

**A SOCIAL INNOVATION MODEL FOR A TRANSITION TO CIRCULAR ECONOMY:
“TİDER” CASE**



ERDEM FERİT BAŞKAYA

JUNE 2019

**A SOCIAL INNOVATION MODEL FOR A TRANSITION TO CIRCULAR ECONOMY:
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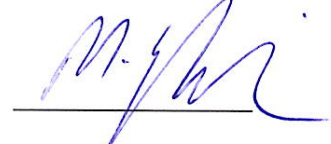
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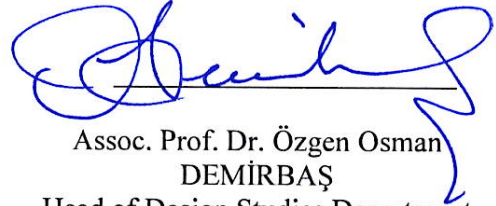
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Approval of the Graduate School



Assoc. Prof. Dr. Mehmet Efe
BİRESSELİOĞLU
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Design.



Assoc. Prof. Dr. Özgen Osman
DEMİRBAŞ
Head of Design Studies Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Design.



Assoc. Prof. Dr. Deniz DENİZ
Supervisor

Examining Committee Members

Assoc. Prof. Dr. Deniz DENİZ

Assoc. Prof. Dr. Çiğdem TARHAN

Asst. Prof. Dr. Onur MENGİ



ABSTRACT

A SOCIAL INNOVATION MODEL FOR A TRANSITION TO CIRCULAR ECONOMY: “TİDER” CASE

Başkaya, Erdem Ferit

MDes, Design Studies Program

Supervisor: Assoc. Prof. Dr. Deniz DENİZ

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Growth which seems indispensable in today’s economic paradigm, depletes earth’s finite natural resources with the current production and consumption mode “take, make and dispose”. For a sustainable future the loop must be closed with a “cradle to cradle” strategy. The fledgling circular economy, trying to foster reuse, repair, remanufacturing, retrofitting, sharing and recycling is a step towards smarter systems thinking that seeks value-preserving activities. Social innovation, social entrepreneurship and sustainable design thinking will play an important role in the transition to circular economy that entails managing valuable waste and converting it into useful resources to be returned into the cycle. In this thesis, a Turkish non-profit organization, TİDER is analyzed qualitatively as a social innovation model for a transition to circular economy.

Keywords:

Circular economy, TİDER, sustainable design thinking, social innovation, social entrepreneurship

ÖZET

DÖNGÜSEL EKONOMİYE GEÇİŞTE SOSYAL İNOVASYON MODELİ: “TİDER” ÖRNEĞİ

Başkaya, Erdem Ferit

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Günümüz ekonomik paradigmasında vazgeçilmez görünen büyüme, mevcut çıkart-üret-at doğrusal üretim ve tüketim ilişkisiyle dünyamızın sınırlı doğal kaynaklarının tükenmesine sebebiyet vermektedir. Sürdürülebilir bir gelecek için döngünün beşikten beşiğe stratejiyle kapanmasına gereksinim vardır. Yeni oluşmakta olan döngüsel ekonomi kavramı, yeniden kullanım, tamirat, yeniden imalat, tadilat, geri dönüşüm ve paylaşımı teşvik ederek, değerleri korumaya yönelik etkinlikleriyle, geleceğe dair daha akılcı sistemler için bir adım oluşturmaktadır. Sosyal inovasyon, sosyal girişimcilik ve sürdürülebilir tasarım düşüncesi, değer içeren atıkların yönetimi ve faydalı kaynaklara dönüştürülerek döngüye yeniden kazandırılmasını sağlayan döngüsel ekonomiye geçişte önemli bir rol oynayacaktır. Bu tezde niteliksel bir çalışmayla, döngüsel ekonomiye geçişte sosyal inovasyon modeli olarak Türk sivil toplum kuruluşu TİDER örneği analiz edilmiştir.

Anahtar kelimeler:

Döngüsel ekonomi, TİDER, sürdürülebilir tasarım düşüncesi, sosyal inovasyon, sosyal girişimcilik

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As I was a novice in design studies, my professors enticed me to explore the world of design. I would like to thank Prof. Dr. Murat Bengisu, Assoc. Prof. Dr. Özgen Osman Demirbaş, Assoc. Prof. Dr. Aslı Ceylan Öner, Asst. Prof. Dr. Gökhan Mura, Lecturer Dr. Elif Kocabıyık Savasta, Asst. Prof. Dr. Onur Mengi, Asst. Prof. Dr. Ali Aslankan, Asst. Prof. Dr. Güzden Varinlioğlu whose interesting lectures I had taken.

Having decided to write a master thesis at the age of 44, it was a different experience to share classes with a generation years younger than me. I feel obliged to thank my classmates whose teases, liveliness, sincerity and friendship mean a lot to me.

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LIST OF ABBREVIATIONS

3P	People, Profit and Planet
BoP	Base of the Pyramid
DfE	Design for Environment
D4S	Design for Sustainability
EC	European Commission
EMF	Ellen MacArthur Foundation
FLW	Food Loss and Waste
GFN	Global Food Banking Network
HR	Human Resources
LEED	Local Economic and Employment Development
LGBT	Lesbian, Gay, Bisexual and Transgender
NGO	Non-Governmental Organization
PSS	Product Service Systems
TEPSIE	The Theoretical, Empirical, and Policy Foundations for Building Social Innovation in Europe
TİDER	Temel İhtiyaç Derneği (Basic Needs Association)
UNEP	United Nations Environment Programme
WRI	World Resources Institute
ZSI	Zentrum für Soziale Innovation

CHAPTER 1: INTRODUCTION

1.1 Need for the study

The increasing world urban population brings many challenging economic, social and environmental problems with it. The global population is expected to reach approximately 9 billion by 2050, tripling the current resource need. Following the industrial revolution, with the advent of mass production, the products have become more affordable and available with decreasing costs of production (Lieder & Rashid, 2016). The parallel increase in the population of affluent middle-classes triggered consumption and according to OECD report an extra 2 billion middle class consumers are to join by 2030 (Lacy, Rosenberg, Drewell & Rutqvist, 2013). As the growing consumer population demands more, the as-usual linear models seem unsustainable due to the exhaustibility of natural resources. The limits of permanent and exponential growth in a confined system has been discussed widely. The earth's resources are finite and with the take-make-dispose, cradle-to-grave approaches, the coming generations will face more problems regarding resource scarcity (Braungart & McDonough, 2002). Entire science community accept the fact that uncritical overconsumption of the natural resources is the main cause of the present-day climate change (Oosterling, 2009). Ecological crises made people realize that there is no outside anymore (Latour, 2008). Many people who were preoccupied with these sustainability problems pondered alternative models for closing the loop. Eighty percent of what we use is discarded after usage. The fact that a different way of life and a different economy is necessary spurred discussions (Howaldt & Schwarz, 2010). Circular economy, performance economy and social innovation thinkers speak of a shift from the mainstream industrial systems.

Circular economy gained unprecedented interest as an umbrella concept although what it suggested was not totally novel (Blomsma & Brennan, 2017). Circular economy tries to sustainably harmonize economic activity with environmental well-being (Murray, Skene & Haynes, 2017) and brought many ideas from various schools of thought such as ecological and environmental economies, industrial ecology, biomimicry and blue economy to come up with a solution to the impending resource security issues with circular advantage (Lacy & Rutqvist, 2015). Circular economy

entails change and transition into a state where resources are not wasted but cycled to their full potential with a materials saving approach without dispensing with net employment opportunities. If the products are sent to landfill at or before the end of their lives, the embodied virgin material, the energy spent for their production are all wasted. Therefore, prevention and diversion of waste from landfill is a major concern, as what is called waste is inherently a potential resource, either technical or biological.

Ceschin and Gaziulusoy (2016) stated that the current understanding of sustainability is a system property rather being the property of individual elements forming that system. As there is an evolutionary aspect of every concept, circular economy is also evolving into a holistic approach with three interdependent pillars of sustainability. Although the social aspect has been neglected at first with the main focus being on the environment and the economy, now transforming the culture becomes important and design thinking, social innovation and social entrepreneurship are becoming vital for this change process. As Latour (2008) put it, with the ecological crises, it has been understood that there is no outside and there is a need to redesign in a more precautionary way since none of the elements to support life cannot be taken for granted. According to Ziegler (2017) “adjectives, such as social, green and sustainable, create space to bring issues and actors together, both in practice and theory.” (p.7).

In this thesis the focus will be more on the neglected social aspect of circular economy with regard to sustainable design thinking, social innovation and social entrepreneurship which are closely related. Polanyi stated that “the economy is no longer embedded in social relations, but social relations are embedded in the economic system” (cited in Hochgerner, 2011, p.2). Although all socio-cultural structures seem to be determined by the economy, social facts (e.g. practices, norms, lifestyles) also have economic effects (Hochgerner, 2011). Circular economy, while trying to come up with a new paradigm, emphasizing the economic, growth aspect, aim to decouple it from environmental degradation. There is a need to change the root causes of unsustainability that lies in the cultural structures shaping daily modern activities (Ehrenfeld, 2005).

Throughout the globe, to tackle the problem of waste, people from different fields and organizations tried to contribute to the solution. In some countries the

implementation was with bottom-up strategies where in others it was with top-down strategies.

1.2 Aim of the study

In this thesis, a Turkish non-profit organization, Temel İhtiyaç Derneği (TİDER) is analyzed qualitatively as a social innovation model for a transition to circular economy.

The role of sustainable design thinking and social entrepreneurship in TİDER, a non-profit organization concerned with providing the primary needs of poverty-stricken families, contributing to circular economy managing retail sector food waste, is researched.

1.3 Scope of the study

In the literature review firstly the still ambiguous and contested concepts of sustainability and circular economy are discussed to portray what is meant and aimed and the relationship of these concepts to design has been mentioned.

Secondly, the importance of innovation and its evolution into social innovation is stressed and the role of design and design thinking and their extension and evolution to encompass social concerns is articulated. As it will be noticed throughout the chapters there is an overlapping, evolutionary, systemic aspect that intertwines and connects the concepts circular economy, sustainability, design, design thinking, social innovation and social entrepreneurship. The surmounting sustainability challenges makes the triple bottom line important and the motivation for the redesign of a better world impels innovative activities through entrepreneurial spirit.

Lastly, TİDER is described and analyzed in light of the literature reviewed with regard to circular economy, sustainable design thinking, social innovation and social entrepreneurship.

TİDER is chosen as a case of a social innovation model for a transition to circular economy in the retail food sector as it yearns to be the working innovative model to be replicated throughout Turkey with a vision to be the leader of food banking in the country. Although there are many studies abroad about the circular economy, social innovation and social entrepreneurship concepts receiving increasing attention,

there is a gap for the study of these concepts in the context of Turkey in any sector (private, public and third).

1.4 Methodology

A qualitative approach is pursued and as a research method a single case study is deemed appropriate, considering the fact that TİDER is a leading actor in the Turkish food banking sector and the utility of the method for novel and emerging concepts with complex, exploratory nature. Six interviews had been made with the general manager, the ex-general manager and the three department heads of TİDER and a specialist to elicit the role sustainable design thinking, social innovation and social entrepreneurship plays in the daily activities, the stakeholder relationships and the vision of the association.

CHAPTER 2: SUSTAINABILITY AND THE CIRCULAR ECONOMY

Although Blomsma and Brennan (2017) acknowledge the fact that the resource strategies such as reuse, recycling and remanufacturing mentioned under the concept of circular economy are not novel, they argue that circular economy as an umbrella concept with a valuable catalytic function to extend the productive life of resources, offers a new perspective on waste and resource management, opening up a discursive space with a created cognitive unit. Frame and framing are used to mean a set of ideas or the creation of such a set that enables a basis for collective action (Blomsma & Brennan, 2017). The evolution in environmental awareness had led to the concept of circular economy (Lacy & Rutqvist, 2015). Identifying what the set of ideas constituting the circular economy are, will help clarifying what circular economy is. The circular economy concept cannot be attributed to a single person in history but there had been many contributors to the concept (Winans, Kendall & Deng, 2017). Ellen MacArthur Foundation through a series of published reports tries to promote circular economy (Ellen McArthur Foundation, 2012, 2013, 2015). By analyzing the contributions of various schools of thought, an idea of the concept of circular economy can be formed. The concept has its roots in ecological and environmental economics and industrial ecology (Ghisellini, Cialani & Ulgiati, 2016).

Although the circular economy concept emerges from 1985 onward, the concept of circularity is not something new (Blomsma & Brennan, 2017). According to environmental economists Pearce and Turner, the early promoters of the concept of circular economy who were inspired by Boulding's work, the environment serves as a source of pleasure, resource provider, life support system and sink for waste and emissions (Andersen, 2007; Ghisellini et al., 2016). They argued that environment, a bundle of potential resources, flows and services should be internalized in the economy instead of being treated as an externality without a cost (Andersen, 2007; Gregson, Crang, Fuller & Holmes. 2015). If the externality adders are not introduced to the market prices, in the form of environmental taxes and charges by policy-makers to

reveal the true situation, socially desirable and efficient recycling and reuse would not take place (Andersen, 2007). All functions of the environment are damaged when the sink, which is also the life-support is not ecologically utilized and environment's assimilative capacity is exceeded (Andersen, 2007). The first law of thermodynamics states that total energy and matter remains constant in a closed system which has the implication that the generated amount of waste equals to the depleted amount of resource in a given period (Andersen, 2007). However, the temporary embodiment of resources in capital goods complicates the issue (Andersen, 2007). The second law of thermodynamics is about entropy, a measure of the unavailable energy in a closed system which is also the measure of system's disorder. The less the extraction, the less the entropy is and therefore circular economy, by diverting some of the waste as resource through recycling and reuse, reduces the amount of virgin materials extracted (Andersen, 2007)

While circular economy in some countries such as China is a top-down national strategy, in other geographies such as EU, Japan and US, it is a bottom-up environmental and waste management policy tool (Ghisellini et. al, 2016). China is the first country in the world to make circular economy a national strategy of economic and social development with a law passed on 1 January 2009 (Mathews & Tan, 2011). With the intention to move toward a more circular economic model, European Commission published a communication *Towards a circular economy: a zero waste programme for Europe* in 2014. In December 2015, the European Commission presented an action plan for the circular economy (Bourguignon, 2018). European Union's Horizon 2020 Program began in January 2014 with a total investment of €75 billion over a 7 year period in research and innovation with five big priorities in: (1) increased investment in sustainable development and climate related R&I, (2) integrating digitization in all industrial technologies and societal challenges, (3) strengthening international R&I cooperation, (4) societal resilience and (5) market creating innovation (EC, 2019). Also six societal challenges has been addressed: (1) health, demographic change and well-being, (2) food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bio-economy, (3) secure, clean and efficient energy, (4) smart, green and integrated transport, (5) climate action, environment, resource efficiency and raw materials, transition to circular economy business models and practices, sustainable sourcing or raw materials, also

from secondary sources and (6) inclusive, innovative and reflective societies (EC, 2019). Food waste has been indicated as a major issue for the circular economy and particular importance of social innovation in providing solutions for the valorization of bio-waste has been stressed and a budget of €256 million has been assigned under societal challenge 2 (EC, 2019). The details of the program indicate the importance of sustainability, circular economy and social innovation in the agenda of the European Union.

Circular economy is about sustainable development whether imposed from the top, or initiated at the bottom. Geissdoerfer, Savaget, Bocken and Hultink (2017) argued that there is no conceptual clarity about the relationship between sustainability and circular economy. Sustainability is about conservation of the eco-systems, transformation of lifestyles for the maintenance of the supply of non-replaceable goods and services and living conditions to support security, well-being and health or preservation of all life-forms' ability to flourish (Geissdoerfer et al., 2017). While the concept of sustainability is open-ended with a multitude of goals depending on the considered agent's interests, circular economy focuses on closing the loops to avoid leakage out of the system (Geissdoerfer et al., 2017). Circular economy is a subset of sustainability. Ehrlich and Commoner stated that environmental impact is a function of population, affluence and technologies (cited in Geissdoerfer et al., 2017, p.758). Demographic control, reduction in consumption levels or advances in science and technology and social innovation can play a role in the reduction of this impact (Geissdoerfer et al., 2017).

In the Brundtland Report sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p43). In the globalized world, the unsustainability of the current growth and development patterns compels significant innovation in the supply and demand sides of the market (UNEP, 2009). Sustainability is about the triple bottom line, People, Profit and Planet (3P) as shown in Figure 1 , in other words about social, economic and environmental aspects which are called the three pillars of sustainability that must be taken into consideration without forsaking one for another.



Figure 1. The triple bottom line. Source: University of Wisconsin Sustainable Management, n.d.

In the late 1980s and early 1990s people perceived sustainability as merely an environmental issue (Crul, Diehl & Lindqvist, 2009). At first the concern was more with end-of-pipe solutions for the waste management. Then product improvements through clean technology, cleaner production and eco-efficiency followed. The product life-cycle assessment taking product impacts into consideration was the next step in the evolutionary path with the concepts such as Eco-design and Design for the Environment (DfE). Finally, Eco-design evolved into the concept of Design for Sustainability (D4S) broadening the concept to embody social and economic concerns besides environmental ones (Crul et al., 2009). D4S innovatively strives to reduce the economic, social and environmental negative impacts of the products through their supply chains and life-cycles (UNEP, 2009). While the concentration of pollution prevention was first on cleaner production processes, in the meantime the product systems encompassing transport logistics, end-of life collection, component reuse and materials recycling has been the focus of sustainable product design. Although life-cycle improvements in the production side is important, sustainable consumption issues should not be ignored. In purchasing decisions there is need to consider the social and environmental impacts as well, not only the price, convenience and quality of the products. D4S goes beyond incremental redesign and greening of the products for a more systematic and systemic change (Crul et al., 2009). The evolution from an individual product to the system of products and related services involves broadening the concept to the social and economic components of sustainability (Crul et al., 2009).

The impacts which can differ geographically as well are not just limited to environmental impacts which could be analyzed under the categories of “ecological damages” (global warming, climate change, ozone depletion, acid rain, water eutrophication, habitat alteration due to land use, eco-toxicity), “human health damages” (smog and air pollution, health damaging substances, carcinogens) and “resource depletion” (fossil fuels, fresh water, minerals and topsoil). Sustainability concerns also comprise social and economic impacts. In the supply chain, the producers need to take issues such as human rights, child labor, workplace health and safety, governance and management, transparency, corruption and bribery into account while making purchasing decisions. Economic growth with local businesses and community members; community development through helping education, health, water quality and sanitation, corruption and bribery prevention in communities; stakeholder engagement and distributed economies are the local and societal impacts that can be taken into account in the D4S. The other societal impacts to be considered are issues with groundwater usage such as saline encroachment and land subsidence (Crul et al., 2009). The stress for these societal impacts are from the innovative product development business perspective in design with respect to sustainability and corporate social responsibility. As it will be further explained in the following chapter, in the discussion of social innovations, the concepts evolve beyond just business product development to systemic transformation and social change issues cross-sectors and cross-boundaries. Crul et al. (2009) also argue sustainability improvements having economic impacts, can enhance a company’s profitability and competitiveness, with reduced costs of production through resource efficiencies, opened up new markets and strengthened loyalty of customers. They state that the motivation to implement D4S either originates within the business itself (internal drivers) or outside the company (external drivers). As the developed economies have well-developed legislation, policy and public opinion, the motivation can be a mix of both drivers where in the developing economies the internal drivers are more influential (Crul et al., 2009).

Hoffman (2018) who is also concerned with a business-led systemic change stated that “instead of tinkering around the edges of the market with new products and services, business must now transform it “(p.35). He suggests “market transformation”, “Sustainable Business 2.0” as the next phase of business sustainability compared to the models integrating sustainability into current business

considerations. Attending to the causes instead of symptoms and focusing on creating sustainability rather than reducing unsustainability and finally shifting the focus from the health and vitality of the organization to that of market and society in which the organization operates are steps from incremental to the transformational (Hoffman, 2018). Advocating the cross-boundaries, powerful role of market as an institution, and business as an entity, he thinks business is best positioned to create change, despite not being the sole solution generator. Unilever CEO Paul Polman noted that “we are entering a very interesting period of history where the responsible business world is running ahead of the politicians and taking on a broader role to serve society” (cited in Hoffman, 2018, p.36). Sustainability revolution moves forward with the business strategies reformulated through new conceptions of operations, partnerships, government engagement and transparency and business models re-conceptualized.

Circular economy, supporting restorative use of resources to avoid losses along the value chain aims to decouple environmental degradation from economic growth, leaving the take-make-dispose, linear economy behind, fostering new fields of sustainable value creation (EMF, 2012, 2015). Overpopulation signals resource scarcity. Exploitation of the abundant and cheap resources is unsustainable. Braungart and McDonough (2002) discuss the assumptions underlying the Industrial Revolution that there is an endless supply of natural capital, the nature is an enemy to be tamed, one efficient solution is valid and applicable with the right amount of brute force everywhere in the world and any activity creates prosperity. They opt for “eco-effectiveness” instead of “eco-efficiency”, arguing that the motivation would be for “doing better” rather than “doing less harm”. They emphasize the need for wiser solutions that would design out the mixing of biological and technical nutrients, speaking of biological and technical cycles depicted in Figure 2. In the conventional cradle-to-grave model, waste is not considered as food and there is a throw-away culture that either dumps value embodied in the discarded products into landfills or incinerates them. They suggest a cyclical, cradle-to cradle nutrient flow and metabolism in which the concept of waste does not exist and demand the avoidance of toxic materials and “monstrous hybrids” that hamper this cyclical relationship. They argue all sustainability is local and underline the importance of utilizing local materials through local enterprises and renewable, natural energy flows for more resilient, stable systems. Webster (2013) states throughput is an efficiency word while the effective is

a system word. Circular economy comprised of non-linear, feedback-rich, iterative large and small systems nested in each other, is about the connections and flows, summing up to more than its components. He also thinks that there is a trade-off between efficiency and resilience which runs parallel to diversity. According to him, effectiveness is inclusive by character while efficiency is exclusive. Each system goes through the four stage cycle: birth, growth, maturity and death. Although efficiency is good for growth, resilience is nonexpendable for survival (Webster, 2013).

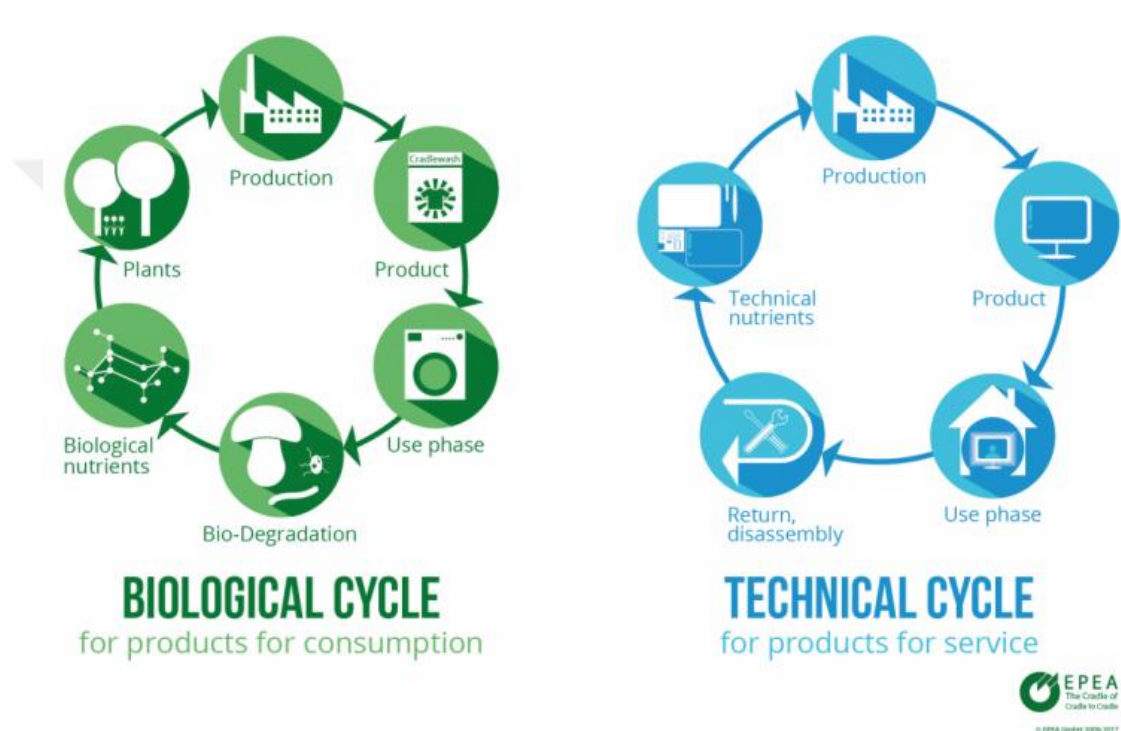


Figure 2. Cradle to cradle. Source: EPEA, n.d.

Biggs, Ryan and Wiseman (2010) present distributed systems as an alternative design model over conventional infrastructure models, to be prepared for a future of unprecedented resource scarcity and environmental change and suggest that this approach will increase the physical resilience of infrastructure, will foster social and institutional flexibility and innovation and also will reduce the environmental footprint of production and consumption. They argue that centralized, large standardized systems for the sake of efficiency and economies of scale are more vulnerable as with their hard to adjust, slow to change, immense, capital-intensive structures, they do not

allow diversity and spare capacity (redundancy) that is necessary for flexibility and adaptation in case of disruptive change. The distributed, smaller networked systems revaluing diversity, redundancy and local resources should be favored to industrial systems which are obsessed with efficiency and are highly interdependent on each other and more susceptible to cascading effects of a probable failure (Biggs et al., 2010). Morelli (2011) also defend decentralization of production and the localization of solutions as context-specific, local solutions both reduce the environmental costs of transport and utilize human, material and natural resources, stimulating the regeneration of values, of knowledge, of the institutions and of the natural environment. Involvement of users in the production process push the boundaries of mass customization toward highly personalized solutions with the networking of resources in the local context to co-produce value (Morelli, 2011). A shift from the centralized model to a networked one distributes solution potential to local communities, increasing their problem-solving capabilities (Morelli, 2011). In a sense they are advocating the same principles proposed by Braungart and McDonough (2002) who support eco-effective, decentralized, diverse, local structures that work with their surrounding landscape as a total design.

Circular economy which is at the early stage of implementation is more focused on recycling rather than the reuse (Ghisellini et al., 2016). As the conventional production and consumption system promotes obsolescence and discarding, the primary attention is on managing the discarded. Making use of various manipulative techniques to deliberately make a product no longer functional or desirable after a predetermined period, in order to stimulate its repetitive sale is called planned obsolescence, in other words built-in obsolescence (Cooper 2010; Bartels, Ermel, Pecht & Sandborn, 2012; Slade, 2006). Although the innovations in technology render the old products obsolete, the companies utilizing marketing strategies make them psychologically obsolete as well. Designing components to fail, choosing deliberately the materials to scientifically limit the durability of a manufactured good are strategies to exploit obsolescence (Slade, 2006).

Stahel (2016) states “quality is still associated with newness not caring” (p.435). No matter how one makes design and manufacturing decisions for the intrinsic durability of products, consumer behavior, the discarding of functional items, has great

influence on the product longevity and a change across society is needed to progress away from a throwaway culture (Cooper, 2010, p.3). Design would help durability, stimulating long-term product-owner relationship with happiness-related symbolic meaning to avoid the properly functioning products to be discarded in an earlier phase in their lifetimes (Casais, Mugge & Desmet, 2015). If the “happiness trigger” is lost (Csikszentmihalyi & Rochberg-Halton, cited in Casais et al., p.44) and the owner of the product does not want to keep it, strategies such as sharing should be implemented to keep it in the circulation, extending the lifespan. Product life extension includes all attempts to lengthen product life-spans whether it is achieved through improved intrinsic durability, changed user behavior and consumer culture (Cooper, 2010). “Eternally Yours” team explored the ways to increase product durability (Van Hinte, 1997). Bakker, Wang, Huisman and den Hollander (2014) argued the generic waste management hierarchy of prevention, reuse and recycling applied would depend on the product and its optimal lifespans and the strategies product life extension or recycling should be preferred analyzing the positive impact of increased energy efficiency and the negative impact of declining lifespans.

However, Braungart and McDonough (2002) argue that there is no need for durability as long as products are smartly designed beforehand as products of service, in other words as products to be disassembled into biological and technical nutrients to be safely returned either to the biosphere or the techno-sphere as food to the related ecosystems. According to them rather than the consumption and economic activity, the bad design is at the heart of the problem (Lacy & Rutqvist, 2015). However, even if the sorting of the materials were perfect, the fact that energy embedded during the production is lost should not be ignored.

Although the product is energy efficient, easier to recycle, and contain fewer toxic materials (Cooper, 2010, p.3) and kept for a long time due to attachment, it will one day will be thrown away. The “reduce” strategy is also important to be applied to material and energy consumption during production, transportation and use processes (Mao, Chunhui, Yuansheng & Linyu, 2018). To lessen the environmental harm certain issues should be taken into consideration. Material or resource efficiency is another way to reduce the degrading impact of the increasing global production on the environment by narrowing resource flows. The increase in material demand leads to

an increase in the energy demand which is mainly derived from fossil fuels, the culprit of greenhouse gas emissions. According to Braungart and McDonough the effort to reduce resource use in the products and production processes is an eco-efficient, sustainable, cradle-to-grave material flow as it has nothing to do with cyclicity (Bocken, de Pauw, Bakker & van der Grinten, 2016). Allwood, Ashby, Gutowski and Worrell (2011) defined the four major strategies for material efficiency as longer-lasting products; modularization and remanufacturing; component reuse and designing products with less materials. Since the materials are seen as assets to be preserved in circular economy, besides maintaining the quality of the physical stocks, there should be a shift from resource throughput to asset management (Stahel, 2010, 2016). The new metric suggested by Stahel (2010) for measuring the economic resource productivity of goods, the value-per-weight ratio enables the categorization: bulk goods and smart goods. As the knowledge-based Performance Economy uncouples wealth creation from resource throughput (Stahel, 2010), it is one of the schools of thought that had an impact on circular economy. In the performance economy there is a shift from a volume driven, energy and resource intensive, inherently hazardous, toxic products to value driven, knowledge intensive, inherently safe products (Stahel, 2010).

While Braungart and McDonough mention about cyclical, cradle-to-cradle material flows, Stahel prefers the term “closed loop systems” which is comprised of reuse of goods and recycling of materials (Bocken et al., 2016). *Extended producer responsibility* is an approach that requires the producers to collect discarded waste materials from consumers by shifting the waste handling responsibility from consumers to manufacturers and retailers (Lifset, 1993). Manufacturers bear responsibility for the post-production stages of the product life cycle and even in some cases they include the responsibility for the inputs of the manufacturing stage (Lifset, 1993) Being responsible for the end-of-life management, producers design their products to minimize the anticipated end-of-life costs (Lifset & Lindhqvist, 2008). They argue the businesses would work cleverly to come up with cost effective, innovative solutions without detailed governmental prescriptions (Lifset & Lindhqvist, 2008). As the prices charged by the *producer responsibility organizations* managing the collection and processing of relevant products collectively were not competitive, the concept *Individual Producer Responsibility* emerged (Lifset & Lindhqvist, 2008).

Reverse logistics and closed loop supply chain issues has become important as the businesses started to track the take-back of their products from end users for recycling, remanufacturing, repairing and disposing of some parts (Govindan, Soleimani & Kannan, 2015).

The businesses can change their models to lease the products that they retain the ownership of (Lifset & Lindhqvist, 2008). Stahel also suggested that the responsibility and ownership of the products at the end of their lives should be of the producer rather than the consumer, in a loop economy, where utilization of the services of the products are sold instead of the products themselves (Geissdoerfer et al., 2017). As the producers perceive the products as assets, they try to maintain the quality and longevity to reap the best benefit out of them through cost and material efficiency. As Stahel (2016) argues the consumers become users and creators and product stewardship takes place of ownership. According to him “the re-use of goods means an extension of the utilization period of goods through the design of long-life goods; the introduction of service loops to extend an existing product’s life, including re-use of the product itself, repair, reconditioning, and technical upgrading and a combination of these” (cited in Bocken et. al., 2016, p.309). Many companies with new conceptions of mobility try to innovate driverless cars to be mobility providers operating similar to airline industry, making profits out of the idling time minimized (Hoffman, 2018). The trend for buying services rather than products will be the main driver of a transition from an industrial to a resource-respectful performance or functional service economy (Stahel, 2010).

The design of need-fulfillment systems rather than the product led to Product-Service Systems (PSS) where the intention is not to maximize the number of products sold (Tukker, 2015). PSS is one of the most effective tools for a resource-efficient circular economy (Tukker, 2015). As these more sustainable service-oriented business models encourages the companies to earn money from the services offered, the material products and consumables become cost factors creating an incentive for efficient use (Tukker, 2015). There are mainly three categories of PSS: (1) *product-oriented services* where the business is still focused on selling products with additional services such as insurance, maintenance and consultancy; (2) *use-oriented services* where the ownership of the product is with the provider and the products are made

available to the user through leasing, renting, sharing or pooling; and (3) *result-oriented services* where the client and the provider agree on a result and pays for the units served (Tukker, 2015). The concept evolved into *integrated product services*. According to Morelli (2006) industrial offering is rethought in light of a shift from mass consumption to personalized needs. PSS is a social construction and is the result of a value co-production process within a sustainable solution oriented partnership, the effectiveness of which depends on a shared vision of possible and desirable scenarios (Morelli, 2006). Designers need the tools to identify the actors in a network, to verify use cases, sequences of actions and actors' role and to represent the physical elements, logical links and temporal sequences (Morelli, 2006).

According to Ayres (1994) waste materials are either destined for re-use and recycling or dissipative loss which must be compensated by virgin materials. While the re-use of goods slows down the flow of materials, recycling has no effect on the speed of the flow of materials or goods in the economy (Bocken et al., 2016). According to Birat (2015) the recycling of materials is at the heart of circular economy which is a long-time endeavor. Some materials are not suitable for recycling and the cyclic regeneration of materials depends on their recoverability and renewability (Mao et al., 2018). Ayres (1994) indicated that the materials fall into three category as the ones economically and technologically compatible for recycling, the ones which are not economically compatible but technically feasible and the ones which are not feasible for recycling any way. Even if the materials are recyclable, recycling has a time dimension. The tools Life Cycle Assessment and Materials Flow Analysis are useful in dealing with the time dimension of materials that are stocked in the economy and a detailed material by material analysis is necessary for tracking stocks and flows, refraining from generalizations (Ayres, 1994).

Industrial ecology, another school of thought that had major impact on circular economy, at the macro level tries to harmonize industrial economy and the environment, and at the micro level it deals with industrial processes for reducing energy and resource intensity with the conversion of waste at one point in a value chain into input by closing the loop (Mathews & Tan, 2011). According to Saavedra, Iritani, Pavan and Ometto (2018) it has contributed to the evolution of circular economy on the theoretical, technical and policy aspects with its concepts and tools such as

Industrial Symbiosis and Eco-Industrial Parks. In a complete circulatory system, the linkages and the flows are as essential as the parts (Webster, 2013). The context gives meaning so systems, service, performance and metabolism matter as the things (Webster, 2013). Industrial metabolism results from an analogy between biological organisms and industrial activities (Ayres, 1994). Raw materials, energy and labor are converted into finished products and waste in an integrated collection of physical processes where the human component acts as the stabilizing control, directly with its labor input and indirectly with its consumer role in determining demand (Ayres, 1994). As open systems industrial cycles are unstable and unsustainable (Ayres, 1994). Mathews and Tan (2011) see eco-industrial initiative as a unit of economic and policy analysis and speak of eco-industrial linkages at various levels. In industrial symbiosis, synergistic arrangements and connections between firms can be designed beforehand where wastes from one process can be captured and used as raw material for another. The creation of networks of by-product exchange and combined heat and power are made a principle of industrial design (Mathews & Tan, 2011). Blomsma and Brennan (2017) state that there is need to energize and promote debates in the social aspect of industrial ecology.

Blue economy another school of thought that has influenced circular economy also emulates natural ecosystems and applies it to the context of industry and sustainable manufacturing processes, arguing for a whole systems design to generate value out of waste, cascading nutrients and energy with a zero waste policy (Pauli, 2010).

Design is at the heart of circular economy. Bocken et al. (2016) suggest a list of design strategies to slow down and close resource loops to move from a linear to a circular economy (See Table 1). They argue the importance of integrating circular economy concerns earlier in the design process.

TABLE 1. List of Design Strategies

Design strategies to slow loops	Design strategies to close loops
<p><i>Designing long-life products</i></p> <ul style="list-style-type: none"> • Design for attachment and trust (emotional durability) • Design for reliability and durability <p><i>Design for product-life extension (with the introduction of service loops)</i></p> <ul style="list-style-type: none"> • Design for ease of maintenance and repair • Design for upgradability and adaptability • Design for standardization and compatibility • Design for dis- and reassembly (vital for biological and technical cycles) 	<ul style="list-style-type: none"> • Design for a technological cycle • Design for a biological cycle • Design for dis- and reassembly

(Bocken et al., 2016, pp.310-311).

2.1 Definitions of circular economy

According to Ellen MacArthur Foundation (2012) circular economy is “an industrial system that is restorative or regenerative by intention and design. It replaces the ‘end-of-life’ concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models” (p.7).

Geissdoerfer et al. (2017) define the circular economy as “a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops” (p.759).

While the unlimited resources like labor plays a central role, the limited supply of natural capital has a supporting role in economic processes of circular economy, which is regarded as a path to increasing growth and profitability (EMF, 2012). Circular economy favors the use of renewable and plentiful resources to non-renewable and scarce ones (Mao et al., 2018) and tries to preserve physical stocks, seeing them as assets.

2.2 Circular economy implementations

The entrenched linear industrial and societal mind-set and structures make the implementation of circular economy challenging (Lieder & Rashid, 2016). Various circular economy implementations for the closing of the loops and regeneration of natural assets in the industry are mentioned in Ellen MacArthur report *Towards the Circular Economy: Accelerating the scale-up across global supply chains* (EMF, 2014). Planing (2015) mentions materials and product design, new business models, global reverse networks and enablers as four main building blocks of circular economy. Circular business models are gaining interest with their materials saving potential (EMF, 2014). The cooperation of top-down and bottom-up approaches is expedient for advancements in the large scale implementation of circular economy as proposed in Figure 3 (Lieder & Rashid, 2016).

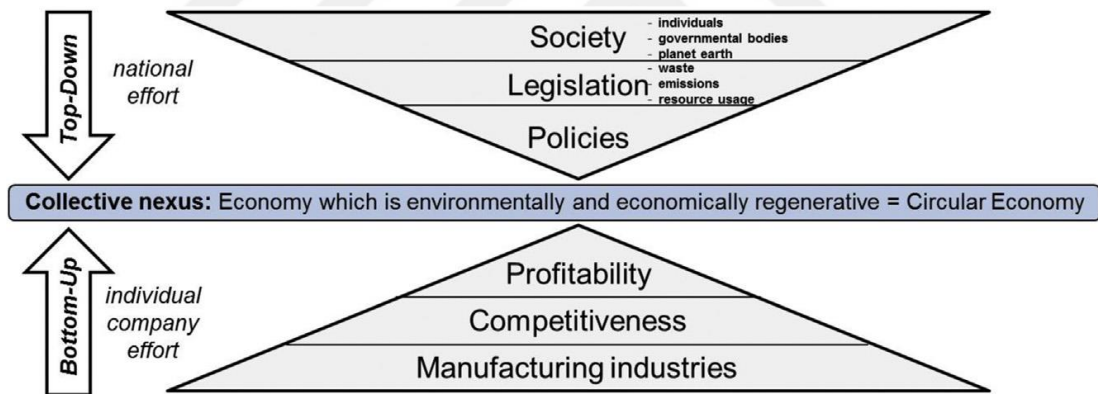


Figure 3. Proposed CE implementation strategy applying top-down and bottom-up approach. Source: Lieder & Rashid, 2015, p.11.

Many of the published studies on the implementation of the circular economy are mainly related to the cases in China (Ghisellini et.al, 2015). Mathews and Tan (2011) compares the eco-industrial initiatives taken in China within a circular economy framework to other initiatives in the West and elsewhere in East Asia, stating that China captured latecomer advantages with the visible hand of the government after the concept was first introduced into China in the late 1990s. They argue that

many of the eco-industrial initiatives in China and in other countries were attempts to reconfigure existing, linear value chain, not purposefully designed to be an eco-industrial park or an eco-town at the initial stage, into closed-loop production systems (Mathews & Tan, 2011). There is an evolutionary aspect from pollution control and cleaner production to systemic industrial synergies (Mathews & Tan, 2011). According to them a successful eco-industrial initiative improves the total eco-efficiency of the constituent firms and the profitability of at least one firm without hampering the others.

Prendeville, Cherim and Bocken (2018) in their exploratory research into the concept of circular cities stated that although the city policymakers were eager to include circular economy in their agendas, they were unclear about the meaning of a circular city in practice. The circular city is defined as a city that implements circular economy principles collaborating with urban stakeholders (Prendeville et al., 2018).

2.3 Enablers and barriers to circular economy

Gregson et al. (2015) think that the circular economy concept is idealized based on a technical dream of perfect circle and recovery although it is not case in reality due to technological impossibilities. On the contrary Mathews and Tan (2011) believe many closed-loop connections were rendered feasible with the technological developments. High-volume, low-quality output is a big challenge for the secondary materials market and demand for recycled materials (Gregson et al., 2015). They argue that circular economy is also a moral economy as it depends on the right and wrong ways of material flows. For circular economy to be successful, there is a need to invest in producing the lacked high-quality data about recycling no matter what the cost and effort (Birat, 2015). Even in a system with high recycling rate, a full circular economy seems distant (Birat, 2015). Andersen (2007) underlines the impossibility of perpetual recycling in circular economy.

The recovery of material resources is contingent on the existing intellectual resources. There is a need for metallurgical and chemical sciences to excel as many material blends cannot be disassembled (Stahel, 2016). Many steel and aluminum alloys cannot be retrieved as “monstrous hybrids” (Braungart & McDonough, 2002). Design can play an important role to develop environmentally friendly substitute

products and services. As cyclic regeneration of materials depends techno-economic conditions, materials that cannot be recycled at the moment might be recycled several years later (Mao et al., 2018). The increasing anthropogenic stocks of materials in urban areas gain more importance with respect to limited and fixed stocks of them (Cossu, 2013). Urban mining, takes advantage of the secondary resource base of the city as urban stock of buildings, infrastructure and landfills (Brunner, 2011). However, stocking the amounting potential urban waste in good quality for socio-technically feasible future processing is a big challenge.

As Gregson et al. (2015) stated: "...the industrial symbiosis field has gone back to another lesson from Kalundborg: the short mental distance between its firms which suggests that intangible business and local mores are as important as technical possibilities in deciding what actually gets re-used" (p.223). It is difficult to regulate greener and higher level practices such as repair, reuse and longer lifespans (Birat, 2015). However, there is a shift in consumer behavior from ownership mentality to performance (Planing, 2015).

In China, circular economy is regarded as a mainstream, official development goal with substantial competitive advantages, not just being reduced to an environmental concept (Mathews & Tan, 2011). Although recognizing the importance of bottom-up approaches and market incentives, they defend the shaping of eco-industrial initiatives by regulatory frameworks either at the enterprise and cluster level or at the level of eco-industrial parks (Mathews & Tan, 2011). The government provides many financial and administrative supports such as low-rate loans, tax relief and priority in land supply and also plays an important role in the provision of large initial investment required in the establishment of eco-industrial initiatives (Mathews & Tan, 2011). However, the lack of flexibility over the treatment of wastes due to intense regulation would likely hamper the industrial waste reutilization and act as an institutional barrier, stifling the opportunities for market-led closing the loop (Desrochers, 2002; Mathews & Tan, 2011).

The governmental bodies and policy makers try to maximize environmental benefits by strict control of industrial businesses that have competitiveness as their primary concern and are reluctant for pursuing circular initiatives they don't regard economically advantageous (Lieder & Rashid, 2016). There is a need to overcome

these conflicting motivations by concurrent top-down and bottom-up approaches with the ultimate of goal of achieving circular economy (Lieder & Rashid, 2016).

The advances in information technologies enable new business models. Car sharing that existed beforehand became more feasible with the smart phone apps and the reverse networks for resources developed with RFID (radio frequency identification) or other available identification technologies (Planing, 2015).



CHAPTER 3: THE ROLE OF SOCIAL INNOVATION, SOCIAL ENTREPRENEURSHIP AND SUSTAINABLE DESIGN THINKING

Phills, Deiglmeier and Miller (2008), not underestimating the importance and complementary role of social entrepreneurship and social enterprise, argue that social innovation is the best construct to comprehend and produce prolonged, positive social change. Social entrepreneurship, for spotting new ways and bringing them to life and social enterprises as social purpose organizations for the delivery of these novelties are unquestionably necessary. However, focusing on the innovation, rather than the person and the organization would yield more information about the mechanisms that produce positive social change (Phills et al., 2008).

The importance of social innovation has increased, in parallel to a paradigm shift of the innovation system owing to the transition from an industrial to a knowledge and services-based society (Franz, Hochgerner & Howaldt, 2012). This historical paradigm shift challenges the industrial societies to adjust themselves structurally (Heiskala & Hamalainen, 2007). Meadows stated that the technological progress did not only avail by itself against the world's emerging social problems but also aggravated them (cited in Howaldt & Schwarz, 2010). In the 1992, UN Rio de Janeiro Conference, the need for an ecologically, economically and socially sustainable development was stressed (Howaldt & Schwarz, 2010). As Barroso (2009) expressed: "Creativity and innovation in general and social innovation in particular are essential factors for fostering sustainable growth, securing jobs and increasing competitive abilities, especially in the midst of the economic and financial markets crisis" (cited in Howaldt & Schwarz, 2010, p.6). The social innovation initiatives will continue to multiply in the near future for the much-needed transition toward sustainability (Manzini, 2014).

In this forged battle against contemporary societal challenges, the social innovation has been used in reference to social enterprise and social entrepreneurship, technological innovations with social benefits, corporate social responsibility and open innovation (Caulier-Grice, Davies, Patrick & Norman, 2012) and without an agreed

upon definition, is a recent debate field in social sciences and humanities (Pol & Ville, 2009). Social innovation is an umbrella term, encompassing a broad range of activities (TEPSIE, 2014) that serve for inventing and incubating solutions to social problems in a creative and positive way (Huysentruyt, Bulakowskiy & Ramsden, 2013). It is a “quasi-concept” (Jenson & Harrison, 2013), but not just a buzzword without substance (Pol & Ville, 2009; TEPSIE, 2014). There is a need to define the boundaries of social innovation (Mulgan, 2015). The main contribution to the field of social innovation has been from the practitioners rather than the scholars (Choi & Majumdar, 2015; TEPSIE, 2014). The TEPSIE report also indicates that most social innovations originate in civil society comprised of the non-profit or informal/ community sectors. It is different from the technological innovations that primarily take place in the firms (Andersen, Metcalfe & Tether, 2000). However, the social innovation involves all sectors regardless of their being public, private or civil society and can be a unique combination of the logics and reconfiguration of the social relations conventionally inherent in these different sectors (Nicholls & Murdock, 2012). According to Phills et al. (2008) “innovation lens is agnostic about the sources of social value” (p.37) and social innovation transcending sectors, levels of analysis and methods, focuses on understanding the processes, the strategies, tactics and theories of change to produce lasting, positive social impact. Blurring the boundaries between sectors helps cross-sector pollination and collaboration, enabling ideas, values, roles, relationships and capital to flow more freely. There is a need for the convergence of sectors (Phills et al., 2008).

In their comprehensive overview of the existing literature on social innovation, Choi and Majumdar (2015) identified seven subcategories for the analysis of it as: the sociological perspective, the creativity research perspective, the entrepreneurship perspective, the welfare economics perspective, the practice-led perspective, the community psychology perspective, and the territorial development perspective. Grimm, Fox, Baines and Albertson (2013) touched upon social innovation with regard to environmental studies and finance in addition to above mentioned perspectives. Manzini (2014) talks about social innovation from a design perspective.

Before delineating these various perspectives of social innovation, there is a need to clarify what is meant by “innovation” and “social” respectively.

Buckminster Fuller said: “You never change things by fighting against the existing reality. To change something, build a new model that makes the old model obsolete” (cited in Webster, 2013, p.544). Schumpeter, one of the earliest and influential thinkers on innovation stated that innovation is new combinations of production factors and expressed five forms of such combinations (new or better products, new production methods, opening up new markets, new sources of raw materials and reorganization of the market position), the four of which still took its place in the Oslo Manual after a century (Hochgerner, 2011). According to latest 2018 edition of Oslo Manual innovations are grouped into two as product and process innovations and “an innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)” (OECD & Eurostat, 2018). The unit stands for the actor responsible for innovations as any institutional unit in any sector, comprising households and their individual members (OECD & Eurostat, 2018). Schumpeter mentioned “creative destruction” as a feature of capitalism rather than innovation itself (Hochgerner, 2011). Innovations whether as processes or outcomes, must meet the criteria of novelty and improvement (Phills et al., 2008). Novelty need not be original and absolute as it can be new to the user, context or application (Phills et al., 2008). Innovation, being more encompassing, differs from invention as it requires the development and implementation processes of a new idea (van de Ven, Angle & Poole, 2000) and it’s not just about technical performance as the market response and commercial exploitation are important as well (Kline & Rosenberg, 2010). Innovations depending on the magnitude of change can be further classified as incremental, marginal or radical, disruptive (Fagerberg, 2003). The initial innovation can be imitated inducing growth and new innovations of products and processes in their diffusion (Fagerberg, 2003). Innovations need not be of the highly visible, sophisticated technology sort with major changes since a large proportion of technological innovations are comprised of small, cumulative subsequent improvements over their lifetimes (Kline & Rosenberg, 2010). The requirement for a significant change in the earlier editions of Oslo Manual was abolished in the 2018 edition (OECD & Eurostat, 2018). The improvement may be in the form of more effectiveness or more efficiency, or to stretch it further, in the form of more

environmental and organizational sustainability and more justice (Phills et al., 2008). Creative solutions that are not widely accepted and disseminated are excluded in some conceptions of innovation. Generation of an innovation is totally a different process compared to its diffusion and adoption (Phills et al., 2008).

Innovation is not just about novelty and with its practical aspect it is inherently a social process since it requires the formation and networking of groups for discussion and interaction (Ziegler, 2017). However, the concept of innovation, the implementation and dissemination of novelty, was mainly perceived to be the characteristic of economy and technology (Hochgerner, 2011). When the accumulated firm-specific knowledge referred to as first resource is not sufficient for solving the problems, the external knowledge comes to the aid as an alternative resource and if both resources are of no use, then research, design and development is utilized as an expensive, uncertain endeavor to create new knowledge (Senker, 1995; Kline & Rosenberg, 2010). As the innovation takes place in organized settings, depending on external sources necessitated by the complexity of its knowledge base, it is a systemic and organizational phenomenon (Fagerberg, 2003). No matter how large or small, each organization needs to cultivate the capacity to absorb outside knowledge created elsewhere (Fagerberg, 2003). Creativity and innovation is spurred by social and intellectual diversity and the provision of social capital by complex networks of institutions helps multiple specialized activities to co-exist and cross-fertilize and reduce uncertainties (Basset, Miles & Thenint, 2011). Innovation is a collaborative phenomenon and besides resource heterogeneity, actors' heterogeneity, diversity in innovation networks also has a positive effect on innovation performance (Corsaro, Cantu & Tunisini, 2012). Division of labor in the generation and application of practically useful, complementary knowledge culminates in the distributed innovation processes (Andersen et al., 2000).

Innovation, a time consuming activity with uncertain outcomes depends on innovative capabilities developed through complex processes of learning (Bruland & Mowery, 2004). Although Schumpeter in his earlier works focused more on the entrepreneur, its individualistic visionary leadership role in innovation, failing to take into account the organizational dimension (Fagerberg, 2003) and the social contexts that shape innovation processes (Bruland & Mowery, 2004), in his later works he

mentioned about collective entrepreneurship and innovation in big resource-rich firms with in-house R&D (Lundvall, 2013). Science among several others is just one of the components for a successful innovation (Fagerberg, 2003). Historical patterns of innovation show sustained innovation-led growth is not possible without a technological, organizational and institutional change (Bruland & Mowery, 2004).

Schumpeter also failed to recognize the active role of demand side in innovation change, with his focus on the supply side (Lundvall, 2013). Demand-pull is as important as the technology-push and the supply-push (Lundvall, 2013). Rapid rates of technical change in supplier industries is triggered by increased demand (Kline & Rosenberg, 2010).

Path-dependency, locking in the organization into a certain set-up, makes switching to an emergent, superior path more difficult. Therefore the divergent character, the openness of the system, exploring new directions, changing goals, learning by discovery, pluralistic leadership and taking competing perspectives into consideration and building new relationships are crucial for innovation (Fagerberg, 2003; van de Ven, 2017). As innovation is a journey, a non-linear cycle of divergent and convergent activities that repeat in unpredictable ways over time, the managers cannot control innovation process but learn to maneuver it (van de Ven, 2017). Different types of knowledge, capabilities, skills and resources are indispensable in making new combinations, and this collective achievement aspect renders innovation as a social, systemic phenomenon (Fagerberg, 2003). Besides technical character, the existence of complementary components, such as proper infrastructure, finance and skills is vital for innovation. The agents of change both in the private and public sectors need to promote technological competition through innovation for the sake of economic development and growth as innovation plays a significant role in social and economic change (Fagerberg, 2003).

The global distribution of innovation indicates that there is a technological gap with regard to time and space as innovation is clustered in certain sectors, areas and periods. Innovation produces desirable consequences such as higher productivity and income and is a strong factor in explaining the micro and macro level performance differences (Fagerberg, 2003). According to the Kaldor paradox, the countries that have the strongest growth in wages are the most competitive (Lundvall, 2013, p.23).

The innovation system has been analyzed in the spatial level and national and regional innovation systems has been suggested as a social system for innovation development (Fagerberg, 2003).

Lundvall (2013) emphasizes innovation as an interactive process. Feedback signals from users are important (Kline & Rosenberg, 2010). The conventional view that separates the firms as producers and innovators and customers as consumers and adopters of market offerings fails to comprehend the complementary contributions of multiple stakeholders to value-creation and innovation (Vargo, Wieland & Akaka, 2015). Open innovation which has been a paradigm shift in the field of innovation, proposed a new model based on the free flow of information and ideas across departments and organizations (Chesbrough, 2006).

Polanyi stated that “we know more than we can tell” drawing attention the importance of skills and tacit knowledge (Senker, 1995, p.426). He argued that even the articulated knowledge is tacitly understood and applied and therefore is rooted in tacit knowledge. Senker (1995) remarks the know-how transfer, is not just the transmission of formalized knowledge in written documents and entails personal interaction through training. “Scientific and technological inputs to innovation embody a considerable tacit component which can only be acquired by practical experience or personal interaction with experts.” (Senker, 1995, p.429).

The effects of innovation are hard to measure as there are many “black boxes” of sociotechnical systems from firm to firm and industry to industry (Kline & Rosenberg, 2010). The time and market dimensions also increase the difficulty and the fact that an innovation generated in one industry can benefit multiple other industries, confuses the measurement of innovation (Kline & Rosenberg, 2010).

Although innovations are mainly assumed to be positive as they are called a failure not being successful, Hella Jongerius lamented: “People are tired of innovation and design. They're waiting for meaningful objects. Things you get attached to.” (Cited in Oosterling, 2009, p.15).

The definitions about social innovation also differ depending on what we understand from the “social” in “social innovation” and what we attribute, whether values, needs, well-being, impact or improved relations to it (TEPSIE, 2014). The

word social can be used to describe social motivations or intentions, social sector as a legal category, social problems and social impacts (Phills et al., 2008).

Heiskala (2007) defines innovation as an idea, object or pattern that is perceived as new and that changes social practices to achieve an improved social and/or economic performance and also emphasizes the context specific nature of innovation and associates positive meaning to it. On the other hand, Howaldt and Schwarz (2010) describe innovation as “deliberate interventions designed to initiate and establish future developments concerning technology, economics, and social practices”. In their definition of innovation, there is no normative attribution, meaning that innovation can end up with undesired and unintended consequences.

The sociological perspective studies the social innovation with regard to social practices and structures that lead to social evolution and social change (Choi & Majumdar, 2015). Nicholls and Murdock (2012) in their historical analyses of macro-level innovation, claim that five waves or ages can be distinguished from one another with regard to their disruptive technology as:

- The Industrial Revolution (1771–1829)
- The Age of Steam and Railways (1829–75)
- The Age of Steel, Electricity and Heavy Engineering (1875–1908)
- The Age of Oil, the Automobile and Mass Production (1908–71)
- The Age of Information and Telecommunications (1971–).

and they suggest Social Innovation as the sixth wave or age of macro-level change which gives analytical primacy to systems and processes of change in social relations and to innovation of goods and services that cater social and environmental needs which market failed to address. They argue that social innovations can be as “disruptive and influential” as the technological and economic waves. Hochgerner (2011) also argued that besides technological and economic innovations, social innovations as well could be understood as components of change.

According to Phills et al. (2008) social innovation means “a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals (p.36). As Howaldt and Schwarz (2010) stated the innovation

takes place at the level of social practice rather than in the medium of technical artifact and they defined social innovation as “new combination and/or new configuration of social practices in certain areas of action or social contexts prompted by certain actors or constellations of actors in an intentional, targeted manner with the goal of better satisfying or answering needs and problems than is possible on the basis of established practices.” (p.21). On the other hand the social innovation definition of Kesselring and Leitner (2008) is as follows: “ Social innovations are elements of social change that create new social facts, namely impacting the behavior of individual people or certain social groups in a recognizable way with an orientation towards recognized objects that are not primarily economically motivated.” (cited in Howaldt & Schwarz, 2010, p.23). Heiskala (2007) with an institutional structure change perspective remarked that “social innovations are changes in the cultural, normative or regulative structures [or classes] of the society which enhance its collective power resources and improve its economic and social performance” (p.74). Hochgerner (2011) included roles, relations, norms and values as categories of social innovation, in addition to products, processes, marketing and organization which are emphasized in the techno-economic perspective of innovation. Heiskala (2007) while defining social innovation from the point of view of Giddens’ structuration theory, suggested seven types of structures: (1) the structure of the natural environment, (2) demographic structure, (3) technological structure, (4) economic structure, (5) regulative structure, (6) normative structure and lastly (7) cultural structure. He stated that the first two types are the conditioning structures and the remaining five are related to innovation. According to him, aside from techno-economic structures, the last three mentioned structures essentially form the realm of social innovations and considering the fact that social reality is complex, he admitted possible combinations of above types. According to Parsons’ structural function theory, four necessary basic functions: role, collective, norms and values affect the system as social components (Hochgerner, 2011). The effect of changes can be at a small scale on the individuals or at a large scale on the social structures, forming the entire spectrum of social innovations that guarantees the survival of enterprises through maintenance of stability by adaptation (Hochgerner, 2011). This extended typology of innovations surpasses the economy to comprise the state and third sector including civil society (Hochgerner, 2011). As shown in the Figure 4, while the material environment is easier to change with

innovations, the change becomes more difficult from outside to the core when the normative structures in social innovations are concerned (Hochgerner, 2011).

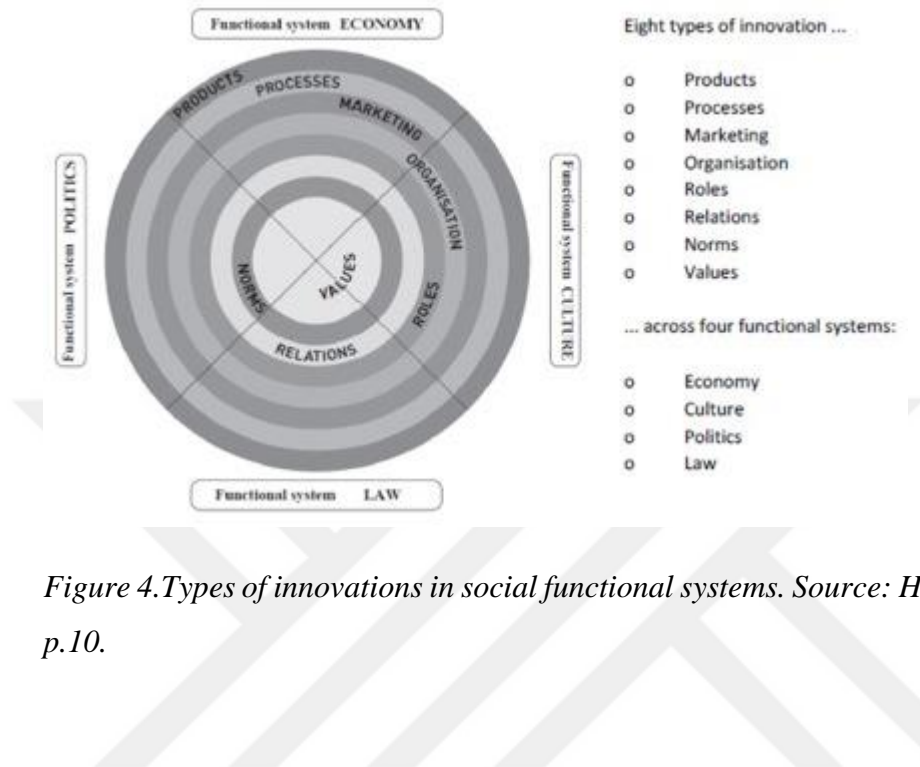


Figure 4. Types of innovations in social functional systems. Source: Hochgerner, 2011, p.10.

Innovation permeated the daily life practices more with its social aspect emphasized. There is a need to delineate the difference between social innovation and social change. The accelerating change increases the importance of social innovation. Social innovations, not exactly being the social change itself, are a component of it and they interactively connect sociological reflection to social action (Howaldt & Schwarz, 2010). People either react to the unmet social needs with unguided opposition and resistance or they cooperate for a targeted action. Social innovation, unlike social change consists of planned and coordinated actions. Galbraith stated that focused movements had more political power as there is a negative correlation between the number of goals and the political power of a social movement or an interest group (cited in Hamalainen, 2007).

The subject matter and aim of social innovation as a targeted action, comprise the innovation of social interaction, forms of transportation and behavioral patterns (Howaldt & Schwarz, 2010). Should the economic utility be disregarded in social innovation has been a matter of discussion. While Kesselring and Leitner argued that

social innovation should not bear economical motivation, some accepted that it should not be a point of concern as long as there is a change in the relationship of actors and their behavioral practices (Howaldt & Schwarz, 2010). Sharra and Nyssens (2010) stated “social innovation cannot be a byproduct or a side-effect of a process or outcome the primary purpose of which is personal enrichment” (p.6).

3.1 Social innovation and social entrepreneurship

Social innovations besides being good for the society, enhance the individuals’ capacity to act (Huysentruyt et al., 2013). Supporting the conditions that produce solutions to social problems is necessary (Phills et al., 2008). As Hamalainen (2007) put it new ideas need a vanguard. Social entrepreneurship plays an important role in the emergence of social innovation. Having a clear definition of entrepreneurship first is a prerequisite of understanding what social entrepreneurship is (Martin & Osberg, 2007).

In the early literature, the entrepreneur was defined as the one who starts up and/or runs a new small business, acting with the primary role of seeking a profit (Mort, Weerawardena & Carnegie, 2003). The need to differentiate an entrepreneur from a small business owner (Carland, Hoy, Boulton & Carland, 2007) led many researchers to refine the subject. Cunningham and Lischeron (1991) categorized entrepreneurship under six schools of thought depending on their underlying set of beliefs as (1) the ‘Great Person’ School of Entrepreneurship, (2) the Psychological Characteristics School of Entrepreneurship, (3) the Classical School of Entrepreneurship, (4) the Management School of Entrepreneurship, (5) the Leadership School of Entrepreneurship and (6) the Intrapreneurship School of Entrepreneurship.

The ‘Great Person’ School of Entrepreneurship dealt with the question whether the entrepreneurs were born or made. The not so elaborate, simple to understand common sense theory defined the entrepreneur with most valued, innate traits such as being intuitive, vigorous, persistent, perseverant, motivating, visionary, intelligent, physically attractive, sociable, diplomatic, articulate and having self-esteem and strong strives for independence and success (Cunningham & Lischeron, 1991).

The Psychological Characteristics School of Entrepreneurship focused on the unique, learned and internalized values and attitudes of entrepreneurs toward work and

life. They stated that personal values such as honesty, duty, responsibility and ethical behavior; sensible risk-taking tendency and industriousness, the need for achievement were the common personality characteristics of entrepreneurs. They also believed that the entrepreneurs cannot be trained in schools (Cunningham & Lischeron, 1991).

The Classical School of Entrepreneurship was concerned with the undertaking of a venture, entailing risk, creativity and innovation and made the distinction between a manager and an entrepreneur (Cunningham & Lischeron, 1991).

The Management School of Entrepreneurship suggested that entrepreneurs were the ones who organized or managed an undertaking, taking risks to make a profit. They argued that entrepreneurs could be developed and trained at classrooms as entrepreneurship was assumed to be a series of technical, learned managerial activities (Cunningham & Lischeron, 1991).

The Leadership School of Entrepreneurship emphasizing the non-technical side of management school, stressed the motivational aspect of exciting other people to join a cause as a leader or mentor and making that vision the reality by institutionalizing it (Cunningham & Lischeron, 1991).

The Intrapreneurship School of Entrepreneurship stated that entrepreneurial skills would be used within the existing organization to overcome lack of innovativeness and competitiveness (Cunningham & Lischeron, 1991).

While the supporters of traditional school of entrepreneurship focused on the traits of the individual entrepreneur, another group of researchers argued in favor of the firm-behavior model of the entrepreneurship (Mort et al., 2002).

According to Dees (2001) “social entrepreneurs are one species in the genus entrepreneur” (p.2). There is no agreed upon, precise definition of the construct of social entrepreneurship (Martin & Osberg, 2007; Mort et al., 2002; Peredo & Mclean, 2005; Tan, Williams & Tan, 2005). According to Peredo and McLean (2005) the presence of social goals in the purposes of an undertaking is what it makes that undertaking a social entrepreneurship. However, with this loose definition including all socially beneficial activities, the essence of concept might be lost (Martin & Osberg, 2007). Peredo & McLean (2005) argue a social entrepreneur creates a social value of some kind by recognizing and exploiting opportunities, employing

innovation, taking risks and refusing to be discouraged by limitations in available resources. Mort et al. (2002) also added balanced judgment and steadiness of purpose to the multidimensional construct of social entrepreneurship. Chahine (2016) defines the social entrepreneurship as “the process by which effective, innovative and sustainable solutions are pioneered to meet social and environmental challenges” and the social entrepreneur as “someone who designs and implements an intervention, product or service that improves the well-being of marginalized individuals or populations” (p.2).

It has been debated whether the organizations seeking profit should be considered as social entrepreneurs. For some organizations creating a social value is at the top of the priority list, while for some others it might take place at further down the list of the organizational objectives. Some organizations simultaneously seek social and financial gains, like in the case of “cause branding”. However, most of the social entrepreneurship cases comprise not-for-profit organizations (Peredo & McLean, 2005; Tan, Williams & Tan, 2005). The social entrepreneurs, taking pride in their achievements, try to spread the good things that they have accomplished (Peredo & McLean, 2005). Social entrepreneurship can be exercised by individuals as well as by teams and groups of people. The roles can be split and/ or shared to contribute to the welfare or well-being in a given community (Thompson, 2002).

Nicholls and Cho (2006) argued that the boundary between structure and agency is blurred by the acts of institutional entrepreneurship (cited in Nicholls & Murdock, 2012, p.2). According to Heiskala (2007) actors reproduced structures through their own actions and there are five alternative sources of societal reproduction: (1) traditional action, habit, (2) forced cooperation, violence, (3) charismatic leadership, the sacred, (4) economic action, market calculation and (5) political regulation, formation of coalitions. He also admitted that actors are not totally free in societies which are structured totalities of action with enabling and constraining characteristics. People are shaped by the organizations that they shape (Buchanan, 2016).

Heiskala and Hamalainen (2007) emphasizing the importance of systemic adjustments, argued that the enlarging gap between the rapidly changing techno-economic subsystem and the slowly adjusting socio-institutional subsystem, harms the

economic performance and social welfare. Social innovations reforming the welfare state (Nicholls and Murdock, 2012), help the transformation of power structures across social relations to ameliorate the ineffective and unequal allocation of goods and services (Moulaert, 2009) and improve the collective resources of communities (Heiskala, 2007). “Social innovations in organizations, policies, rules and regulations, as well as in collective norms, values and cognitive frames, are needed to complement the more traditional technological and economic innovations in order to reach systemic synergies, rapid productivity growth, increasing returns and steadily growing incomes.” (Heiskala & Hamalainen, 2007, p.2).

The LEED Forum on Social Innovations comes to the conclusion that social innovations are for the improvement of the welfare of the individuals and the communities by dealing with new relationships with stakeholders and territories and implementing changes in concepts, processes, products, organizations and financing in an attempt to find new solutions to the social problems (TEPSIE, 2014).

Mulgan (2007) prefer the simple definition of innovation “the new ideas that work” among the many complex ones and they define social innovation as “innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organizations whose primary purposes are social” (p.8). Social innovations, not motivated by profit maximization, differ from business and technological innovations. The broader social innovation definition of Manzini (2014) is as follows: “Social innovation is a process of change emerging from the creative re-combination of existing assets (from social capital to historical heritage, from traditional craftsmanship to accessible advanced technology), the aim of which is to achieve socially recognized goals in a new way.” (p.57).

TEPSIE, a research project funded by the European Union under the 7th Framework Programme and is an acronym for “The Theoretical, Empirical and Policy Foundations for Building Social Innovation in Europe” defines social innovation as: “new approaches to addressing social needs. They are social in their means and in their ends. They engage and mobilize the beneficiaries and help to transform social relations by improving beneficiaries’ access to power and resources.” (TEPSIE, 2014, p.4).

3.2 Design, design thinking and social innovation

Social innovation begins with the awareness of a need not being met and identification of solutions for the fulfillment of them (Mulgan, 2007). Actually unmet needs and dissatisfaction with the current state is also the beginning of a design process (Razzouk & Shute, 2012). Innovators step in when the state is inefficient and ineffective or the market is reluctant (Mulgan, 2007). The second stage of social innovation is developing, prototyping and piloting these ideas. The social innovators, being highly motivated, start an embryonic organization for quick prototyping and testing. In the third stage, a practice proven idea is scaled up through organic growth, replication, adaptation or franchising. The absence of effective demand and the weaknesses of capacity can hamper growth. Learning and evolving is the last stage in innovation (Mulgan, 2007).

On the one hand social innovation can be incremental or radical depending on the nature of change with regard to existing ways of thinking and doing things and on the other it can also be top-down or bottom-up depending on where the change starts (Manzini, 2014).

Social tension accrues due to the marginalization and exclusion of some segments of the society such as the unemployed, the elderly, the women, the non-educated, the young people, the immigrants and the LGBT. For a more sustainable and cohesive society, social innovation utilizes inclusive practices, coproduction and proactive grassroots initiatives to turn social challenges into opportunities to address the basic societal needs and demands of the society's most vulnerable groups (Grimm et.al. , 2013). There is always a need for policies to tackle inequality and social exclusion. Social innovation helps integrating the marginalized groups into the social and economic life but should social innovation be restricted to the improvements in the living conditions of the vulnerable groups or extended to contain the human kind.

An object of design was grasped through its intrinsic materiality and aesthetic, symbolic aspect. The design has been extended from the objects of daily life to many other contexts such as cities, nations, cultures, genes etc. What can be designed is limitless, when the comprehension and the extension of design is considered (Latour, 2008). According to Morelli (2007) majority of the designers assumed their social

roles to be complementary to business strategies but there is a need to shift the perspective of design to address the social problems brought about by globalization. Kiem (2011) emphasizes the insufficiency of the critical literature regarding the role of design in social innovation.

Although Buckminster Fuller mentioned about the limited resources and the impact of material production on the environment in his teachings in the 1960s, Victor Papanek is the person who in his 1985 seminal work “Design for the Real World: Human Ecology and Social Change” first gave the in-depth critique of the design profession in its role related to increasing consumption and its associated ecological and social degradation issues (Ceschin & Gaziulusoy, 2016). There is a need for the exploration of new areas in design, leaving the unsustainable practices behind as design professionals (Chick, 2012). Fuad-Luke (2009) posed the question whether the creation of well-being rather than the goods of services, be a new purpose of design.

The critical self-definition of design included themes such as the role of craft in design, the indistinct relationship between design, art and avant-garde and the ethical and social responsibility of the designer. While in the early phases design was within the designer as an individual, in the following phases it was in the space between disciplines and in between the producer and the consumer (Oosterling, 2009). The main focus of traditional designers has been to improve the look and functionality of the products (Brown & Wyatt, 2010). Kiem (2011) stated that power and politics are evaded in the theory of design for social innovation.

Design which had ambiguous meanings grown in complexity with the lapse of time. Buchanan (2016) mentions about the evolutionary aspect of design from graphic and industrial design to interaction design and finally to the design of systems, environments and organizations in his Four Orders of Design.

Ceschin and Gaziulusoy (2016) speak of the evolution of Design for Sustainability categorizing the design approaches under four innovation levels: Product, Product Service System, Spatio-Social and Socio-Technical System. The focus on the product and the technical aspect evolved and expanded to include large scale system level changes and the Design for Sustainability is regarded as a socio-

technical challenge (Ceschin & Gaziulusoy, 2016). Sangiorgi, Lee, Sayar, Allen and Frank (2016) review the evolution of the understanding of service, design and users.

First the focus was on the individual product and the green design practice, bearing the waste hierarchy reduce-reuse-recycle in mind, sought ways to minimize materials used, to reuse the components, to replace virgin materials with recycled ones, to avoid toxic materials and to use renewable energy (Ceschin & Gaziulusoy, 2016) Eco-design slightly differed from green design with its focus on the life-cycle of the products. The sole focus was on the environmental performance, not taking the social impacts into consideration in the life-cycle assessment. Although the lifespan of products were extended technically, the psychological obsolescence deemed analyzing user-product relationship necessary and this led to emotionally durable design and design for product attachment. The fact that users' behavior can have an impact on the environment depending on their interactions resulted in Design for Sustainable Behavior (Ceschin & Gaziulusoy, 2016). Nature-inspired design models include cradle-to-cradle design and biomimicry design. The designers started to focus on the poor suffering access to basic services. Designing for the Base of the Pyramid started with BoP as consumer and then evolved into BoP as producer, where the poor people were regarded as business partners. According to Sangiorgi et al. (2016) first there was a Goods Dominant Logic where the value was embedded within goods to be exchanged at the point of delivery.

Although improvements in the products and production processes are necessary, the researchers focused on innovating Product Service Systems, delivering functions instead of products. Economic value was decoupled from material and energy consumption. PSS design for the base of the pyramid focused on low-income context (Ceschin & Gaziulusoy, 2016). The users were considered as "experts of their own experiences" rather than as passive recipients of products and service offerings in Service Design (Sangiorgi et al., 2016). However, the shift from a Goods Dominant Logic to a Service Dominant Logic where the value was co-created in the context of use with and by clients was different from Service Design where the change was only the object of design being services instead of products (Sangiorgi et al., 2016). The users' role is not just limited to the provision of information for the design process but

extends to take part collaboratively in the anticipation and experimentation of possible futures using design tools (Sangiorgi et al., 2016).

In the spatio-social innovation level of design for sustainability Ceschin and Gaziulusoy (2016) include social innovation and systemic design. Finally in the socio-technical innovation level there is a need to link micro-innovation with macro-innovation as this a design for systems innovations and transitions with a very broad scope (Ceschin & Gaziulusoy, 2016).

A designer is modest, attentive to details, precautious, skilled, and involved with meaning besides being ethical and political, and aware of the fact that nothing is done from scratch as everything designed is destined to be redesigned owing to their transitory nature. Objects being assemblies, or “gatherings” in Heidegger’s terms, are a clever form of bricolage. As “matters of fact” becomes “matters of concern” everything becomes an object of design (Latour, 2008). Bjorgvinsson, Ehn and Hillgren (2010) also state “what is being designed- a “thing” (object or service) or a “Thing” (socio-material assembly that deals with “matters of concern”) is a major challenge (p.41). As Ramlau (2004) has stated the design activity which was considered to be an added value, extends to be a core value. So, design is embodied in everything and stands at the very heart of our relatedness, whether we are design-conscious or not. As Buchanan (2016) put it our organizations are the products of our action or inaction. How aware we are of the transformative role of design thinking and how every constituent member of an organization even not being of the design profession can benefit of the design thinking immanent in each of them to contribute to the change process. There is a need to integrate design early in the development process rather than involving it as a styling activity in the end (Ramlau, 2004). Despite the fact that design thinking is criticized for being limited in its application, it adds value to the innovation process creating knowledge by the inclusion, motivation and empowerment of the participants and allowing a shared understanding to evolve through practical learning (Docherty, 2017).

To have a clear understanding of design thinking, there is a need to explore many divergent meanings of design in theory and practice (Buchanan, 2016). Design thinking can help the social enterprises to be more innovative (Douglas, Rogers & Lorenzetto, 2014). Design thinking involves experimenting, creating and prototyping

models, gathering feedbacks and redesigning, as an analytic and creative process (Razzouk & Shute, 2012). Owen (2007) argues design thinking is as important as science thinking with its contributing value to decision making. According to him creative people either work as “finders” or as “makers”. While finders are driven to understand and explain ambiguous phenomena by exercising creativity through discovery that is oriented toward analysis, the makers who are equally creative, are driven to form their knowledge in new constructions, arrangements, patterns, compositions and concepts through invention, that is oriented toward synthesis (Owen, 2007). Tackling problems innovatively requires skills both to analyze and synthesize. Hatchuel and Weil (2009) think the space of concepts and space of knowledge are interdependent with their different structures and logics. Design expands a partially unknown object into other concepts and/or new knowledge as a reasoning activity (Hatchuel & Weil, 2009). Design thinking is an iterative and interactive process with an ongoing modification and is about the way designers see and think (Razzouk & Shute, 2012). Design activity has an opportunistic nature and unexpected discoveries play an important role in the process (Razzouk & Shute, 2012). Design thinking, having a human-centered approach to problem solving, involves imagining future scenarios (Kimbell, 2011). Docherty (2017) also underlines the role of design thinking for exploring possible futures and defines it as a process and a mindset. Buchanan (2016) argues on the one hand design thinking is related to the imaginative act of the mind, turning a new possibility into a concrete reality and on the other hand it is cognitive processes of the brain of the designer. The meaning of design thinking is sometimes extended beyond the designer as an individual to the qualities of the whole culture of an organization or a society and sometimes refer to creative inquiry (Buchanan, 2016).

Owen (2007) admitting that creativity has a major importance for design thinking adds some other characteristics to it such as conditioned inventiveness, human centered focus, environment-centered concern, ability to visualize, tempered optimism, bias for adaptivity, predisposition toward multi-functionality, systemic vision, view of the generalist, ability use language as a tool, affinity for teamwork, facility for avoiding the necessity of choice, self-governing practicality and ability to work systematically with qualitative information. Environmental interests are considered as primary constraints besides the human interests and sustainability has

become part of design thinking process (Owen, 2007). Since design thinking requires working in an optimistic and proactive way, it is an indispensable skill for doing better. Kimbell (2011) argues design thinking embraces all that is good about designerly practices.

Joseph Schumpeter as one the early thinkers on innovation, has delineated its difference from invention and its widespread use through the entrepreneurs' ability to get things done (Schumpeter, cited in Wylant, 2008, p.4). When speaking of the designers' role, Manzini (2014) states that "making things happen" is the most concise expression. There is a cognate nature between design and entrepreneurial activity.

Design helps people, who are individuals with capabilities, to be aware of and to get related to the production process as co-producers, and to transcend their consumer role with meaningful local activities linked to the vision (Manzini, 2014)

Manzini (2014) speaks of three strategic design activities in the top-down approach: (1) spotting the real problem and the social resources such as people, communities and their capabilities vital for its solution, (2) recommending organizational and economic structures for the mobilization of these resources and (3) forming and communicating an overall vision to guide and to connect various local activities.

Everyday life innovations challenge mainstream ideas about how to solve problems. "Creative communities" composed of diverse social actors, follow consciously or not, design-led processes in their bottom-up efforts to find solutions. Professional designers can be involved in these design activities either designing with or designing for communities (Manzini, 2014). In designing with communities, the designer assuming an equal status with other actors, acts as a facilitator in bringing them together for shared ideas and potential solutions. In designing for communities, the designer conceptualizes and develops solutions after assessing the weaknesses and strengths of certain types of collaborative service and intervenes in the context of service for the sake of favorability, accessibility and effectiveness (Manzini, 2014). Social innovation is the result of various complex interactions, comprised of bottom-up and top-down hybrid processes. The increase in the scale of change demands a more hybrid nature (Manzini, 2014).

John Thackara, the director of the Netherlands Design Institute stated: “...Design for sustainability means fostering innovation - not just in products and services, but in work methods, behaviors, and in business processes. This takes designers into uncharted territory; they need new tools, new skills, new understanding...In its original use, an ‘entrepreneur’ was someone who brings people together. Eternally Yours exemplifies the entrepreneurial spirit we all need to develop in tackling the many challenges that stand between us and sustainability.” (Van Hinte, 1997, p.15). Buchanan (2016) states “entrepreneurship and design are names for the same enterprise” and speaks of extension of design into organizational culture (p.5).

Danish Design Center developed a framework called Design Ladder to measure the level of design activity adopted by a company as shown in Figure 5. Four stages of design involvement: (1) no use of design, (2) design as styling, (3) design as process and finally (4) design as strategy have been depicted. The survey examining the design investments of 1,500 Danish companies helped to provide solid economic data. They found out that promoting design paid off and the higher the company is placed in the Design Ladder, its gross revenue was better (Ramlau, 2004). Nussem, Wrigley and Matthews (2017) also underlining the importance of design activity for the organizational success and competitiveness in various contexts, expressed the need for fostering organizational design capability for the attainment of desired outcomes in nonprofit contexts and formed a Nonprofit Design Ladder as depicted in Figure 6.

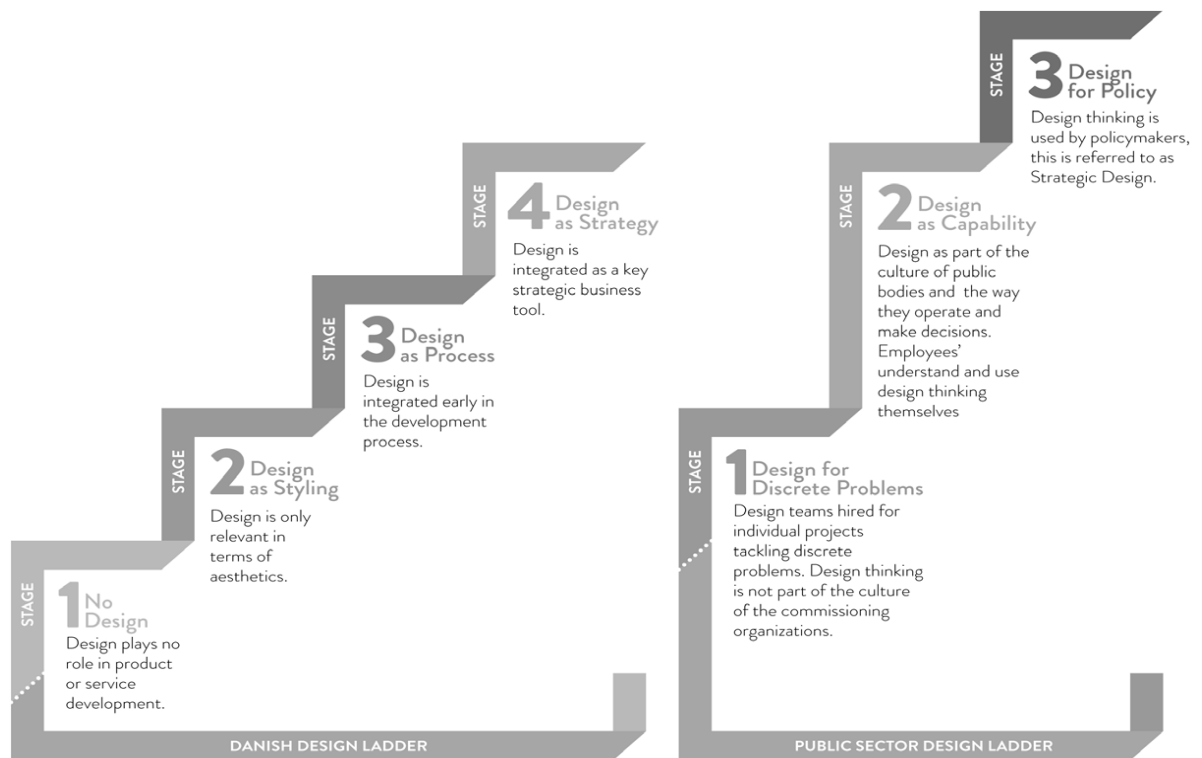


Figure 5. Danish Design Ladder and Public Sector Design Ladder. Source: Nusem, Wrigley & Matthews, 2017 p.64. Adapted from Ramlau and UK Design Council et al.

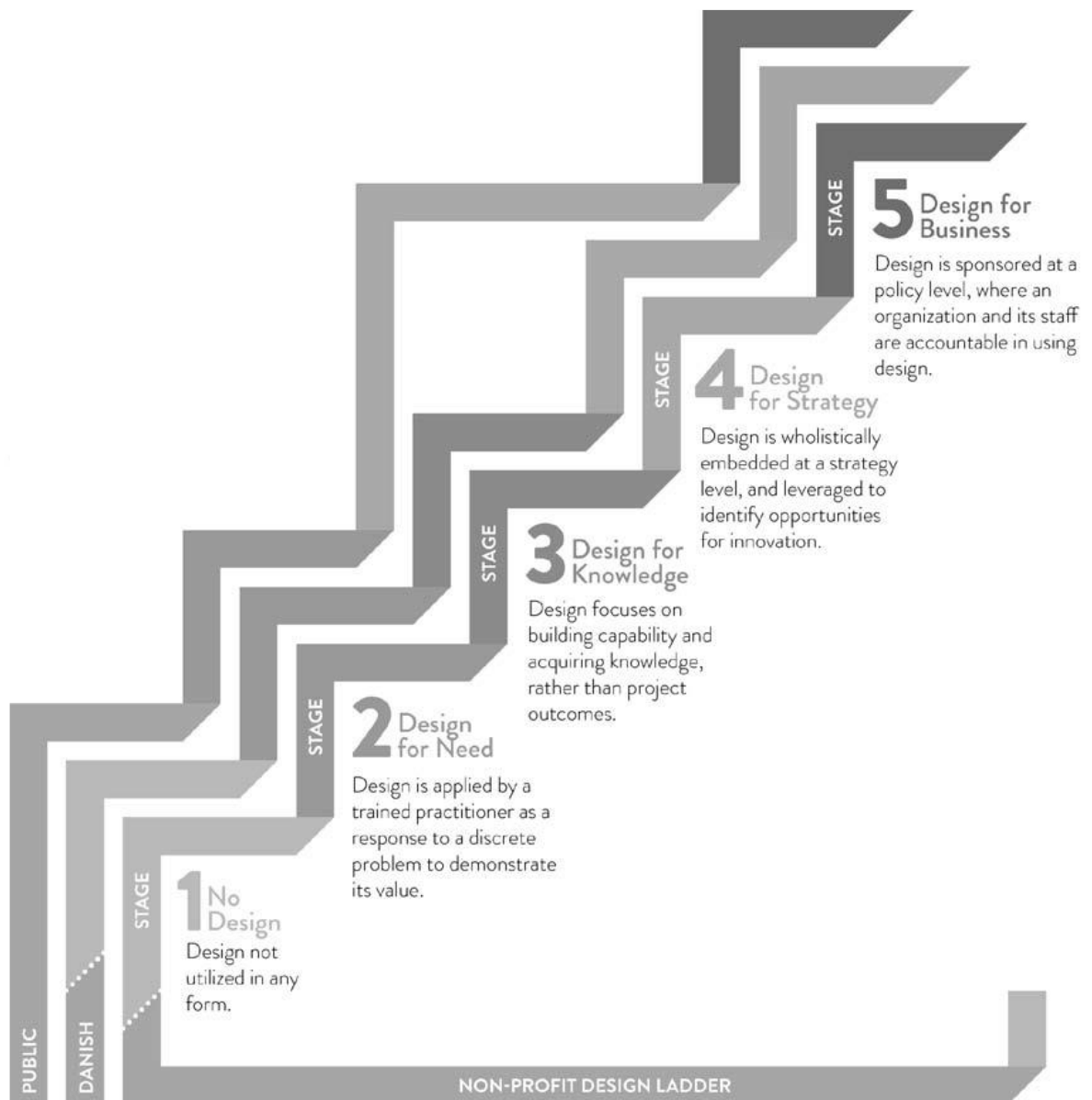


Figure 6. Non-profit design ladder. Source: Nusem, Wrigley, & Matthews, 2017, p.73.

Kimbell (2011) expressed that “the ways professional designers problem-solve is of value to firms trying to innovate and to societies trying to make change happen” (p.285). Design thinking and developing design capability in organizations is essential for social innovation. While developing a social model of design Margolin and Margolin (2002) point out to the education of social designers who should be more aware of the social needs.

3.3 Challenges and barriers to social innovation

For a successful social innovation understanding the barriers and trying to remove them is crucial. Resistance by vested interests is one of the greatest obstacles to social innovation. Phills et al. (2008) argue that the sectors are isolated in themselves unless they converge to exchange ideas and values to cross-fertilize each other. Recently, inter-sectoral learning and sharing processes ameliorated and led to the emergence of social innovations. They also mention about the shifting of roles and relationships in the sectors as nonprofits trying to tackle societal challenges join forces with socially responsible businesses and governments that has evolved from traditional, antagonistic roles of regulator and taxpayer into the collaborative roles of partner and supporter (Phills et al., 2008).

Other factors that hamper the development and growth of social innovation are limited access to finances, poorly developed networks and intermediaries and limited skills and support structures (TEPSIE, 2014). According to Janus (2018) fundraising is the greatest challenge for the NGOs that have great ideas that cannot be applied at scale. Although the conventional approach is based on the view that the NGOs should not focus to a dominant funding source and seek the diversification of fundraising sources such as foundational and individual donors, government grants and earned revenue until they grow to a certain scale, the analysis of the successful cases show the experimentation of hybrid models of philanthropic funding and earned income is essential (Janus, 2018). Prototyping is not just for products and simple, low-cost fundraising alternatives can be tested with end-users through researches conducted utilizing human centered design process, communicating with donors. Janus (2018) gives example of a crowdfunding site that had been successful for fundraising and emphasizes the need for experimenting until reaching optimal solutions.

Generating capital flows depend on enhanced cooperation between different actors for the improvement of income sources (TEPSIE, 2014). The number of research about the relationship between social investment and social innovation is limited and needs further exploration (TEPSIE, 2014). The challenges can be analyzed in three categories: environmental challenges; underlying challenges and actor-related challenges (TEPSIE, 2014). Lack of finance, non-financial resources and networks, difficulties of adopting an open innovation paradigm and lack of capacities and competencies are all problems NGOs face.

Measuring social innovations is vital for the development and promotion of the field, as the policy makers need to know the scale, scope and impact at the macro level (TEPSIE, 2014). There is a need for the collection of broader data for the establishment of more profound measurement systems. Social Return on Investment (SROI), Social Reporting Standard (SRS), Social Cost Benefit Analysis (SCBA) and Randomized Control Trials (RCTs) are suggested for measuring social innovations (TEPSIE, 2014).

The concern for the disruption of efficiency, people's interests in the preservation of the status quo, a social system entrenched within minds of the people in the form of assumptions, values and norms and the stabilizing factor of personal relationships are barriers to change and innovation (Mulgan et al., 2007).

Another challenge is getting the public engaged. Citizen engagement is an important component of social innovation (TEPSIE, 2014).

Knowing what works is also a big challenge. ZSI in its definition of social innovation emphasized that the new concepts and measures for solving social challenges should be accepted and utilized by the social groups affected (Hochgerner, 2011). As social innovation is just more than a novel idea, knowing what works is essential for its successful implementation and dissemination. There are many tools for the evaluation of social innovation to find out what works.

Positive Deviance is both a theoretical concept and a practical strategy (Herington & Van De Fliert, 2017). Some form of deviance, any violation of the norm, is the beginning of social change (Durkheim cited in Herington & Van De Fliert, 2017, p.2). Positive Deviance employs a practical method of observing the uncommon behaviors and strategies that help certain individuals or groups in communities to

succeed against all odds and to come up with better solutions as successful exceptions (Herington & Van De Fliert, 2017). It taps the local wisdom to promote social change from the inside out, leveraging it for global impact (Positivedeviance.org.) and is a useful method for clearing out what works in tackling pervasive social problems with a shared resource base.

Another issue is scaling up what works. Although the civil society plays an important and indispensable role in social innovation, when it comes to the scaling up of what works, they lack the mechanisms, the capital the surplus time, the organizational capacity and the growth models (TEPSIE, 2014).

3.4 Centers promoting social innovation

There are many centers promoting social innovation in various countries. Zentrum für Soziale Innovation (ZSI) in Austria which was founded in 1990 and Centre de Recherche sur les Innovations Sociales (CRISES) in Canada formed in 1986 are the oldest ones. The other centers are as follows:

The New Zealand Social Innovation and Entrepreneurship Research Centre (SIERC),

The Australian Centre for Social Innovation, (TACSI),

Waterloo Institute for Social Innovation and Resilience (WISIR),

CHAPTER 4: TİDER, LEADING THE WAY IN THE DEVELOPING TURKISH FOOD-BANKING SYSTEM



Figure 7. Logo of TİDER. Source: Tider.org, n.d.

4.1 TİDER

Discontent with the current ways of doing things, the gap between what there is and what ought to be, trigger social innovations which help to change behavior. Michael Young who believed in the convincing nature of practical activity, helped people to see how a small change could make things work differently and act as a leverage (Mulgan, 2007). Social innovation provides replicable models and programs. Sustainable design thinking plays an important role in the social innovation process and social entrepreneurship is nonexpendable in its implementation. Although the sustainable design thinking, social innovation and social entrepreneurship can play a transforming role in a variety of important organizational settings, the study has been limited to the context of TİDER, a non-profit organization in food banking field, the logo of which is depicted in Figure 7. A qualitative approach has been chosen and a single case study preferred. Although case study methods bear some disadvantages, they are useful in exploring and understanding complex social issues and give more room for actors' perspectives (Zainal, 2007). Circular economy, sustainability, design thinking, social innovation and social entrepreneurship are all complex with their multifaceted, interdisciplinary, cross-boundary, cross-scale and contested nature. Brown and Micheal (2003) arguing that the future needs to be analyzed as an object mention about the way future once represented, people's memories of the future (retrospecting prospects) and what people do with these recollections, the

incorporation of past futures into the real-time construction of future (prospecting retrospects). Narratives are important to examine and understand the forms of action and agency through which the future is constructed (Brown & Micheal, 2003). TİDER, as an important actor, is engaged to play an active role in the transformation of food-banking in Turkey, and with the belief that stories can help represent TİDER, interview method is preferred. These modest, contributing stories of the various actors within TİDER would form “the past futures” to refer back to in the further analyses about the evolution of food-banking in Turkey, to see what the expectations were in connection to the current reality.

According to World Resource Institute one third of all food produced worldwide is wasted along the supply chain which amounts to \$940 billion annual economic loss (“32 major”, n.d.). Target 12.3 of the Sustainable Development Goals (SDGs) not only aspires to halve per capita global food waste at the retail and consumer levels, but also aims to reduce food losses along production and supply chains by 2030 (“32 major”, n.d.). As mentioned beforehand food security takes place among the societal challenges addressed by Horizon 2020. The Food Loss and Waste Protocol, a multi-stakeholder partnership has developed the global Food Loss and Waste Accounting and Reporting Standard, simply known as FLW Standard to help measuring and managing food loss (“About the FLW”, n.d.). The losses occur near production in developing regions but in the developed regions they occur near consumption (“About the FLW”, n.d.). The Food Waste Atlas helps building awareness of the food lost and wasted in the food supply chain (“Frequently asked”, n.d.).

TİDER as a non-profit NGO in the third sector, tries to create solutions to the challenging social and economic problems of vulnerable groups in Turkish society in order to help them fulfill their basic needs, with primary focus on preventing food waste through food recovery by redistributing the surplus food as food aid. The story of TİDER dates back to 2010, when it was first established as Gıda Bankacılığı Derneği (Food Banking Association) by the initiative of nine founding members in the food sector who believed in the power of food banking in tackling hunger and poverty predicament (“Temel ihtiyaç derneği”, n.d.). It supported the flourishing Turkish food banking initiatives by first sharing its knowledge and experience and then funds when

deemed necessary. In 2014, the association decided to change its name as TİDER (Temel İhtiyaç Derneği) which literally means “Basic Needs Association” in Turkish, with the recognition that the inclusion and cohesion of the vulnerable groups in society is a vital and basic need as the food aid. The association with an improved, more sustainable poverty alleviation model, innovatively incorporated recruitment and development processes into its conventional food banking operations to help the disadvantaged people to find jobs suitable for their qualifications. TİDER is the first food banking organization in Turkey and worldwide that integrated human resource support system to traditional food banking operations. The Global Food Banking Network (GFN) gave the first-ever Global Food Bank Innovation Award to TİDER in 2017 for its Support Human Resource Program, Destek İK (“Lifting People out of Poverty”, 2017). Its first retail outlet, named Destek Market which is a product of its innovative, original model was opened in Maltepe district of Istanbul in 2015 and followed by the second one in Bağcılar neighborhood in 2017.

TİDER copes with food waste in the following hierarchy as depicted in Figure 8. The about to expire food surplus is utilized in food banks. The food which is not spoiled but the expiry date is over is channeled to the animal shelters. Finally the food which is not edible by people and animals are recovered for the economy in biogas facilities or as compost.

Waste Prevention Vision of TİDER



Figure 8. Waste prevention vision of TİDER. Source: “Temel ihtiyaç derneği”, n.d.

TİDER has been chosen for the case study for a couple of reasons. Firstly, it has a vision to serve as a functioning, successful and leading, replicable model for the rest of the food-banking organizations in Turkey, to convene them under its exemplary roof. Secondly, it has an important, innovative contribution for circular economy in the retail food sector related to surplus food recovery. Thirdly, many institutional change works are mainly located in the so-called developed world and/ or focuses on powerful actors such as state organizations, large corporations or professional associations (Marti & Mair, 2009), the study of Turkish, TİDER social innovation case can be a contribution to the ones in the developing world by a less powerful, bottom-up civil society actor involving the vulnerable communities in the process. Fourthly, the study of TİDER as a NGO and also a practitioner can contribute to the literature as Nusem, Wrigly and Matthews (2017) has stated the role of design as a capability for change in the not-for-profit organizations are generally overlooked in the design research.

TİDER serves for poverty alleviation and environmental protection by diverting, about to expire food to the deprived people who are in need and mitigates environmental impact with the reduction of food waste. The social entrepreneur tries to tackle the root causes of a problem, rather than its symptoms (Chahine, 2016). While catering for the basic needs of the poverty-stricken people through its retail outlets which are operational in Maltepe and Bağcılar districts of Istanbul, TİDER also delves into the root of those people's social problems by interviewing them during their shopping experience with its human resource specialists. TİDER has developed an innovative human resource support called "Destek İK", enabling these people to be recruited in a work by channeling them to the organizations in need. In these interviews with the shoppers in need, the specialists have the chance to find more about the details of their daily lives and endured hardships and also to learn whether there are disabled family members. Exploring the problems and needs, the association acts as an agent between the vulnerable community and the other social enterprises that can be a remedy in line with their targeted social mission. TİDER, following an incremental approach to poverty alleviation, collaborates with other organizations such as Bebemoss, helping and involving the members of the poor families to engage in income-generating activities, working and producing within their homes. Bebemoss is a social enterprise founded by a social entrepreneur, also a French expat living in

İstanbul, firstly to provide sustainable jobs with fair pay to a community of stay at home refugee and underprivileged mothers to produce toys and secondly to promote and market their handicraft (“Our story”, n.d.). TİDER empowers people, enhancing their capacity to solve their own problems rather than waiting for the government to solve them.

After the devastating mining disaster that culminated with the death of 301 miners officially, non-governmental organizations including TİDER collaborated with İzmir University of Economics to organize a workshop to empower women who are affected from the adversity, through building capabilities with entrepreneurship (Tider.org, 2014a) After the workshop a survey is designed to be carried out among the participants of it, potential sponsors of the project and candidate women producers from the community, to select among the projects that can be implemented (Tider.org, 2014b). The Yırca village of Soma has been chosen as a pilot area and the completed survey revealed soap production project stood out among the other proposed projects. 33 community women out of 60 attending the meeting decided to take part in the soap production pilot project (Tider.org, 2014c). Six thousand olive trees had been rooted up by Kolin for the construction of a thermoelectric power station, depriving the local community of Yırca off their sole agricultural revenue, and making them dependent on collecting coal (Yavuz, 2014) Devastated, local women through the soap production training had a chance to be integrated into the socio-economic life with a sustainable co-created and co-produced solution to their own problems (“Tider Support Project”, n.d.). The local women named their project “Kömürün İsi, Sabunun Misi” signifying their journey story from the soot of the coal collected to the fragrance of the soap produced (Özel, 2014).

Transparency, fairness and sustainability are the core values of TİDER. Every donation in the food-banking system is registered and all stakeholders are informed regularly. The association objectively focuses on the basic needs of the people without discrimination and has developed the necessary auditing, monitoring and evaluation processes to make sure donations are redistributed to the right people who are in need. To ensure the economic sustainability of the association, the established social enterprises aim to generate revenue while creating social benefits. TİDER projects are

designed as structures living, developing and disseminating their broader impact (“Temel ihtiyaç derneği”, n.d.).

There is a need for alliances between the creative, mobile small organizations and individuals and groups and the big, established organizations such as governments, companies and NGOs for the social change to occur and to diffuse (Mulgan, 2007). TİDER acts with a sense of social responsibility for the future and aims to move its marginal practice to the mainstream trying to create the right conditions for diffusion. As the association has the know-how and is recognized as the leader of food banking in Turkey by the Global Food Bank Network, it aims to expand its operations throughout Turkey for a broader social impact rather than opening more retail outlets. The two successfully operating retail outlets in Istanbul serve as a tested and implemented model for scaling out which is indispensable for any successful social innovation.

4.2 The interviews

The association employs 14 professionals as depicted in the organizational chart in Figure 9. Six interviews had been made, three of which lasted more than an hour and the rest just over half an hour. During the course of the study the interviewed general manager of the association quitted the role. An hour long interview has been made with the new general manager of the association as well. Probing questions have been asked to elicit the stories within TİDER, to have an understanding of the role of sustainable design thinking, social innovation and social entrepreneurship. All interviews has been recorded and transcribed for further analysis. The face to face interview with the ex-general manager had taken place in TİDER’s natural setting at their Maltepe office in Istanbul. The face to face interview with the new general manager took place at the Istanbul headquarters of TİDER board director’s privately owned company. The other four interviews with the heads of functional departments were made via phone calls from İzmir to İstanbul after a short preliminary introduction Skype meeting.

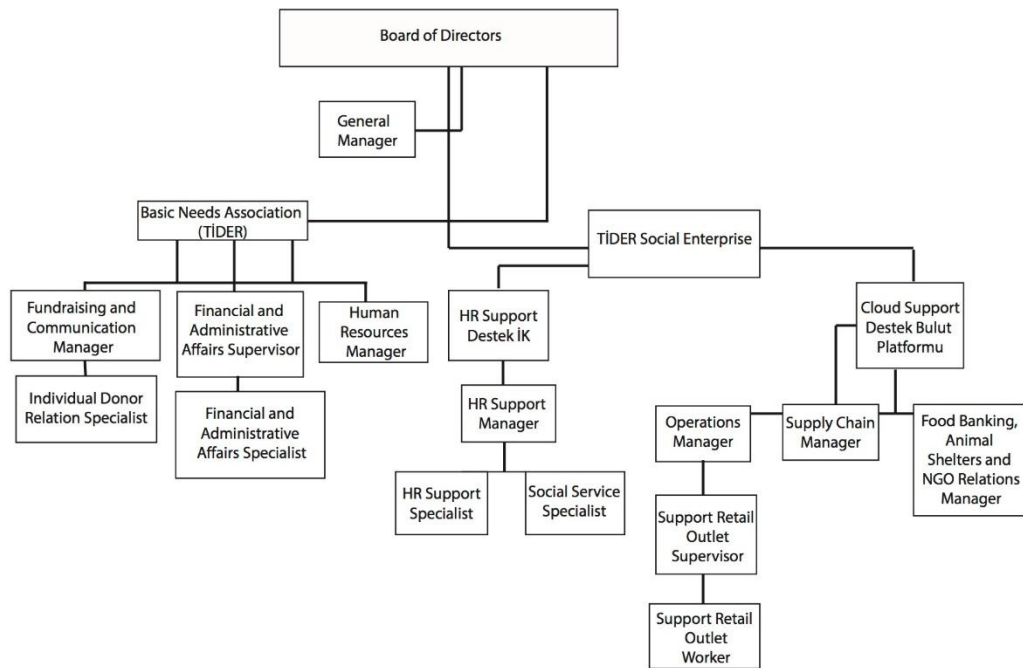


Figure 9. Organizational chart of TIDER. Source: TIDER, 2019.

The tool proposed for an organizational inquiry to help aligning vision and understanding across departments in the article titled “Moving towards Service Dominant Logic in Manufacturing Sector: Development of a Tool for Inquiry” had been an inspiration for this single case study (Sangiorgi et al., 2016). During the interviews various questions has been asked to the interviewees under four defined categories such as the services, the sustainable design thinking, the stakeholders and the vision.

The interviewees were asked to describe TIDER and their role, their daily activities in it under the category of *The Services*. They were also asked about their opinions how the way they do things can be improved, whether TIDER is well-recognized in the public and if not, what more can be done to increase public awareness.

In the second category, *The Sustainable Design Thinking*, the interviewees were asked what the concept means to them and whether they make use of the design thinking process in their daily activities.

In the third category, *The Stakeholders*, the interviewees were asked who the stakeholders of TİDER are, how do they communicate and interact with them and what kind of information do they gather from them.

In the last category, *The Vision*, the interviewees are asked how they envision TİDER in the future, what the role of sustainable design thinking, social innovation and social entrepreneurship is in this vision and how they handle change at TİDER.

4.3 Outcomes

The ex-general manager of TİDER indicated how Cloud Support (Destek Bulutu) innovatively made the food-banking processes more efficient. The food donations entered into the system by the donating companies can be simultaneously followed by the food-banks incorporated into the system. This facilitating communication platform had been designed outside TİDER and integrated to the system. She also mentioned about the positive change in the sector compared to the past. She said beforehand it was taking great effort to convince people but in time the awareness about zero waste has increased in the public sector and they have evolved to a stage where the municipalities themselves inquire about the food-banking know-how. She referred to the negative implications of the corruption events that occurred in some charity organizations in Turkey. She emphasized the importance of certain values such as transparency, accountability, accessibility and fairness to build confidence in the donors.

Interviewee A, who is in charge of Destek İK (HR Support) stated that the process has evolved with the inclusion of the individuals. The dialogue with the families helped them to refine their recruitment process as they realized that some people did not want to be employed as they feared losing the social benefits they got from the various public authorities accruing more than the amount they are entitled to have working for a minimum wage job with social security. The process helped them to find out that women were more willing to work compared to men. The HR Support program linked to food banking operations which is rather innovative and sustainable in nature did not work effectively as expected due to the reluctance of the disadvantaged groups preferring being dependent on effortlessly gained public aids that promote unsustainable solutions by public policy. Having stayed out of work-life

for a long period of time, the people had very low self-confidence. Despite the fact that they reached almost seventy eight thousand people with donations, the number of people employed within four years is limited to eighty-two people, which is rather a low percentage (TİDER, 2019). As the interviewee declared, the Bebemoss micro-entrepreneurship project involving women in the production of handicrafts had been more effective when the number of fifty women employed in a two months period is concerned. The women were more motivated as they yearned for the means to care for their children and provide them with a better future. The integration of women into work-life had positive effect on their social lives, as the men recognizing the women earning and contributing to the family income had started assuming more helpful roles within the family. As earlier discussed in the literature reviews, the social innovation is not just limited to the technical issues like HR Support, it is also present in processes leading to change in social relations and values. According to the before mentioned Parsons' circular chart of functional systems, the values standing at the core are the most difficult to change and resistant to innovations. The findings display how social innovation plays an important role at the family level to trigger change in the values. An innovative approach when combined with social entrepreneurship culminates in social cohesion, benefiting the well-being of the communities. Being aware of their limited social and financial capital, the association sought productive partnerships with other enterprises whether social or mainstream to create impact. The interviewee expressed their intention to focus on more micro social entrepreneurship projects similar to fruitful Bebemoss project and indicated they are working on a project with Koçtaş, a leading home improvement retailer to train the disadvantaged community members for painting skills. TİDER does not just cooperate with social entrepreneurs, according to the ex-general manager it works with other NGOs such as Mutlu Kuzu and Ahtapot Gönüllüleri. Mutlu Kuzu is a platform established in 2015, focused on sharing economy and repairing of second-hand toys for the children of vulnerable communities (Uygun, 2018). They collect the idle toys from donating families and after cleaning, packaging and putting a barcode processes, they present them as new, hygiene toys to give the children the joy of opening up a new toy (Uygun, 2018). The toys provided by Mutlu Kuzu platform are displayed at retail store stands of TİDER for the happiness of children, which is a good implementation of circular economy as well, extending the lifespan of toys. Ahtapot Gönüllüleri is an association that develops

projects with diverse social purposes and collaborates with other NGOs (“Biz kimiz?”, n.d.) and helped Mutlu Kuzu and TİDER in the packaging and hygiene processes of toys. When asked whether there is need for design for collecting second-hand garments and toys as donations, the ex-general manager expressed the flow is more than they can handle. She said what they need the most is the products, the data, logistic service, funds and promotional services.

Interviewee C, who is in charge of the relationships with the other NGOs and municipalities thinks differently, emphasizing the need to focus just on the core mission of food banking and zero waste, to be more efficient and effective. She argued that there is no problem in diversifying the areas of concern as long as one can get organized and bring together the necessary resources to deal with them. However she mentioned the case is different for TİDER as the association has difficulty measuring its social impact in the missions out of its scope as it lacks the data how many children benefited and to what extent is not clear. Providing transportation, place, food for the activities, gathering families together and motivating and educating them, involve human resources that is scarce in the association. The interviewee mentioned about the volunteers as one of the important stakeholders and emphasized that volunteerism should not be an amateur activity and this outsourced resource should be managed well internally by monitoring their volunteer performances and providing them the required orientations. She expressed that the only difference between the volunteers and the professionals in the association should be the fact that they are not paid. She recommended that the successful NGOs such as TEV (Turkish Education Foundation) and KAÇUV (The Hope Foundation for Children with Cancer) can be modelled for their communication and working styles. *Interviewee D* who is in charge of individual donations and fundraising said almost twenty volunteers who were self-organized had formed a group called *Active Volunteers* under TİDER. She also indicated that volunteerism should be well-coordinated with a clearly developed organizational strategy.

Interviewee D checks daily whether the regular financial donations are successful or not. If there is a problem with the registered credit card, she updates the information communicating with the donors. She also gets in touch with the ones who have made a single donation, to make them regular donors and the regular donors every

six months to invite them to contribute more. She expressed that social media promotions and campaigns are effective in generating new donors to the association. She also told that she is responsible for sorting and directing the incoming e-mails to the info address of the association to the related people. When asked about the role of design, she replied whether it is technical and when assured it can be in any aspect, she pronounced that she perceives design as the design of the thank-you letters sent to the donors and conjuring up a plan for receiving donations.

Although the interviewees all expressed in common they did not have any idea what design thinking really meant, and mainly had a perception of design as a stylish endeavor, they in their all related stories, unconsciously gave hints of the design thinking process implicitly ingrained in their activities. *Interviewee A* stated that what seemed to be outstanding as a theory when they had started out, changed in practice. Their living design process was not linear and they revised it with their experiences on the way, coming to the state of first asking the people whether they are willing to work without getting into the very laborious, time and resource consuming activities to recruit the needy. *Interviewee B* who is the head of operations indicated that he had no idea what design thinking meant. He implied that design activity is something stylish. The content of the interview revealed that, although he cannot put it into words, he knew a lot implicitly about design and design thinking as he was the sole person who brought to life the retail market order, the alignment of the shelves, the configuration of the flow depending on his strong past experience in the private retail sector. As the literature review depicts design is extended to include the many simple things but people who are not design experts, tacitly have the tendency to overestimate it. As Manzini put it, actually “everybody designs”. *The interviewee B* told that they had placed TIDER branded barrels for clothing, toys and books donations in the corporations to raise awareness about the association. This helped the association being visible. The ex-general manager of TIDER also spoke about barrels for donating food and cleaning products at the corporations where the workers who cannot spare time but are willing to help can be part of the charitable process.

Adım Adım, is a fair Turkish platform established in 2008 to bring many NGOs together in running organizations inspired from “charity runs” abroad to build up awareness and raise funds (“Adım Adım nedir?”, n.d.). Majority of the interviewees

agree upon the successful contribution of taking part in charity runs organized traditionally by Adım Adım to TİDER. These events serve as a medium for the various NGOs with different social purposes to gather and be aware of each other. *Interviewee B* also underlined the need to free food-banking concept from being focused on the product itself. He indicated, sharing the same views as the general manager, food banking is just a means for the end and should not be reduced to the food donated since the final focus is on the social aspect that touches the vulnerable communities.

Interviewee C had an assumption that it would be more difficult to arrange a meeting with municipalities as they are governmental bodies. However, it turned out to be easier compared to the private corporations. The main problem with the municipalities was not their motivation but their fear of political disreputation and bad publicity that would occur in case of a food poisoning. They refrained from putting about to expire food on their shelves and preferred buying food-for-aid with their budget. This fact is also emphasized by the general manager during the interviews. She told that TİDER is motivated to make food-banking sustainable and the motives of many municipalities that are really important stakeholders are political and limited with a short period of pre-election time for attracting voters who form the base of the pyramid. However this does not overlap with TİDER's mission to overcome food waste through food-banking. *Interviewee C* pointed that there is no domestic account of food-poisoning that would validate their concern and the food-banking system works well abroad. She emphasized the need for passing the laws that bans sending the food surplus to the landfill. The ex-general manager who also emphasized the need for laws, addressed the insufficiency of the provided tax incentive alone. Although there are tax incentives, the social responsibility aspect, the acceptance of food-banking practices is not enough and not widely accepted. She emphasized the importance of communicating the social cause. The state of global food-banking report 2018 of Global Food-banking Network underlines the importance of timely private-sector investment to build capacity and public-sector support in the expansion of food-banks depending on its reviews of historically successful global networks (GFN, 2018). Municipalities are one of the prominent stakeholders in food-banking.

The interviewee told that the Destek İK (HR Support) the innovative human resource support had a positive effect in the reputation of TİDER among municipalities

that facilitated their efforts. There is necessity for the municipality to found a separate social enterprise in order to do food-banking. As mentioned in the interview, the municipality of Beyoğlu founded Sosyal Market (social market) in 2010 to do food-banking, the service area of which now reaches 3.000m² (Sosyal Market Vakfı, n.d.). The municipality of Beylikdüzü distributes surplus food to more than thousand families by its El Ele Yaşam Derneği (Start TV, 2016). TİDER gave know-how support to these municipalities establishing foodbanks.

The general manager of TİDER stated that creative Turkish people would have found a better name for food banking for Turkish, where the word banking used for collecting, storing and distributing causes semantic confusion with its allusion to financial institutions. She indicated that TİDER prefers the retail store format rather than the widely used warehouse format as the former is more suitable for the sentiments of the Turkish people, allowing them to receive aid through a normal shopping activity. She underlined the importance of doing food-banking with a targeted social purpose that has no profit motivations. She argued the association can invest in profit generating activities but in TİDER's ethical view-point, making money out of donated surplus food to food-banking is not morally appropriate. The company linked to association charges money to the donating retail chain for waste management and transfers the donated food to the food banking association. As discussed the literature review presents different views on this aspect of social innovations and social entrepreneurships. Many authors think these activities cannot be a by-product of profit-oriented endeavors while some argue the end-result is what matters regardless of its being profit-oriented. She indicated that TİDER has opposing views with Gıda Kurtarma Derneği (Food Recovery Association) that seeks profit from food-banking operations working with a major retail food chain in Turkey. She indicated those hybrid structures of associations and companies serve the well-being of their angel investors, not the social aspirations of the food-banking association itself. In her view the food-banking system is different from waste management and should not be mixed. The ex-general manager had emphasized the same point that the relationship should be between the food bank and the people in need without profit motives. As there are few actors in the country, the general manager thinks these activities cause confusion and misrepresent the food-banking sector.

In light of the interviews, everyone in the association agrees unanimously that TİDER will be the leading institution in the national level when food banking is concerned. The general manager of TİDER expressed their willingness to integrate biogas and compost to recover the food that expires in the retail food sector. The association works in collaboration with Boğaziçi University to design and pilot a project in 2019 which will be a good implementation of circular economy. *Interviewee C* emphasized the importance of policy support to overcome food waste and suggested TİDER with its vision should play an active role in the promotion of the passing of food recovery laws in Turkey modeling the ones in European Union. As declared by many interviewees, TİDER paved the way to become the initial address of food banking know-how in Turkey, by organizing the event 1st Food Banking Summit on 21st of February 2019 in Istanbul (Gidabankaciligizirvesi.org, n.d.). TİDER at the moment seems to build awareness about the issue rather than asserting political influence. The association tries to expand its impact through the inclusion of many municipalities across the country. The general manager stated their ambition to be present in every district of Turkey and claimed each new municipality that becomes exemplary part of the system will attract the others into the whole. Their goal is to increase 22 food banks and meal centers served to 122 at the end of 2019. She underlined the need for a platform with values such as openness, fairness and accountability, networking the actors in the food banking sector and TİDER assumes the role to fill this gap. TİDER, with a social purpose to cater for the needy, does not work as a faith-based or politically motivated food banking organization that excludes some segments of the society. According to the general manager of the TİDER, the association allow the food banks the freedom to preserve their own identity as long as they comply with the values and use its model enabling monitoring the flow and social impact. She indicated in the e-mail correspondences that TİDER is not currently part of international FLW Standard and the food waste atlas expressed in the literature review.

The general manager of TİDER also stressed the significance of capability building for the formation of good, feasible social projects and proper wording of them to gain grants from foreign authorities. She recommends her staff to be solution-oriented rather than being problem-focused. She told that when an employee comes without a possible solution in mind, it indicates that he/she did not ponder beforehand

about the issue. The literature about design thinking supports the ongoing non-linear, redesign iteration in the mind and practice. Building the consciousness and the capability to process the contextual information to blend it into probable solutions is at the heart of design thinking.

In the interview the ex-general manager of TİDER expressed their need for animated info-graphics and any other kind of visual communication design that would aid the public recognition of the association in their presentations to contacted companies. The current general manager also admitted the graphical representation of TİDER's activities would be of great help in communicating its social purpose to the masses in all sorts of media and declared they are open to activities to be organized by universities. As depicted in the literature review, actors' heterogeneity plays a crucial role in innovative activities. The collaborations between Turkish universities and food banking sector actors would yield socially innovative solutions.

As the general manager underlined other crucial stakeholders or actors are logistic firms as the mobility of surplus food comprises 60% of the total costs. The ex-manager also emphasized the vital role the logistic firms play. She expressed that the association did not have trouble getting the donated food. The ex-general manager pointed the significance of the behavioral aspect. Even if the upper management and middle management were convinced for cooperation, the person in the retail store who is responsible for the arrangement of shelves would consider sorting the food according to approaching expiry date burdensome and prefer easier way of dumping them. Communicating the cause to the ones who is responsible for sorting and making them own it, is the most crucial task.

The general manager referred to the importance of bringing right people with right funding. Fund-raising is one of the issues that the association struggles as it is the case in many NGOs. Training is another issue as the association is eager to reach every corner of Turkey to disseminate food-banking and TİDER model with restricted human resource. The general manager expressed their determination to work with professionals in the scaling-up of food-banking for the sake of sustainable operations. *Interviewee C* shares a different view claiming that volunteers can work as professionals if guided, trained, monitored and evaluated well on clearly specified performance criteria.

The Interviews' Summary Chart	General manager	HR Support Manager Interviewee A	Operations Manager Interviewee B	Food Bank, Animal Shelter & NGO Collaborations Manager Interviewee C	Individual Donations & Fundraising Manager Interviewee D	Ex-general Manager
The Services	<ul style="list-style-type: none"> Retail store format Change agent role Food banking, a tool not an aim Staying not profit oriented Control, reporting, traceability 	<ul style="list-style-type: none"> The ineffectiveness of the HR Support due to wrong public policies The success of micro-entrepreneurship projects The role of productive partnerships 	<ul style="list-style-type: none"> The food donation processes The collection and delivery of donations The administrative and legal processes The monitoring of Cloud Support donation entries Foundation of food banking retail stores 	<ul style="list-style-type: none"> Just focus on food banking, composting and zero waste The difficulty of measuring social impact when diversified Transparency and accountability, just in time access to updated reports 	<ul style="list-style-type: none"> Turning single ones into regular individual donors 	<ul style="list-style-type: none"> Food banks follow the food donation entry to apply for through Cloud Support Food banking, a tool not an aim The positive change in food banking perception
The Sustainable Design Thinking	<ul style="list-style-type: none"> Design activities are outsourced The mental barriers of municipalities for putting about to expire food on shelves The lack of capabilities for applying grants The lack of platforms 	<ul style="list-style-type: none"> Learning by doing 	<ul style="list-style-type: none"> No idea about design thinking Design activities are outsourced for Cloud Support Installation of TIDER branded barrels for collecting clothing, toys and books The mental barriers of municipalities for putting about to expire food on shelves Shifting the perception from product-orientation to service-orientation and social aspect Narrating food-banking 	<ul style="list-style-type: none"> The mental barriers of municipalities for putting about to expire food on shelves Increasing public awareness about TIDER Developing communication and working styles emulating the successful NGOs NGO relationships based on informal channels, lack of active collaborative networks Destructive competition between NGOs 	<ul style="list-style-type: none"> Design activities are outsourced The design of thank you letters Planning the receiving process of donations 	<ul style="list-style-type: none"> Design activities are outsourced
The Stakeholders	<ul style="list-style-type: none"> CarrefourSa The importance of logistic firms and warehouses 	<ul style="list-style-type: none"> The families helped Social entrepreneurships like Bebermoss The volunteers The fund providers 	<ul style="list-style-type: none"> The retail food chains Other food donors Individual donors 	<ul style="list-style-type: none"> The municipalities willing to do food banking Volunteers, the importance of performance evaluation The fund providers Other NGOs The food suppliers 	<ul style="list-style-type: none"> Individual donors Volunteers 	<ul style="list-style-type: none"> Logistic firms (UPS, DHL and CHEP) The municipalities
The Vision	<ul style="list-style-type: none"> Being the leading and guiding organization in food banking Institutionalizing food-banking in Turkey Scaling up, nationwide dissemination of the TIDER model Biogas, compost integration for zero waste Being sustainable, inclusive, open and fair 	<ul style="list-style-type: none"> Being the leading and guiding organization in food banking Scaling up, nationwide dissemination of the TIDER model 	<ul style="list-style-type: none"> Being the leading and guiding organization in food banking Scaling up, nationwide dissemination of the TIDER model Association owning its own fleet for logistics 	<ul style="list-style-type: none"> Promoting the establishment of laws banning the disposal of surplus food to landfill Being the leading and guiding organization in food banking Biogas, compost integration for zero waste 	<ul style="list-style-type: none"> Being the leading and guiding organization in food banking Scaling up, nationwide dissemination of the TIDER model 	<ul style="list-style-type: none"> Promoting the establishment of laws

Table 2 Summary Chart

CHAPTER 5: CONCLUSION

Circular economy is picturing the complex context of solution through the lens of sustainability, design thinking and innovation with a systemic perspective built on intra and intergenerational, interdependent environmental, economic and social dimensions. It is about a smarter way of handling the problems and co-producing the solutions by building capabilities and networks cross-boundaries and cross sectors, with an interdisciplinary approach. As a living system, it brings the contributions of many schools of thought together to engage them to build linkages for a loop economy. The emergent, contested and nascent circular economy with the interaction of its parts, aims to design out waste which is inherently food for growth and yearns to keep the materials in the cycle for resource security and efficiency. The concept does not deny growth and tries to decouple it from environmental deterioration.

Wiser approaches demand heterogeneity of actors and social innovation. Changing the values is the most difficult part. It is easier to change products and processes through technical advances but the core of the solution is socially embedded. Designing the capabilities and institutionalizing them would help the various organizations and/or individuals to approach problems, opportunities and solutions interactively, creatively and critically with a targeted, positive action.

Regardless of the analytical levels, social innovations are important for the collective learning (and unlearning) of human communities constituted of the citizens of a particular nation or region, the employees and managers of an industrial sector or the members of an organization and the overcoming of certain rigidities in structural adjustment processes (Heiskala & Hamalainen, 2007). Social innovation is about the process and the outcome while social entrepreneurship is about making the most out of the available resources to turn problems into opportunities, solutions and values.

TİDER, a non-profit Turkish organization acted on the social need to converge the vulnerable groups in society deprived of means to feed themselves with the food about to expire and be wasted in the retail food sector. The association has been awarded by the Global Food Banking Network for its socially innovative approach to food-banking with the integration of HR Support to food-banking activities as social entrepreneurship. As a food-banking association TİDER adopted the retail store model

rather than the warehouse or soup kitchen model because the outlets serve as a communication medium to know and include the disadvantaged groups in the solution process and the activity of shopping is a more humane and natural way of aiding people.

The interviews revealed that although the members of TİDER don't have a clear idea what exactly design thinking, social innovation and social entrepreneurship means and they somehow tacitly and partly exercise the process in their daily activities. The general impression about design is about its stylish aspect. Design is not employed as a strategy and the vision of the company does not incorporate design and design thinking as a core value. The term social entrepreneurship has been voiced some of the interviewees but for the majority these concepts don't have a corresponding conjecture.

The study indicates that social entrepreneurship creates more value when the employment of the vulnerable segments of the society is concerned, as depicted both in Yırca and Bebemoss cases, than the social innovation introduced technically through HR Support integrated to food banking. It would be better to utilize HR Support not as a recruitment process but rather as a capability coordinating platform to reconfigure social entrepreneurship initiatives. As the interviews at TİDER show there are more constraining factors than enabling ones for the disadvantaged groups, especially if they are women who feel obliged to stay and work at home due to their socialization process. TİDER with its focus on food waste prevention, tries not to be distracted into other social purposes such as education. However as the association sees food banking as a tool rather than as an aim, it can act as the coordinating entity for the formation of certain capabilities to make the people who are in need employable. The microfinancing projects in the literature bear many success stories. In the cases of Bebemoss and Yırca, the people were employees of the social entrepreneur. The people can be educated and encouraged to take risks to be social entrepreneurs themselves.

The core social purpose of TİDER is to prevent food waste mainly in the retail food sector but also has efforts to divert food surplus in the hospitality sector. In line with the facts stated in the literature, TİDER has a vision to distribute its solution potential nationwide, by spreading its know-how. Avoiding to be a centralized model,

and engaging the heterogeneous actors to join the network in co-production and reconfiguration of the present working model through established feed-back loops would benefit TIDER.

It has been stated that diversity plays an important role in the adaptive cycle and change process. Transforming the current systems of handling food surplus obviously requires the formation of many synergistic linkages across boundaries and sectors. The interviews revealed the association shows great effort to promote the medium for the genesis of new relationships in the Turkish food-banking field through organizing summits.



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