



HAL
open science

E-Cash & E-Vouchers: the Digitalization of the Humanitarian Aid and Logistics

Loïc Cohen, Vincent Salaun

► **To cite this version:**

Loïc Cohen, Vincent Salaun. E-Cash & E-Vouchers: the Digitalization of the Humanitarian Aid and Logistics. Hamburg International Conference of Logistics, Oct 2017, Hamburg, Germany. hal-02526623v2

HAL Id: hal-02526623

<https://hal.science/hal-02526623v2>

Submitted on 6 Apr 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - ShareAlike 4.0 International License

E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics

Loïc Cohen¹, Vincent Salaun¹ (2017 CRET-Log Université Aix Marseille¹)

***Abstract:** In the recent years, the mobile phone coverage expansion and the more widespread use of cash cards have eased the implementation at scale of Cash and Vouchers (C&V) programmes in the humanitarian sector. Furthermore, the development of web-based interfaces, designed to respond to the specific needs of the sector, supports the implementation of C&V programmes. Due to the technological innovations, C&V assistance is growing rapidly and the sector seriously considers the ‘e-assistance’ as an alternative to the in-kind assistance. This paper aims to investigate the potential impact of this digitalization on the humanitarian supply chain. If the literature states that C&V programming reduces cost, brings speed and serves better the needs of the beneficiaries, no real reference is made on the impact on the humanitarian supply chain. To explore this gap, the research uses the punctuated equilibria theory proposed by Eldredge and Gould (1972) and adapted for Management Sciences by several researchers such as Trushman and Romanelli (1985) or Rowe and Besson (2011). Having close similarities with the humanitarian supply chain, a parallel is drawn with the event supply chain, which stands at a stage further in the integration of new technologies and has consequently re-shaped its structures and strategies. Through a qualitative methodology based on participant observations, institutional communications and secondary data, this paper highlights how C&V supported by digitalization has created a rupture in the role of the humanitarian logistics and how*

*humanitarian organisations search to find a new equilibrium
between strategy of intervention and supply chain strategy.*

1 Introduction

Today, progress in new technologies raises a strong interest from donors, practitioners and governments as to how the technology can best serve humanitarian responses. In the recent years, Cash and Voucher (C&V) assistance is growing rapidly and many humanitarian agencies start to implement extensively this type of project as an alternative to in-kind assistance (Kovács, 2014). If there is currently no systematic tracking of the volume of humanitarian assistance delivered in the form of C&V, a report from ODI, (2016) suggests that in 2015, out of a total spending of 24 billion on humanitarian aid at least \$1.9 billion was spent in the form of cash-based responses (51% cash and 49% vouchers). United Nations agencies accounted for around two-thirds of the total and non-governmental organisations (NGOs) for just under a third. At the World Humanitarian Summit in 2016, many of the world's largest humanitarian donors and agencies made a set of commitments to increase the use of cash-based programming (ODI,2106).

If for a non-expert of humanitarian assistance, the C&V programming sounds like an anecdote, it is important to show how the digitalization of aid through C&V implies a change of paradigm for the humanitarian logistics. Since a long time, the traditional humanitarian aid is based on an ultimate supply chain, as described by Mentzer et al. (2001), covering from the needs assessment to the distribution to the recipients. The C&V programming creates a significant break with this traditional model because it delegates all

the downstream logistics operations to local traders. In this way, the C&V programming implies for the NGOs to move from a traditional in-kind assistance to a new financial and digitalized assistance, this is a move from physical flows management in the past, to information flows management in the future.

In this context of potential revolution for the NGOs, this research tries to understand what sort of impacts could have the C&V programmes by posing the following research question: **How the C&V programmes can modify the logistics strategy of humanitarian NGOs?**

This interrogation was raised by observations, from one of the authors involved in the sector as a logistician, of fast-paced changes in the humanitarian sector. Furthermore, this topic is often discussed in the different logistics coordination platforms by practitioners, as they feel that they have to redefine the logistics function because their role is challenged by a new type of assistance (Logistics cluster 2014).

To reply to this research question, this communication is divided in three sections. The first one highlights the principles of C&V programmes and humanitarian logistics, and draws a parallel with the event logistics using the punctuated equilibrium theory (Eldredge and Gould, 1972; Trushman et Romanelli, 1985), to show from a theoretical point of view how C&V programmes can change the NGOs logistics strategy. Subsequently, the second point focus on the qualitative methodology used for this research. The last point exposes a discussion of the results.

2 From humanitarian logistics to event logistics: a theoretical reading with the punctuated equilibrium

In order to establish a theoretical reading of the impact of C&V programmes on the logistics strategy of aid agencies, this part is segmented in four points: a review of the principles of C&V assistance (2.1), a literature review on the characteristics of humanitarian logistics (2.2), a parallel with another temporary logistics set-up, the event management and specifically on music festivals (2.3), to finish a reading by the punctuated equilibrium theory of the conclusions (2.4).

2.1 Cash & Vouchers programmes: the principles and operating

ECHO (2013), defined Cash-based responses as mechanisms to provide resources to a population in two main ways:

- **Vouchers** provide access to pre-defined commodities or services. They may be denominated in cash, commodities or service value. Vouchers come with some restrictions and must be exchanged for a given commodity or service. Vouchers are often grouped under the heading of ‘cash-based responses’, but they differ from cash transfers.
- **Cash transfers** are the provision of money to individuals, households, either as emergency relief intended to meet their basic needs for food, non-food items or services essential for the recovery of their livelihood. Beneficiaries decide how to use the cash received.

According to Doocy and Tappis (2016), in the different studies reviewed, C&V assistance appears to be more efficient to deliver when compared to in-kind assistances. However, the overall cost-efficiency of C&V depends on the prices paid by beneficiaries for the commodities in local markets compared to the cost for the humanitarian organisations to procure, transport, store and distribute the In-kind assistance (Venton et al, 2015).) The advantages of C&V have been segmented in three categories by WFP (2017). The first one, it's **fast, efficient, and generally secure**, by reducing the cost and logistical complexity, C&V shortens the path to deliver assistance. The second advantage is the C&V programme's ability to **offer to** beneficiaries a **greater choice** to purchase what they need most. And the last one concerns the potentiality to **stimulate trade** by injecting cash into the local economy, and to create a virtuous circle of production and consumption.

As stated by ECHO (2013), "*In certain humanitarian disasters, the supply of food and non-food items to markets is organized and sustained. In such context, the cash and vouchers project gives the aid organisations the mean to reach timely and directly the affected population*". However, despite the rapid growth and the clear advantages, C&V programmes are not suitable in all contexts. C&V assistance, or the combination with the In-kind assistance, should be defined by a context-specific assessment which analyses the availability of goods and services, the possible impacts on markets, the cost effectiveness, the technologies to support the transfer, the processes for targeting beneficiaries, the security and corruption risks.

Providing assistance to the peoples in need through cash and vouchers is not new; This mean of aid exists for over a century

(Devereux 2006), but in the past, the C&V assistance implementation was hampered by the lack of technological solutions. In the recent years, the evolutions of the mobile telephony and electronic payment systems have allowed to switch from physical distributions to e-transfers and have facilitated the implementation of C&V programmes. There are two different forms of e-transfers used most frequently: The e-cash and the e-vouchers. A synthesis of differences and commons between e-cash and e-vouchers is suggested in the table 1.

Table 1: Differences and commons between e-cash and e-voucher

	e-Cash	e-Voucher
Program Uses	Like cash, e-cash allows beneficiaries to buy which commodities are most critical to them, and where and when they want to spend their money.	Like paper vouchers, e-vouchers are used in programmes designed to increase access to a particular set of goods or services.
Service Providers	Requires a local service provider (bank, mobile network, etc.) that can issue and accept e-cash.	Can be selected from a list of pre-qualified e-voucher service providers
Agent / Vendor Networks	Relies on a network of transfer agents or ATMs that accept e-cash in exchange for goods, services or physical cash.	Requires to establish a local vendors network. Also requires to equip vendors with hardware.

<p>Availability and Regulations</p>	<p>Systems are local. Subject to banking and anti-money laundering regulations, some of which can require official forms of ID for programme participants.</p>	<p>Systems are global and can be used anywhere with minimum infrastructure requirements. Does not rely on, or link to, local financial services. Not subject to local banking or financial regulations</p>
--	--	--

Adapted from Mercy Corps e-Transfer Guide (2014)

As shown in this point, the e-cash and e-vouchers programmes are based on a transition from in-kind aid to a financial, direct or indirect, assistance allowed by the development of web-based interfaces and by adapting information technology to the crisis contexts. This kind of programme potentially implies for the NGOs to modify their deep organisation and more specifically their logistics strategy to move from a physical-based flow management to an information-based flow management. To continue our research, it seems important to return to the basics of humanitarian logistics to identify the potential impacts of e-transfers on the NGOs logistics strategies.

2.2 Some basics about humanitarian logistics

When it comes to “humanitarian logistics”, the most commonly used definition is: “Humanitarian logistics is the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from point of origin, to point of consumption for the purpose of meeting the end beneficiary’s requirements” (Thomas and Mizushima, 2005).

To perform this task, the humanitarian logistics conducts needs assessments and logistics planning, manages the procurement cycles,

organises the transports, performs customs clearance, manages warehousing and distributes the assistance to the beneficiaries.

As highlighted by Pettit and Beresford (2009), the supply chain management is often the most complex element of a humanitarian operation. The success or failure of such operations depends on understanding and addressing the issues of the supply chain. The difficulty of an emergency response is how to get the right quantities of relief supplies, to a determined location, in a minimum of time. This is the responsibility of the humanitarian logistics and to do so, humanitarian organisations have to put in place a complex and temporary network (Salaun, 2016) with multiples actors in charge of different nodes.

Many authors (Beamon 2004; Van Wassenhove, 2006; Kovacs and Spens, 2007; Day et al., 2012) have highlighted the Humanitarian Supply Chain Management characteristics and have identified five major components:

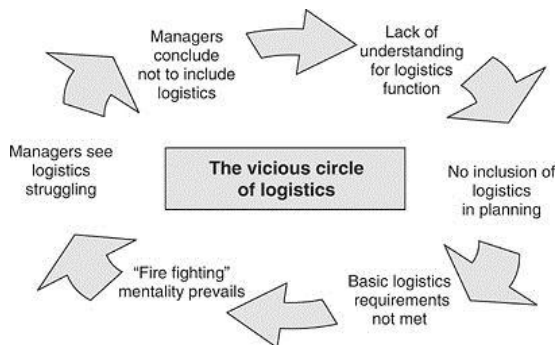
1. The unpredictability of the demand, which makes forecasting difficult, in terms of timing, location and volume.
2. The operational context, which makes very complex the effective flow of goods and materials.
3. The imperatives associated with the timeliness for a wide variety of supplies
4. The recurrent lack of resources in terms of supplies, expertise, technology, funding.
5. The supply chain is dynamic, temporary and short term.

The humanitarian sector regroups a wide panel of different types of organisations which range from NGOs, United Nations agencies,

International organisations, etc. Although, if they operate in the same contexts, the place of the logistics within the organisation and the level of logistical capabilities vary from one organisation to another (Thomas & Kopczak, 2005). Some organisations consider the logistics as a central function, while some other organisations often neglect its role in the strategic planning (Kovacs & Spens, 2009). Various factors, such as their size, mandate, structure, funding and area of expertise determine their deep organisational structure and operational boundaries, which impact on their logistics strategy (Cohen, 2016).

Humanitarian logistics is caught in a vicious circle (see figure 1) where a lack of understanding and recognition of the importance of the function precludes it from planning and funding processes, leading logistics not to be able to fulfill its objectives and obligations.

Figure 1: The vicious circle of the humanitarian logistics *from Van Wassenhove (2006)*



In a sector where the logistics has been suffering for long from a lack of investment and has shown some chronic deficiencies,

humanitarian logistics researchers are concerned with the implications and the complexity of the physical flows management. This includes the number of points at which the products are handled, moved and stored, regardless of the number of actors, transfers of responsibility and liability in the logistics process.

Moreover, Humanitarian organisations compete to access funding, and donors are demanding greater accountability and performance of the logistics activities. Since logistics accounts for about 60% of a relief operation (Van Wassenhove, 2006), improving its performance would surely give a ‘‘competitive advantage’’ to organisations to access funding. As the basic principles of managing the flows of goods, information and finances, which are valid for the commercial logistics, are also valid for the humanitarian logistics (Kovacs and Spens, 2007), one envisaged way by certain organisations to improve the performance of their supply chain, is to delegate the management to Logistics Services Providers (Balcik *et al.*, 2010). But from a contract management standpoint and given the unpredictable nature of relief operations, it could be complex to delegate the management of the supply chain to logistics services providers (Cohen, 2016).

A closer look to this problematic reveals that the solution of improving the effectiveness of these supply chains may not be in the hands of these logistics operators, but maybe in the shift on how the assistance is delivered. Indeed, the e-assistance dematerialized and transformed the in kind-assistance from physical, informational and financial flows to informational and financial flows only. The complex physical flow management and the final distribution are delegated to local traders, who become *de facto* a new type of services providers. By the eliminating or transferring many logistical activities to third parties, C&V assistance modifies the humanitarian

supply chain. It simplifies the complex procurement cycles, although there is still contracts management to do. But most of all, it is an opportunity to disengage from the transport and warehousing management and to reduce distribution implications. This shift on aid delivery mechanisms potentially leads to a reconfiguration of the logistics function (Heaslip 2013). However, this thinking stays an assumption and the lack of research about the impacts of C&V programmes on NGOs logistics strategy requires an extension of this research to strengthen our theoretical conclusions. For this, it's possible to establish a parallel between the humanitarian logistics and another specific logistics, which is also engaged in the digitalization: the music festivals logistics.

2.3 Toward another digitalized logistics: the event management

The e-cash and e-vouchers programmes are new for practitioners and researchers, so it is difficult to identify the potential impacts of C&V programmes on the humanitarian logistics. However, it is possible to use the example of a near industry, which currently lives the same case of digitalization than the humanitarian aid. For few years, the event management sector is characterized for using more and more information technology. To illustrate this fact, we can look specifically on the music festivals industry which uses the cashless technology since the early 2010's (Jackson, 2014).

At first glance, humanitarian and event logistics can be seen as very different industries: different aims, different stakeholders, different "customers", etc. However, as shown by Salaun (2016), if the stakeholders and the aims of these two industries are distinct, their deep structures are very similar: a permanent structure with a large

network and a wide variety of actors to implement temporary projects (relief for humanitarian and festival for event). In fact, if we look at the major components of the humanitarian logistics highlighted previously, we can identify a lot in common with the event logistics. As shown by Lexhagen *et al* (2005) and Locatelli and Mancini (2014) in event management, the “operation excellence” is one of the biggest factors of success for any events. Even if these authors don't give any exact definition of "operation excellence", it looks possible to associate this notion to the logistics performance. Like in the humanitarian context where the logistics is seen as essential, the logistics is crucial in event management. Moreover, according to Kerzner (2013), the two major reasons of an event failure are, the incapacity to respect the time restriction of the event, and the difficulties to address consumers' demands due to a lack of resources or goods. Also, we can find two additional similarities between event and humanitarian industry: the short term cycle of the supply chain and the lack of resources. In addition, O'Toole (2000) reports one other characteristic for event logistics : the operation management complexity due to a wide variety of supplies, which is another similitude with the humanitarian logistics. According to these authors, event and humanitarian logistics are very close and are based on the same principles. This proximity between the two logistics permits to build these basic inferences:

- Humanitarian and event logistics are very similar.
- Event logistics has been impacted and continues to be impacted by an innovation, the cashless.
- Given the similarities with the event logistics, humanitarian logistics can also be impacted by innovations.

Before developing this idea, it is important to explain what is the cashless and how this innovation has strongly impacted the event logistics in music festivals. Used for a decade (Jackson, 2014), the cashless constitutes a personal and virtual wallet assigned to each festival-goers. This virtual wallet is linked to the bank account of the festival-goers who can put at any moment credits on it and which is materialized by a RFID or NFC tag included on a card or a bracelet. When a festival-goer wants to buy something, he presents his RFID tag to a terminal to pay (Dowson and Bassett, 2015). To our knowledge, the impacts of cashless on event logistics have been addressed only on two studies. The first one by Jackson (2014) shows how the cashless produces new information flows. The second one, leaded by Salaun (2017) highlights the capacity of the cashless to impact festivals logistics strategy on three points: the logistics processes (1), the warehousing (2), and the flows management (3). According to Jackson (2014) and Salaun (2017), in music festivals management, the cashless has impacted strongly the logistics strategy of the event and encouraged new logistics practices, such as subcontracting logistics services providers (Salaun, 2017). To explore the potential impacts of C&V programmes on NGOs logistics strategy, it could be pertinent to use the example of the cashless on event logistics: From a small digitalization to a big logistics revolution.

2.4 A reading of digitalization through the punctuated equilibrium theory

As shown in the previous point, the humanitarian and event logistics, at least in music festivals, present similarities. Therefore, it is possible to imagine that the impacts of the cashless on event logistics

can potentially be transposed as the future impacts of C&V programmes on humanitarian logistics. In both situations, the opportunities permitted by the information technology evolution, lead to rethink the deep structure of organisations and to develop a new logistics focus on information flow management instead of physical flow management. In order to propose a framework to study the case of humanitarian logistics and C&V programmes, we need to embed our research in a stable theoretical frame in order to develop cross-sectorial extrapolations from event to humanitarian management.

The rapid development of cashless and C&V programmes which appears to be the consequences of fast evolutions of information technology used gradually by the actors of these two industries, suggests to use an evolutionist point of view, and more specifically the punctuated equilibrium theory. Historically, developed in the biology field by Eldredge and Gould (1972), the punctuated equilibrium theory proposes a gradual evolution and rejects the idea of a permanent adaptation to the environment. The evolution of organisms is based on the research of homeostatic equilibrium during long periods, punctuated by short and sudden periods of radical modifications linked to important changes of the environment. Adapted to management by Trushman and O'Reilly (1996), the punctuated equilibrium theory highlights how organisations quest for stability and homeostatic equilibrium, punctuated by swift periods of rupture and the re-reshape of the structure. This theory looks relevant to study the potential impacts of C&V programmes on humanitarian logistics strategies.

Even if this theory was developed in biology, the academic community of researchers on management uses frequently the

punctuated equilibrium. For example, we can point out the works of Day (2014) and Stevens and Johnson (2016) who referred to the punctuated equilibrium on humanitarian logistics researches. One of the most important contribution of this theory is to show how the evolution cycles based on fast periods of rupture can modify the organisation deep structure (Gersick, 1991). According to Silva and Hirschheim (2007), the organisation deep structure can be splitted in four major components: the organisational culture (1), the distribution of power (2), the organisation (3), and the control and management system of performance (4). By comparing different models from the literature, including the model of Trushman and O'Reilly (1996), Besson and Rowe (2011, 2012) describe the evolution cycle in four steps:

1. **Unfreeze**, which is a rupture of the homeostatic equilibrium and a decrease of the organisation inertia.
2. **Move**, is a step of exploration and the emergence of a new deep structure.
3. **Refreeze**, corresponding to the stabilisation and the anchoring of the new deep structure.
4. **Convergence**, is the last step during which the organisation searches the optimisation and the routinisation of the new equilibrium.

According to the model of Besson and Rowe (2011, 2012), and with the information given by the literature about cashless in music festivals, it is possible to consider that music festivals are currently in the third step of the cycle of evolution, the refreeze. Indeed, in music festivals the organisational culture is modified to adopt the cashless technology. Some activities are subcontracted, as a power delegation.

The organisations have been reconfigured to include the new information flow, and new ways of control and performance management have been developed and implemented. As per Silva and Hirschheim (2007), this description shows a modification of the deep structure of the music festivals organisations in order to find a fit with the new environment and opportunities. Concerning the impact of C&V programmes on humanitarian logistics, at this stage there is not enough information provided by the literature. Therefore, It would require a new empirical exploratory study to identify in which step of the cycle the humanitarian logistics is positioned, and then to use the analogy with the cashless to think ahead the evolution of the humanitarian logistics in the coming years.

3 Methodology of empirical study

In order to position the humanitarian logistics on the evolution cycle shown by Besson and Rowe (2011, 2012 and to try to foresee the impacts of C&V programmes on humanitarian logistics, this research is based on a qualitative methodology. This includes participant observations with the direct involvement of one of the researchers as practitioner in the humanitarian sector, who has analysed the impact of C&V programming on the logistics through the lens of the researcher /actor. As a member of a NGO involved in C&V programmes, the author has conducted discussions on this topic with different stakeholders in November 2016 in Nigeria, to understand how the actors perceive the impact of C&V on the logistics. Also, to support the analyse of empirical data, the results of a survey conducted in April 2014 by the Global Logistics Cluster (Logistics Cluster, 2014) to senior logisticians from different organisations (87

respondents from 24 organisations) have been used to capture more widely the perception from practitioners. In addition, to increase the validity of this research, two other ways of data collection were used: a collection of secondary data from academic and professional researches, and the exploitation of institutional and commercial communications from major C&V actors. In line with the exploratory nature of this research, the data were triangulated and exploited with the preconisation of Miles and Huberman (1984), in particular with the different matrix of their methodology. According to the target of the authors to highlight new hypothesis for future works, this research doesn't pretend to show an objective reality but just the perception from practitioners.

4 Findings and discussion

To expose the results, this last part is segmented in three points representing the evolution of the findings. A first point positions the humanitarian logistics in between the first and the second step of the cycle shown by Besson and Rowe (2011, 2012) (4.1), a second point develops an analogy with the impact of cashless in event logistics (4.2), a last point proposes a prospective view of possible impacts of C&V programmes on the humanitarian logistics (4.3).

4.1 The humanitarian logistics in between the first and the second step of the evolution

For diverse reasons, the humanitarian logistics suffers from chronic deficiencies and this represents a challenge for the sector. In addition, the rapid technology evolution offers the opportunity to digitalize the relief assistance and to deliver it by another mean,

E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics
HICL 2017

which has multiple advantages over the traditional in-kind assistance. The combination of these two factors pushes the organisations to break a long lasting equilibrium that they have built for decades, with the In-kind assistance model. Since, the sector has integrated this break and organisations realise the opportunities offered by the technology. Numerous aid agencies are developing new internal systems, capacities and ways of working for C&V programmes implementation (CaLP 2014).

This rupture engaged by humanitarian organisations corresponds to the stage One of the evolution cycle, the **Unfreeze period**.

In this move, the logistics sector tries to follow the pace and to clarify its role toward C&V programmes. The survey from the Global Logistics Cluster (Logistics Cluster, 2014), shows that humanitarian logisticians realise that their role will be transformed or diminished, and they expressed concerns about how their skills will be used in the e-assistance supply chain.

All these changes and the search from the actors to take position in the emergence of a new deep structure, clearly mark the entrance of the sector into the second stage which is the **Move period** defined by Besson and Rowe (2011, 2012). What we need to discuss now, is how this exploration / evolution phase will transform the humanitarian supply chain, which despite its deficiencies remains a key function in traditional in-kind assistance.

4.2 Using the experience of the event logistics to imagine the future of the humanitarian logistics

If the humanitarian logistics is currently in between the first and the second step of the evolution cycle from Besson and Rowe (2011, 2012), studies from Jackson, (2014) and Salaun, (2017) show how

the event logistics can be positioned on the third step of cycle, which marks the evolution of the deep structure and the institutionalisation of new logistics practices. To illustrate the modification of the deep structure in event logistics due to the cashless technology, we can analyse information about one of the major music festivals in France (herein called Alpha Festival to conserve its anonymity). After only two editions with the cashless technology, the Alpha Festival has changed a large part of its logistics structure, including new access systems for the festival-goers, new management of food and beverage supplies, reduction of the waiting time to buy something during the event for the festival-goers, etc. All of this comes from the cashless technology and the possibilities offered by the new information flow. This new approach leads the organisation to modify at least three components of the deep structure: the organisation (new repartition of resources and competencies between the services), the management system of performance (new data for real-time management), and the delegation of power inside the organisation (new cashless technology suppliers and new information flow management specialists). A study of these two last points highlights the emergence of new actors inside the network. A new actor started with a "simple" solution of cashless few years ago, but nowadays this same firm offers the possibility for the events to deploy cashless solutions with the back office software for the information flow management. As a logistics services provider who built and manage a full supply chain for a customer, the cashless provider offers a full package of solutions for event supply chain management. Based on this example of the cashless impact on event logistics, we can imagine a similar trajectory for the humanitarian

logistics with the apparition of new actors in the future step of the evolution.

4.3 What humanitarian logistics in few years?

By creating a concept of e-assistance, C & V programmes can be considered as a major break in the humanitarian sector. To reach beneficiaries, C&V responses will increasingly rely on financial services providers, technology infrastructures and private sector capacities, where these exist. The growing demand for these services will in turn lead to an increasing number and diversity of enterprises seeking to engage with humanitarian agencies. As such, the traditional humanitarian actors will progressively forge new working relationships and the private sector will likely create further demand for its expertise by developing products and services designed to humanitarian C&V responses.

Thus, the aid agencies will have to rethink their strategy and to reshape their organisational structure. This will strongly impact the supply chain and will lead to a redefinition of the logistics function. By this move to digitalization, organisations are transferring many logistical activities to third parties and they rely on the local market to transform the e-assistance into in-kind assistance. The technology interface virtually pilots the supply chain and the physical flows are handled by local traders who become de facto a new type of logistics services providers.

As well as in the music festivals sector, the humanitarian organisations will modify three main components of the deep structure. The organisational structure with a new repartition of resources and competencies within the organisation (less logistics, more C&V specialists), the performance evaluation (data available

for a real-time monitoring), and the delegation of power to new actors (C&V technology suppliers and information management specialists). Consequently, as stated in the Global Logistics Cluster survey (Logistics Cluster, 2014), the logisticians perceive their role narrowed to market assessments, evaluation of local traders' supply chains capacity and contracts management with these new actors. But if the logisticians realise that their traditional role is challenged, they can also see an opportunity to perform better on the in-kind assistance delivery, considering that a part of the logistics burden has been removed due to C&V programmes. Consequently, more logistics capacity could be allocated to the in-kind assistance (Logistics Cluster, 2014).

Nonetheless, if the e-assistance will represent a consequent share of the humanitarian activities, C&V depends on the markets and the technology, it can't be generalised. The traditional logistics supporting the in-kind assistance will always be required where markets and technology infrastructures are dysfunctioning. In this perspective, we can imagine that the organisations deep structure would take an ambidextrous form, with the objective to maintain an equilibrium between exploitation and exploration in the different facets of the humanitarian assistance.

5 Conclusion

This research aims to highlight the potential impacts of C&V programmes on humanitarian logistics. By an analogy with the event logistics and with a reading through the punctuated equilibrium theory, this communication shows how the C&V programmes would

potentially impact strongly the deep structure of NGOs and more specifically their logistics strategy.

Due to its exploratory nature, this research has important limitations. The first one is linked to the choice of methodology based on participant observation and exploitation of secondary data. To increase the validity of our conclusions, it seems important to develop a new empirical study with multiple cases analysis and maybe a longitudinal study to observe the real-time evolution of the logistics strategy of organisations involved in C&V programming. Despite these limits, this research is, to our knowledge, one of the first on this emerging topic of humanitarian supply chain digitalization. It opens a door for future researches on information flow management in crisis context with the e-assistance, the deep structure of supply chains and the evolution of the humanitarian sector.

Currently C&V programmes can be seen as a shift from the traditional In-kind assistance toward the e-assistance. In other words, it is a move from a logistics of physical flow to a logistics of information flow. This may imply three main modifications in the humanitarian supply chain. First, a focus on new core competencies in information flow management with a delegation to new actors such as C&V technology providers to pilot virtually the supply chain. Secondly, the reconfiguration of the traditional logistics roles with the delegation of the downstream supply chain management to local traders. Thirdly, the emergence of an ambidextrous supply chain with a redefinition of the logistics function in order to manage both in-kind and e-assistance.

But in this evolution it is important to keep in mind that the rush on C&V programmes and a possible push from donors to deal directly with the private sector, such as financial institutions and telecom companies, could backfire on aid agencies. They might lose footprint and influence on the ground and their role could be seriously challenged by new actors.

6 References

- Balcik, B., Beamon, B., Krejci, C., Muramatsu, K. and Ramire, M., 2010. Coordination in humanitarian relief chains: Practices, challenges and opportunities. *Int. J. Production Economics* 126, pp. 22–34.
- Beamon, B., 2004. Humanitarian relief chains: Issues and challenges. *Proceedings of the 34th International Conference on Computers and Industrial Engineering, San Francisco CA.*
- Besson, P. and Rowe, F., 2011. Perspectives Sur le Phénomène de la Transformation Organisationnelle. *Systèmes d'Information et Management*, 16(1), pp.3–34.
- Besson, P. and Rowe, F., 2012. Strategizing Information Systems-enabled Organizational Transformation: A Transdisciplinary Review and New Directions. *Journal of Strategic Information Systems*, 21(2), pp.103–124.
- Cohen, L., 2016. The outsourcing decision process in humanitarian supply chain management evaluated through the TCE and RBV principles. *RIRL2016, 11th International Meeting On Logistics Research, Lausanne, Switzerland.*
- Day, J.M; Melnyk, S.A., Larson, P.D., Davis, E.W. and Whybark, D.C., 2012. Humanitarian and disaster relief supply chains: a matter of life and death. *Journal of Supply Chain Management*, Vol. 48 No. 2, pp. 21-36.

- E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics HICL 2017
- Day, J.M., 2014. Fostering emergent resilience: the complex adaptive supply network of disaster relief. *International Journal of Production Research*, 52(7), pp.1970–1988.
- Devereux, S., 2006. Cash transfers and social protection. In: *Cash transfers and social protection. Regional Workshop on Cash Transfer Activities in Southern Africa*, pp 9–10.
- Doocy, S., Tappis, H., 2016. Cash-based approaches in humanitarian emergencies: a systematic review. 3ie Systematic Review Report 28, London. International Initiative for Impact Evaluation.
- Eldredge, N. and Gould, S.J., 1972. Punctuated Equilibria: An Alternative to Phyletic Gradualism. In: *Models in Paleobiology*. San-Francisco: Freeman Cooper, pp.82–115.
- European Commission Directorate-General For Humanitarian Aid & Civil Protection-(ECHO). 2013. The Use of Cash and Vouchers in Humanitarian Crises. DG ECHO Funding Guidelines. Available at: http://ec.europa.eu/echo/files/policies/sectoral/ECHO_Cash_Vouchers_Guidelines.pdf
- Gersick, C.J.G., 1991. Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm. *The Academy of Management Review*, 16(1), pp.10–36.
- Heaslip, G., 2013. Services operations management and humanitarian logistics. *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 3 Iss 1, pp. 37 – 51.
- Jackson, C., 2014. The lived experience of the popular music festival-goer. Doctorat en sciences de gestion. Bournemouth University.
- Kerzner, H.R., 2013. *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*. 11e édition ed. Hoboken, N.J: John Wiley & Sons.
- Kovacs, G., 2014. Where next? The future of humanitarian logistics. In M Christopher & P Tatham (eds), *Humanitarian Logistics: Meeting the Challenge of Preparing for and Responding to Disasters*, 2 ed., Kogan Page, London, pp. 275-286.

- E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics HICL 2017
- Kovacs, G., Spens, K., 2007. Humanitarian logistics in disaster relief operations. *International Journal of Physical Distribution & Logistics Management*, Vol. 37 N° 2. pp. 99-114.
- Kovács, G., Spens, K., 2009. Identifying challenges in humanitarian logistics. *International Journal of Physical Distribution & Logistics Management*, Vol. 39 Issue: 6, pp. 506-528.
- Lexhagen, M., Nysveen, H. and Hem, L.E., 2005. Festival coordination: an exploratory study on intention to use mobile devices for coordination of a festival. *Event Management*, 9(3), pp.133–146.
- Locatelli, G. and Mancini, M., 2014. Controlling the Delivering of Projects in Mega-Events: An Application on Expo 2015. *Event Management*, 18(3), pp.285–301.
- Logistics cluster., 2014. Logistics in Cash & Markets Survey. Available at <http://www.logcluster.org/global-meeting-document/7-logistics-cash-markets-survey-%E2%80%93initial-findings> and <http://www.logcluster.org/global-meeting-document/logistics-cluster-global-meeting-nfr>
- Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. and Zacharia, Z.G., 2001. Defining Supply Chain Management. *Journal of Business Logistics*, 22(2), pp.1–25.
- Mercy Corps, 2014. Cash Transfer Programming: E-transfer Implementation Guide. Available at: <https://www.mercycorps.org/sites/default/files/E-TransferGuideAllAnnexes.pdf>.
- Miles, M.B. et Huberman, A.M., 1984. *Qualitative Data Analysis: A Sourcebook of New Methods*, Sage Publications, London.
- Overseas Development Institute (ODI), 2016. Counting cash: tracking humanitarian expenditure on cash-based programming. Available at: <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11296.pdf>

- E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics
HICL 2017
- O'Toole, W., 2000. Towards the integration of event management best practice by the project management process. In: *Event Beyond 2000*. Sydney.
- Pettit, S., Beresford, A., 2009. Critical success factors in the context of humanitarian aid supply chains. *International Journal of Physical Distribution & Logistics Management*, Vol. 39 Issue: 6, pp. 450-468.
- Salaun, V., 2016. La pérennité des Organisations Temporaires (OT) : compréhension du rôle conjoint de la pulsation organisationnelle et de la logistique - L'apport de l'étude des festivals musicaux -. PhD in management sciences. Aix-Marseille University, decembre.
- Salaun, V., 2017. Which evolutions of event logistics? The impact of cashless in music festivals. *Logistique & Management*, 24(3-4), pp.207-214.
- Silva, L. and Hirschheim, R., 2007. Fighting against Windmills: Strategic Information Systems and Organizational Deep Structures. *MIS Quarterly*, 31(2), pp.327-354.
- Stevens, G.C. and Johnson, M., 2016. Integrating the Supply Chain ... 25 years on. *International Journal of Physical Distribution & Logistics Management*, 46(1), pp.19-42.
- The Cash Learning Partnership CALP., (2014). Is Cash transfer programming fit for the future? Available at : <http://www.humanitarianfutures.org/wp-content/uploads/2014/03/Final-Report.pdf>
- Thomas, A., Kopczak, L., 2005. *From Logistics to Supply Chain Management: The Path Forward in the Humanitarian Sector*. Fritz Institute, San Francisco, CA.
- Thomas, A., Mizushima, M., 2005. Logistics training: necessity or luxury? *Forced Migration Review*, No. 22, pp. 60-61.
- Trushman, M. and O'Reilly, C., 1996. Ambidextrous organizations : managing evolutionary and revolutionary change. *California Management Review*, 38(4), pp.8-30.

E-cash & e-vouchers: The digitalization of the humanitarian aid and logistics
HICL 2017

Tushman, M. L., & Romanelli, E. (1985). Organizational evolution: A metamorphosis model of convergence and reorientation. *Research in Organizational Behavior*, 7, 171–222.

Van Wassenhove, L., 2006. Blackett Memorial Lecture Humanitarian aid logistics: supply chain management in high gear. *Journal of the Operational Research Society* 57, pp 475- 489.

Venton, C., Bailey, S. and Pongracz, S., 2015. Value for money in cash transfers in emergencies. Final Report, UK Department for International Development. Available at:
<http://www.cashlearning.org/downloads/summary-vfm-cash-in-emergencies-report-final.pdf>

World Food Program (WFP). 2017. Cash based transfers. Available at:
<http://www1.wfp.org/cash-based-transfers>.