

Commons For Cocoa

A case study of Tony's Open Chain's contribution to making the chocolate industry more sustainable

Hannelore STANDAERT

Master's Thesis Submitted for the Degree of
Sustainability Management

Supervisor: Ingrid MOLDEREZ

Academic Year: 2021–2022

Commons For Cocoa

A case study of Tony's Open Chain's contribution to making the chocolate industry more sustainable

Hannelore Standaert

Abstract

The chocolate industry is beset by an unequally divided supply chain with extreme poverty, other human rights violations, and environmental challenges. Multiple initiatives have been established to address these challenges, however, the industry is still failing to progress towards sustainable development. The use of collective entrepreneurship could be an opportunity to reach a real transition. One of the influential economic theories that explores this approach is the commons theory, of which open-source software is a subset. A prominent example is the open-source initiative 'Tony's Open Chain' of the Dutch confectionery company Tony's Chocolonely. The initiative was established to create a new norm in the chocolate industry by encouraging collaboration through sharing full details of Tony's Chocolonely's supply chain with other chocolate producers and retailers. This unique case formed the basis of this study that aimed at investigating how Tony's Open Chain, as a commons initiative, contributes to making the chocolate industry more sustainable. For this research 15 in-depth interviews with both stakeholders of Tony's Chocolonely as well as non-stakeholders with knowledge on the commons were conducted. The study showed that Tony's Open Chain contributes to addressing the challenges in various ways. Using different tools, the initiative empowers cocoa farmers, detects illegal child labor, and tracks cocoa beans. The initiative also tries to prevent deforestation on farms using GPS polygon maps, thus attempts to cover the aspects of environmental justice. And by both letting companies join Tony's Open Chain as mission allies and sharing principles and information, the approach allows for mutual learning and demonstrates the feasibility of collaboration. In any case, there is still room for improvement. To really make a tangible difference and have an impact, more actions in terms of volume are needed. The potential to scale, however, is currently still a challenge for Tony's Open Chain as it is doubtful that large companies will join the initiative. Nevertheless, elements of Tony's Open Chain can be copied by others, through which the initiative indirectly exerts influence.

Keywords: Cocoa farmers, Tony's Chocolonely, sustainable value chain, commons, child labor, open-source, collaboration

Foreword

This thesis was written for my Master of Business Administration with specialization in Sustainability Management at the KU Leuven, Belgium. I would like to thank my promoter, professor Ingrid Molderez, for giving me the chance to write on a subject close to my heart, the chocolate industry, and for introducing me to the commons. She was there for me throughout the endeavor, especially while I was struggling in the first year due to the Covid epidemic.

In addition, I want to thank my parents for their boundless support during the writing of my thesis. They were there when I needed advice and gave me the opportunity to pursue my dreams. I also want to thank Katelijn Verstraete for sharing a transcription program and Anne Clark for re-reading my thesis. Finally, I want to thank my friends, brothers, and sister for their support and for being there for me through my ups and downs.

Table of contents

1	Introduction	4
1.1	<i>Problem statement</i>	4
1.2	<i>Research objective</i>	5
2	Literature review	6
2.1	<i>Challenges facing the chocolate industry</i>	6
2.2	<i>Characteristics of the commons</i>	8
3	Data and method	11
4	Results	14
4.1	<i>Challenges facing the chocolate industry</i>	14
4.2	<i>Tony's Open Chain and its commons approach</i>	17
5	Discussion	23
6	Conclusion	27
7	References	29

1 Introduction

On 1 December 2020, Voice Network, an international coalition of NGOs, published their biennial edition of the Cocoa Barometer with the disappointing conclusion that the situation of cocoa farmers is not improving (Fountain and Huetz-Adams, 2020).

1.1 Problem statement

The industry is still beset by many challenges and is failing to progress towards sustainable development (Fountain and Huetz-Adams, 2020). Due to the unequally divided supply chain, extreme poverty, other human rights violations, and environmental challenges are systemic in the industry (Fold, 2002; Fountain and Huetz-Adams, 2020). Over the years multiple initiatives, such as programs by large chocolate players or the European law against deforestation¹ (European Commission, 2021), have been established to address key issues (Squicciarini and Swinnen, 2016). These actions demonstrate that the chocolate industry as well as the government is aware of the issues, however, the challenges remain as substantial as they ever were (Fountain and Huetz-Adams, 2020). Several researchers have reported that collective entrepreneurship is needed to reach a real transition (Gallo et al., 2018; Squicciarini and Swinnen, 2016). Holistic approaches to the challenges facing the chocolate industry that recognize and address the interdependence of the various players would therefore seem to be a logical approach for the cocoa chain (Fountain and Huetz-Adams, 2020; Potma, 2018).

One of the influential economic theories that studies this approach is the commons theory (Ramakrishnan et al., 2021). This is defined as “a shared resource, co-governed by its user community according to the rules and norms of that community” (Bauwens et al., 2019, p. 3). Various applications of the commons concept have arisen throughout the years, including 'knowledge commons,' of which open-source software is the most established and largest Internet-based category (Frischmann et al., 2014; Schweik, 2014). Open-source software has evolved in the software industry and is widely used there (Sanguinetti and Goudarzi, 2018). However, research shows that the adaptation of open-source features is possible outside that industry (Raasch et al., 2008). As a result, companies in other industries have also expressed interest in this topic (Sanguinetti and Goudarzi, 2018).

A prominent example of an open-source initiative is 'Tony's Open Chain' from the Dutch confectionery company Tony's Chocolonely (Thompson, 2019). The company wants to create a new norm in the chocolate industry by encouraging collaboration on sourcing by using five sourcing principles: higher price, strong farmers, improving productivity and quality, long-term relationships and 100% traceability (Tony's Chocolonely, 2020). On Tony's Open Chain's platform, full details of Tony's Chocolonely transparent supply chain are shared with other chocolate producers and retailers (Thompson, 2019). The question is whether this new approach contributes to making the chocolate industry more sustainable.

¹ The purpose of the new EU deforestation law is to ensure that only items that are not deforested and are lawful (according to the regulations of the country of origin) are permitted on the EU market.

1.2 Research objective

Tony's Open Chain approach is one for which no extensive literature exists so far. This creates a research opportunity to explore the initiative's contribution in more depth. Tony's Open Chain will therefore be used as case study. The aim of this master's thesis is to collect insight on how Tony's Open Chain approach provides a conceptual contribution to address sustainability challenges and how it drives structural change towards a more equally divided cocoa chain. The main objective is to investigate whether it contributes to making the chocolate industry more sustainable and to examine whether this commons initiative provides added value. For this purpose, the following research question was formulated:

How does Tony's Open Chain, as a commons initiative, contribute to making the chocolate industry more sustainable?

The research focuses on two elements. First, the shortcomings and strengths of the current industry will be identified. The main problems the industry faces will be described and used as a basis for the transition to a more collaborative approach. Second, the commons will be investigated in more detail, with a particular focus on the open-source initiative 'Tony's Open Chain'. The research will investigate what types of commons the initiative comprises, and which elements could be considered as typically commons. In addition, it will investigate what contribution Tony's Open Chain is making and what difficulties it is encountering.

A qualitative case study research approach will be set up. The aim of this method is to exploratively obtain a very broad picture on the subject. A purposive sample, namely both stakeholders and non-stakeholders of Tony's Choclonely, will be interviewed. This creates the opportunity to compare the differences and similarities of opinions between various actors. The reasons for using a qualitative method will be discussed in more detail in section 3.

2 Literature review

This section reviews the current literature available on the chocolate industry and the commons. First the challenges facing the chocolate industry will be discussed. Followed by the characteristics of the commons with a brief introduction on Tony's Open Chain to illustrate its open-source initiative.

2.1 Challenges facing the chocolate industry

Sustainable development has become a fundamental element of most people's daily lives (Lim et al., 2018). In the report 'Our Common Future', it is defined as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 54). Beyond profit optimization, it is now generally accepted that sustaining the environment and preserving the welfare of future generations are goals companies should emphasize (Savitz, 2013).

To help companies calculate their sustainability, three aspects, known as the triple bottom line (TBL), are measured: profit (economic), people (social) and planet (environment) (Elkington, 2002). These bottom lines are used in a corporate performance framework, created by John Elkington in 1994, to measure sustainability (Slaper and Hall, 2011). In 2015, after the creation of the Sustainable Development Goals (SDGs), two more Ps were added – peace and partnership – as well as the name profit was changed to prosperity (Lim et al., 2018; United Nations, 2015). The 5 Ps emphasize how the SDGs are an interwoven framework rather than a collection of fragmented targets, meaning that action in one P affects the others, which the action must compensate for and support (Brown and Rasmussen, 2019). The idea is that when the combination is not harmonious, the other elements will suffer (Elkington, 2002). This is precisely what occurs in the chocolate industry. The pillars are out of balance due to the unequally divided supply chain (Fold, 2002). This causes extreme poverty, other human rights violations, and environmental challenges among the industry (Fountain and Huetz-Adams, 2020).

There is a structural loss at the beginning of the supply chain on the farmers' cocoa plantations, where they work for considerably less than the poverty level (Cole, 2019). In Ivory Coast, cocoa farmers could make a living if they earned \$2.51 per day, however, the actual farmers' income equals \$0.78 per day (Fountain and Huetz-Adams, 2018). Cocoa farmers often live in secluded rural areas, preventing them from having access to basic infrastructure facilities and educational opportunities (Hoffman, 2013). In addition, many farmers lack legal land ownership rights and instead are granted the right to utilize the property under informal or customary tenure arrangements (Fountain and Huetz-Adams, 2018). In many cocoa farming communities, tenure is even more problematic for women as they struggle culturally and historically to obtain the right to own land. Furthermore, cocoa farmers' bargaining power is very low, since they lack access to up-to-date information on the world market price of cocoa and have limited access to funding and capacity development activities (Cole, 2019). Consequently, intermediaries pay cocoa farmers far below the market price, leaving them with little opportunities to improve.

As a result of these social-economic circumstances farmers are forced to cut their production costs and use children as workforce (Cole, 2019; Fountain and Huetz-Adams, 2018). Between

2018 and 2019, it was estimated that approximately 1.56 million children were engaged in child labor in Ghana and Ivory Coast (NORC, 2020). Among them, 95% were exposed to hazardous labor conditions.

These estimates of child labor are a long way from meeting the expectations of the Harkin Engel Protocol, a voluntary agreement signed in September 2001 under which the industry admitted the existence of child labor and pledged to take efforts to eradicate it (NORC, 2020). According to a report released by the International Labor Rights Forum in 2008, this protocol "failed resoundingly" (ILRF, 2008, p. 2). The report showed that none of the Protocol-related actions sought to monitor or improve labor conditions in cocoa production. Moreover, major chocolate companies, as well as industry associations and cocoa traders, claimed that monitoring or tracking labor conditions within their own supply chains is hardly possible (ILRF, 2008). As a result, in 2010 a new declaration was signed with the aim of reducing the worst forms of child labor by 70% across the cocoa sectors of Ghana and Ivory Coast by 2020 (ILO, n.d.). Nevertheless, a report from NORC (2020) showed that children involved in hazardous labor in the cocoa growing areas climbed with 13% from 2008-09 to 2018-19. These approaches to combat child labor give the illusion of progress, while those most affected by the exploitation continue to face the repercussions of inaction (Cole, 2019).

Next to these human rights violations is a growing awareness of negative environmental and climate impacts that pose a challenge to rainforests around the world (Carodenuto, 2019; Fountain and Huetz-Adams, 2020). The environmental challenges may even be more difficult to handle compared to the social-economic challenges because the environmental challenges are truly global in scope, whereas child labor and farmer poverty are perceived to be primarily West African issues (Fountain and Huetz-Adams, 2020). Deforestation causes biodiversity and habitat destruction, as well as extreme climatological effects. Rainforests are large carbon storage structures, and their depletion leads to climate change acceleration (Fountain and Huetz-Adams, 2020). Global estimates show that there is increasing visibility of the relationship between agriculture and deforestation (Carodenuto, 2019). In 2018, more than 90% of West Africa's original forests were lost (Fountain and Huetz-Adams, 2018), with cocoa production having the fastest expansion rate of agriculture-driven deforestation when compared to other export-oriented crops (Carodenuto, 2019). Thanks to Cocoa and Forests Initiatives, the rate of deforestation appears to be reducing, but the few surviving national forests are threatened or severely devastated (Fountain and Huetz-Adams, 2020).

These economic, social, environmental and climate challenges necessitate shared responsibility of different actors to create sustainable solutions and reach sustainable development (Fountain and Huetz-Adams, 2020). Cocoa farmers voices should be heard at the bargaining table and therefore strong legislation as well as more collaboration is needed (Fountain and Huetz-Adams, 2020). This requires an approach that moves away from carrying on with the business as usual towards shared responsibility between all different actors in a way that is sustainable for everyone (Cremer, 2020; Fountain and Huetz-Adams, 2020).

In the past decades, there has been an increasing awareness about tackling key issues, demonstrated by the launch of several initiatives and programs by large chocolate players (Squicciarini and Swinnen, 2016). Hockerts and Wüstenhagen (2010) refer to these large players as 'Greening Goliaths'. These are incumbent firms that are often less ambitious about pursuing sustainability-related opportunities than new entrants, the 'Emerging Davids'. However, the established market position of these incumbents may allow them to reach a wider audience. In response to new entrants' actions, the incumbents have started to engage

in corporate sustainable entrepreneurship initiatives (Hockerts and Wüstenhagen, 2010). The initiatives and programs of both 'Emerging Davids' and 'Greening Goliaths' are demonstrating that the chocolate industry is aware of the challenges (Squicciarini and Swinnen, 2016), though, the challenges remain as substantial as they have ever been (Fountain and Huetz-Adams, 2020). Thereby, because of the plethora of different initiatives, there is a risk of overlap, duplication, and a lack of coordination (Squicciarini and Swinnen, 2016).

According to Hart and Milstein (2003) this structural crisis can be explained by the emergence of capitalism that has dominated the global market economies since the fall of communism and creates a drag on the global economy. First, it ignores external costs and shifts them to society (Bauwens and Lievens, 2013). Second, this system creates a saturation in the developed markets and a widening gap between rich and poor generating social inequality and causing instability (Bauwens and Lievens, 2013; Hart and Milstein, 2003). This leads to a concern that the developing world may be losing control over its own destiny (Hart and Milstein, 2003). Third, it causes increasing environmental degradation (Bauwens and Lievens, 2013). As a result, global capitalism is challenged to incorporate more of the world in its abundance and to care for the natural systems and cultures upon which the global economy relies (Hart and Milstein, 2003). There is a need for alternative production models which are capable of exceeding capitalist models by doing things differently and better (Kostakis et. al., 2015).

In recent years, the application of blockchain, such as Farmer Connect, has been widely presented as a solution to alleviate agricultural concerns in food supply chains (Potma, 2018; Desai and Bohara, 2021). Blockchain can be described as: "A digital cash book, recording transactions. It is a decentralized system which makes it possible to record data without it being managed by a higher supervisor or authority" (Potma, 2018, p. 2). The purpose of blockchain technology is to create a traceable and transparent system within a more decentralized industry, elements which are currently lacking in the chocolate industry (De Filippi and Lavayssière, 2020; Potma, 2018).

However, sceptics have raised the question whether there should be more focus on community organization integration instead of (blockchain) technological development (Potma, 2018). This is because many of the blockchain-based networks and applications built so far rely on market dynamics and economic incentives for distributed coordination instead of on new forms of decentralized collaboration (De Filippi and Lavayssière, 2020). Several researchers such as Squicciarini and Swinnen (2016) and Gallo, Antolin-Lopez and Montiel (2018) have reported that collective entrepreneurship is needed to reach a real transition towards sustainable development, certainly between those 'Emerging Davids' and 'Greening Goliaths' (Hockerts and Wüstenhagen, 2010). This would mean holistic approaches entering the cocoa chain that recognize and address the interdependence of the various challenges (Fountain and Huetz-Adams, 2020; Potma, 2018). Maximizing value for stakeholders would then mean that the concept of value goes beyond profits to incorporate wider social and environmental effects (Bauwens, 2018). One of the influential economic theories that studies this approach is commons theory (Ramakrishnan et al., 2021).

2.2 Characteristics of the commons

According to Bauwens (2018), capitalist market economies should evolve into ethical market economies, in which markets are entrenched and society revolves around the commons. The

word "commons" derives its original meaning from the way communities in Medieval Europe governed shared land (Anderies and Janssen, 2016). This land was not owned by a single person, instead, it was "kept in common". To decide how this shared land was to be used, the community developed a clear set of rules that had to be adhered to (Anderies and Janssen, 2016). Throughout the years, the commons has taken on a variety of meanings (Cogolati et al., 2018). Bauwens, Kostakis and Pazaitis (2019), consider Bollier's (2014) definition as being concise and all-encompassing. They refer to his description on commons as "a shared resource, co-governed by its user community according to the rules and norms of that community" (Bauwens et al., 2019, p. 3).

One of the first writers about the commons was Hardin (1968), who stated in his influential essay "The Tragedy of the Commons" that managing a common resource is a 'tragedy' because when people share a common-pool resource (CPR), they will overutilize it as it is in their own interest to take as much as possible (Foster and Swiney, 2021). He concludes that people are not able to self-govern CPRs and that only establishing private property rights or taxing the use of the commons can avoid the tragedy. Hardin's view, however, was criticized by several researchers, such as Ostrom (1990) who disputed the simplistic interpretation maintaining that the commons can be successfully governed through the collaboration of commons' users without the use of private property rights or governmental interventions (Foster and Swiney, 2021). Many successful local commons' practices were demonstrated in a comparative analysis by Ostrom and her team at Indiana University (Foster and Swiney, 2021). Ostrom and her team developed a governance model which is supported by eight design principles of self-governance, collaboration, and collective action to overcome the tragedy of the commons: (1) clear group boundaries, (2) congruent rules, (3) collective choice mechanisms, (4) peer monitoring, (5) graduated sanctions, (6) conflict resolution mechanisms, (7) legal rights, and (8) nested enterprises (Foster and Swiney, 2021; Grashuis and Dary, 2021).

Ostrom's work sparked an explosion of study and a committed community of "commons" researchers who followed in her methodological footsteps (Foster and Swiney, 2021). Their research was inspired Ostrom's affirmation that CPRs were not condemned to a dismal end, except if they were either fenced and commercialized or converted into public property and governed by the state (Cogolati et al., 2018). Ostrom's "design principles" have been applied to a variety of different geographical and resource circumstances (Foster and Swiney, 2021).

In the later part of Ostrom's career, she partnered with Hess to expand the applicability of the natural commons model to knowledge (Hess and Ostrom, 2007). Frischmann, Madison and Strandburg (2014) were then inspired to build a knowledge commons framework based on this model. They describe knowledge commons as "the institutionalized community governance of the sharing and, in many cases, creation of information, science, knowledge, data, and other types of intellectual and cultural resources" (Frischmann et al., 2014, p. 3). The most established and largest category of Internet-based knowledge commons applications is open-source software (Schweik, 2014), which emerged in the software industry almost three decades ago and is now extensively adopted by digital infrastructures such as programming languages and databases (Sanguinetti and Goudarzi, 2018).

Today, the concept of "commons" has further developed to incorporate many types of shared resources, both physical and virtual, as well as a variety of other topics such as the global atmosphere, cities and urban infrastructure, neighborhoods and community gardens, technology and software, knowledge sharing and data networks, legal studies, public policy,

and civil society organizations (Foster and Swiney, 2021; Ramakrishnan et al., 2021). The literature on the commons is also expanding quickly, with a greater than tenfold rise in the number of publications produced each year (Lambert et al., 2021).

In today's world, economies are more reliant than ever on the creation, dissemination, and use of knowledge, making it crucial to the global economy (Ramakrishnan et al., 2021). From a techno-economic perspective, there has been an increase in research on how a global commons-oriented productive model could be possible (Kostakis et al., 2015). The model, also known as "cosmo-local production" or "Design Global, Manufacture Local," combines global collaboration in knowledge commons with local manufacturing (Bauwens and Ramos, 2020). In this way individuals can exchange knowledge and design internationally, open-source, while manufacturing the actual items locally.

Several experiments with open and contributive accounting systems or open and participatory supply chains have been undertaken (Bauwens and Ramos, 2020). Even though the experiments are early stage, they depict the potential future of a more fully organized commons-based society and economic system (Bauwens and Ramos, 2020). As the world faces several challenges, sharing information to foster sustainability will allow companies to find practical solutions more quickly and to overcome various social dilemmas (Ramakrishnan et al., 2021). Research shows that the adaptation of open-source features is possible outside the software industry (Raasch et al., 2008). First, as the economy is becoming more and more digitized, companies will be utilizing more software that necessitates the use of open-source software (Schrape, 2017). Second, open-source characteristics are generic enough to be applied to different industries and to accommodate the historical habits of certain businesses (Sanguinetti and Goudarzi, 2018). As a result, also companies outside software industry have expressed interest in this topic (Sanguinetti and Goudarzi, 2018).

A prominent example of an open-source initiative is 'Tony's Open Chain' from the Dutch confectionery company Tony's Chocolonely (Thompson, 2019). On the platform, full details of the supply chain of Tony's Chocolonely are shared with other chocolate producers and retailers. To show that it is possible to make a difference on a large scale through knowledge-sharing, Tony's Chocolonely works together with chocolate manufacturer Barry Callebaut (Thompson, 2019; Van Dijk et al., 2020). The transformation required the company to shift from product development to community management with ethics which, according to Sanguinetti and Goudarzi (2018), demands other managerial abilities. According to Bauwens (2018), social enterprises – such as Tony's Chocolonely – play an important role in the transition to post-capitalistic value patterns and behaviors, and ultimately to a new social economic system. By establishing 'niches' and engaging in system-building activities, social enterprises may persuade others to enter a niche and impact at larger scale, which will favor sustainable business practices (Van Dijk et al., 2020).

3 Data and method

To provide more insight and understanding on the subject, a qualitative research with 'Tony's Open Chain' as case study was used as exploratory design (Taherdoost, 2016). Tony's Chocolonely was founded in 2004 to put an end to modern slavery and illicit child labor in the chocolate industry (Tony's Open Chain, n.d.a). The company wants to create a new norm by encouraging collaboration on sourcing using five sourcing principles: higher price, strong farmers, improving productivity and quality, long-term relationships and 100% traceability (Tony's Chocolonely, 2020). Other companies active in producing chocolate or chocolate flavored products can become Tony's Open Chain 'mission allies' by committing to the implementation of the principles and thus also cooperate with Tony's partner cooperatives (Tony's Open Chain, n.d.b; Van Dijk et al., 2020). Currently, the largest retailer in the Netherlands (Albert Heijn), a discount retailer (ALDI), a German chocolate brand (JOKOLADE) and a German non-dairy cocoa drink (VLY) are Tony's Open Chain's mission allies (Tony's Open Chain, n.d.b).

Tony's Open Chain tries to uphold the five sourcing principles through various tools for which some systems were developed (Tony's Chocolonely, 2020). First, to compute the cocoa price that permits farmers to earn a living income Tony's Chocolonely uses, together with Fairtrade, the Living Income Model calculation (Tony's Chocolonely, n.d.a). The living income price is calculated based on the costs of living, the costs of farming, the productive farm size, the achievable yield, and other income of the cocoa farmers (Tony's Chocolonely, n.d.a). To come to this calculation, the existing models were enhanced, and generally recognized standards and research were integrated (Tony's Chocolonely, n.d.a). The insights of this Living Income Model are shared with the chocolate industry to let other companies adopt this strategy (Tony's Chocolonely, n.d.a). Second, to ensure 100% traceability, several tools are applied. Tony's Chocolonely built together with ChainPoint technology a software system called BeanTracker (Tony's Chocolonely, n.d.b). The tracker ensures that all the data from cooperative to chocolate production is digitally logged and offers a monitoring tool for all supply chain actors to see where the beans are at any given time (Tony's Chocolonely, n.d.b). Next to the BeanTracker, also the Child Labor Monitoring and Remediation System (CLMRS) is deployed by all Tony's partner cooperatives (Tony's Chocolonely, n.d.c). This approach assists the coops with whom Tony's Chocolonely collaborates in identifying cases of illegal child labor (Tony's Chocolonely, n.d.c). When illegal child labor is detected, the system helps coops to find alternate solutions, as well as to prevent it from occurring again by increasing awareness about the issue (Tony's Chocolonely, n.d.c). In addition, using Tony's GPS polygon mapping system that surveys the cocoa farms, the company tries to prevent deforestation on the farms and to reforest previously deforested lands (Tony's Chocolonely, n.d.d).

For this research 15 in-depth interviews, i.e., semi-structured interviews, were organized, each lasting around one hour. The research is based on small samples because the aim is to investigate a real-life phenomenon rather than making statistical generalizations about the wider population (Taherdoost, 2016). Stakeholders of Tony's Chocolonely as well as non-stakeholders with knowledge on the commons were interviewed to make the research framework as broad as possible. In-depth interviews were the most appropriate technique for this, as it is an optimal method for collecting data on individuals' personal perspectives, particularly given the sensitive nature of the subject matter (Mack, 2005). In this way,

respondents were able to reflect upon their experiences and share their knowledge on certain subjects in their own terms and context (Taherdoost, 2016).

To collect insights a non-probability sampling, the purposive sampling, was applied because it is ideal for exploratory research design and not time consuming (Taherdoost, 2016). Respondents were selected on the basis of different criteria. First, internal, and external stakeholders of Tony's Chocolonely were selected based on their knowledge of Tony's Open Chain and/or the chocolate industry. The aim of these criteria was to identify the key barriers of the chocolate industry, to see what contribution Tony's Open Chain makes for the industry and what can be improved. Second, non-stakeholders were selected based on their knowledge of the commons and possible knowledge on the chocolate industry. The latter was not a prerequisite as it was interesting to collect opinions from different perspectives.

Respondents who met the imposed criteria were contacted via LinkedIn or via obtained email addresses. The respondents were identified in a pragmatic manner via the preparation of the literature review. They were purposefully chosen to provide important information that could not be gained by other methods (Taherdoost, 2016). The interviews took place between 29 March and 25 May 2022.

Due to the aftermath of Covid-19, many respondents were willing to conduct the interview via Teams, which had both advantages and disadvantages. A major advantage was that it increased the size of the sample of potential respondents, whereby respondents with extensive experience in the chocolate industry or the commons could be contacted. Furthermore, utilizing Teams was a quick and inexpensive means of interviewing, and interviews could often be scheduled on short notice. The downsides were that there were intermittent difficulties during some sessions, such as loss of connection or poor acoustics, which sometimes made interviews move less smoothly. One interview was even cut short due to a respondent's lack of batteries. Four out of fifteen interviews took physically place, three in Flanders at the respondents' workplace, and one in Amsterdam at Tony's Chocolonely. The physical interviews made the research more tangible because they gave insight into respondents' work environments, provided opportunity for less formal conversation, and gave perspective on what contribution the investigation could make.

Most of the interviews were conducted during working hours. As a result, some of the interviews had to be completed strictly within an hour, which meant that having a concluding talk was not always possible. This sometimes made the interview seem overly formal. However, this was not always the case. Many respondents took the time to answer the questions as well as to ask questions themselves. Moreover, the enthusiasm with which the respondents started the interview also showed afterwards, as there was a lot of interest in the result.

During the search for respondents, more than 25 potential respondents were contacted, of whom 15 suitable respondents were eventually selected. Respondents were selected based on their response indicating whether they wanted to participate in the study and whether they could contribute with their knowledge. Some of those contacted reported that the study was not within their knowledge and were therefore not selected. It is worth noting that respondents from the chocolate industry were exceptionally excited and eager to engage. In contrast, respondents with knowledge of the commons were hard to find in the beginning and sometimes skeptical about the subject. Nevertheless, sufficient respondents with knowledge

on the commons were found when asked for interesting connections of respondents during the interviews.

Semi-structured interviews were used to elicit data on the participant's experience (Galletta, 2013). This method also gave the opportunity to go deeper into the answers to get more information. A PowerPoint presentation was used during the online interviews to make the conversation flow more smoothly by projecting the questions and showing the videos. Four different interviews were prepared, subdivided into 'commons', 'chocolate industry', 'Tony's Chocolonely's mission ally/enabler' and 'Tony's Open Chain Lead'. The interviews were personalized depending on the respondent being interviewed. Each interview had its own introductory and transition questions after which Tony's Open Chain and the commons were discussed in depth. The interview ended with two concluding questions, namely which three pieces of advice would be given to the chocolate industry (or the CEO of Tony's Chocolonely) to improve, based on the commons and how the commons approach of Tony's Open Chain is contributing to making the chocolate industry more sustainable. The essential points were restated at this point in the interview to aid in making a conclusion.

The research is internally valid since the credibility of the research is high. The interviews were recorded with a Dictaphone and transcribed by using the Otter program. After that, each transcription was checked again by the researcher for errors. Via NVIVO, the transcripts are then openly coded by dividing the data into separate components and subsequently axially coded to draw connections between codes. The codebook can be found in Appendix A. For reasons of privacy and volume, only the annex containing the codebook is disclosed.

4 Results

This section discusses the results of the qualitative interviews. First, the challenges facing the chocolate industry are analyzed, i.e., the individual attitude of the industry, the anonymity of farmers in the supply chain, the absence of regulation and the different opinions towards technological development. Second, Tony's Open Chain and its commons approach is discussed.

4.1 Challenges facing the chocolate industry

Many respondents of the chocolate industry stated that the industry consists of companies frequently operating on their own, which makes addressing the challenges it is facing expensive. Two respondents mentioned that most of the established initiatives do not transcend beyond pilot projects and do not reach the entire breadth of the supply chain. Respondent I3 remarked that the underlying motivation is sometimes out of commercial opportunity rather than the improvement of the industry (Chocolate industry – External stakeholder). According to some respondents of the chocolate industry this individual attitude is destructive because it prevents companies from learning from each other's mistakes and experiences. If parties began to collaborate rather than compete for some things, outcomes could become more efficient and less expensive some respondents noted.

According to most of the respondents of the chocolate industry as well as respondents of Tony's Open Chain, linked to this individual attitude are the sector's characteristics – fierce competition with five major cocoa traders and large demand for bulk. This ensures, according to respondent I4, that nobody wants to be the frontrunner, except some smaller companies, e.g., bean to bar (Chocolate industry – External stakeholder). The bean to bar segment, where chocolate makers and chocolate farmers closely cooperate with each other through short direct chains, is often referred to by respondents as a good example of how collaboration should be. However, bean to bar remains a small segment in terms of volumes and respondents doubt their scale potential.

Respondents also mentioned that creating a lot of direct horizontal lines with cooperation between those lines, will stimulate a commons approach. Respondent C2 explained that the goal of this cooperation is that companies see themselves as part of a community, rather than as competitors (Commons – Non-stakeholder).

“The reason why this has not led to impact is one, because all these approaches are fragmented. Everyone is doing his own thing. It's like we're running in all directions at the same time, and not necessarily with the same level of ambition. While we know that in complex supply chains, it is important that you manage to invest in partnership and in solutions that work for every actor in the supply chain.” (I3 – Chocolate industry – External stakeholder)

“In Belgium all the bean to bar chocolate makers are part of a community. And this is very special, because normally companies see themselves as competitors. In the bean to bar world, the chocolate makers see themselves as part of the same family.” (C2 – Commons – Non-stakeholder)

Another issue that often came up among many respondents of both the chocolate industry and Tony's Open Chain was that farmers are anonymous in the supply chain. Respondents mentioned that farmers have no voice and are not involved in any problem analysis or problem-solving method, while they are the ones that bear the risks. Respondent I2 notes that certification is a good first step to help farmers organize and saw this as the most valuable aspect of certification (Chocolate industry – External stakeholder). Without farmer organizations, there would be no infrastructure on which many delivery vehicles, such as the Child Labor Monitoring and Remediation System (CLMRS) and GPS polygon mapping systems, rely. In addition, it was also noted that certification can make the value chain more transparent. It is a payment vehicle, and it provides a redress method when violations are reported. However, it is not accepted by most of the respondents as the ultimate solution because in practice there is not much impact, and it often creates forms of greenwashing.

“It's a very hierarchical society, not everybody is represented. It's not one group of people who have the same opportunities and are all allowed to speak up openly. The problem is that many people are not part of the decision making, not even in a household”. (I1 – Chocolate industry – External stakeholder)

“Certification has existed for a long time; I think in cocoa for 25 years now. But the reality on the ground for most farmers is still poverty and extreme poverty.” (I3 – Chocolate industry – External stakeholder)

In addition to the challenges facing the chocolate industry, respondents of both the chocolate industry and Tony's Open Chain mentioned several tendencies to show that there is drive for change. First, it was stated that a lot of people are trying to engage in conversation, e.g., around farm gate pricing (I2 – Chocolate industry – External stakeholder). An important point which was noted by some respondents is that many more conversations are based on facts instead of on guesswork, because more data is collected about what is occurring. Second, respondents also mentioned that there is much more focus on the responsibility of companies. Companies talk more openly about the issues in their total chain, rather than only talking about the connection with their direct supplier (T3 – Tony's Open Chain – Internal stakeholder). Third, respondents highlighted the fact that there are a lot of good intentions from both the public and private sector which led to the launch of various programs and multi-stakeholder initiatives building new collaborations. It was mentioned a few times that it is a positive shift to give farmers a better life, however that it is still early stage, and, according to respondent I3, more actions are needed to achieve real systemic change, thus guaranteeing that all farmers can operate in lucrative and self-sufficient cocoa growing (Chocolate industry – External stakeholder).

“It's good that several multi stakeholder initiatives are starting off to discuss what is needed for everybody to reach a certain goal, because otherwise everybody, also the big multinationals, are doing their own programs, but not necessarily together, which makes it also very complicated for a farmer because he has to comply with so many different requests or requirements.” (T3 – Tony's Open Chain – Internal stakeholder)

“From a commons point of view, it makes a lot more sense for a bunch of chocolate brands to stand for a similar approach and share data, work plans, expectations, improvement indicators, and measurement of progress, and then to still compete on the shelf” (T2 – Tony's open chain – Internal stakeholder)

According to respondents of both the chocolate industry and Tony's Open Chain, the lack of regulation is another critical component that is missing in the industry. Every sustainability effort so far has been voluntary, which ensures a complete lack of transparency and accountability by both governments and companies (I2 – Chocolate industry – External stakeholder). Several respondents emphasize that there is no legal framework that obliges governments and companies to take responsibility and solve the problems. In addition, it was noted by respondent I1 that the governments of Ivory Coast and Ghana are a big challenge to tackle because they fail to positively reinvest a major portion of the Free On Board (FOB) price that flows from farms to the government (Chocolate industry – External stakeholder). However, it was mentioned a few times that steps have been taken for regulation, such as the EU due diligence, or the upcoming regulation that will truly force companies as well as governments to demonstrate their efforts to industry impact regions. One of the biggest advances so far, according to several respondents, is the new European law against deforestation and the use of satellite monitor for detecting it. Respondent C5 mentioned that you may oblige companies to have a good impact by rewarding them with lower taxes and additional subsidies if they do so (Commons – Non-stakeholder). In that way, companies would have to adjust their conduct to earn a profit and pay less taxes. According to several respondents of the three different groups, legislation will also help to stimulate a commons approach. It will encourage the need for transparency, traceability, and sharing, which are subcomponents of collaboration, the basis of commons.

“The overall solution what many companies nowadays would agree on, has to come with legislation like human rights due diligence.” (I4 – Chocolate industry – External stakeholder)

“We need sustainability across the board. They need to do it all together. And so that everybody is operating at the same level. And if they can't do it, then the government must do it.” (C5 – Commons – Non-stakeholder)

On technological development, there were several recurring opinions among the respondents of the three different groups. There was no pronounced difference of opinion among the groups. Some respondents see technological development as a major force for change because it has the potential to improve traceability, transparency, direct payments and to empower farmers more by letting them own the data. In addition, some respondents highlighted blockchain as a method to trace information for traceability concerns. It was mentioned that blockchain opens the option of shared accounting and shared supply chains where there is a move to an ecosystem approach rather than separate corporations that compete with one another and keep everything hidden (C5 – Commons – Non-stakeholder).

“Once you have a blockchain ecosystem, then you see all the stakeholders are visible. You have incentives for each of the stakeholder agents. I think it's a way of looking at creating ecosystems of collaboration that work at global scale and that replace the private multinational control of the supply chains.” (C5 – Commons – Non-stakeholder)

“That are all certain technologies to get more insight in what is actually happening in the chains and to be able for people to look at it and think how can we change this, how can we eliminate things.” (I5 – Chocolate industry – External stakeholder)

However, respondents in all three groups also expressed some doubts concerning technological development. The first area of concern for them is access to technology for farmers. The fundamental difficulty is that the technology is frequently constructed from the

standpoint of the end customer rather than the farmer (T1 – Tony’s Open Chain – Internal stakeholder). Farmers should be able to employ the technical solution, and it should profit them significantly (T3 – Tony’s Open Chain – Internal stakeholder). According to respondents this is easier said than done, especially in Ghana and Ivory Coast, where farmers live in secluded areas. Second, the application of blockchain was also being questioned because it could produce invisibility according to a respondent, while the main challenge is to make farmers as visible as possible (C2 – Commons – Non-stakeholder). Respondent I4 found it a huge waste of money (Chocolate industry – External stakeholder). In the end, respondents mentioned that if the situation in the chocolate industry improved dramatically those technologies would not be required. It was noted by respondent I2 that the big challenges are not technological but political (Chocolate industry – External stakeholder).

“What I think we should avoid is that we have the same disbalance of power in technology as what we have today in the sectors that we are talking about. In the end technology should be a means to support our objectives. And therefore, I think it is important that we pay extra attention to the weakest link.” (I3 – Chocolate industry – External stakeholder)

“I think it's very good to use those kinds of techniques and tools but try to avoid this black box character of blockchain and try to stimulate the direct contact among customers, producers and all the actors in the chain.” (C2 – Commons – Non-stakeholder)

4.2 Tony’s Open Chain and its commons approach

To understand what contribution Tony's Open Chain makes, the initiative was discussed in more depth. According to respondent T2, the initiative is constructed with the motive that it did not make sense to only change the way Tony’s Chocolonely operates (Tony’s Open Chain – Internal stakeholder). It was said that the initiative receives 100 requests every year from candidates to join Tony's Open Chain. However, not all of them are approved because the focus is on finding confectionary, big volumes, and vocal mission allies.

During the interviews, several obstacles which Tony’s Open Chain encounters, were mentioned. The first one is that it is not easy to convince the right competing brands to join. According to respondent T2, companies feel vulnerable about sharing their own data and are protective about their own sustainability programs (Tony’s Open Chain – Internal stakeholder). It was thereby said that companies tend to be very secretive about it, which is the antithesis of how a sustainability program should work.

A second obstacle, which was mentioned by respondent T2, is that to really have an impact, Tony’s Open Chain wants to scale faster than it is doing right now (Tony’s Open Chain – Internal stakeholder). This challenge is related to the difficulty of attracting new mission allies and therefore, according to some respondents of Tony’s Open Chain, good change management is needed. For this, Tony’s Open Chain counts on Barry Callebaut who assists on making it more efficient and easier for others to join.

“We used to jokingly say when somebody joined Tony's open chain, “Congratulations, you are now co-owner of the problem”, we're not here to deliver you a solution, boom, it's done. We're asking the mission allies to pay much more for the farmer. We're asking them to contribute to the cost of the work, to the cooperative for doing the work. It's

expensive, it's complex. So, it's on us to make it impactful, plug and play, easier to understand, simpler to say yes to, so we can move faster.” (T2 – Tony’s open chain – Internal stakeholder)

“As enabler of the flow, we have to facilitate and make it more efficient, make it easier for people to join in this way of working, instead of saying ‘no this is not possible, no we cannot do this’.” (T1 – Tony’s open chain – Internal stakeholder)

Some of these outlined obstacles were disputed by the respondents of the chocolate industry. Most of the respondents contested the potential to scale. To accomplish this, large companies also have to start using the system, but that is considered impossible by many respondents. Those large companies have their own programs which they invest in, and they do not need an extra logo on their packaging (I3 – Chocolate industry – External stakeholder). However, respondents of both the chocolate industry and Tony’s Open Chain see the possibility that some of the elements of Tony’s Open Chain, for example the Living Income Model, will be copied by those large companies. Furthermore, Tony’s enabler Barry Callebaut, was called into question by some respondents of the chocolate industry, because being a mission ally in Tony’s Open Chain implies working with Barry Callebaut. This might prevent potential mission allies from joining (I3 – Chocolate industry – External stakeholder). To counter these concerns, Tony’s Open Chain is currently investigating how to become a Bean Company to be able to deliver beans more independently to actors who do not want to work with Barry Callebaut (T2 – Tony’s Open Chain – Internal stakeholder).

“They’ve really positioned themselves as a different alternative to the large chocolate companies. But if you want to scale then you want the large chocolate companies to start using your system. I think the large chocolate companies would rather be caught dead than ever to use the Tony’s Chocolonely’s Open Chain system because they really feel that they’re massive competitors and they do not always like each other.” (I2 – Chocolate industry – External stakeholder)

“I think a good example is a Way To Go tablets from Lidl, they are not Open Chain, but they are inspired very much by the Open Chain way of working because they kind of mimicked it. And this is good because it's the right way to move.” (T1 – Tony’s Open Chain – Internal stakeholder)

In addition, a lot of positive opinions on Tony’s Open Chain were given by respondents of the three different groups. The first one, which was mentioned often, was the fact that Tony’s Open Chain puts pressure on the industry. Respondents explained that the Open Chain enables to put things on the agenda, such as child labor, and to challenge competitors as well as existing actors who are already taking sustainable steps, to improve. The approach inspires others to act whether in the Open Chain or outside of it (T1 – Tony’s Open Chain – Internal stakeholder).

“I think as a brand, they have been successful in positioning themselves and growing and being this nagging brand who does things differently and I think they have been pushing industry and they have been also leading by example.” (I1 – Chocolate industry – External stakeholder)

A further positive reflection was that Tony’s Open Chain’s transparency concerning the open-source protocol, whereby the bean to bar traceability is complete, is a very valuable thing. First, it was noted by several respondents from both the chocolate industry and Tony’s Open

Chain, that Tony Chocolonely's commitment to sharing the principles openly with other companies makes it possible to learn from each other. It was thereby mentioned that the flow of information shared throughout the whole chain and the possibility that the model can be copied by others, show that collaboration is possible. Second, many respondents explained that the openness with which Tony's Chocolonely communicates data on how they pay farmers or what the farms produce, is exactly the openness that the sector needs. This is considered to be a commons by most of the respondents of the three different groups, and with the data shared, it is often referred to as a knowledge commons. However, some respondents of the commons did feel that calling the Open Chain a commons was debatable because just having access to something does not necessarily mean that it can be interpreted as being a commons.

"Tony's is like a step in the right direction. You know it's doing steps in that process of going to something new that is based on open trust, openness, transparency, cooperation." (C5 – Commons – Non-stakeholder)

Another positive opinion that the respondents from both the chocolate industry and Tony's Open Chain pointed out, was that Tony's Open Chain brings a lot of advantages to the farmers. Some of the aspects are considered as commons by respondents of the three different groups. In the first place, it was said that the initiative raises farmers income by the calculation of the Living Income Model and the organization of non-cocoa related activities to nurture other income. The initiative thereby also invests in projects that empowers farmers to have dialogues about prices and investments. This participatory process is considered by several respondents of the three different groups as typically commons.

In the second place, it emerged during the interviews that Tony's Open Chain focusses on community development in producer countries to help farmer cooperatives organize themselves. Respondent T2 explained that all the farms Tony's Chocolonely buys from are organized into democratically organized cooperatives, with which Tony's Open Chain works through direct contacts (Tony's Open Chain – Internal stakeholder). In addition, it was mentioned that Tony's Open Chain supports those local forms of collaboration communing cooperatives through both partnership with cooperatives and financing from the Chocolonely Foundation. It was also noted by respondent T2 that at the Annual General Meeting farmers give input to the cooperative about what they desire, and the coop subsequently relays these needs to Tony's Chocolonely (Tony's Open Chain – Internal stakeholder). In this way smallholder farmers have a collective voice and access to collective goods.

In the third place, respondents of both the chocolate industry and Tony's Open Chain mentioned that farmers are empowered by several tools Tony's Open Chain provides, e.g., the GPS polygon maps or Tony's BeanTracker. The key point here is that Tony's Chocolonely and its mission allies invest in these tools for the cocoa community, but those tools are property of the farmer. It was explained by respondent T2 that farmers can use the collected data to understand their farms and their productivity better and they can sell that information to other traders, which gives the coops better planning tools (Tony's Open Chain – Internal stakeholder). The self-organization, transparency, and empowerment aspects that the tools provide are considered by several respondents of the three groups as commons. Respondent C6 refers to these aspects as pro-commons (Commons – Non-stakeholder). Although pro-commons is not the same as a commons of itself, the respondent stated that Tony's Open Chain encourages a knowledge of how it may help local commons in producing nations.

“The BeanTracker and the monitoring mapping, all those kinds of things to really share all the information with the collective that's typically commoning.” (C4 – Commons – Non-stakeholder)

“For example, the Living Income Model, we all use these as a framework for calculating the premium. Also, the way of working, for example, all cooperatives have CLMR system. I think that are commons.” (T3 – Tony's Open Chain – Internal stakeholder)

And in the fourth place, Tony's Open Chain's provision of long-term contracts to cooperatives, was also mentioned as advantage to farmers. This has a positive impact on how organizations can plan and can become more professional. Tony's Chocolonely commits to buying from the farmers every year, although farmers are not required to sell solely to Tony's Chocolonely, which often is the case for farmers who supply one of the large companies (T2 – Tony's Open Chain – Internal stakeholder). This again empowers the farmers and gives them security for the future, according to some respondents of both the chocolate industry and Tony's Open Chain.

The opinions on possible future allies for Tony's Open Chain are generally the same among all three groups. There was a lot of positive feedback on Tony's Open Chain's strategy to focus on retail, because it is a 'key-on-the-door solution' for those who do not have the resources to do intensive underground programs (I3 – Chocolate industry – External stakeholder). However, a critical review on retail, which was given by respondent C5 (Commons – Non-stakeholder), was that the retailers who are mission allies of Tony's Open Chain probably still sell a lot of chocolate that is not sustainable.

“Especially for the smaller companies or for example, retailers like us who do not have the resources to do like intensive underground programs. They should all join Tony's open chain.” (T3 – Tony's Open Chain – Internal stakeholder)

Even though Tony's Open Chain brings improvements, according to some respondents of the chocolate industry and commons, it is not a changemaker in terms of a systemic change. Respondent C2 (Commons – Non-stakeholder) noted that bulk chocolate, as well as Tony's Chocolonely can never accomplish true change since they are all part of the same commercial system. In addition, it was said that the focus of Tony's Chocolonely is too narrow as they communicate only on child labor (I5 – Chocolate industry – External stakeholder). Fighting slavery has always been Tony's Chocolonely's positioning, but respondents said that Tony's contribution is really a shortcut. In addition, it was mentioned that Tony's Chocolonely should focus on more aspects of sustainability than just slavery, for example on the environment. A counter-response came from respondent T2 (Tony's Open Chain – Internal stakeholder) that the reason why Tony's Chocolonely chose to communicate on the child labor aspect was because it is the most shocking on a human level. The respondent emphasized that Tony's Open Chain's interventions also cover the aspects of environmental justice, even though they do not communicate as openly about it as on the child labor. The example given was that Tony's Chocolonely collaborates on deforestation and traceability with cooperatives and farmers using the GPS polygon maps and Tony's BeanTracker. Tony's Open Chain knows exactly where the cocoa farms are and how big they are, which means every year they can track whether there has been any encroachment.

“I do trust Tony for embarking on quality initiatives. And they have found a place in a market that is located between bulk and specialty, etc. So, yes, I applaud them for it.

But I don't really know what the Open Chain is going to deliver. I'm curious to see what will follow.” (C6 – Commons – Non-stakeholder)

“Because if it's really about slavery, then you would focus very much on people who are victims of trafficking. But that would require a very different approach to solve that. What Tony's is doing has nothing to do with slavery. It has to do with poverty alleviation. It has to do with giving farmers a voice, giving them more security, better life” (I1 – Chocolate industry – External stakeholder)

“I think Tony's Chocolonely is a very big actor because they are challenging the big companies to change. But this for me not the way to end modern slavery or child labor or to improve things.” (C2 – Commons – Non-stakeholder)

Some respondents among the three groups did not consider Tony's Open Chain to be a commons. One of the reasons given was that because Tony's Chocolonely owns the system, and it is not commonly owned (I2 – Chocolate industry – External stakeholder). There are also many parts of the chain, which makes it according to some respondents difficult to govern as a commons. Respondent C7 also wondered whether there was reciprocity between those who share and those who take, as it is needed to consider it as a commons (Commons – External stakeholder). The extent to which farmers have a voice and all people in the chain are involved in the decision making process, is also mentioned as an important element which determines whether Tony's Open Chain can be considered as a commons. According to respondent T2, farmers do have a say in everything Tony's Open Chain does (Tony's Open Chain – Internal stakeholder).

“I think the problem is that there are many parts of the chain. All the commoners need to have a kind of governance system and participate in the decision making on the common and I wonder whether that happens in the entire chain.” (C2 – Commons – Non-stakeholder)

“But if you share the data, and if you optimize the decision making process, with all stakeholders involved, it might well be a well-functioning form of an institution or collective action, although that's not the impression I got so far. But I mean, it's one way of achieving societal impact.” (C7 – Commons – Non-stakeholder)

Several pieces of advice were given to improve Tony's Open Chain. The advice which was mentioned the most by respondents of both the chocolate industry and Tony's Open Chain, was to remain pushers, radically different and always a step ahead of the industry. According to many of these respondents the rollout to retailers is a great strategy of Tony's Chocolonely to proceed on. In addition, storytelling is noted by the three different groups, most of whom are from the commons, as an important strength of Tony's Chocolonely. It was highlighted that the company has to keep being honest, further share its true stories and mentioned as most important, communicate and improve not only on the child labor aspect, but also on the other challenges it faces.

“Keep on improving. Keep on being honest. We know also that even farmers that are today supplying Tony's Chocolonely are not yet at living incomes. Be real, keep real. I think that this organization amongst all of them probably has the DNA to do that, in an honest way that will also not create a risk of losing consumers on their side.” (I3 – Chocolate industry – External stakeholder)

“Built true stories. It's so easy to only enlighten the bright side, but we know in any life that there is a bright and dark side. If you really want to be transparent, you should also share your difficulties. Tony's chocolonely does this already and should continue to do so.” (C1 – Commons – External stakeholder)

Some suggestions were given by the respondents of the commons to improve the chocolate industry. One possibility was to work with a small factory in the producing countries to get more direct lines with the farmers (C2 – Commons – non-stakeholder). If Tony's Open Chain would work with a small factory on site, it could also establish a recipe commons to learn how to create better chocolate from one another (C5 – Commons – non-stakeholder). Another hypothetical alternative, offered by respondent C6, was to talk about North-South commons, in which individuals from consumer nations and producing companies/countries truly begin commoning in one way or another (Commons – Non-stakeholder). Several respondents referred to the cosmological commons – called productive commons by respondent C5 (Commons – Non-stakeholder) – as a possibility in the chocolate industry and as a commons interpretation of Tony's Open Chain. Other respondents noted that a commons approach isn't necessarily the solution to make the chocolate industry more sustainable, but it could be a contribution. Also, respondents found it important to mention that the commons is not a thing, it's a becoming.

“It can be a solution to keep everybody motivated toward a common societal goal. But it's not always the solution. As Elinor Ostrom said, it's not a panacea, it's a potential, there's potential but not necessarily the solution.” (C7 – Commons – Non-stakeholder)

“And basically, a common is not just a healthy island of sustainability. It's also something that tries to expand a bit. And it has this political dimension, which is fighting against this black base that is capitalism, based on nature commodification labor commodification, exploitation.” (C3 – Commons – Non-stakeholder)

“Sometimes in discussing this, it sounds a bit like that commons is a solution, or it's a certain approach, which you can sort of take off the shelf, and it's a recipe that you can just apply. And that's often not really the case. So, the way that sort of commons thinking is practiced, has many different forms and instances, and it really depends on case by case, what is the element that is relevant here.” (C6 – Commons – Non-stakeholder)

5 Discussion

The challenges facing the chocolate industry have been extensively discussed in the literature review. Nevertheless, during the interviews, it was explored in more depth to find out what actions are required to address these problems. The study is reliable, as the data collection techniques and analysis procedures lead to consistent findings.

To improve the chocolate industry, there is a need for holistic approaches with more collective entrepreneurship (Fountain and Huetz-Adams, 2020; Gallo et al., 2018; Potma, 2018; Squicciarini and Swinnen, 2016). The individual approaches currently in place prevent companies from acting because it is too expensive, and if one takes action, the underlying motivation is sometimes out of commercial opportunity or in response to new entrants' actions, rather than the improvement of the industry. As a result, a lot of different initiatives do not lead to the desired result as most of the initiatives established seldom transcend beyond pilot projects and truly reach the entire width of the supply chain. This individual attitude is destructive because it prevents companies from learning from each other's mistakes and experiences, and it creates the risk of overlap, duplication, and a lack of coordination (Squicciarini and Swinnen, 2016). There is a need for alternative production models which are capable of exceeding capitalist models by doing things differently and better (Kostakis et. al., 2015).

At present, there is no legal framework that obliges governments or companies to take responsibility and solve the problems. This ensures a complete lack of transparency and accountability in the industry. However, results show that there is drive for change. A lot of people are trying to engage in conversation and there is much more focus on the responsibility of companies. Nevertheless, strong legislation is needed (Fountain and Huetz-Adams, 2020) to achieve real systemic change – guaranteeing that farmers can operate in lucrative and self-sufficient cocoa growing – because every sustainability effort so far has been voluntary. An incentive can be created by obliging companies to have a good impact by rewarding them with lower taxes and additional subsidies if they do so. In that way, companies would have to adjust their conduct to earn a profit and pay less taxes.

In doing so, cocoa farmers voices should be heard at the bargaining table (Fountain and Huetz-Adams, 2020). Farmers are still anonymous in the supply chain, they have no voice and are not involved in any problem analysis or problem-solving method, while they are the ones that bear the risks. Certification is a good first step to help farmers organize and involve them more. Farmers organizations provide infrastructure on which many delivery vehicles, such as the Child Labor Monitoring and Remediation System (CLMRS) and GPS polygon mapping systems, rely. In addition, certification can make the value chain more transparent, it is a payment vehicle, and it provides a redress method when violations are reported. However, it is not accepted as the ultimate solution, because in practice there is not much impact, and it often creates forms of greenwashing.

Certain technological developments such as blockchain have been presented as a solution in food supply chains to alleviate agricultural concerns and create a traceable and transparent system within a more decentralized industry (De Filippi and Lavayssière, 2020; Desai and Bohara, 2021; Potma, 2018). Nonetheless, its contribution was disputed by sceptics who inquired to focus more on community organization integration (Potma, 2018). Results show, however, that technological development and community organization integration can coexist.

Technology has the potential to improve traceability, transparency, direct payments and to empower farmers by letting them own the data. Thereby blockchain opens the option of shared accounting and shared supply chains where there is a move to an ecosystem approach rather than separate corporations that compete with one another and keep everything hidden. Nevertheless, it is very difficult to give farmers access to the technology because they often live in secluded areas. The application of blockchain could also produce invisibility, while the main challenge is to make farmers as visible as possible. Technology only contributes if farmers can employ the technical solution, if they own the data and if it profits them significantly.

In the end, if the situation in the chocolate industry improved dramatically those technologies would not be required. Because the challenges are not technologically but politically. If parties began to collaborate rather than compete for some things, outcomes would become more efficient and less expensive. There is a need for an approach that moves away from carrying on with the business as usual towards shared responsibility between all different actors in a way that is sustainable for everyone (Cremer, 2020; Fountain and Huetz-Adams, 2020). Therefore, the industry needs frontrunners who take the lead and open the way to improvement. However, the literature did not yet provide a possible solution to create such an approach.

This is where Tony's Open Chains initiative comes in as possible solution. The initiative is an example of such frontrunner who puts pressure on the sector and set important things, such as child labor, on the agenda. Sharing information to foster sustainability will allow companies to find practical solutions more quickly and to overcome various social dilemmas (Ramakrishnan et al., 2021). Tony's Open Chain serves this purpose. The initiative creates shared responsibility between different actors by letting others join Tony's Open Chain as mission allies and therefore become 'co-owner of the problem'. The strategy to focus on retail thereby, also is a very good approach because it is a 'key-on-the-door solution' for those who do not have the resources to do intensive underground programs. However, the retailers who are mission allies of Tony's Open Chain probably still sell unsustainable chocolate. This is a potential weakness of the model and shows the limitation of the project.

The open nature of the initiative brings many advantages to the industry. The willingness to share principles and information with other companies allows for mutual learning and demonstrates the feasibility of collaboration. The openness on which the initiative communicates data on how they pay farmers or what the farms produce is exactly the openness that the industry needs. The flow of information shared throughout the whole chain, which can be copied by others, is referred to as a knowledge commons (Frischmann et al., 2014). Besides knowledge commons, Tony's Open Chain can also be understood as a cosmo-local commons, whereby global collaboration in knowledge commons is combined with local manufacturing (Bauwens and Ramos, 2020). Collaboration in knowledge commons is through Tony's Open Chain initiative and the physical production of chocolate is locally as close as possible to the place of need, in the global north. This solution has a distributed infrastructure all over the world, where each agent is autonomous, but there is a completely transparent global system that allows everyone to see each other and cooperate in real time.

By creating shared responsibility between different actors, Tony's Open Chain also ensures that it is 'sustainable for everyone', which indicates also for farmers. Tony's Open Chain tries to empower farmers through various means of which some can be interpreted as forms of commons.

First, they raise farmers' incomes by the calculation of the Living Income Model and the organization of non-cocoa related activities to nurture other income. Thereby, Tony's Open Chain invests in projects which empowers farmers to have dialogues about prices and investments. This participatory process is considered as typically commons.

Second, Tony's Open Chain focusses on community development in producer countries to help farmer cooperatives organize themselves. All the farms where Tony's Chocolonely buys from are organized into democratically organized cooperatives, with which Tony's Open Chain works through direct contacts. It supports local forms of collaboration communing cooperatives through both partnership with cooperatives and financing from the Chocolonely Foundation. In this way smallholder farmers have a collective voice and access to collective goods.

Third, farmers become more self-organized by several tools, such as the GPS polygon maps or Tony's BeanTracker, that Tony's Open Chain provides. Tony's Chocolonely and its mission allies invest in these tools, but they are property of the farmer. The tools collect data on exactly where the cocoa farms are and how big they are, which means every year it can be tracked whether there's been any encroachment. This allows to measure the likelihood of cocoa beans coming from other plantations that do not operate sustainably, which shows that traceability is a big thing. In doing so, Tony's Open Chain demonstrates that monitoring or tracking labor conditions within its own supply chain is possible, an argument which was stated as hardly possible (ILRF, 2008). Farmers can use the collected data to understand their farms and their productivity better and they can sell that information to other traders, which gives the coops better planning tools. This self-organization is considered as quite close to the commons market and is referred to as pro-commons. Although pro-commons is not a commons of itself, Tony's Open Chain encourages a knowledge of how they may help local commons in producing nations.

Fourth, Tony's Open Chain provides long-term contracts which has an impact on how organizations can plan and can become more professional. Tony's Chocolonely commits to buying from the farmers every year, although farmers are not required to sell solely to Tony's Chocolonely, which is the case for farmers who supply one of the large companies.

In addition to the given elements that demonstrate that Tony's Open Chain can be interpreted as a commons, there are several arguments that show that Tony's Open Chain cannot be considered as a commons. One of them is because Tony's Chocolonely owns the system, and it is not commonly owned. Thereby if common-pool resources are fenced and commercialized, they are condemned to a dismal end (Cogolati et al., 2018). Second, there are also many parts of the chain, which makes it difficult to govern the system as a commons. Third, the reciprocity between those who share and those who take, is also needed to be considered as a commons, what is not quite clear for Tony's Open Chain initiative. Fourth, the extent to which farmers have a voice and all people in the chain are involved in the decision making process, is also an important element which determines whether Tony's Open Chain can be considered as a commons. Even though it was said that farmers do have a say in everything Tony's Open Chain does, results showed that this too is not entirely certain.

Next, there are some remarks on the initiative. First, Tony's Chocolonely's vision is too narrow as they communicate only on child labor. Thereby its contribution is really a shortcut, as it will not improve things. What Tony's Open Chain is doing has nothing to do with slavery, but with poverty alleviation, with giving farmers a voice and more security so they can take better care

of themselves. Results show that Tony's Chocolonely should focus on more aspects of sustainability besides slavery, such as on the environment. However, Tony's Open Chain interventions also cover the aspects of environmental justice, even though they do not communicate as openly as on the child labor about it. Tony's Chocolonely collaborates on deforestation and traceability with cooperatives and farmers using the GPS polygon maps and Tony's BeanTracker. Second, Tony's Open Chain is not a changemaker in terms of a systemic change. Bulk chocolate, as well as Tony's Chocolonely never can accomplish true change since they are all part of the same commercial system. The bean to bar segment, however, where chocolate makers and chocolate farmers closely cooperate with each other through short direct chains, is often referred to as a good example of how collaboration should be.

Despite the negative opinions, the approach inspires others to act, whether or not in the open chain. Annually, Tony's Open Chain gets around 100 requests a year, however, it is not easy to convince the large competing brands to join. To show that it is possible to make a difference on a large scale, Tony's Chocolonely works as an 'Emerging David', together with the large chocolate manufacturer Barry Callebaut, a 'Greening Goliath' (Hockerts and Wüstenhagen, 2010; Thompson, 2019; Van Dijk et al., 2020). However, this collaboration implies that mission allies also have to work with Barry Callebaut, which is sometimes not desired. For that reason, Tony's Open Chain is currently investigating how to become a Bean Company to be able to deliver beans more independently. Nevertheless, more actions in terms of volume are needed to really have an impact. This indicates that the potential for scaling up plays an important role. Therefore, large companies also have to start using Tony's Open Chain system, which is a challenging issue. Large companies feel vulnerable to share own data, they have their own sustainability programs, and they don't need an extra logo on their packaging. Nonetheless, there is a possibility that elements of Tony's Open Chain, for example the Living Income Model, will be copied by the large companies. So, Tony's Open Chain indirectly exerts influence.

In the end, Tony's Open Chain's initiative recognizes and addresses the interdependence of the various challenges (Fountain and Huetz-Adams, 2020; Potma, 2018). The company its value for stakeholders goes beyond profits and incorporates wider social and environmental effects, which is a step in the right direction (Bauwens, 2018). Tony's Chocolonely must remain pushers, radically different and always a step ahead of the industry. Thereby storytelling plays a key role on which should be emphasized more. Tony's Chocolonely has to keep being honest, further share its true stories, and most importantly communicate and improve not only on the child labor aspect, but also on the other challenges it faces.

6 Conclusion

The chocolate industry is still beset by many challenges and is failing to progress towards sustainable development. The aim of the master's thesis is therefore to find an answer to the research question: How does Tony's Open Chain, as a commons initiative, contribute to making the chocolate industry more sustainable?

To provide a relevant answer to the contribution of the research, the actions that are required to address the challenges the industry is facing, were investigated. There is a need for more collaboration and shared responsibility between different actors in a way that is sustainable for everyone. Therefore, the industry needs frontrunners who take the lead and open the way to improvement. Moreover, there is a need for more political action to bring about real systemic change. This will guarantee that the taken sustainable actions are not only voluntary but also mandatory, thus leading to more transparency and accountability of both governments and companies in the industry. In doing so, cocoa farmers voices should be heard at the bargaining table, they should be involved in the problem analysis or problem-solving method and thus be empowered in their role in the supply chain. This can involve both technological development and community organization integration.

Tony's Open Chain contributes to addressing the challenges in various ways. By creating a Living Income Model and using different tools such as the Child Labor Monitoring and Remediation System (CLMRS) or Tony's BeanTracker, Tony's Open Chain empowers farmers and ensures that the prosperity, people, and peace pillars of the Sustainable Development Goals are more in balance. As following, the company collaborates on deforestation and traceability with cooperatives and farmers, using the GPS polygon maps, thus also covers the aspects of environmental justice, and thereby brings the planet pillar in balance. And finally, by letting others join Tony's Open Chain as mission allies and by sharing principles and information with other companies, the approach allows for mutual learning and demonstrates the feasibility of collaboration. The openness on which the initiative communicates data, the flow of information shared throughout the whole chain and the possibility that it can be copied by others, is exactly the openness that the industry needs. Therefore, also the fifth pillar, partnership, is in balance. These listed elements are not strictly commons by definition, but they do contain commons aspects that contribute to greater sustainability.

In any case, there is still room for improvement of Tony's Open Chain. To really make a systemic change and have impact, thus guaranteeing that all farmers can operate in lucrative and self-sufficient cocoa growing, more actions in terms of volume are needed. The potential to scale is currently still a challenge for Tony's Open Chain as it is doubtful that large companies will join the initiative. Nevertheless, there is a possibility that some elements of Tony's Open Chain will be copied by others, through which it indirectly exerts influence. Recommendations for further research would be to investigate how this shared approach can be applied on a larger scale. Thereby the focus on retail is an interesting research topic to pursue further. Here, the existing constraint where retail mission allies still sell unsustainable chocolate could be investigated in greater depth.

The research encountered some limitations that emerged during the process. First, the lack of prior research studies on the topic made it difficult to create a foundation for the literature review. Second, for this research a small sample size was used. This made each respondent

extremely important to obtain information from. One interview was cut short due to a respondent's lack of batteries. Afterwards, it was not possible to reconnect, which led to the loss of potentially important information. For future research purposes, it would be interesting to increase the sample size so that each group can bring more added value.

To conclude, Tony's Open Chain contributes to making the chocolate industry more sustainable by balancing the five pillars of the Sustainable Development Goals. Tony's Open Chain does not believe in cherry-picking but takes all pillars into account. The company must remain pushers, radically different and always a step ahead of the industry. It has to keep being honest, further share its true stories, and most importantly, communicate and improve not only on the child labor aspect, but also on the other challenges it faces.

7 References

- Anderies, J., and Janssen, M. (2016). *Sustaining the commons*. Arizona State University, 3-11
- Bauwens, M. (2018). *Michel Bauwens: Commons and Blockchain*. Retrieved October 1, 2021, from <https://blog.p2pfoundation.net>
- Bauwens, M., and Lievens, J. (2013). *De wereld redden: met peer-to-peer naar een postkapitalistische samenleving: meet peer-to-peer naar een postkapitalistische samenleving (Dutch Edition)* (01 editie). Houtekiet. 11-77
- Bauwens, M., and Ramos, J. (2020). *Awakening to an Ecology of the Commons*. In *The Great Awakening: New Modes of Life amidst Capitalist Ruins*. Punctum Book. <https://doi.org/10.21983/P3.0285.1.00>
- Bauwens, M., Kostakis, V. and Pazaitis, A. (2019). *Peer to Peer: The Commons Manifesto*. Pp. 1–45. London: University of Westminster Press. DOI: <https://doi.org/10.16997/book33.a>. License: CC.BY.NC.ND 4.0
- Bollier, D. (2014). *Think Like a Commoner: A Short Introduction to the Life of the Commons*. Gabriola Island, Canada: New Society Publishers. 3-173
- Brown, K., and Rasmussen, K. (2019). *The Sustainable Development Goals In 2019: People, Planet, Prosperity In Focus*. Retrieved March 20, 2021, from <https://unfoundation.org>
- Carodenuto, S. (2019). *Governance of zero deforestation cocoa in West Africa: New forms of public private interaction*. *Environmental Policy and Governance*, 29(1), 55-66.
- ChangeNOW. (2020, March 14). *Sourcing and supply chain | Ynzo van Zanten (Tony's Chocolonely)* [Video file]. Retrieved February 22, 2022, from https://www.youtube.com/watch?v=zm_Azif3z-A&t=807s
- Cogolati, S., Wouters, J., Bauwens, M., and De Moor, T. (2018). *The commons and a new global governance*. Edward Elgar Publishing. <https://doi.org/10.4337/9781788118514>
- Cole, G. (2019). *The Intersection of Corporate Social Responsibility and the Non-Profit Industrial Complex Exploitative Child Labor in Côte d'Ivoire's Chocolate Industry*. *Columbia Social Work Review*, 12(1), 53-63
- CreativeBeards. (2021, April 21). *Cocoa Barometer 2020 (with subtitles)* [Video file]. Retrieved February 18, 2022, from <https://www.youtube.com/watch?v=XEYJuypeX0I>
- Cremer, M. (2020). A New Journey for the European Cultural Foundation. In M. F. de Tullio (Ed.), *Commons. Between dreams and reality* (pp. 39–51). Creative Industry Košice.
- De Filippi, P. and Lavayssière, X. (2020). *Blockchain Technology: Toward a Decentralized Governance of Digital Platforms?* In *The Great Awakening: New Modes of Life amidst Capitalist Ruins*. Punctum Book. <https://doi.org/10.21983/P3.0285.1.00>
- Desai, J. and Bohara, M. H. (2021). *Farmer Connect"- A Step Towards Enabling Machine Learning based Agriculture 4.0 Efficiently. 2021 6th International Conference on Communication and Electronics Systems (ICCES)*, 1440–1445. <https://doi.org/10.1109/ICCES51350.2021.9489039>

- Elkington, J. (2002). *Cannibals with forks: The triple bottom line of 21st century business* (Reprint ed.). Oxford: Capstone. <https://doi.org/10.1023/A:1006129603978>
- European Commission. (2021). *Questions and Answers on new rules for deforestation-free products*. Retrieved May 30, 2022, from <https://ec.europa.eu>
- Fold, N. (2002). "Lead firms and competition in 'bi-polar' commodity chains: grinders and branders in the global cocoa-chocolate industry", *Journal of Agrarian Change*, Vol. 2 No. 2, pp. 228-247.
- Foster, S., and Swiney, C. (2021). *Introduction: Commons Research in the Twenty-First Century and Beyond*. In S. Foster and C. Swiney (Eds.), *The Cambridge Handbook of Commons Research Innovations* (Cambridge Law Handbooks, pp. 1-14). Cambridge: Cambridge University Press. doi:10.1017/9781108938617.001
- Fountain, A. C., and Huetz-Adams, F. (2018). *Cocoa Barometer 2018*. VOICE Network. 3-61
- Fountain, A. C., and Huetz-Adams, F. (2020). *Cocoa Barometer 2020*. VOICE Network. 7-96
- Frischmann, B. M., Madison, M. J., and Strandburg, K. J. (Eds.). (2014). *Governing knowledge commons*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199972036.001.0001>
- Galletta, A. (2013). *Mastering the Semi-Structured Interview and Beyond: From Research Design to Analysis and Publication*. New York, USA: New York University Press. <https://doi-org.kuleuven.e-bronnen.be/10.18574/9780814732953>
- Gallo, P. J., Antolin-Lopez, R., and Montiel, I. (2018). *Associative Sustainable Business Models: Cases in the bean-to-bar chocolate industry*. *Journal of Cleaner Production*, 174, 905-916.
- Grashuis, J., & Dary, S. K. (2021). Design Principles of Common Property Institutions: The Case of Farmer Cooperatives in the Upper West Region of Ghana. *International Journal of the Commons*, 15(1), 50–62. <https://www.jstor.org/stable/48656866>
- Hardin, G. (1968). *The tragedy of the commons*. *Science*, 162, 1243–1248
- Hart, S.L., Milstein, M.B. (2003). *Creating sustainable value*. *Academy of Management Executive* 17 (2), 56-67
- Hess, C. and Ostrom, E. (2007). *Understanding Knowledge as a Commons: From Theory to Practice*; The MIT Press: Cambridge, MA, USA; London, England. <https://doi.org/10.7551/mitpress/6980.001.0001>
- Hockerts, K., and Wüstenhagen, R. (2010). *Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship*. *Journal of Business Venturing*, 25(5), 481–492. <https://doi.org/10.1016/j.jbusvent.2009.07.005>
- Hoffman, B. (2013). *Behind the Brands: Food justice and the 'Big 10' food and beverage companies* (Vol. 166). Oxfam. 11-12
- International Labor Rights Forum (ILRF) (2008). *The cocoa protocol: success or failure?* Retrieved April 12, 2022 from <http://www.laborrights.org>
- International Labour Organization. (ILO). (n.d.). *Africa: Child Labor in Cocoa Fields/ Harkin-Engel Protocol*. Retrieved from <https://www.ilo.org>

- Kostakis, V., Niaros, V., Dafermos, G., and Bauwens, M. (2015). *Design global, manufacture local: Exploring the contours of an emerging productive model*. *Futures: the Journal of Policy, Planning and Futures Studies*, 73, 126–135. <https://doi.org/10.1016/j.futures.2015.09.001>
- Lambert, J., Epstein, G., Joel, J., and Baggio, J. (2021). *Identifying Topics and Trends in the Study of Common-Pool Resources Using Natural Language Processing*. *International Journal of the Commons*, 15(1), 206–217. <https://www.jstor.org/stable/48656875>
- Lim, Søgaaard Jørgensen, P., and Wyborn, C. A. (2018). *Reframing the sustainable development goals to achieve sustainable development in the anthropocene—a systems approach*. *Ecology and Society*, 23(3), 22. <https://doi.org/10.5751/ES-10182-230322>
- Mack, N. (2005). *Qualitative research methods: A data collector's field guide*, 29-51
- Mashable. (2020, July 18). *Blockchain Technology Is Helping Farmers Be More Sustainable | Mashable* [Video file]. Retrieved February 26, 2022, from https://www.youtube.com/watch?v=P2izCyFt_d0&t=61s
- NORC. (2020). *NORC Final Report: Assessing Progress in Reducing Child Labor in Cocoa Production in Cocoa Growing Areas of Côte d'Ivoire and Ghana*. Retrieved March 20, 2021, from <https://www.norc.org> [PDF] 46-47/148-151
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*; Cambridge University Press: Cambridge, UK. <https://doi.org/10.1017/CBO9780511807763>
- Potma, M. (2018). *Blockchain to restore trust in food supply chains. A case study in the cacao sector of Costa Rica*. 1-7
- Raasch, C., Herstatt, C., and Abdelkafi, N. (2008). *Creating Open-source Innovation: Outside the software industry*. *PICMET '08 - 2008 Portland International Conference on Management of Engineering and Technology*, 433–442. <https://doi.org/10.1109/PICMET.2008.4599652>
- Ramakrishnan, M., Shrestha, A., and Soar, J. (2021). *Innovation centric knowledge commons—A systematic literature review and conceptual model*. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 35.
- Sanguinetti, V., and Goudarzi, K. (2018). *Open-source adoption outside software industry: identifying key objectives and enablers?* (No. hal-02443057). <https://hal-univ-lyon3.archives-ouvertes.fr/hal-02443057>
- Savitz, A. (2013). *The triple bottom line: how today's best-run companies are achieving economic, social and environmental success-and how you can too*. John Wiley and Sons. 2–11
- Schrape, J.F. (2017). *Open-source Projects as Incubators of Innovation: From Niche Phenomenon to Integral Part of the Software Industry*. *Convergence: The International Journal of Research into New Media Technologies*, 1-33.
- Schweik, C. M. (2014). *Toward the comparison of open-source commons institutions*. *Governing Knowledge Commons*, 255-279.
- Slaper, T. F., and Hall, T. J. (2011). *The triple bottom line: What is it and how does it work*. *Indiana business review*, 86(1), 4-8
- Squicciarini, M. P., and Swinnen, J. (2016). *The Economics of Chocolate*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198726449.001.0001>

- Taherdoost, H. (2016). *Sampling methods in research methodology; how to choose a sampling technique for research. How to Choose a Sampling Technique for Research (April 10, 2016)*. 22-23
- The Next System Project. (2016, June 21). *How Does the Commons Work?* [Video file]. Retrieved February 20, 2022, from <https://www.youtube.com/watch?v=7bQiBcd7mBc>
- Thompson, A. (2019). *Tony's Chocolonely, Albert Heijn, Barry Callebaut form partnership for traceable cocoa. Candy Industry, 184(1)*, 13–14.
- Tony's Chocolonely. (2019, March 13). *Tony's Open Chain* [Video file]. Retrieved February 23, 2022, from <https://www.youtube.com/watch?v=sJQutMDdOyE>
- Tony's Chocolonely. (2020). *Tony's Chocolonely Annual Fair Report 2019/2020*. Retrieved May 11, 2021, from <https://tonyschocolonely.com>
- Tony's Chocolonely. (n.d.a). *Living-income-model*. Retrieved June 22, 2022, from <https://tonyschocolonely.com>
- Tony's Chocolonely. (n.d.b). *Tonys-beanTracker*. Retrieved June 22, 2022, from <https://tonyschocolonely.com>
- Tony's Chocolonely. (n.d.c). *CLMRS*. Retrieved June 22, 2022, from <https://tonyschocolonely.com>
- Tony's Chocolonely. (n.d.d). *Deforestation*. Retrieved June 22, 2021, from <https://tonyschocolonely.com>
- Tony's Open Chain. (n.d.a). *The Challenge*. Retrieved October 1, 2021, from <https://www.tonysopenchain.com>
- Tony's Open Chain. (n.d.b). *Whos-in*. Retrieved March 12, 2021, from <https://www.tonysopenchain.com>
- Transparence Cacao. (n.d.). *Transparence Cacao: What is it?* Retrieved February 20, 2022, from <https://www.transparence-cacao.com>
- United Nations. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. Retrieved October 20, 2021, from <https://www.un.org>
- Van Dijk, S., Hillen, M., Panhuijsen, S., and Sprong, N. (2020). *Social Enterprises as Influencers of the Broader Business Community*. 20-50
- WCED, S. W. S. (1987). *World commission on environment and development. Our common future*, 17(1), 1-91.

Appendix A: Codebook

Name	Files	References
1. Challenges in the cocoa chain	11	116
Economic challenges	7	14
Poverty - Living income	7	14
Environmental challenges	5	8
Climate change	2	2
Deforestation	4	6
Sector challenges	10	55
Bulk industry	4	5
Certification	9	17
Competitive market	3	10
Lack of transparency and accountability	5	11
Mono culture	2	2
Segregated sector	5	10
Social challenges	8	38
Child labor	5	5
Cultural background	2	2
Farmers are not involved	6	11
Farmers bear the risks	2	3
Gender inequality	2	4
Lack of regulation	3	8
No connection with the end product	4	5
2. Good elements in the cocoa chain	9	90
Economic arguments	4	10
Conversation around farm gate pricing	3	6
Important livelihood for farmers	2	3

Name	Files	References
Research and investments	1	1
Environmental impacts	4	6
Sector improvements	9	63
Certification	7	15
Chocolate as a product	4	7
Collecting data about what is happening	2	3
Conversation about the real problems	4	6
Direct (short) chains	1	2
Focus on responsibility of companies	3	3
Focus on sustainability from a customer perspective	4	5
Individual programs	6	10
More collaboration between actors	5	12
Social Arguments	6	11
Drive for regulation	5	7
Enables children to go to school	1	1
Farmers starting to be self organized	2	3
3. Actions needed to improve the industry	14	136
Better regulations-laws	4	12
Collaborations between actors-companies	7	14
Direct short chain relationships	5	13
Farmer empowerment	7	13
Governmental support	3	5
More attention to whole cocoa fruit	2	4
More transparency and accountability	6	11
Technological development	13	64
Confident of technological development	10	23

Name	Files	References
Negative opinions of Farmers Connect	8	13
Positive opinions of Farmer Connect	8	9
Skeptical about technological development	9	19
4. Attitudes towards the commons	14	79
Commons in today's world	6	20
Cosmolocal commons	2	4
How to define the commons	7	13
How to stimulate a commons approach	10	19
Collaboration	2	2
Continuous look for system change	1	1
Create direct lines	1	1
Find incentives for people to care more	3	3
Legislation	4	5
Set an example	2	2
Storytelling	1	2
Trust	2	2
The commons should be mainstream vs niche	11	16
Indifferent	2	2
Mainstream	10	11
Niche	2	2
The principles of the commons	6	11
5. Construction of Tony's Open Chain	1	24
Challenges of Tony's Open Chain	1	5
Core values	1	3
Data collection	1	1
Future perspectives	1	4

Name	Files	References
Mission allies	1	3
Sourcing principles	1	8
Focus on child labor	1	1
Focus on deforestation	1	1
Focus on strong farmers	1	2
Focus on traceability	1	2
6. Tony's Open Chain as initiative	12	107
Ambiguities about the chain	5	8
Content of sourcing principles	1	3
Not as coffee in the 'fourth wave'	1	1
Why not work with other enablers	1	1
Will it scale	1	2
Future potential allies	8	23
Actors in cocoa production countries	2	3
Certain countries	1	2
Consumers	1	1
Not the large chocolate companies	3	4
Purposeful brands	2	2
Retail	6	9
The bulk sector	2	2
Negative opinions	7	15
Actions might lead to adverse effects	1	1
Difficult to bring approach into daily business	1	1
Focus too narrow	2	2
Initiative is not a system change	2	6
Not a chance maker in terms of slavery	2	3

Name	Files	References
Price calculation	1	1
Retailers will still have unsustainable chocolate on shelves	1	1
Obstacles when joining	2	3
Positive opinions	12	58
Ambitious calculation of price	4	5
Enabler makes it easy for others to join	1	3
Gives farmers a voice	2	3
Holistic approach	3	5
Inspires others to act	2	5
Key-on-the-door solution	5	7
Lead by example	1	1
Long term contracts is quite unique	2	2
New market segment between bulk and specialty	1	2
Promotes collaboration	3	4
Put child labor more on the agenda	1	1
Put pressure on the sector	6	7
Sharing the model openly is very valuable	5	8
Strong communication towards consumers	1	2
The principles are solid	3	3
7. Tony's Open Chain as a commons	13	50
Commons in the chocolate industry	7	13
Tony's Open Chain is a commons approach	10	16
Tony's Open Chain is not a commons approach	6	8
Ways to make Tony's Open Chain more commons	8	13
8. Pieces of advice to improve Tony's Open Chain	13	44
Attitude	6	8

Name	Files	References
Be more democratic	1	1
Be more inclusive	1	1
Remain pushers and radically different	5	6
Tony's Open Chain	9	15
Collaborate	2	2
Determine the same goals	1	1
Don't complicate administrative rules	2	2
Involve all actors of the chain in deciding	1	2
Make the open chain broader	2	2
Rollout to the retailers	3	4
Stimulate diversification	2	2
Communication	9	14
Bring the spirituality back in the product	1	1
Communicate not only about child labor aspect	3	4
Keep being honest	3	3
Storytelling is important	4	5
Try consumer oriented traceability	1	1
Farmers	5	7
Improve impact on gender	2	2
Improve impact on in the environment	1	1
Invest in countries of origin	2	3
Pay farmer money that he needs now	1	1
9. Topics not discussed	3	5