it must generate revenue (ILO, 2011, pp. 5-20). However, it must also maintain a balance, for its social impact is always more important than maximizing profits (Green et al., 2013). The surplus generated should be reinvested in the business (Bansal et al., 2019, p. 7); however, some social enterprises share a portion of their profits among the owners and shareholders (ILO, 2011, p. 19). Its income can be the result of trading or come from grants and donations. Social enterprises are also financed by personal savings, bank loans, and today, in growing measure by novel, unconventional sources, for example crowdfunding. Every social enterprise should measure and be able to demonstrate its social impact (ILO, 2011, p. 15).

Moving to **social entrepreneurs**, these are “individual change makers and innovative leaders” (Grenier, 2006, p. 121) in social sector who find innovative solutions to deliver social value – their primary objective (Bansal et al., 2019, pp. 10-11). In addition to individuals, Light (2006, p. 30) also describes other possible types of social entrepreneurs, such as a group, network, organization or set of organizations.

Social entrepreneurs cater to some social needs that are usually to certain extent ignored or not adequately satisfied by government and traditional players in the social sector (Moradi et al., 2016, p. 352). They are able to recognize these social issues, to transform a problem into an opportunity (Di Zhang and Swanson, 2014, pp. 184, 187) and to make their vision a reality (Abdullah et al., 2014p. 55). They must create novel business models, organizational structures and strategies (Öztürk, 2013, p. 46) in order to create products and services and supply them through market mechanisms, and they collaborate with various stakeholders, such as employees, volunteers, and the target population (Kim and Lim, 2017, p. 3) to develop new social value. Social entrepreneurs must deal with risk (Lamy, 2019, p. 646) and are prone to it even in key decision making (Iwu et al., 2014, p. 19).

It can be said that social entrepreneurs strike a balance between social and economic goals (Bansal

et al., 2019, p. 11), as they provide both social and economic value – social by providing social benefits, and economic by creating jobs and income (Bansal et al., 2019, p. 7). They may, but do not have to pursue a sustainable development path (Daneke et al., 2010; p. 442). Finally, due to the wide range of social needs in the contemporary world, the potential market for social entrepreneurs is huge (Mair and Seelos, 2004, p. 1).

Zahra et al. (2009, pp. 523-527) introduce three categories of social entrepreneurs: social bricoleurs, social constructionists and social engineers. **Social bricoleurs** are local-in-scale social entrepreneurs – they act to address local social needs using locally available resources, which usually allow them to receive a relatively faster response. **Social constructionists** operate on a small to large scale, in local to international environments. They “build, launch and operate ventures which tackle those social needs that are inadequately addressed by existing institutions, businesses, NGOs and government agencies” (Zahra et al., 2009, pp. 525). As their scope of operations is larger, they are also more resource-dependent than social bricoleurs. Finally, **social engineers** focus on the creation of newer and more effective social systems in order to replace those, which are ill-suited to address social needs. They act on a very large scale, from the national to the international, to bring social change to large-scale issues.

The second main concept, **sustainable innovations**, starts with sustainability. The word “sustainability” had not been used in the form known today until the 1970s (Merrett, 2014, p. 140), when the topic of human actions started being widely discussed, especially after the release of the report “Our Common Future” by the World Commission on Environment and Development. Sustainability is defined as “the physical development and institutional operating practices that meet the needs of present users without compromising the ability of future generations to meet their own needs” (UCLA Sustainability Committee, 2016, p. 2) or “providing the typical person alive in the future with a standard of living, including both material and environmental welfare, at least as high as that enjoyed by the typical person today” (Goodstein, 2002, p. 81). Additionally, Harriss (2013, p. 2) claims that in order for development to be sustainable, it must protect and restore ecological systems, improve economic efficiency, and enhance the well-being of people.

Regarding ‘innovation’, one of the first to focus on this phenomenon was Schumpeter, who described it as “creative destruction” that “incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one” (Schumpeter, 1942, p. 83). Today, it is defined as any novel product, method, device (Kahn, 2012, p. 454), service,

process, structure, policy or market opportunity (Gulati and Nohria, 1996, p. 1251), but also a process of making changes to products, services, and processes resulting in something new (Dooley and O'Sullivan, 2009, p. 5). Bessant and Tidd add that innovation is about “turning opportunity into new ideas and of putting these into widely used practice” (Bessant and Tidd, 2009, p. 16).

The popularity of sustainable innovations has gradually progressed together with sustainability trends. Today, in literature and practice, they are also called interchangeably eco-innovations, eco-friendly innovations, sustainability focused innovations, sustainability driven innovations, sustainability-oriented innovations and green innovations (Varadajaran, 2017, p. 14). Such innovation, in any output form, must result in reducing the impact of the company's activities on the natural environment (Hautamäki and Oksanen, 2015, p. 26). According to Belz (2013, p. 314), sustainable innovation should possess the following seven characteristics: **novelty** (it should contain something new), **customer satisfaction** (otherwise it will not survive on the market), **triple bottom line** (it should align the wants and needs of customers with ecological and social criteria), **life-cycle orientation** (it should be sustainable for its whole life cycle, from extraction of raw materials, through production and sale, to post-use), **significant improvements** (it should provide measurable improvements in performance of socio-ecological performance), **continuous improvement** (it should be modified with the passage of time in compliance with current knowledge), **conventional or competing offers** (it must perform much better than conventional innovations in respect to the criteria of social, environmental and customer needs, in order to attract customers when coexisting on the market with usually cheaper, traditional substitutes).

They can be classified into categories, based on their features and their impact. For instance, Mariados et al. (2011, p. 1306) distinguish between **technical** (concerning products, services and technology of production process) and **non-technical** (connected to management, marketing and market) sustainable innovations. The United Nations Conference on Trade and Development (2017, p. 4) lists five categories of new innovation approaches: **mission-oriented** (directed towards achieving particular social, environmental or technological goals), **pro-poor and inclusive** (based on extending the group of beneficiaries of the innovation, e.g. achieving a larger scale of production and providing services to groups previously ignored by traditional innovation), **grass-roots** (extending the range of actors in the process of innovation by adding local innovation movements), **social** (shifting beyond technological innovation to social innovation, designed to improve human well-being), and **digitally enabled open and collaborative innovation** (fosters open, digital



collaborations). Varadajaran (2017, p. 20) elaborates on three types of sustainable innovations, based on the way in which they decrease their negative environmental impact. These are **resource use reduction (efficiency) innovations** (they provide better productivity in the use of a resource used as an input), **resource use elimination innovations** (they eliminate the use of a resource as an input), and **resource use substitution innovations** (they substitute the use of a resource as an input with a different resource).

### 3. Social impact and how to measure it

Social impact is commonly defined as the extent to which social outcomes are attributable to the specific activities of social enterprise (European Commission, 2014, p. 32). In a more developed definition, it is “the reflection of social outcomes as measurement, both long-term and short-term, adjusted for the effects achieved by others (alternative attribution), for effects that would have happened anyway (deadweight), for negative consequences (displacement) and for effects declining over time (drop off)” (GECES, 2014, p. iii).

It is an immense challenge for social entrepreneurs to measure social impact (Parkinson, 2014, p. 5.) – immense, but not impossible (Madan, 2007, p. 2). Basically, the assessment of social impact is a process aimed at finding to what extent the activities of particular organization have so far solved a specific social problem (Pärensön, 2011, p. 40). Madan calls it the “research and development arm of community development initiatives” (Madan, 2007, p. 2). According to the European Commission (2014, p. 28) it should consist of five stages: planning, engaging (requesting a response from benefiting stakeholders), setting relevant measures, then measuring, validating and valuing, and finally reporting, learning and improving. Measurement of social impact can serve as a feedback mechanism to all stakeholders (Iwu et al., 2013, p. 22) and contribute to improvement of relations with the community, as thanks to transparency they may see how genuine the social mission is (Madan, 2007, p. 2). Therefore, when social enterprises manage to demonstrate their social impact, it ensures their credibility to the sector and may result in more work, more finance and more support (Iwu et al., 2013, p. 23).

However, there is no universal, accepted way or even approach to the measurement of social impact for all organizations (Parkinson, 2014, p. 24) and the quantification of social contributions is difficult (Mair and Martí, 2006, p. 42). Researchers have made substantial efforts to improve the ways of measurement based both on the financial and non-financial performance of an organization, and have created a number of tools, processes and concepts (Di Zhang and Swanson,

2014, p. 177), including the social enterprise balanced scorecard (BSC), benefit-cost ratio, third sector performance dashboard, social return on investment (SROI), ongoing assessment of social impact (OASIS), social e-evaluator, basic efficiency resource analysis (BER), social return assessment (SRA), best available charitable option ratio (BACO), Social Accounting and Auditing (SAA), cost per impact, social impact Measurement for Local Economies (SIMPLE), and expected return (Lombardo et al., 2019, p. 2).

According to Di Zhang and Swanson (2014, p. 179), when measuring both the outcomes of social entrepreneurship and sustainable development, it is important to fuse financial results with social ones. For that purpose, companies may use sustainability reporting, sometimes referred to as Corporate Social Responsibility Reporting (CRR) or Triple Bottom Line Reporting (TBR) (Aggarwal, 2013, p. 52). A sustainability report presents an organization's social, environmental and economic impacts caused by its daily activities, together with its values and governance model (Dev and Singhal, 2016, p. 94). Today, the most popular sustainability reporting measures are GRI Standards, developed by GRI<sup>3</sup>. The standards provide information on how to report an organization's positive and negative contributions to sustainable development and focus on social, environmental and economic performance and relevant contextual information (globalreporting.org).

All in all, a social impact assessment is crucial for understanding the perceived impact of social entrepreneurship (Iwu et al., 2013, pp. 22-23) and its results may be used in future strategic planning (Madan, 2007, p. 2). Moreover, according to Iwu et al. (2013, p. 22) the more social impact organization generates, the more it is able to influence and change government policies.

#### **4. Drivers of social entrepreneurship for sustainable innovations**

In terms of social entrepreneurship for sustainable innovation, the sets of drivers influencing social entrepreneurship are broader, for they also include those affecting sustainability and innovations. Moreover, the motivation to start a social business varies from person to person (ILO, 2011, p. 15) so that the set of such drivers seems to be boundless. Nonetheless, it is essential to identify these, as they are important contribution to the development of the theory of social entrepreneurship (Mair and Noboa, 2006, p. 125). Also, according to European Commission "key drivers boosting social enterprise's development and scaling up include a wider recognition on the part of national

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<sup>3</sup> GRI (Global Reporting Initiative) is an independent international organization that helps the bodies such as governments, businesses, and other organizations in understanding and communicating their impact on sustainability issues.

governments and the definition of consistent public policies” (European Commission, 2016, p. 46). Basically, it is presumed that that social entrepreneurs are driven by more complex motives than those who run traditional businesses (Barton et al., 2018, p. 15) and they are set on social benefits (Öztürk, 2013, p. 47).

Hockerts et al. (2008, pp. 22-27) propose three categories of social entrepreneurs based, among other things, on their motives. These are **social activists**, **social technopreneurs** and **social venture capitalists**. The first describes the archetypical social entrepreneur, social activists are sensitive to social and environmental inequalities, and that feeling of grief motivates them to create social ventures. Social technopreneurs are driven “by eagerness to study and improve or develop a technology that results in a social benefit. Indeed, their main driver is a conviction that social ills can be solved with the right technical fix” (Hockerts et al., 2008, p. 24). Moral considerations play a less important role for them. Social venture capitalists, in turn, are experienced business entrepreneurs, motivated by the market itself, which they consider to be the ultimate source of solving social problems. They want their businesses to be both profitable and socially responsible. The literature review allowed further, more complex classification, summarizing findings from multiple articles by different authors, both regarding the drivers of social entrepreneurship and those of sustainable innovations. The drivers of social entrepreneurship can be classified into 24 internal and six external drivers presented in the table below (Table 1).

Table 1. Drivers of social entrepreneurship

SOCIAL ENTREPRENEURSHIP – DRIVERS	SOURCE
<b>INTERNAL DRIVERS</b>	
moral responsibility	Mair and Martí, 2006, p. 38
personal fulfillment	Mair and Martí, 2006, p. 38
desire to improve society	Barton et al., 2018, p. 18
desire to help other people	ILO, 2011, p. 15
high level of social mission	Abdullah et al., 2014, p. 53
charismatic personality	Abdullah et al., 2014, p. 53
unwavering belief	Abdullah et al., 2014, p. 54
benevolence	Abdullah et al., 2014, p. 54
compassion	Grimes et al., 2013, p. 461
empathy	Mair and Noboa, 2006, p. 128
eagerness to study and improve or develop a technology	Hockerts et al., 2008, p. 24
self-efficacy (the extent to which people believe in their capabilities to obtain desired outcomes)	Barton et al., 2018, p. 17
need for recognition (authority)	Barton et al., 2018, p. 19
need for financial success	Barton et al., 2018, p. 19
need for challenge	Barton et al., 2018, p. 19

need for autonomy	Barton et al., 2018, p. 20
need for self-realization	Braunerhjelm and Hamilton, 2012, p. 23
own experience based on living in the environment that requires changes	ILO, 2011, p. 9
personal trauma or hardship	ILO, 2011, p. 9
personal rehabilitation	Braunerhjelm and Hamilton, 2012, p. 23
feeling of grief	Hockerts et al., 2008, p. 22
ethical motives	Mair and Martí, 2006, p. 38
religious impulses	Stokols and Trivedi, 2011, p. 4
network embedment	Zhang and Swanson, 2014, p. 183
<b>EXTERNAL DRIVERS</b>	
government regulations	Di Zhang and Swanson, 2014, p. 180
social environment	Di Zhang and Swanson, 2014, p. 181
economic environment	Di Zhang and Swanson, 2014, p. 181
resource endowment	Di Zhang and Swanson, 2014, p. 182
culture of a country (especially collectivist)	Barton et al., 2018, p. 13
social movements	Stokols and Trivedi, 2011, p. 4

Moving to drivers of sustainable innovations, the literature review resulted in finding 24 drivers (twelve internal and twelve external). They are presented in the table below (Table 2).

Table 2. Drivers of sustainable innovations

SUSTAINABLE INNOVATIONS – DRIVERS	SOURCE
<b>INTERNAL DRIVERS</b>	
managerial perspective	Tello and Yoon, 2009, p. 90
organizational identity	Tello and Yoon, 2009, p. 90
objective of being profitable	Clausen and Hafkesbrink, 2005, p. 188
technological capability	Baumol, 2002, p. 320
discretionary slack	Tello and Yoon, 2009, p. 90
human resources	Tello and Yoon, 2009, p. 90
company size	Tello and Yoon, 2009, p. 90
shareholder and employee pressure	Tello and Yoon, 2009, p. 90
organizational capabilities (including knowledge)	Tello and Yoon, 2009, p. 90
intangible assets	Baumol, 2002, p. 320
internal sources	Baumol, 2002, p. 320
financial resources	Baumol, 2002, p. 320
<b>EXTERNAL DRIVERS</b>	
government regulation	Halme and Korpela, 2013, p. 559
access to resources	Lozano, 2015, p. 35
environmental or social crisis	Lozano, 2015, p. 35
market opportunities	Lozano, 2015, p. 35
customer demand	Tello and Yoon, 2009, p. 89
technological advances	Tello and Yoon, 2009, p. 90
knowledge exchange	Bossink, 2011, p. 123
NGOs and stakeholders (in general) pressure	Lozano, 2015, p. 35
reputation of the company (e.g. bad brand reputation)	Lozano, 2015, p. 35
raising awareness of society	Lozano, 2015, p. 35
benchmarking	Lozano, 2015, p. 35

## 5. Research design

The research is based on a single-case study approach. This was chosen as a case study “investigates a contemporary phenomenon (the “case”) in its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2014, p. 2). Moreover, a case study provides a systematic way of collecting data, analyzing information, and presenting the results (Verner et al., 2009, p. 313). Following the seven stages of the case study research process by Yin (2014, p. 2) – plan, design, prepare, collect, analyze, and share – the research started with planning the units of case analysis with use of a mind map (Appendix 1).

**The research goal** is an examination of the current state of the new phenomenon of social entrepreneurship for sustainable innovations in aspect of innovations, drivers, and social impact together with its measurement. While **the research problem** concerns the ways of measuring the social impact of social enterprises that create sustainable innovations, but also external and internal factors that motivate their operations. **The research questions** are as follows:

1. What kind of sustainable innovations has the social enterprise introduced?
2. What drivers influence the examined social enterprise in its performance?
3. What is the intended social impact of the examined social enterprise and how does it measure it?

In order to collect the necessary data, research methods such as **semi structured interview**, **website analysis**, and **analysis of documentation provided by the company** have been applied. The analyzed company is Fairphone – a social enterprise established in 2013 in the Netherlands producing innovative modular smartphones and accessories, and the interviewee was Mr. Miquel Ballester (MB) – Co-founder and Resource Efficiency Manager.

## 6. Case study of Fairphone

Fairphone operates in the electronics industry, producing smartphones and accessories and selling them to both individual and business customers. It employs 70 people, has brick-and-mortar shops in eleven European countries, and also delivers from its online store to all of continental Europe. It is a for-profit social enterprise with its registered office in Amsterdam, the Netherlands. Due to the fact that in the Netherlands no legal organizational form of a social enterprise exists, Fairphone has

been officially registered as Limited Liability Company and is claimed to be a social enterprise based on the company's operations and model of governance.

The company was officially launched in January 2013, but its roots go back to 2009, to the protest against so-called "conflict minerals" used in production of electronics, sales of which were fueling the war in the Democratic Republic of the Congo (Fairphone, 2018, p. 14). Two activists involved in the initiative were two of the future founders of Fairphone – Bas van Abel and Peter van der Mark. In 2010, their actions developed into a campaign that was officially run by three organizations: Action Aid, Schrijf-Schrijf, and Waag Society. The mission of the campaign was to raise awareness in the Netherlands about the linkage between smartphones and so-called conflict minerals from the Democratic Republic of the Congo, (Fairphone, 2016, p. 1). At that time, nobody knew the campaign would transform into a company. The breakthrough moment was when Bas van Abel, the Creative Director of Waag Society at the time, realized the campaign was not enough (Fairphone, 2018, p. 13). As a consequence, in October 2012, talks about creating smartphones started (Fairphone, 2018, p. 15), and in January 2013, Bas van Abel, Peter van der Mark, together with Miquel Ballester, officially registered Fairphone as a company. Its present mission and vision are described in the following way:

Fairphone's mission is to change the relationship between people and their products, and our vision is an economy based on fairer principles (fairphone.com)

It is further developed with the statement that the company wants to "build a fairer world" by creating a more sustainable smartphone leading to a more sustainable electronics industry (fairphone.com). Mr. Ballester stressed in the interview:

We are not against the industry. On the contrary, we have to work with the industry. So, we are there in the industry in order to inspire them for change and that's what we do with our projects (MB)

When it comes to financing their initiatives, Mr. Ballester informed that first of all the company reinvests its profits in the business:

The profits that we generate by our company go into new projects, so with those finance our sources.

This is how we go on producing our products in our impact projects (MB)

They also source from impact investors, European Union funds, government financing (Fairphone, 2018, pp. 28-29) and crowdfunding platforms (fairphone.com).

Turning to what the company offers, its core product is "a fairer phone" produced with purpose of

making electronics industry more sustainable. They started with “Fairphone 1”, for which materials such as tin and tantalum were sourced from conflict-free and fair-trade mines located in Africa. Moreover, it had a replaceable battery, which could be purchased separately in their online store together with other spare parts. They also launched a guide on how to repair the phone yourself. Such possibilities were a breakthrough in the industry where selling only complete phones had become a massive trend. Fairphone 1 was produced from May 2013 to July 2017; however, some of its spare parts are still available for purchase in Fairphone’s online store.

The next product was “Fairphone 2” – a smartphone with even greater extended longevity, as it was of company’s original design based on high modularity. Its design included two additional conflict-free materials: tungsten and gold. Regarding the first, it was partially sourced from conflict-free zones in Africa and partially from recycling (about 50%). The procedure of using recycling was also undertaken in the case of plastic and copper –50% and 34% respectively came from recycling. A study performed on Fairphone 2’s CO<sub>2</sub> emissions over five years of use revealed that using this smartphone for that period of time (including repairs with spare parts when necessary) results in 30% less CO<sub>2</sub> emissions than buying a new phone every three years (Fairphone, 2018, p. 45). This model was produced from July 2015 to March 2019 and, similarly to Fairphone 1, some of its parts are still available for purchase online.

Next, in 2019, the company decided to offer the “Fairphone 2: New Life Edition”. These phones were the Fairphone 2 traditional models returned by customers due to appearance of some technical failures or other kind of damage, then repaired, equipped with new battery, updated software, and sold for a reduced price.

The latest product of the company is “Fairphone 3” launched in August 2019 and currently is the only phone available for purchase. Like its predecessor, its design is based on modularity, with the highest score for reparability according to iFixit (fairphone.com), and spare parts are available for purchase online.

Apart from smartphones and spare parts, Fairphone produces also smartphone cases – made of 50% post-consumer recycled polycarbonate.

Throughout its whole existence on the market, Fairphone has been awarded many prizes, for example the European Business Awards for the Environment EBAE 2016: The European Business Cooperation Award, the German Environmental Award 2016 for Bas van Abel, the UN Momentum for Change Award 2015: ICT Solutions, The Next Web 2015: Tech5 – Fastest Growing Tech

Startup in Europe, to name a few. Moreover, it received the “Blue Angel” certificate for meeting high standards for environmentally friendly products, and is a certified B Corporation, which means it meets high standards of social and environmental performance, transparency and accountability.

### 6.1. Sustainable innovations at Fairphone

Research allowed classification of the sustainable innovations at Fairphone into the following categories: **technical, non-technical, mission-oriented, grassroots, digitally enabled open and collaborative**.

Starting with the **technical**, these are first and foremost their smartphones. Fairphone 2 was the first modular design smartphone in the world, and moreover, made largely of conflict free, fair trade and partly recycled materials (Fairphone 3 continues this design). The camera modules are replaceable not only for repair, but also for upgrade – this made it the first smartphone in the world with an upgradeable core function. When it comes to the processes, an example is the cooperation with 3D Hubs undertaken in 2014, allowing 3D-printing of the Fairphone 1 phone cases in 3D-printer stations in multiple countries (fairphone.com).

In terms of **non-technical** innovation, an example here is the document “Ways of Working Together” – a document summarizing company’s expectations for cooperation with their partners. In an interview, Mr. Ballester said more about it:

This document is not so much kind of list, it is not like check boxes that they need to do, but it’s really like expressing our mission and very specific actions that we want to work on together [...] After the first engagement, when they have read and understood this document, then we discuss specific problems with every supplier, because for every supplier we see different opportunities on how we could help them (MB)

In general, the potential partners must follow the standards listed there of labor and human rights, health and safety, environment, business ethics and responsible sourcing (Fairphone, 2017, pp. 2-9). Another example is their strategy based on high transparency, as they reveal the price structure of products (Fairphone, 2015a), and share the lessons they have learned in hope the industry would use their experience when moving towards sustainability (Fairphone, 2018, p. 40).

The **mission-oriented** innovations are those directly connected to the actions resulting from following the social mission by the company. Mr. Ballester described it this way:



Every time we start a product, we have to see how it changes something in the industries, we provide a specific example or we form a project where all the companies can follow or join to really kind of industry shift (MB)

For instance, it can be a process of prioritizing the fair materials that should be included in their smartphones. Namely, they do not search for the most profitable options, but they conduct vast research to find the materials, which cause most harm to societies and the environment and then search for more sustainable options and include those in their supply chain (Fairphone, 2018, p. 59).

A **grassroots** innovation may be seen in their cooperation with local companies sharing similar values. For example, their cooperation with vanPlastik – a 3D printing company, which uses plastic waste to create high-quality objects (fairphone.com). As a result of this cooperation, 3,700 plastic phone cases have been transformed into furniture.

Next, the **digitally enabled open and collaborative** innovation are the online sessions held monthly for groups of researchers, during which company staff answer questions. It is open both to researchers ranging from students to professionals and allows learning directly from the company, as well as from each other (Fairphone, 2018, p. 120).

Finally, in terms of **resource use substitution**, an example could be taken from the cooperation between Fairphone and the Broadway Company, one of their partners. Namely, thanks to Fairphone policies, Broadway replaced the chemical n-hexane in the manufacturing process of Fairphone phone cases, which resulted in improved health and safety of workers (fairphone.com).

## 6.2. Drivers of social entrepreneurship for sustainable innovations at Fairphone

As every social enterprise, Fairphone started with social mission, here – directed by the desire to improve the electronics industry – by making it more socially and environmentally responsible. Over the years, the number of drivers has increased and, according to this research, today it is comprised of twelve internal and nine external drivers. These are aggregated in Table 3, together with exemplary quotes demonstrating their occurrence.

Table 3. Drivers of social entrepreneurship for sustainable innovations at Fairphone, together with quotations demonstrating their occurrence

DRIVER	EVIDENCE OF DRIVER'S OCCURENCE (EXEMPLARY QUOTES)
→ internal	

desire to improve the industry	“After a couple years of campaigning, Waag Society’s Creative Director Bas van Abel realized that raising awareness isn’t the same as creating alternatives. Drawing on his background as a designer and maker, he knew that making a phone was the best way to understand the issues and influence change. To improve the electronics industry, he had to become a part of it” (Fairphone, 2018, p. 13)
desire to improve society	“These changes and improvements will help us do a better job of focusing on our mission: making electronics fairer for everyone involved” Bas van Abel (Fairphone, 2018, p. 7)
desire to help other people	“2014 was very specific about conflict minerals and we managed to trace back Fairphone 1 supply chain all the way to the mine and work with artisan mining that actually had contributed to development of the life in the community” (MB)
eagerness to study and improve or develop a technology	“If you ask me how I define myself, ‘entrepreneur’ is not the first word that comes to mind. I’m a maker. A designer. A campaigner. A creative. Somebody who takes stuff apart to figure out how it works, and then finds ways to make it better [...] When I first started Fairphone, I wasn’t sure that I had any of [entrepreneurial] qualities. But when you’re passionate about something, you’re willing to learn on the job” Bas van Abel (Fairphone, 2018, p. 6)
network embedment	“Fairphone’s aim of making fairer, more responsible electronics is backed by a range of independent memberships of relevant organizations” (Fairphone, 2018, p. 16)
attractiveness of the idea	“We could have done another product, but obviously a smartphone is very close to the heart of the people, it sticks a lot to their lifestyle and can be used as an example for many other products as well. We could have done a washing machine, but it is not so interesting to do a washing machine” (MB)
managerial perspective	“It is really our mission and vision. That we are here for social and environmental change” (MB)
organizational identity	“Sustainability we don’t see as something that we have to do, it’s really embedded in the organization. We would not exist if it was not, because of our social mission. So it is really, really embedded” (MB)
personal fulfillment	“Always when we are able to put our projects into something tangible that people can hold and talk about and that’s, I think that’s the most rewarding and important part of the innovations that we do” (MB)
organizational capabilities	“For the Fairphone 2, we invested in an original design to take our ambitions for fairness even further. This approach gives us more oversight of our supply chain, increases transparency and lets us build deeper relationships with (sub) suppliers. It also allows us to incorporate our values directly into the phone itself, especially ownership and longevity” (Fairphone, 2016, p. 6)
intangible assets (e. g. certificates)	“Certification it was really a step, people were actively looking for products that are certified or have some sort of external validation. And the fact that we were the only Blue Angel certified smartphone – that really makes us go to next level of media market attention” (MB)
being a role model	“From the mines to the factories, consumer electronics production is filled with questionable practices. We’re showing the industry that it’s possible to take a more responsible approach” (Fairphone, 2018, p. 37)
<b>→ external</b>	
scale of the problem to impact	“We are actually bringing on the agenda topic that affects the whole electronics industry and in general the whole manufacturing industry” (MB)
environmental and social crisis	“Most of the e-waste is either burned or dumped in landfills, releasing toxic substances that are harmful to both people and the environment. At Fairphone, we’re working to address the full lifespan of the mobile phone, including use, reuse and safe recycling” (Fairphone, 2016, p. 8)
market failure	“But even if consumers want to keep their gadgets longer, current product design practices and services often stand in the way. Many of our modern devices are impossible to open, difficult to fix or need to be abandoned when the software can no longer be updated. To reverse the trend of short replacement cycles, we’re creating products that can last longer and are designed to be repaired” (Fairphone, 2018, p. 40).
market opportunities	“The fact that we are also commercial company calls for to be very aware, not only about what we want change in the industry, but what is hot in the industry then” (MB)

customer demand	“During the periods when the phone was unavailable, 35,000 visitors signed up to receive alerts when the phone was back in stock — proving that consumer demand is still strong” (Fairphone, 2018, p. 27)
community support	“To our surprise, we already reached our initial crowdfunding target on 25 July: 1 million euros! We were elated, but now it was time to shoot for the stretch goal. Could we raise 2.5 million euros by the time our campaign closed on 16 August? The answer was a resounding YES. And we not only raised the maximum amount – we also had the most participants ever in a Dutch crowdfunding campaign!” (fairphone.com)
social expectations	“We keep an eye what our stakeholders think about it [...] And what consumers expect as well” (MB)
NGOs and stakeholder pressure	“I mean it is typical stakeholder engagement strategy we engage with thoughts leaders that are very important for our customers. Greenpeace for example, it is very important you know what Greenpeace thinks and says about us” (MB)
knowledge exchange	“We receive so many requests for support related to research publications and theses that we decided to launch a monthly Research Webinar [...] Not only is it a chance for people to learn directly from Fairphone; it’s a chance for us to learn from them, and — somewhat rare for a research webinar — for the whole group to learn from each other” (Fairphone, 2018, p. 120)

The first internal driver revealed by research is **desire to improve the industry**. Fairphone decided to operate in the electronics industry – an industry sourcing on a large scale from high-risk countries with weak economics systems, highly dependent on income from their mines (e.g. Democratic Republic of the Congo). The revenue from the mining sector in such countries strongly drives political corruption and internal conflicts (Pöyhönen and Simola, 2007, p. 10). Moreover, the producers of smartphones make them difficult to repair, and the cost of fixing the defects in professional service encourages consumers to think about buying a new phone instead. Fairphone, by making modular, easy-to-repair smartphone, continued awareness initiatives and high transparency of their operations shows the whole industry that it is possible to source from reliable mines, and by making their actions transparent, sharing openly the successes and lessons from mistakes they made, encourages the industry to follow their path.

The next two internal drivers identified are **desire to improve the society** and **desire to help other people**. The background of these drivers is connected to the previous one. Namely, economic instability, foreign military interventions and ethnic conflict in the Democratic Republic of the Congo resulted in little respect for law and utter poverty among most of the population in that country. Most Congolese miners earned about \$1-3 daily and 75% of them were unable to cover the minimum needs of a family. For that reason, child labor and working extra hours in dangerous conditions became everyday practices (Pöyhönen and Simola, 2007, p. 29-30). In attempt to stop such abuses, the United States passed the Dodd-Frank Act requiring companies trading on the US stock market to report whether their products contain minerals from the DRC and surrounding

countries. As a result, many companies stopped sourcing materials from there. Fairphone, however, chose these regions as where they have a possibility to make the greatest impact. Therefore, they created responsible supply chains there (Fairphone, 2018, p. 64).

Another internal driver is **eagerness to study and improve or develop a technology**. The founders of the company had no experience in designing smartphones; however, driven by their mission they were learning step by step. They licensed the design for Fairphone 1 from a manufacturing partner, which limited their control over the design and limited their access to the manufacturers of spare parts for the Fairphone 1. Based on this experience with Fairphone 1, the company over time developed and implemented its own designs for Fairphone 2 and Fairphone 3.

The fifth identified internal driver is **network embedment**, as Fairphone has been backed by many organizations and independent memberships, for example the “**Fairphone Angels**”, described by the company as follows:

These extremely active community members took the initiative to create a special network of super-helpers who offer assistance to Fairphoners in their local area. Their hard work is helping us to build local networks and to spread the word about the power of longevity, all while assisting the Fairphone Support team with updates, repairs or simply showing people how to make the most of their phones (Fairphone, 2018, p. 107).

The next driver is **attractiveness of the idea** – not only for the producers, but also for the consumers of electronics. This was mentioned by Mr. Ballester in the interview:

We could have done another product, but obviously a smartphone is very close to the heart of the people, it sticks a lot to their lifestyle and can be used as an example for many other products as well. We could have done a washing machine, but it is not so interesting to do a washing machine (MB)

Next, there is also the **managerial perspective** to “employ commercial strategies to enable social and environmental improvements” (Fairphone, 2018, p. 16). For example, Fairphone launched a program of reuse and recycling, where people can send their used phones to give them “a second life” or have them recycled in order to reduce e-waste (statistically 50 million tons every year), and in return receive a discount on the purchase a new Fairphone (fairphone.com).

Another driver is **personal fulfillment** by creating tangible innovations that bring the impact:

Always when we are able to put our projects into something tangible that people can hold and talk about and that's, I think that's the most rewarding and important part of the innovations that we do (MB)

And **organizational identity**:

Sustainability we don't see as something that we have to do, it's really embedded in the organization (MB)

Fairphone is a recipient, as the only smartphone producer, of an EcoVadis gold medal – the world's most trusted sustainability ranking on environmental, social, and ethical performance, examining among other things, companies' transparency and sustainability practices (also those of the trading partners). Fairphone seeks to be consistent with their mission to the highest possible degree in all areas of their performance. Even when designing their website, they cast as models people who demonstrated their values (e.g. social worker or a sustainable living entrepreneur) (fairphone.com). The next internal drivers are **organizational capabilities**, comprising knowledge and experience, and **intangible assets** – the certificates the company holds:

Certification it was really a step, people were actively looking for products that are certified or have some sort of external validation (MB)

The last internal driver identified is **being a role model**. The company is proud of its successful performance in the electronics industry and success empowers them to continue following their chosen path and inspire others:

We're showing the industry that it's possible to take a more responsible approach (Fairphone, 2018, p. 37)

Moving to the external drivers, the first identified is **scale of the problem to impact**. The case of scale concerns responsible sourcing not only in the entire customer electronics industry, but also in the whole manufacturing industry. For example, in 2019, Fairphone started cooperation with a Chinese assembly factory, Arima. Fairphone contributed to an increase in the salary of the workers, which in the longer term will allow the workers to reduce the need to work overtime. Moreover, Fairphone shows how the factory operates behind the scenes, increases worker safety there, measures workers' satisfaction and publishes the outcomes. With such successful stories, Fairphone seeks to prove that the whole manufacturing industry can follow their path (fairphone.com).

The next external drivers listed are **environmental and social crisis** and **market failure**. Instead of focusing on product longevity, the industry turned towards replacing smartphones more rapidly faster and generating more e-waste. Even when a customer wants to repair their product, popular design practices and service conditions often stand in the way. Fairphone aims at the reversal of this trend and treats it as a **market opportunity**:

To reverse the trend of short replacement cycles, we're creating products that can last longer and are designed to be repaired (Fairphone, 2018, p. 40)

Then, the research identified also **customer demand** to be the next external driver. Namely, in May 2013, Fairphone due to insufficient funds to start the production of smartphones, decided to start a pre-sale campaign, hoping to sell 5,000 smartphones before launching the production process. Surprisingly, they reached their goal within less than a month of the start of campaign. After the media announced their success, more customers then expressed their desire to invest. Consequently, Fairphone decided on the pre-sale of an additional 20,000 models (fairphone.com). By November 2013, all of them had been sold. Such numbers of customers paying for a product yet to be produced also demonstrates considerable **community support** for the initiative. Moreover, in 2018, the company launched another crowdfunding campaign to support investment goals and raised €2.5 million, also reaching the largest number of participants ever in a Dutch crowdfunding campaign – 1,827 people (fairphone.com).

**Social expectations** and **NGO and stakeholder pressure** are the next external drivers. Mr. Ballester stated in the interview that the company examines stakeholder expectations, with an emphasis on consumers and NGOs:

We keep an eye what our stakeholders think about it [...] And what consumers expect as well (MB)

Greenpeace for example, it is very important you know what Greenpeace thinks and says about us (MB)

The last external driver listed is **knowledge exchange**. Fairphone holds Research Webinars with researchers ranging from Master's students to industry experts:

Not only is it a chance for people to learn directly from Fairphone; it's a chance for us to learn from them, and — somewhat rare for a research webinar — for the whole group to learn from each other (Fairphone, 2018, p. 120)

### 6.3. Social impact of Fairphone and its measurement

As mentioned above, one social goal of the company is to increase awareness and motivate the whole industry to act in a more responsible way (Fairphone, 2016, p. 4), while the social impact they seek to achieve is divided into the following four areas: **long-lasting design of the products, fair materials, good working conditions, and reuse and recycling.** (Fairphone, 2018, p. 4-50). Regarding the first area – long-lasting design of the products, the company states:

We're fighting against a market trend where the average phone is replaced within two years, creating a huge environmental impact (Fairphone, 2018, p. 40)

They create in opposition to common design practices of industry focused on making the phone difficult to open and replace the battery, difficult to fix without professional support, and with limitations to software updates (Fairphone, 2018, p. 40). For that reason, their smartphones are of modular design, with spare parts available for purchase when needed, and a guide on how to fix phone failures and replace parts.

However, it must be mentioned here that company encounters problems with sufficient provision of spare parts. In 2017, the company had to stop selling batteries for the Fairphone 1 due to some problems with manufacturing partners (fairphone.com). In 2019, they informed that the camera module of Fairphone 2 would be out of stock soon and that the supplier had terminated production (fairphone.com). Such situations affect the desired and declared longevity of the phones.

In regard to **fair materials**, they source from mines free from dangerous working conditions, child labor, poor wages and pollution (Fairphone, 2018, p. 58). Moreover, they carefully check their suppliers in regard to “conflict minerals” to avoid supporting rebel groups and political and economic instability (Fairphone, 2016, p. 5):

We're working with a range of partners to address the issues, source from mines that positively impact vulnerable communities, increase our use of recycled materials and reduce our use of hazardous materials. As we incorporate these fairer resources into the supply chain of our phones, we're also focusing on increasing industry and consumer awareness to influence lasting change (Fairphone, 2018, p. 58)

They also created, together with The Dragonfly Initiative, a framework to assess the thirty-eight minerals found in their phones and analyzed them in regard to the greatest possible environmental, social and health-related impact. The results serve to contribute to setting the agenda within industry by increasing awareness about materials that require urgent action (Fairphone, 2018, p. 59). In May 2017, the company released the “Material Profiles Report” – a report on ten materials that should receive particular attention (Fairphone, 2018, p. 59). Apart from sourcing the minerals

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from responsible mines, for the production of phones and accessories they use components from recycling.

Moving to the third impact area, **good working conditions**, the electronics industry is characterized by a labor-intensive production process, where workers earn indecent wages, work in poor conditions and lack an employee representative (Fairphone, 2016, p. 7). They decided on manufacturing in China – the heart of electronic sector – to make an impact where workers’ rights are often violated due to the fast, affordable production process, insufficient regulations and lack of recognition of worker’s rights (Fairphone, 2018, p. 78). Moreover, they are the active members of Clean Electronics Production Network (CEPN) so that they advocate for zero exposure to toxic chemicals in manufacturing (Fairphone, 2018, p. 78). They also state that:

Before we can make collaborative plans for improving worker welfare, we need to understand the existing situation (Fairphone, 2018, p. 79)

All successful business partners must follow the statements in the Fairphone document “Ways of Working Together”, elaborated above. They then also listen to workers about what they really want to have changed or provided, or which of Fairphone’s interventions are most welcome, and they work with their partners to improve the dialogue between employees and management (Fairphone, 2018, p. 79).

Finally, about the fourth area of impact, **reuse and recycling**, Fairphone states:

As a manufacturer, we’re part of the e-waste problem. That’s why we need to collect more than we create (Fairphone, 2018, p. 89)

Every year, millions of mobile phones are thrown away, and along with them, in their parts, plenty of useful minerals such as gold, titanium and lithium, and many others. Fairphone notices this and takes action. They envision an economy that is circular – where resources are reused in an infinite loop. They aim at maximization of the use of materials in their phones and retaining their value for as long as possible (Fairphone, 2018, p. 90):

First, we’re focusing on reparability and recyclability, which for us go hand in hand [...] Second, we’re using reverse logistics to improve the reuse and recycling of smartphones – both Fairphones specifically and phones in general (Fairphone, 2018, p. 90)

Apart from recycling itself, they commissioned research on which way of recycling would be the less environmentally harmful and constituted the best recycling scenario (Fairphone, 2018, p. 93-96). Furthermore, they cooperate with other organizations to collect used phones. For instance, in 2017, in cooperation with Closing the Loop, they collected 18,000 used phones from Uganda and



Rwanda, which yielded 75 g of gold, 403 g of silver, 4 g of palladium and 83 kg of copper (Fairphone, 2018, p. 99). They have also launched their own recycling program:

We're promoting our recycling program in Europe through our website, in the Fairphone community, and via our new user welcome emails. This targets all old and obsolete phones (not just Fairphones) that are sent to our partner (Fairphone, 2018, p. 99)

On their website, they encourage visitors to donate or recycle their phones (fairphone.com) by delivering them to the local recycling points for safe disposal, and the list is published in a file divided into the European countries (Fairphone, 2015). Then, they also encourage to organizing "Urban Mining Workshops" in order to educate people about the materials in phones, the way they are mined, the working conditions of mine workers, the ways to recycle phones, etc. (fairphone.com). For this purpose, they published free guides for leaders (Fairphone, 2016a) and participants (Fairphone, 2016b)

Moving to the second part of this analysis, namely, **the measurement of the impact**, Fairphone does this in multiple ways as presented in the table below, together with the limitations of the measurement (Table 4)

Table 4. Measurement of social impact and its limitations at Fairphone Company.

AREA OF IMPACT	MEASUREMENT	LIMITATIONS
<b>long-lasting design of the products</b>	– statistics of Fairphones in use versus Fairphones sold (Fairphone, 2018, p. 51),	– as yet, Fairphone can measure only those active users who use their standard operating system with Google Mobile Services, but not those who use different ones (Fairphone, 2018, p. 51), – all the phones the reseller partners of Fairphone have in their inventory are put as "sold" in the statistics of Fairphone, but they are not yet in use by customers (Fairphone, 2018, p. 51),
	– statistics of successful DIY repairs (fairphone.com),	–
<b>fair materials</b>	– measuring the final percentage of sustainable materials in the smartphones (Fairphone, 2018, p. 67),	–
<b>good working conditions</b>	– assessing the cumulative number of people directly benefiting from Fairphone's interventions with supply chain partners, e.g. improved health	–

	and safety, and so on (Fairphone, 2018, p. 79),	
<b>reuse and recycling</b>	– estimating a return and recycling rate (Fairphone, 2018, p. 99),	–

The data presented below come from the company report “We’re here and we’re here to stay. Impact Report Vol. 1” from 2018 and from the information presented on the company’s website. Starting with the first impact dimension, **long-lasting design of the products**, firstly, they carry out the statistics of Fairphones in use versus Fairphones sold. In 2017, the result was 53.68% (Fairphone, 2018, p. 51). They also measure the number of successful DIY repairs, to check if the design they propose really helps customers to repair their phones and consequently to prolong their longevity while bearing lower costs of repair. The rate in 2016 was 95% (fairphone.com).

When it comes to measurement of the social impact of **fair materials**, they started by mapping how much of the particular materials they use to produce their smartphone. They then added up the total weight of each of the eight focus materials and in the end, for each of the materials, they compared the weight they responsibly sourced to the total amount used in their phones and determined the final percentage of sustainable materials. In 2017, the result was 25.37% (Fairphone, 2018, p. 67).

Regarding the third area of impact, **good working conditions**, at the beginning of work with a partner, they assess their manufacturing partners in regard to working conditions, worker satisfaction, factory health and safety standards. For that purpose, they use a combination of third-party assessments, audits, employee surveys and dialogue sessions (Fairphone, 2018, p. 79). And later they measure their impact in the following way:

We count the cumulative number of people directly benefiting from Fairphone’s social, environmental and/or economic interventions with supply chain partners. Examples might include improved health and safety, receiving an increased income, or the implementation of an employee representation committee. We don’t double-count people targeted twice (for example, by multiple projects at the same mine or factory). And we don’t count family members who may benefit from increased income or security of miners or factory workers (Fairphone, 2018, p. 79).

In 2017, the number of such people was 5,200 (Fairphone, 2018, p. 79).

The measurement of **reuse and recycling**, in turn, is based on estimating the return and recycling rate. In 2018, they published the rate for the Fairphone 2 model that was 0.52% and was established by dividing of the number of phones sent in for recycling from 1 July 2017 to the end of the year

by the number of phones sold from 1 July 2017 to the end of the year. As recycling was only launched that year, the rate is expected to significantly grow from year to year (Fairphone, 2018, p. 99).

The report mentioned above also includes one environmental rate, namely, a research result on Fairphone 2's CO<sub>2</sub> emissions over five years of use. It showed that using this smartphone for this period of time (including repairs with spare parts when necessary) results in 30% lower emissions of CO<sub>2</sub> than buying a new phone every three years (Fairphone, 2018, p. 45). They then performed a Life Cycle Assessment (LCA) in the three most affected impact categories for electronic devices: mineral resource depletion, climate change, and human toxicity (fairphone.com).

The results showed that Fairphone's result for metal depletion for the functional unit is 4.04 kg Fe-eq, and that 99% of this impact comes from the phase of production, with the highest contribution from the batteries. Regarding climate change, they measured how much heat is trapped in the atmosphere due to greenhouse gases produced throughout the life cycle of their smartphone. It turned out that emissions (for three years of use) were 16.40 kg CO<sub>2</sub>-eqm with nearly 50% of emissions coming from the electricity to charge the phone. Lastly, in regard to human toxicity, they discovered that here again the highest toxicity appeared in the production phase, especially the production of integrated circuits, 24%, and the battery, 16%. All these results served to identify potential improvements in the environmental impact and to create scenarios for a more sustainable Fairphone.

#### **6.4. Discussion**

The data collected from the company's website, the documents provided by the company and an interview with a representative of the company allowed comprehensive analysis of the research problem. First and foremost, the most important conclusion of the research is that the new phenomenon of social entrepreneurship for sustainable innovations exists in practice in a very advanced form, and Fairphone is an example. Secondly, the analyzed data constitutes an excellent illustration of the theoretical framework for sustainable innovation types, drivers of social entrepreneurship for sustainable innovations and ways of measuring social impact.

When it comes to the first aspect of the analysis, the types of sustainable innovations, the theories developed by Mariados et al. (2011, p. 1306), the United Nations Conference on Trade and Development (2017, p. 4) and Varadajaran (2017, p. 20) appeared to be satisfactory in the case of Fairphone— the sustainable innovations could be qualified under the existing categories.

In the next area of research, drivers of social entrepreneurship for sustainable innovations, from the sets of 30 drivers of social entrepreneurship and 24 drivers of sustainable innovations (see Tables 1 and 2), research identified altogether sixteen (nine internal and seven external) at Fairphone. Additionally, the analysis allowed on identification of three more internal and two more external drivers. The three internal drivers found in the process of analysis are the desire to improve the industry, being a role model and the attractiveness of the idea, while additional two external are the scale of the problem to impact and community support. However, as ILO (2011, p. 15) states, the motivations differ from person to person; therefore, any new case study in this area may contribute to setting new, broader sets of factors.

Moving to the social impact and its measurement, Fairphone is a very good example, fulfilling many defining aspects. The social impact has been defined by the company in a comprehensive, clear way in all four intended areas. Moreover, the company provided measures of all the impacts, despite the fact that measurement of social impact in general is not a widespread practice (OECD, 2015, p. 3). The company does not follow any way of its measurement proposed in the literature; however, it had implemented its own, appropriate measures. The measurement applied by the company is a vast process and contains all five stages proposed by the European Commission (2014, p. 28), namely planning, engaging (requesting a response from benefiting stakeholders), setting relevant measures, then measuring, validating and valuing, and finally reporting, learning and improving. Moreover, a lot of data is publicly available due to the company's transparency policy that in accordance with Iwu et al. (2013, p. 23), ensures their credibility to the sector. The only aspect that is lacking in their impact reporting is setting the social results with financial ones that Di Zhang and Swanson (2014, p. 179) find important.

## **6.5 Conclusion**

Despite the growing interest in the literature in the concept of social entrepreneurship since the end of the 1990s and in sustainability since the 1970s, social entrepreneurship has started to be perceived as a channel for helping to achieve sustainable development within the last several years. Despite the lack of definitional consensus on the concept of social entrepreneurship, and consequently social entrepreneurship for sustainable innovations, such companies do exist and are able to produce positive social and environmental impacts, of which Fairphone is an example. As the research revealed, such a company may produce an impact not only in the areas of its own operations, but due to transparency and consistency, it is able to spread and implement its

philosophy among its business partners, which results in an even greater impact.

Due to the fact that the concept is relatively new in the literature, there is a need for more research examining social enterprises creating sustainable innovations and different dimensions of their performance. It is particularly recommended to search for and examine more drivers, in order to encourage such initiatives. Finally, as measuring social impact is a difficult task, there is also a need for more case studies regarding measurement of social impact in order to help social enterprises to achieve greater transparency and credibility.

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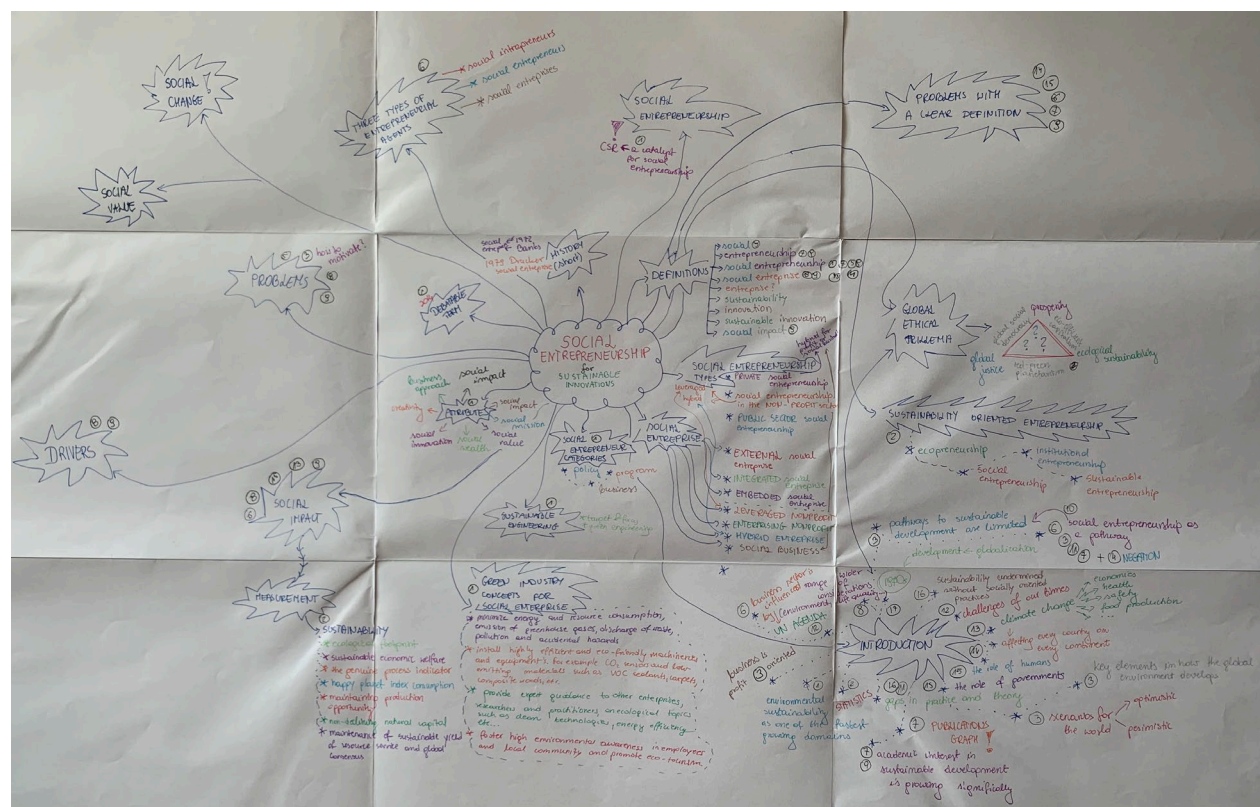
Websites:

www.fairphone.com

www.globalreporting.org

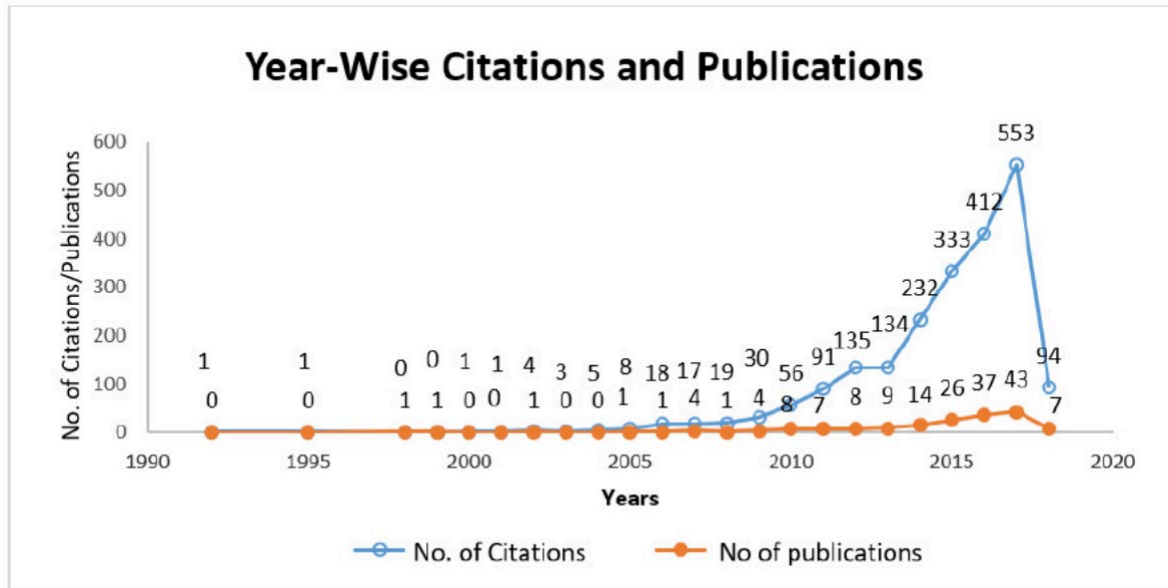
### Appendices

#### Appendix 1



Source: own work based on literature review.

Appendix 2



Source: Bansal, S., Garg, I., and Sharma, G. D. (2019). Social Entrepreneurship as a Path for Social Change and Driver of Sustainable Development: A Systematic Review and Research Agenda. *Sustainability*, 11(4), 1091, p. 5.