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François Ruf, Guy Faure

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# Orchestrating a Multi-Stakeholder Supply Chain Network: The Case of Exporters in Cocoa Certification in Cote d'Ivoire

**Kouamé Casimir GBOKO**

*Institut National Polytechnique Félix Houphouët-Boigny  
DFR Gestion Commerce Économie Appliquée,  
Yamoussoukro (Côte d'Ivoire)  
kouame.gboko@inphb.ci*

**François RUF**

*Centre de Coopération Internationale en Recherche Agronomique pour  
le Développement  
UMR ART-Dev, Abidjan (Côte d'Ivoire)  
francois.ruf@cirad.fr*

**Guy FAURE**

*Centre de Coopération Internationale en Recherche Agronomique pour  
le Développement  
UMR Innovation, Montpellier (France)  
guy.faure@cirad.fr*

## ABSTRACT

Using a case study, this article uses the concept of network orchestration to examine the role of exporters in the implementation of voluntary cocoa certification in Côte d'Ivoire. To this end, data were collected from literature reviews, surveys of two exporters, and 20 cooperatives. Actor linkage matrix, actor linkage map and discourse analysis are used to understand the role of exporters in cocoa certification in Côte d'Ivoire. The findings show that exporters not only participate in the construction of a network of actors around the implementation of cocoa certification, but above all they pilot the network to facilitate certification implementation by actively participating in the mobility of knowledge and financial resources within the network and managing the certification process. However, although exporters play a key

role in the implementation of voluntary certifications, their role as network orchestrator is dilemmatic. Indeed, they use their position as orchestrator to control sales of cooperatives' certified cocoa and their premium.

**KEYWORDS:** Network Orchestration, Cocoa Certification, Exporters, Coopératives, Côte d'Ivoire.

**JEL CODES:** O350, Q55

Global agrifood chains are confronted with sustainability concerns such as environmental degradation, poor working conditions, and impoverishment of smallholder producers. These 'wicked problems' are complex, multi-layered, and multi-scalar, so that they are difficult to tackle using conventional regulation (Glasbergen *et al.*, 2007). More recently, private certification companies have developed in order to address sustainability problems in the chain. Theoretically, these initiatives are viewed as an important institutional instrument for promoting environmental and social sustainability in supply chains. And this by means of the creation of a private sector system of economic incentives, monitoring and enforcement (Lemeilleur *et al.*, 2015, Giovannucci, Ponte, 2005).

Achieving sustainability in the supply chain as the certifications claim to do is the "common goal" that requires the collaboration of multiple stakeholders (Alvarez *et al.*, 2010). For example, Reynolds *et al.* (2004) point out that Fair Trade certification requires producer groups to create and maintain strong external ties with corporate buyers and non-governmental organizations for development (NGOs). Inter-organizational networks are linked to sustainable development in supply chains in two related reasons. First, the complex character of sustainability problems demands the active involvement of all supply chain members and societal spheres in order to solve them. Second, the concept of sustainable development itself stresses the need for the mutual attainment of social equity, environmental health, and economic wealth. That is the reason why responsibilities and resources are given to different societal spheres (Van Huijstee *et al.*, 2007). Moreover, the link between multi-stakeholder collaboration and sustainable development was acknowledged as an important tool for implementing sustainable development at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg (Bäckstrand, 2006).

However, collaboration in inter-organizational networks that involves organizations with divergent institutional and cultural backgrounds can be a difficult undertaking. Indeed, the actors involved in collaboration can be faced with difficulties in areas such as lack of staff support, fragility of trust, and conflict management (Bitzer *et al.*, 2008). To address these challenges

and enhance the likelihood of achieving not only network level goals but also organization-level objectives, some form of governance is necessary. Provan and Kenis (2008) identified three basic forms of network governance, namely “Participant-Governed Networks”, “Lead Organization-Governed Networks”, and “Network Administrative Organization”. According to these authors, these forms of governance are essential to ensure that participants engage in collective action, that conflict is addressed, and that network resources are acquired and utilized efficiently and effectively (Provan, Kenis, 2008). Whatever the form of governance in question, an effective lead organization is necessary (Kilelu *et al.*, 2016). This lead organization is prominent and fulfils functions that enables it to coordinate, direct, influence and manage the network. Dhanaraj and Parkhe (2006) referred to the ‘hub firm’ to designate a form of lead organization in the network.

In Côte d’Ivoire, certification is widespread in the cocoa sector. Typically, certifications are implemented as a sustainable programme involving international and local actors (Ingram *et al.*, 2018). Studies have highlighted the leading role played by multinational traders (exporters) in certification programme implementation (Ingram *et al.*, 2018, Ruf *et al.*, 2019). However, this research has paid little attention to the coordination and management role of exporters through the network of actors involved in the cacao certification programs. This article seeks to fill this knowledge gap by analyzing the functions performed by the exporters to coordinate and manage the cocoa certification-oriented network. Moreover, we add to the body of knowledge about the role of commercial firms in implementation of the certification of agricultural produce. The article also aims to contribute to the scientific debate about their “network orchestration”, despite the lack of hierarchical authority in the network (Dhanaraj and Parkhe, 2006).

Section 1 describes certification in the Ivorian cocoa value chain. Then, in Section 2, the methodology of the empirical research is described. Section 3 provides a conceptual framework for analyzing the relevant literature about network orchestration. Then, in Section 3, the methodology of the empirical research is described. Section 4 discusses the findings from the case study. These findings are structured according to two main orchestration processes conducted by exporters: network building and certification process management. Finally, Section 5 provides a discussion of the study and draws the main conclusions, as well as suggestions for further research.

## Certification in the Ivorian Cocoa Sector

### Description of the Ivorian Cocoa Value Chain

Côte d'Ivoire is the world's leading producer of cocoa with a domestic production which was more than 2.0 million tons in 2019 (about 40% of global production). Cocoa is essential for the Ivorian economy. It plays an important role in terms of the redistribution of income. Indeed, cacao accounts for about 14% of GDP. It contributes up to more than a third of export earnings and finances 10% of government revenue (World Bank, 2019).

The sector is regulated by the State through the Coffee and Cocoa Council (CCC). The CCC sets the purchase price for producers of cocoa beans and ensures that these prices are respected. It also organizes and controls the external marketing of cocoa. Cocoa farming hires more than one million small-scale producers, mostly in the southern half of the country. These own between two and five hectares of cocoa plants (Bymolt *et al.*, 2018). According to the CCC, about 52% of cocoa producers are organized in more than 3000 cooperatives. A recent study carried out by Ruf *et al.* (2019) has shown that the majority of cooperatives in the cocoa sector are a conversion of the former “*pisteurs*” and “*traitants*” business. Most of the cooperatives focus mainly on the collection and resale of cocoa beans, without processing, and offer few services to producers. “*Pisteurs*” and “*traitants*” are the terms used in Côte d'Ivoire to refer to the middlemen between the producers and the exporter. A “*pisteur*” is a small trader of cocoa beans. In some cases, he is an independent entity and works for himself, but most of the time he works with the capital of the “*traitant*” and receives a fee, based on the quantity of cocoa they deliver (Ruf *et al.*, 2019). The “*traitant*” packages the cocoa beans received from “*pisteurs*” and sells these directly to exporters (Bymolt *et al.*, 2018).

Exporters, a few exporting cooperatives and “*traitants*” sell cocoa beans to chocolate manufacturers based in Côte d'Ivoire and abroad. About 65% of cocoa beans are exported (Basic, 2016). For the 2019-2020 campaign, a total of 78<sup>1</sup> entities (52 companies and 56 cooperatives) have been approved by the CCC as exporters. Major exporters in the sector are multinationals such as Barry Callebaut, Cargill, or Olam. These multinationals have internalized the transformation function. They also try to control the cooperatives so as to ensure a continuous cocoa bean supply Ruf *et al.* (2019). The added value of the cocoa or chocolate value chain is unevenly distributed in the sector.

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1. [https://www.sikafinance.com/marches/cote-divoire-pres-de-80-societes-agreees-pour-les-exportations-de-cacao\\_18784](https://www.sikafinance.com/marches/cote-divoire-pres-de-80-societes-agreees-pour-les-exportations-de-cacao_18784)

According to the World Bank (2019), producers, local traders and the State only capture about 13% of the added value, the rest going to multinational exporters and chocolate manufacturers.

### **Certification Implementation in the Ivorian Cocoa Supply Chain: A Partnership Issue**

Despite its importance in the Ivorian economy, the cocoa sector continues to face a number of deeply embedded, interrelated challenges that threaten its sustainability. These challenges include old plants with low productivity<sup>2</sup>; low farmer and worker incomes; pests and diseases such as swollen shoot virus; persistent poor labor and working conditions, and negative environmental impacts (deforestation, soil degradation and pollution) (Tulane University, 2015, Higonnet *et al.*, 2018, Bitty *et al.*, 2015). In the face of recurring criticism from environmental organizations and the media accusing cocoa farmers of destroying the rainforest and exploiting child labor, the chocolate industry has largely adopted certification to show its commitment to sustainable cocoa farming. In the meantime, they have committed themselves to buying 100% certified sustainable cocoa in the coming years. In order to comply with their commitments, towards the end of the 2000s major multinational exporters working in the Ivorian cocoa supply chain began to develop sustainability programs for small cocoa producers and their organizations. Typically, these programs operate as a kind of “package deal” with farmers and their organizations in which the promotion of so-called sustainable cocoa production goes along with other services such as training, loans, access to markets and agricultural inputs. To implement such a program, exporters establish partnerships with international sustainability NGOs and actors inside and outside the cocoa supply chain.

The major sustainability initiatives promoted by exporters in the cocoa value chain are Utz, Rainforest Alliance (RA), and Fairtrade (FLO) (Ingram *et al.*, 2018). These certifications consist of different interlocking mechanisms. The most important of these are standards (codes of conduct), an internal management system to allow group certification, traceability requirements, and independent verification (audit). These certifications are supposed to focus on different aspects of sustainable cocoa production. UTZ covers better farming methods and working conditions, as well as better care for nature and next generations (UTZ, 2015). RA highlights the conservation

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2. However, many farmers manage to maintain their old plants at relatively high yields (around 800 kg/ha) when the price of cocoa is high enough to let them maintain the farm and buy chemical fertilizers. Farmers also brought their own innovations, such as chicken manure and crop residues as new organic fertilizers, including bean husks (Ruf, 2015).

of biodiversity and ensures sustainable livelihoods by transforming land-use practices (Rainforest Alliance, 2017). FLO seeks to promote sustainable development and poverty alleviation among small producers and marginalized workers through fair trade (Fairtrade International, 2019).

Despite differences between these standards there is, however, a convergence not only in theory, but also in the design and implementation of the standards. Indeed, in the field, these three certifications display common so-called good agricultural, environmental, and social practices (Dohmen *et al.*, 2016). Furthermore, in 2018, UTZ and the Rainforest Alliance formally merged. The new organization will keep the Rainforest Alliance name and will use the green frog seal. The UTZ label will disappear and a new system will be published in 2019.

The certifications presented target producers and their organizations with premiums, which are an additional amount of money paid to producers for certified cocoa beans. In theory premium policies vary from one certification to another. However, in practice, there is a convergence towards a premium of about 100 FCFA/kg to be paid to cooperatives by exporters. Normally, the premium should be shared between cooperatives and producers. However, a recent study carried out by Ruf *et al.* (2019) points out that the producers' share is not paid to them in full by cooperatives.

## Conceptual Framework

Networks have been widely recognized by both scholars and practitioners as an important form of multi-organization arrangement to achieve sustainability in the agricultural supply chain (Bitzer *et al.*, 2008). Networks can be analyzed by two basic approaches: the structural approach, and the functioning approach (Provan, Kenis, 2008). The structural analysis of the network involves identifying the structural components of networks, and particularly the actors. It also involves a set of present or absent relations among objects referred to as edges. Network functioning analysis refers to understanding the process by which certain network conditions lead to various network-level outcomes. Our research focuses on network functioning. Different frameworks have been used to analyze the functioning of networks, including the “form of network governance” framework (Provan, Kenis, 2008) and “network orchestration” framework (Dhanaraj, Parkhe, 2006). According to Provan and Kenis (2008), the network governance framework form is the right one to understand the forms of the institutions and structures of authority and the collaboration used in the network to allocate resources and coordinate and control joint action across the network as a whole. However,

for networks to produce outcomes, these different forms of governance must perform a range of functions (Hekkert *et al.*, 2007). The “network orchestration” framework allows a report on the functions performed for a specific form of governance. As our research question focuses on functions performed by exporters to coordinate and manage the cocoa certification-oriented network, we think the “network orchestration” framework seems to be relevant enough to answer that. This section will provide more information about how we used the “network orchestration” framework to answer our research question.

### **Network Orchestration Process**

A network may be viewed as a group of three or more organizations connected in ways that facilitate achievement of a common goal (Provan *et al.*, 2007). Such networks may be self-initiated, by network members themselves, or may be mandated (Provan, Kenis, 2008). It may have either a dense or a sparse social network structure. However, whatever the mode of its emergence and the nature of networks, there are always technical processes led by a “triggering entity” (Doz *et al.*, 2000) that play a central role in the functioning of the network. Dhanaraj and Parkhe (2006) developed a framework in which they referred to the ‘network orchestrator’ to nominate such a ‘triggering entity’. They defined ‘network orchestration’ as the set of deliberate actions undertaken by a network orchestrator to create value with, and extract value from, the network. The network orchestrator is part of the original network. In their framework, Dhanaraj and Parkhe (2006) noted that the network orchestrator performs two basic functions: the design and management of the network.

In terms of designing a network, one of the major activities of the orchestrator is to recruit network members (choice of partners). According to Dhanaraj and Parkhe (2006), by completing these activities, the network orchestrator ‘can significantly change network membership (size and diversity) and structure (density and autonomy) and control its network position, maintaining its centrality and status. Once the network design activities have been completed, the network orchestrator may deploy orchestration processes by managing resource mobility, especially knowledge, value creation and appropriation, and finally network stability and development (Batterink *et al.*, 2010). Managing knowledge exchange across the network is widely recognized as a crucial task of the network orchestrator (Lammers *et al.*, 2009). To promote knowledge mobility, a network orchestrator needs to focus on the identification, assimilation, and exploitation of pieces of knowledge from the environment and motivate members to participate and openly share valuable

knowledge. In managing value creation and appropriation, the orchestrator must make sure of an equitable distribution of value in the network and that the related concerns in this regard are mitigated. For this purpose, it has to focus on building trust by communicating clearly, and avoiding opportunistic behavior (unfair appropriation of the network outcomes) (Dhanaraj, Parkhe, 2006). Managing network stability calls for the enhancing of network survival in the long run. In order to do this, the orchestrator must ensure that the network is profitable for all network members (Lammers *et al.*, 2009).

### **Network Orchestrator as Intermediary Organization**

By coordinating and harnessing the dispersed resources and capabilities from various actors in the network, an orchestrator might also be considered as a broker. In innovation system literature, brokers have been labelled differently (e.g. bridging organizations, third parties, technology transfer brokers or boundary organizations). By way of synthesizing the various definition terms, Howells (2006) used the broad term ‘innovation intermediary’. It is defined as ‘an organization or body that acts as an agent or a broker in any aspect of the innovation process between two or more parties. The literature references a range of functions fulfilled by the innovation intermediary (see, Kilelu *et al.*, 2011; for an overview). In the context of supporting agricultural innovation, Klerkx and Leeuwis (2008) captured three basic functions for such an innovation intermediary: demand articulation, network building, and innovation process management. According to Yang *et al.* (2014), demand articulation is about articulating and voicing the needs and demands of users in terms of technology and relevant knowledge. Network brokerage refers to facilitating linkages between potential collaborators as well as other actors that need to be involved in the network by means of scanning, scoping, filtering and matchmaking actors (Yang *et al.*, 2014, Kilelu *et al.*, 2011). Innovation process management relates to coordinating the interaction within the innovation network by mediating relationships (managing conflict and negotiating), providing space/platforms to enhance learning and aligning agendas (Kilelu *et al.*, 2011). It also includes the commercialization of innovation (Klerkx, Leeuwis, 2008; Howells, 2006).

### **Exporters as Network Orchestrators**

The functions of innovation intermediaries match the network orchestrators’ activities described by Dhanaraj and Parkhe (2006). Indeed, as network orchestrators, innovation intermediaries also facilitate the design and management of networks. The set of network design activities, as defined in

the network orchestration framework, corresponds to the network brokerage function of the innovation intermediary. This emphasizes the specific function of getting the right organizations willing to cooperate within a new network (Batterink *et al.*, 2010). The network orchestration process corresponds to the innovation process management function of an innovation intermediary (Batterink *et al.*, 2010). Innovation process management is the process: (i) of creating an atmosphere that stimulates knowledge sharing and learning (knowledge mobility) (Klerkx, Leeuwis, 2008), (ii) of commercialization of innovation process outcomes and enabling a fair distribution of the costs and benefits among innovation network members (innovation appropriability), and (iii) anticipating and solving conflicts among the members (network stability).

One of the most important functions of innovation intermediaries is demand articulation (Howells 2006; Klerkx, Leeuwis 2008). Such demand articulation was not put forward as a specific activity of exporters' network orchestration when certification standards were being defined by certification organizations. However, we will consider demand articulation as part of knowledge management. Indeed, for effective knowledge production and use, the network orchestrator must articulate needs and demands in terms of technology and relevant knowledge, and voice the demands to direct innovation support services from research, advisory, and training organizations (Yang *et al.*, 2014). In total, based on the network orchestration process described by Dhanaraj and Parkhe (2006), and innovation intermediary theory, we have identified four main functions of the exporter's orchestration of the cocoa certification-oriented network. These functions are network building (network recruitment process) and certification process management (management of knowledge and financial resources, monitoring certification implementation and conflict handling, and appropriation of certification process outcomes).

## Method

The research referred to in this study was based on a case study approach. Case studies are appropriate for exploring the 'what questions' addressed by this research (Yin, 2009). The research combined primary (interviews and observation) and secondary (archival material) sources of data. To explore the exporters' orchestration of the cocoa certification-oriented network in Côte d'Ivoire, we used our analytical framework and conducted different types of surveys. We first analyzed the various reports (grey literature) dealing with cocoa certification implementation in Côte d'Ivoire. Based on these

elements, we identified four main actors involved in certification implementation in this country (cocoa multinational exporters, cooperatives, certification organizations, and various service providers). We then conducted semi-directive interviews with these actors.

For the first actors, two major multinational traders-exporters of cocoa supply chain were deliberately chosen. These two exporters alone control a market that represents over 50% of the certified cocoa produced in Côte d'Ivoire. They also run their own sustainability programs in separate cooperative networks. For each exporter, we conducted in-depth interviews with the manager of the sustainability program. The topics covered include the identification of stakeholder organizations involved in the program and their role, recruitment mechanisms of those stakeholder organizations, and coordination mechanisms. For the second actors, since we did not have an exhaustive list of the cooperatives taking part in the sustainability programs of the two sampled exporters, we used snowball sampling to identify and gain access to these. A total of 20 cooperatives were investigated. In each cooperative, we interviewed the chairman of the board, the manager of certification-related issues called the 'group administrator' (French acronym: ADG), and the technicians in charge of disseminating certification requirements. The data collected are about the marketing of certified cocoa beans, premium management, and support received directly or indirectly from exporters. To add further information to the two first surveys, we had discussions with an agent of UTZ and FLO, and an agent of an audit office. All these investigations have helped us to map actors of the cocoa certification-oriented network and characterize exporters' network design and orchestration activities. The different sources of the data collected are summarized in Table 1.

We combined interview data with collected documents to first map the cocoa certification-oriented network (actors involved and the relationships they have with one another) using an actor linkage matrix and an actor linkage map (Biggs, Matsuert, 2004). For the analysis of the role of exporters in orchestration of the cocoa certification-oriented network, all interviews were tape recorded and fully transcribed (Halcomb, Davidson, 2006) in order to develop a detailed within-case description. Transcriptions were then reviewed using thematic analysis (Guest *et al.*, 2012) to identify emerging themes and concepts related to the network recruitment process, management of knowledge and financial resources, monitoring of certification implementation, and conflict handling and appropriation of certification process outcomes. We completed these analyses with quotes from transcriptions and documents consulted in the cooperatives.

**Table 1 – Study data sources**

<b>Organization investigated</b>	<b>Respondents interviewed</b>	<b>Number of respondents interviewed</b>	<b>Secondary sources of information</b>
2 Exporters	Manager in charge of sustainability issues	2	
20 Cooperatives	Chairman of the Board	20	Reports Websites Cacao-certified commercialization contracts
	ADGs	20	
	Technicians in charge of disseminating certification requirements	56	
2 Certification organizations	Agent of UTZ local representation	1	
	Agent of FLO local representation	1	
1 Service provider	Agent of an audit agency	1	

Source: Authors

## Findings

### Network Building

#### *Actors of the Certification-Oriented Network*

The cocoa certification-oriented network in Côte d'Ivoire is composed of a diversity of actors. These actors are certification organizations (UTZ, RA and FLO), multinational chocolate manufacturers, multinational cocoa exporters, cooperatives and their members, input suppliers, audit agencies and diverse other public and private service providers. CCC is no longer actively involved on the ground.

Certification organizations are entities which develop standards that cooperatives and their members must comply with in order to obtain certification. They accredit audit agencies to check that cooperatives and their

members comply with standards requirements and issue certificates to them. Input suppliers take advantage of certification requirements that prohibit the use of certain inputs to promote their own products to cooperatives and their members. Besides input suppliers and audit agencies, several other service providers which support the implementation of the certification are also part of the network. These are public organizations such as the national rural development support agency [French acronym: Anader], universities or research centers, and private organizations (NGOs, consulting agencies, etc.).

Cooperatives play the role of organizations owning certificates for groups of farmers. As certificate-holders, cooperatives are obliged to offer new services to producers who are part of certified groups in order to help them to comply with certification requirements (Snider *et al.*, 2016). To provide these services, cooperatives modify their organizational chart. With certification, they recruit an ADG and advisors. The ADG is responsible for the overall implementation of certification and the supervision of the advisors' work. Advisors are technicians who are in charge of disseminating certification requirements to producers. Cooperatives hire an average of five advisors with diverse profiles (farmers and non-farmers). These advisors are known by several names (coach, relay farmer, etc.).

Typically, exporters are the suppliers of certified cocoa beans to chocolate manufacturers. First, chocolate manufacturers place an order for cocoa beans produced according to specific standards with exporters. Then the exporter relies on cooperatives to fulfil the chocolate manufacturers' orders. So, it includes them in a sustainability program. One of the most important criteria that exporters consider to involve a cooperative in their sustainability program is its ability to deliver large volumes of cocoa beans. Through this strategy, each exporter develops its own cooperative network. Indeed, in certification, it is rare to see the same cooperative working with two exporters at the same time.

### ***Cocoa Certification-Oriented Network Built by Exporters through Commercial Agreements***

Exporters in the study put a lot of effort into building an extensive certification-oriented network through three main contract agreements. Contracts enable them to quickly connect with various actors to set up this network. First, there are contractual agreements between chocolate manufacturers and exporters. The interview with a manager on the sustainability issues of an exporter revealed the content of these types of agreements:

*“We have contracts with our customers (chocolate manufacturers). In these contracts, customers specify the volume of cocoa beans produced*

*according to specific sustainability standards that they need, the level of the certification premium. They also make clear the specific support activities in favor of cooperatives and their members, and the budget to implement these activities”.*

Through these first types of arrangements, exporters become the “*implementing partners*” of support services to cooperatives and their members. Chocolate manufacturers fund such support. These services are typically part of chocolate manufacturers’ social responsibility activities. This include, among other things, the building of capacity for cooperative technicians (ADGs and advisors), seedling distribution, combating child labor, literacy, women’s empowerment, etc. Thus, for example, if a chocolate manufacturer claims and pays for a certified cocoa with the training of cooperative technicians, the exporter will define part of the specifications, select a service provider, and pay the service provider’s invoice. In doing so, exporters act as a link between chocolate manufacturers, service providers, cooperatives and their members. They also extend the certification-oriented network to a variety of service providers. These same commercial arrangements provide exporters with the status of “*premium conveyor*”. Indeed, chocolate manufacturers use exporters to pay the premiums to the cooperatives and farmers who are part of the certified group.

In the study, exporters use their “*premium conveyor*” position to set up a second commercial agreement with cooperatives. As highlighted below in an extract from a specific cacao-certified commercial agreement, exporters undertake to provide direct support to cooperatives to implement certification.

*“(Exporter) through this partnership provides technical and financial support to the cooperative in order to help it obtain (specific) certification”.*

Through this second type of agreement, the exporter supports cooperatives by connecting them with several other actors such as audit agencies and consulting agencies, etc. As one manager reveals:

*“We help cooperatives to implement the certification. As cooperatives do not have the capacity to bear certain costs directly, we play a facilitating role in putting the cooperatives in contact with service providers and we pay for the services”.*

Indeed, in certification implementation, cooperatives bear costs related to certification audits and certain external support services. However, cooperatives are more often unable to bear these various costs directly. So on the

basis of the contracts that bind them together, exporters connect them with specific actors by pre-funding the amounts cooperatives owe.

The case study reveals that in their support to cooperatives, exporters engage in collaboration with input suppliers in order to help cooperatives and their members to access quality inputs. Through these partnerships, cooperatives and their members gain access to inputs about loans and receive support from input suppliers for the use of these inputs. In return, exporters ensure the recovery of input loans taken out by cooperatives on behalf of input suppliers.

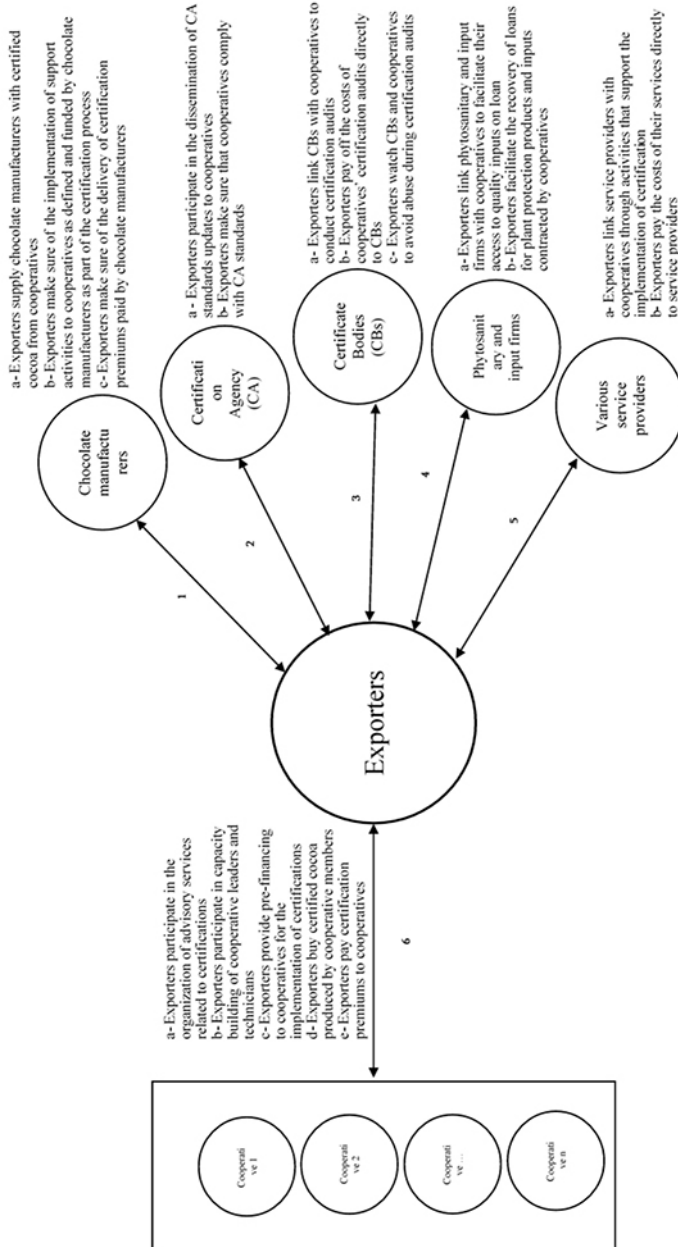
Based on these two commercial agreements described above, exporters in the study built a certification-oriented network. They also act as intermediary organizations that link all the necessary actors (certification organizations, chocolate manufacturers, input suppliers, audit agencies, diverse public and private service providers) to cooperatives and their members in order to enable them to gain access to the market and essential services for the implementation of certifications (Figure 1).

## **Exporters' Management of the Cocoa Certification-Oriented Network**

### ***Knowledge and Financial Resources Mobility***

The case study reveals that exporters facilitate the mobility of knowledge and financial resources in the certification-oriented network. Indeed, certification requires producers to gain access to new sources of knowledge (Snider *et al.*, 2016). One of the roles of cooperatives as certificate-holders is to help producers have access to these new pieces of knowledge (Kuit, Waarts, 2014). To do this, it is essential for cooperatives to have skills in identifying the knowledge needed by producers and transmit this (Gfras, 2015). However, due to their weakness, such skills are often missing in cooperatives. Exporters in the study are trying to fill this gap by playing a leading role in knowledge brokering in order to facilitate access for cooperatives and their members to knowledge. First, they maintain a close link with certification organizations to share with cooperatives the updates and evolution of certification standards (Fig 1, link 2.b). Second, exporters connect cooperatives with public and private knowledge suppliers or use their own staff to organize training for cooperative leaders and technicians to help them fill in the knowledge gap about certification implementation (Fig 1, link 5.a). For example, one exporter in the study relied on an NGO to build the capacity of more than 100 cooperative leaders to professionalize their organizations. The other exporter has been using a public agricultural school to train cooperative ADGs and

Figure 1 – Mapping of exporters' position in the cocoa certification-oriented network



Source: Authors

advisors on certification requirements. Moreover, an analysis of a speech by an exporter manager of sustainability below indicates that exporters in the study are actively engaged in the definition of the methods and tools through which certification requirements are disseminated to producers.

*“We found that the rate of producer participation in farmer field schools had really dropped. There were even cooperatives that were struggling to bring together more than 10 people in the farmer field schools. So we changed our strategy. We are now going to the farmers, to be much more aware of the realities of their plantations in order to make appropriate recommendations. This is coaching”.*

These words revealed that, at the initiative of exporters, another method called “coaching” is being promoted in cooperatives.

What could be noted here, however, is that the exporters’ role in knowledge brokering is limited only to facilitating access to available knowledge. They are not engaged in articulating demands for new knowledge. So they have very little influence on certification requirements.

Furthermore, the exporters in the study also play a central role in facilitating financial transactions in the network. For example, as mentioned in the section above, by acting as “implementing partners” and a “premium conveyor”, or by pre-funding cooperatives, exporters in the study facilitate the circulation of financial resources in the certification-oriented network.

### ***Monitoring of Certification Implementation and Conflict Handling***

The study reveals that all the exporters are engaged in conflict handling in the certification-oriented network. Typically, certifications have defined a number of criteria (control points) that have to be complied with by cooperatives and their members. Obtaining a certification is conditioned by respecting these criteria. To ensure that cooperatives and their members successfully pass certification audits, the exporters in the case study use their field staff to monitor the compliance of cooperatives and producers at different control points and to prepare them for certification audits. This provision is also taken into account in the trade agreements that exporters establish with cooperatives as part of the certification process. Compliance with these criteria is verified annually by an external audit that is supposed to be independent and impartial. Audits are therefore quite crucial for the stability of this network. However, it is not uncommon for conflicts to arise during audits because of complacency or, conversely, possible over-zealousness on the part of some auditors. When a conflict situation arises during certification audits,

the exporters studied told us that they act as mediators between audit agencies and cooperatives.

In addition, the study shows that exporters act as a financial guarantor for cooperatives. They play this role when they ensure the recovery of input loans taken out by cooperatives on behalf of input suppliers (Fig 1, link 4.b) or by pre-funding any cooperative activities (Fig 1, link 6.c). In this role of financial guarantor, exporters prevent the probable conflicts that could arise between cooperatives and other actors in the network as a result of non-payment.

### ***Appropriation of Certification Outcomes***

An analysis of the activities undertaken by exporters showed that they play a decisive role in the marketing of certified cocoa beans. In fact, through the two commercial agreements described above, exporters create “market linkages” by ensuring consistency between orders for certified cocoa from chocolate manufacturers and deliveries from cooperatives. However, what could be noted here is that exporters unilaterally appropriate certified cocoa beans produced by cooperative members. Indeed, as shown below in the extract of a commercial contract for certified cocoa, exporters make their support to cooperatives contingent on holding exclusive rights over the certified cocoa production of the farmers who are part of the certified group. In so doing, they decide the quotas of certified cocoa that they will buy from cooperatives, while also controlling the option that they sell the unsold cocoa to another exporter.

*“There is consideration of the financial and technical support provided by the exporter for cooperatives to obtain certification. The latter declares that it is granted exclusive rights to deliver certified cocoa within the limit of the tonnage agreed in the supply plan. Once the volume defined in the supply plan has been reached, and in the event of non-renewal of the plan, the cooperative may sell the remainder of its certified production to a third party. It is required to inform the exporter of this decision before entering into a transaction with a third party”.*

With quotas, only part of the certified cocoa production of producers is marketed and benefits from the certification premium. This situation undermines the credibility of cooperatives among their members, who feel that their efforts are not fully rewarded.

The exporters that we studied also obtain part the certification premium. Indeed, all the pre-financing that they give cooperatives is recovered from the certification premiums. However, cooperatives have very little visibility

of the management of pre-funding. Thus, it is not uncommon for cooperatives to complain about the lack of transparency in pre-fund management, as revealed by the words of one cooperative manager:

*“The exporters almost pre-financed all the implementation of certification at the cooperative level. They tell us that this or that thing is charged at such and such an amount and everything is taken from the premium. At the end of the day we don’t earn anything on the premium”.*

Table 2 summarizes all the duties performed by exporters as studied in the orchestration of the cocoa certification-oriented network in Côte d’Ivoire.

**Table 2 - Main functions fulfilled by exporters as network orchestrators**

<b>Main functions fulfilled by exporters as network orchestrators</b>	<b>Activities characterizing the functions</b>
Network building	Recruiting cooperatives to participate in certification programs Linking cooperatives to a wide range of actors to facilitate certification implementation Market linkages between chocolate industry and cooperative
Knowledge and financial resources mobility	Sharing updates on certification standards with cooperatives. Organizing training for cooperative leaders and technicians Developing the methods and tools whereby certification advice is provided Facilitating the circulation of financial resources within the network
Certification process management	Monitoring cooperatives and producers to comply with the requirements of certification standards Managing conflicts between cooperatives and other actors of the network
Appropriation of certification outcomes	Controlling certified cocoa produced by producers Deduction from certification premiums of cooperatives and their members

Source: Authors

## Discussions

Following the economic reforms that have taken place in Côte d'Ivoire, multinational traders have integrated the cocoa sector and developed sectorial logistics that have allowed them to buy directly from farmers through cooperatives (Lemeilleur *et al.*, 2015). However, those cooperatives are weak and they are transactionally dependent on exporters, so that these companies position themselves as 'hub firms' (Dhanaraj, Parkhe, 2006) in the Ivorian cacao supply chain. In accordance with Hinterhuber (2002), our study confirms that exporters as lead firms play pivotal roles in the orchestration of a supply chain. They fulfil several certification-oriented network orchestration functions. These include both network brokering and network management roles.

First, consistent with the findings of Adebayo *et al.* (2015), the exporters studied actively engage in network brokering in order to facilitate the implementation of voluntary cocoa certification schemes. As a network broker, exporters in the study act as a channel of assistance in selecting external support to be made available to cooperatives (Bessant, Rush, 1995; Cooke, Wills, 1999). In the certification of coffee in Costa Rica, on the contrary, this network brokering role is played by the cooperatives (Snider *et al.*, 2016). This network broker role is also recognized among independent innovation intermediaries (Van Lente *et al.*, 2003, Klerkx, Leeuwis, 2008, Yang *et al.*, 2014, Kilelu *et al.*, 2011) who, unlike the network orchestrator, may not be part of the original network (Batterink *et al.*, 2010). However, following Yang *et al.* (2014), it can be noted that exporters in our case did not engage in systemic brokering by bringing together 'many-to-many-to-many' relationships, but rather engaged in a broad package of bilateral relationships, in which they acted as an integrator (Figure 1).

Second, as regards the broader network management role, in accordance with earlier suggestions by Dhanaraj and Parkhe (2006), it was confirmed that exporters in the study undertake several activities to coordinate and manage the functioning of the cocoa certification-oriented network in various ways. Consistent with the findings of Adebayo *et al.* (2015) and Ingram *et al.* (2018), the exporters studied are actively engaged in the facilitation and coordination of knowledge mobility within the cocoa certification-oriented network. It means that, in addition to the public extension services, which are encouraged to take the new role of coordinating advisory services (Kidd *et al.*, 2000), the private sector could also take on this role. This may be particularly relevant in a country such as Côte d'Ivoire where the public extension system has been struggling since the structural adjustment plans

of the 1980s (Alphonse, 2008). Contrary to the theory that the networks are designed in such a way that conflicts are unlikely to occur (Batterink *et al.*, 2010), our results show that conflicts may arise in a network. However, when conflicts do occur, as is suggested by Kilelu *et al.* (2011), the study finds that exporters play an important role in handling them.

Although exporters' orchestration of the cacao certification-oriented network fosters the implementation of certification, this may also trigger tensions within the network. This relates mainly to problems with opportunistic behavior, which has been pointed out by Teece (2000). According to this author, opportunistic behavior involves confiscating the marketing of network outcomes. As our study shows, in their orchestration exporters sometimes adopt opportunistic behavior when, for example, they grant themselves exclusive rights over certified cocoa produced by members of the cooperatives, or when the pre-financing they give to cooperatives absorbs a large part of the certification premiums. In so doing, as outlined by Lammers *et al.* (2009), the exporters studied act as 'tertius gaudens', which seek to strengthen their own competitive position in the cocoa supply chain and use the network to achieve this goal. This opportunistic behavior by exporters is often seen by cooperatives as exploitative, increasing discontent both between them and internally. Theoretically, exporters' opportunistic behavior may threaten the sustainability of the network. As mentioned by Dhanaraj and Parkhe (2006), if actors perceive that they are being exploited, they can break the ties with those perceived to be exploitative. However, the chances of cooperatives breaking their ties with exporters are very low because cooperatives are weak and transactionally dependent on exporters. Faced with this, the State and international development assistance agencies may be asked to work to make cooperatives more professional and stronger so that they can effectively participate in the orchestration of a certification-oriented network instead of exporters. We also recommend that the State get involved in implementation of voluntary certification and play a regulatory role by enacting an institutional framework to allow a better functioning of the certification systems.

## Conclusion

The concept of network orchestration used in this study is very helpful to understand the role of exporters in the orchestration of the cocoa certification-oriented network in Côte d'Ivoire and in other West African producing countries, where exporters play a key role in the certification of agricultural produce. The study demonstrates that the exporters not only participate in the construction of a network of actors around the cocoa certification, but,

above all, they pilot the activities of this network to facilitate certification implementation. However, our results show that exporters' role as network orchestrator is dilemmatic. Indeed, they used their position as orchestrator to unfairly control sales of the cooperatives' certified cocoa and their premium. Our in-depth study of exporters as network orchestrators contains a number of implications. First, our study makes a welcome contribution to the literature on network orchestration, more specifically a network related to sustainability initiatives (Bitzer *et al.*, 2008). Second, because of their economic interests, exporters do not always achieve a successful orchestration of the multi-stakeholder supply chain on sustainability initiatives. A limitation of our study is that our findings are based on qualitative results from a limited number of exporters. Hence, further research is required on a larger sample of exporters in Côte d'Ivoire and other West African countries. The research could be interesting to assess captive value chains in a systematic and comparative manner.

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