



Responsible use of

Digital Cash Based Assistance

D1.2–Digital Cash-Based Assistance Technologies: Literature Review Report and Gap Analysis

Grant agreement number: 325437 Due date of Deliverable: 30 June 2022
 Start date of the project: 1 Nov 2021 Actual submission date: 30 June 2022
 Duration: 36 months Deliverable approved by the WPL/CO:

Lead Beneficiary: UiA

Contributing beneficiaries: -

Keywords
card payment, credit card, debit card, digital aid, digital assistance, digital cash, digital payment, digital voucher, e-card, e-cheque, electronic fund transfer, electronic money transfer service, mobile payment, mobile transfer, wallet, online payment, peer to peer fund transfer, prepaid card, smart card

Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	?
RE	Restricted to a group specified by the consortium (including the Commission Services)	?
CO	Confidential, only for members of the consortium (including the Commission Services)	?

History			
Author	Date	Reason for change	Release
Ahmed Aboughonim	31/05/2022	Initial Outline	
Ahmed Aboughonim	21/08/2022	Final draft before internal evaluation	
Hossein Baharmand	27/09/2022	Internal Review, re-structure deliverable	
Hossein Baharmand	27/09/2022	Revisions	
Hossein Baharmand	27/09/2022	Final draft	978-82-8427-124-8

Glossary

Abbreviations/ Acronym	Description
UiA	University of Agder
NFR	Norges Forskningsrådet (Norwegian Research Council)
INGO	International Non-Governmental Organization
NGO	Non-Governmental Organization
UNHCR	United Nations High Commissioner for Refugees
ECHO	European Union Civil Protection and Humanitarian Aid
WFP	World Food Programme
UNICEF	United Nations International Children's Emergency Fund
UN	United Nations
EU	European Union

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Executive Summary

In 2022, the total number of displaced individuals reached 100 million. Over 80% moved to low- or middle-income countries. The capacity of these displaced persons to survive depends on the aid that the government, residents, and humanitarian organizations can provide. Humanitarian aid can support these displaced people through cash, in-kind assistance, or a combination. Cash, specifically digital, can offer contactless payments and reduce overcrowding at aid distribution centres. With the development of digital payment systems, there are numerous situations in which aid may be supplied in a way that is more economical, safe, and transparent.

DigCBA: "Responsible Use of Digital Cash-based Assistance in Refugee Crises" is a research project funded by the Research Council of Norway from 2021 to 2024. The DigCBA initiative is dedicated to promoting the use of technology to offer assistance to refugees in need. Digital cash-based assistance technologies include bank accounts, prepaid and smart cards, and mobile money. This deliverable (D1.2) is a deliverable of Task (T1.2) of the DigCBA project's work package 1 (WP1). It intends to survey digital cash-based assistance technologies and their feasibility requirements. Therefore, the goals of D1.2 are to:

- Reviewing the digital cash-based assistance technologies used by humanitarian organizations to support beneficiaries,
- Understanding the depth/vertical and breadth/horizontal of the current use of digital cash-based assistance technologies and assessing the use gap accordingly. Depth/Vertically is in terms of what is currently used by humanitarian organizations. Breadth/horizontally is in terms of the spread of the use of these technologies geographically in disadvantaged areas, and
- Recognising the feasibility requirements of digital cash-based assistance technologies.

The methodology of deliverable is based on academic and grey literature reviews. The academic literature review used the Scopus, IEEE, and Ebsco Databases. The academic references identified were 566 publications after removing duplicates. By excluding all non-related publications, only seven publications were found to focus or even mention a digital cash-based technology within the scope of this deliverable research. On the other hand, searching google.com for grey literature through an exploratory approach came with several links referring to the same technology in many cases. Around 42 URLs were identified in this search.

The academic and grey literature review referred to 33 cases of digital cash-based assistance (covering bank accounts, prepaid cards, and mobile money) to refugees and asylum seekers in 13 host countries in both camp and non-camp settings. Although the identified cases showed a considerable percentage of using prepaid cards compared to other technologies in both camp and non-camp settings, we could not find a statistically significant association between the digital cash-based assistance technologies and the camp/non-camp setting. Moreover, the surveyed cases gave the impression that WFP prefers/mostly uses prepaid cards to support beneficiaries; however, we could not find any statistically significant association between the digital cash-based assistance technology and the humanitarian organization using it.

We could further identify over 40 feasibility requirements that should be met/fulfilled by beneficiaries, policymakers and business partners to be able to apply digital cash-based assistance technologies effectively and efficiently in general. These feasibility requirements were classified as technical/technological, economic, legal, operational, schedule, or societal/social requirements.

Although we have exerted our effort to make this search comprehensive, we cannot guarantee that for a couple of reasons: (1) the methodology we have adapted to survey the technologies is based on an exploratory approach by searching google.com (google.com, like many other search engines, is known for providing different search results based on many parameters connected to the person searching the Internet like, for example, her/his geographical location), and (2) new technologies emerge quickly.

The deliverable provides an introduction (Chapter 1), the methodology used in surveying the digital cash-based technologies used to support the displaced beneficiaries (Chapter 2) and the results of this survey (Chapter 3). The document ends with a discussion (Chapter 4) and a summary (Chapter 5).

1 Introduction

1.1 Purpose and Scope

Refugees are “people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country” (UNHCR, n.d.-d). Internally displaced people, on the other side, “stay within their own country and remain under the protection of its government, even if that government is the reason for their displacement” (UNHCR, n.d.-b). The production of this report comes around the same time as World Refugee Day. World Refugee Day is “an international day designated by the United Nations to honour refugees around the globe. It falls each year on June 20 and celebrates the strength and courage of people who have been forced to flee their home country to escape conflict or persecution. World Refugee Day is an occasion to build empathy and understanding for their plight and to recognize their resilience in rebuilding their lives” (UNHCR, n.d.-e).

In 2022, the total number of displaced individuals reached 100 million (UNHCR, n.d.-a). Over 80% moved to low- or middle-income countries. In turn, this heavily presses host countries' population and infrastructure. The capacity of these displaced persons to survive depends on the aid that the government, residents, and humanitarian organizations can provide (EC, n.d.). Humanitarian aid can support these displaced people through cash, in-kind assistance, or a combination of both (Overseas Development Institute, 2015). Both cash and in-kind assistance can maintain access to beneficiaries in unstable environments (Juillard et al., 2021). Compared to supplying in-kind assistance, cash and, consequently, local purchasing can reduce the cost of the supply chain, including transportation and warehousing. Hence enabling faster responses and more agility (Piotrowicz, 2018).

Cash, specifically digital, can offer contactless payments and reduce overcrowding at aid distribution centres. The adoption of cash assistance was accepted as an innovative strategy for sustaining service delivery during the COVID-19 outbreak (Juillard et al., 2021). Furthermore, Juillard et al. (2021) recommended exploring how digital assistance provides an opportunity to maintain access to beneficiaries in certain areas in Syria and Lebanon, for example, using mobile money. Sagmeister (2018) has also shown that beneficiaries favoured cash over in-kind assistance. Through surveys conducted in Kenya and Iraq, it was demonstrated that beneficiaries preferred receiving cash using convenient methods allowing them to cash the money and use it according to their needs (Sagmeister, 2018).

With the development of digital payment systems, there are numerous situations in which aid may be supplied in a way that is more economical, safe, and transparent (ECHO, 2017). Compared to handing out cash, digital cash-based assistance technologies improved security, higher responsibility and transparency, quicker distribution, and a scalable transfer mechanism. These technologies also make it possible to assist in increasing financial inclusion and resilience for communities affected by crises (Bemo et al., 2017).

DigCBA: “Responsible Use of Digital Cash-based Assistance in Refugee Crises” is a research project funded by the Research Council of Norway from 2021 to 2024. Digital cash-based assistance technologies include bank accounts, prepaid and smart cards, and mobile money. In times of need, the technology may enhance access to financial resources and services while also improving the effectiveness and efficiency of the aid. The DigCBA initiative is dedicated to promoting the use of technology to offer assistance to refugees in need. This deliverable D1.2 is a deliverable of Task T1.2 of the DigCBA project’s work package 1 (WP1). DigCBA’s WP1 generally “aims at developing conceptual frameworks based on literature review and best practices for further study in other WPs” (DigCBA, 2021), while T1.2 aims to survey digital cash-based

assistance technologies specifically. It also intends to identify aspects and features of the investigated cash-based assistance technologies and analyse their feasibility requirements. Based on that, the objectives of this D1.2 are to:

- Reviewing the digital cash-based assistance technologies used by humanitarian organizations to support beneficiaries,
- Understanding the depth/vertical and breadth/horizontal of the current use of digital cash-based assistance technologies in supporting beneficiaries and assessing the use gap accordingly. Depth/Vertically is in terms of what is currently used by humanitarian organizations. Breadth/horizontally is in terms of the spread of the use of these technologies geographically in disadvantaged areas, and
- Recognising the feasibility requirements of the digital cash-based assistance technologies

1.2 Relation to DigCBA

This deliverable D1.2 is the second deliverable of the DigCBA project's WP1. D1.2 aims to report the work of Task 1.2 of WP1, which aims to survey digital cash-based assistance technologies. It also intends to identify aspects and features of the investigated cash-based assistance technologies and analyse their feasibility requirements. The results of this deliverable are intended to ultimately assist in developing “conceptual frameworks based on literature review and best practices for further study in other WPs” (DigCBA, 2021).

2 Methodology

2.1 Research Questions

Based on the objectives of this deliverable, as mentioned earlier, we compiled the following research questions:

1. RQ1: What digital cash-based assistance technologies do humanitarian organizations use to support refugees?
2. RQ2: What are the depth (or vertical coverage) and breadth (or horizontal coverage) of the currently used digital cash-based assistance technologies?

Accordingly, assess the use gap in terms of:

- Depth (or vertical coverage) is measured in terms of the digital cash-based technologies currently in use, and
 - breadth (or horizontal coverage) is measured in terms of the spread of the use of these technologies geographically (locations and camp/non-camp settings).
3. RQ3: What are the feasibility requirements of these digital cash-based technologies?

2.2 Research Design

The methodology of this deliverable combines the results of a systematic literature review on academic databases and an exploratory investigation of grey literature available primarily on humanitarian organizations' websites and generally on the Internet. Figure 1 depicts the research process.

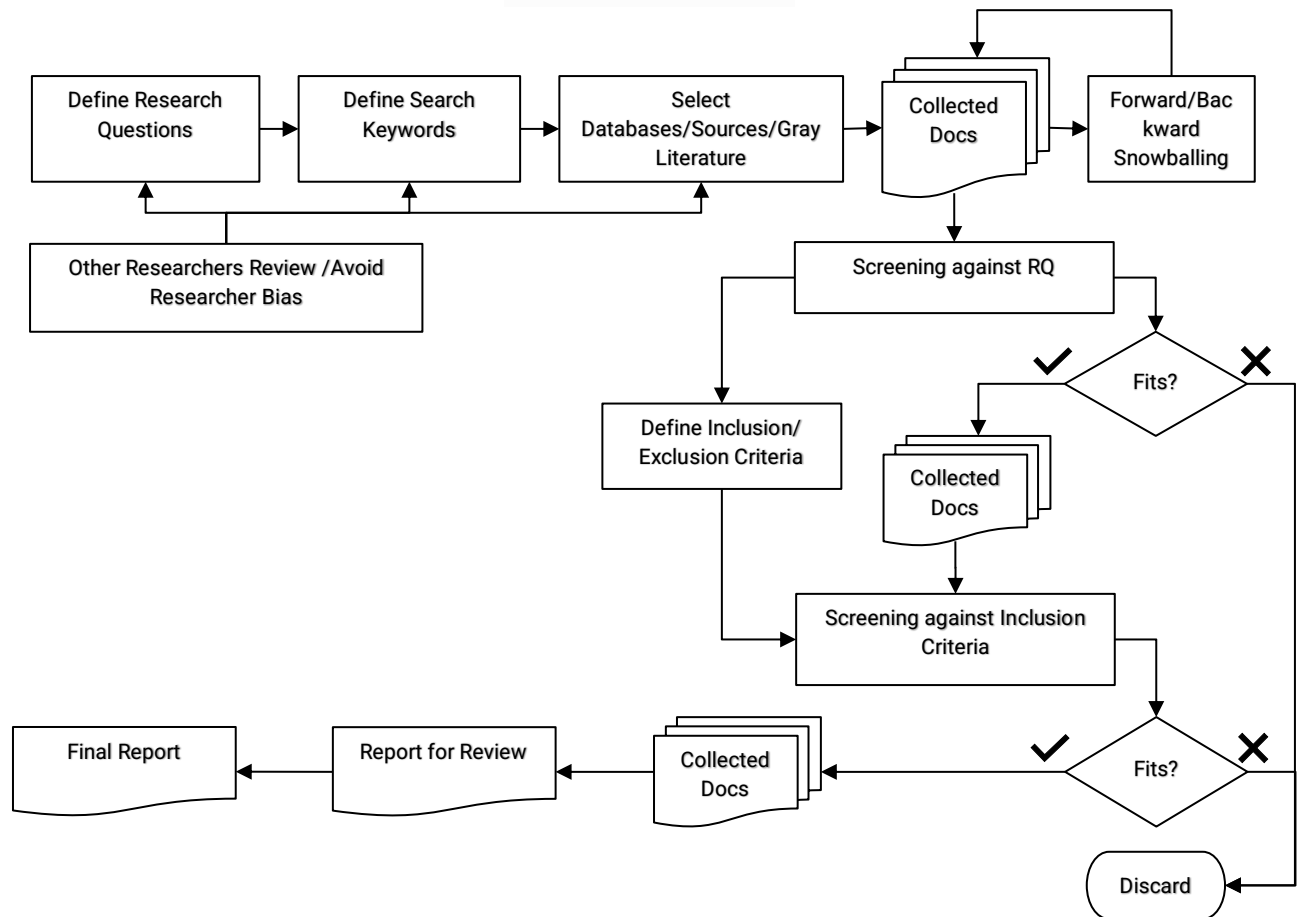


Figure 1: Research process

2.3 Data Collection

To answer research questions RQ1 and RQ2, we have collected our results from four sources: **Scopus**, **IEEE**, and **Ebsco** databases for the academic literature review and **google.com** to fulfil the exploratory investigation. To answer research question RQ3, we have collected our results from **google.com** for another exploratory investigation. We enlist the search strings used with these different sources in the following lines.

1. Scopus Academic Literature Database:

Search string:

```

({card payment} OR {debit card} OR {credit card} OR {prepaid card} OR {e-
card} OR {smart card} OR {digital cash} OR {digital assistance} OR
{digital aid} OR {mobile payment} OR {mobile transfer} OR {peer to peer
fund transfer} OR {mobile wallet} OR {digital payment} OR {online payment}
OR {electronic fund transfer} OR {voucher} OR {digital voucher} OR
{electronic money transfer service} OR {cash and voucher assistance} OR
{CVA} OR {e-cheque}) AND ({humanitarian assistance} OR {humanitarian aid}
OR {humanitarian crisis} OR {humanitarian emergency} OR {social
  
```

```
protection} OR {food security} OR {warfare} OR {war} OR {armed conflict}  
OR {disaster} OR {refugee} OR {migrant} OR {migration})
```

2. IEEE Academic Literature Database:

Search string:

```
( "card payment" OR "debit card" OR "credit card" OR "prepaid card"  
OR "e-card" OR "smart card" OR "digital cash" OR "digital assistance"  
OR "digital aid" OR "mobile payment" OR "mobile transfer" OR "peer  
to peer fund transfer" OR "mobile wallet" OR "digital payment" OR  
"online payment" OR "electronic fund transfer" OR "voucher" OR  
"digital voucher" OR "electronic money transfer service" OR "cash and  
voucher assistance" OR "CVA" OR "e-cheque" ) AND ( "humanitarian  
assistance" OR "humanitarian aid" OR "humanitarian crisis" OR  
"humanitarian emergency" OR "social protection" OR "food security"  
OR "warfare" OR "war" OR "armed conflict" OR "disaster" OR  
"refugee" OR "migrant" OR "migration" )
```

3. Ebsco Academic Literature Database:

Search string:

```
( card payment OR debit card OR credit card OR prepaid card OR e-  
card OR smart card OR digital cash OR digital assistance OR digital  
aid OR mobile payment OR mobile transfer OR peer to peer fund  
transfer OR mobile wallet OR digital payment OR online payment OR  
electronic fund transfer OR voucher OR digital voucher OR electronic  
money transfer service OR cash and voucher assistance OR CVA OR e-  
cheque ) AND ( humanitarian assistance OR humanitarian aid OR  
humanitarian crisis OR humanitarian emergency OR social protection  
OR food security OR warfare OR war OR armed conflict OR disaster  
OR refugee OR migrant OR migration )
```

4. google.com Internet search engine:

For answering RQ1 and RQ2, we have prepared the following string.

Search String:

```
"card payment" OR "debit card" OR "credit card" OR "prepaid card"  
OR "e-card" OR "smart card" OR "digital cash" OR "digital assistance"  
OR "digital aid" OR "digital payment" OR "digital voucher" OR "mobile  
payment" OR "mobile transfer" OR "mobile wallet" OR "online payment"  
OR "electronic fund transfer" OR "electronic money transfer service"  
OR "e-cheque" OR "peer to peer fund transfer" OR "voucher" OR "cash  
and voucher assistance" OR "CVA" site: [www.example.org]
```

However, such a search string is long for google.com; accordingly, we have randomly distributed the keywords over two search strings using (www.randomlists.com):

```
"peer to peer fund transfer" OR "card payment" OR "debit card" OR "prepaid  
card" OR "e-card" OR "digital cash" OR "credit card" OR "smart card" OR  
"mobile payment" OR "e-cheque" site: www.example.org
```


and

```
"digital assistance" OR "digital aid" OR "digital payment" OR "online  
payment" OR "electronic fund transfer" OR "mobile wallet" OR "digital  
voucher" OR "electronic money transfer service" OR "mobile transfer" site:  
www.example.org
```

For both search strings, the [www.example.org] was replaced by a website URL of one of the humanitarian organizations; multiple searches were conducted.

For answering RQ3, we have followed the same approach for RQ1 and RQ2 and used the following two search strings:

```
"peer to peer fund transfer" OR "card payment" OR "debit card" OR "prepaid  
card" OR "e-card" OR "digital cash" OR "credit card" OR "smart card" OR  
"mobile payment" OR "e-cheque" AND "requirement" OR "feasibility" AND  
"humanitarian"
```

and

```
"digital assistance" OR "digital aid" OR "digital payment" OR "online  
payment" OR "electronic fund transfer" OR "mobile wallet" OR "digital  
voucher" OR "electronic money transfer service" OR "mobile transfer" AND  
"requirement" OR "feasibility" AND "humanitarian"
```

2.4 Data Analysis

For the academic systematic literature review, we have used Rayyan.ai from Rayyan Systems Inc. (Ouzzani et al., 2016), a software package that facilitates the process of systematic reviews. We have also saved a snapshot of all included web pages from the exploratory investigations. We used webpage snapshot functionality provided by Zotero reference management software to do this. In addition to recording the bibliographic information, Zotero saves a snapshot of the reference webpage when registering the reference (Zotero, n.d.).

2.5 Limitations

The results presented in this report are based on a general search over the Internet. Although we have exerted our effort to make this search comprehensive, we cannot guarantee that for a couple of reasons: (1) the methodology we have adapted to survey the technologies is based on an exploratory approach by searching google.com (google.com, like many other search engines, is known for providing different search results based on many parameters connected to the person searching the Internet like, for example, her/his geographical location), and (2) new technologies emerge quickly.

3 Results

3.1 Digital Cash-Based Assistance Technologies

Our academic literature review resulted in the following:

1. Scopus Database: results were filtered to include only English language literature. The publications resulting from this search were 292.
2. IEEE Database: publications resulting from this search were 28.
3. Ebsco Database: as Ebsco include several databases in addition to the academic, the search was limited to the academic database, and the results were filtered to select only references written in the English language. The publications that resulted from this search were 330.

The academic references identified via the academic database search were 650 references in total. Using Rayyan.ai, we could identify 176 duplicates. These duplicates were human inspected to decide if they were real duplicates. Eighty-four references were identified as duplicates and removed. Eight were identified as not duplicates (they were different volumes of proceedings of two separate conferences). After removing the duplicates, the total became 566 publications.

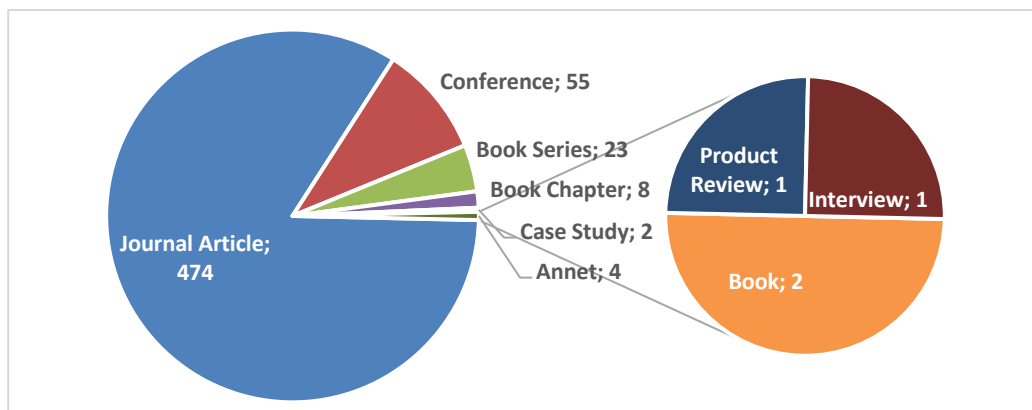


Figure 2: Identified publications based on publication type

Figure 2 shows the identified publications based on publication type. As shown in Figure 3, the publication year of the identified publications ranged between 1987 and 2022. The highest frequency was in 2019. The counts started to rise significantly starting in 2012, two years after the Arab spring and the humanitarian crisis in Yemen and Syria began.

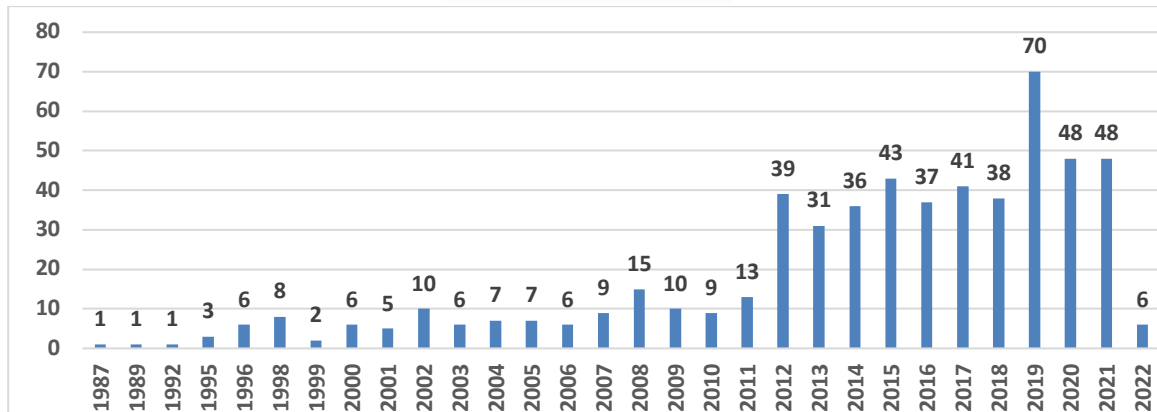


Figure 3: Identified publication count per year

Although the keywords and the logical operands connecting them were selected carefully, the search results came with many unrelated results. For example, 36 % of the identified publications were related to the medical and biology fields. Vouchers and cards were given to people in many cases to support them for medical reasons. In several instances, the acronym CVA was confused with acronyms from other fields, for example, Covariance Structure Analysis and Cumulative Volcano Amplitude. Nonetheless, we have thoroughly reviewed the whole set of publications and excluded all non-related.

Furthermore, this research focuses on digital cash-based assistance in the context of refugees, asylum-seekers and alike. Several publications focused on cash-based assistance in contexts out of this research scope, for example, internally displaced persons, and accordingly were excluded. Some other publications worked on direct cash and paper vouchers and therefore have no connection with our digital cash-based technology focus; they were also excluded.

After exclusion, seven publications were found to focus on or even mention a digital cash-based technology within the scope of our research. These publications are:

1. Basu, S., Yudkin, J. S., Berkowitz, S. A., Jawad, M., & Millett, C. (2018). Reducing chronic disease through changes in food aid: A microsimulation of nutrition and cardiometabolic disease among Palestinian refugees in the Middle East. *PLoS Medicine*, 15(11), 1–23.
2. Bennett, J. (2013). Failure to adapt: Aid in Jordan and Lebanon. *Forced Migration Review*, 1(44), 74–75.
3. Hoddinott, J., Dorosh, P., Filipski, M., Rosenbach, G., & Tiburcio, E. (2020). Food transfers, electronic food vouchers and child nutritional status among Rohingya children living in Bangladesh. *PLOS ONE*, 15(4), 15.
4. Nisbet, C., Lestrat, K. E., & Vatanparast, H. (2022). Food Security Interventions among Refugees around the Globe: A Scoping Review. *Nutrients*, 14(3), 522.
5. Sossouvi, K. (2010). Innovation in cash-voucher programming. *Forced Migration Review*, 1(36), 39–39.
6. Talhouk, R., Coles-Kemp, L., Jensen, R. B., Balaam, M., Garbett, A., Ghattas, H., Araujo-Soares, V., Ahmad, B., & Montague, K. (2020). Food Aid Technology: The Experience of a Syrian Refugee Community in Coping with Food Insecurity. *Proceedings of the ACM on Human-Computer Interaction*, 4.
7. Tappis, H., & Doocy, S. (2018). The effectiveness and value for money of cash-based humanitarian assistance: A systematic review. *Journal of Development Effectiveness*, 10(1), 121–144.

On the other hand, searching google.com through our exploratory approach came with several related links referring to the same technology in many cases. Up to 42 URLs were identified as relevant out of this search. The academic and grey literature review referred to 33 cases of digital cash-based assistance to refugees and asylum-seekers in 13 countries. In the following subsection, we will present our results.

Before going further with the results of this deliverable, in Table 1, we have compiled definitions of the digital payment technologies we have identified through the Internet. We believe these definitions will be handy in reading the following results.

Table 1: Definitions of digital payment technologies (surveyed through the Internet)

Technology	Description
Debit card	“is a payment card that deducts money directly from a [beneficiary]’s checking account when it is used. Also called ‘check cards’ or ‘bank cards,’ they can be used to buy goods or services; or to get cash from an automated teller machine or a merchant who’ll let you add an extra amount onto a purchase.” (<i>The Basics of Debit Cards</i> , n.d.)
Credit card	“is a payment card issued to [beneficiary] (cardholders) to enable the cardholder to pay a merchant for goods and services based on the cardholder’s accrued debt (i.e., promise to the card issuer to pay them for the amounts plus the other agreed charges)” (“Credit Card,” 2022)
Prepaid smart card	“Contains a stored value which the [beneficiary] holding it can spend at retailers. After accepting stored value from cards, retailers are periodically reimbursed with actual money by system provider” (Nagpal, 2008)
Prepaid Mastercard	“A Prepaid Mastercard is a payment card that can be topped-up with value. Once topped up it can be used to make payments wherever Mastercard is accepted. A Prepaid Mastercard differs from a credit card as everything is prepaid. It does not provide cardholders with a line of credit. It also differs from a debit card as there is no link to a bank account and there is no overdraft facility. With a Prepaid Mastercard consumers can only spend the value they have loaded onto their card.” (Swirl, n.d.)
Mobile Payment Apps = digital wallet = E-wallet (Gocardless, 2021)	is a sort of mobile payment. “enables [beneficiaries] to make payments, donations or purchase online goods using a smartphone app” (“Difference Between Mobile Wallets & Mobile Payments,” 2012).
Mobile Wallets	is a sort of mobile payment. “Wallets are linked to a card or bank account, but can also store monetary value. Wallets typically require customer verification (e.g., biometrics, SMS, passcode) to complete a payment” (Stripe, n.d.). It “allows a [beneficiary] to use the app as a form of payment in a retail store at point of sale” (“Difference Between Mobile Wallets & Mobile Payments,” 2012).
Digital/Mobile Vouchers = E-Voucher	“With cash-based vouchers, [beneficiaries] receive a scannable voucher with a transaction reference number that they can then bring to an ATM, bank, convenience store, or supermarket to complete the payment in cash” (Stripe, n.d.)
Contactless Payment	“are credit cards and debit cards, key fobs, smart cards or other devices, including smartphones (i.e. ApplePay) and other mobile devices, that use radio-frequency identification (RFID) or near field communication (NFC) for making secure payments” (<i>What Is a Contactless Payment?</i> , n.d.)
Electronic Funds Transfer	“is an electronic transfer of money from one bank account to another. You can send EFTs within one or multiple banking institutions (e.g., direct deposit ACH). An EFT transaction is done electronically over a computerized network” (Kappel, 2020)
Electronic check (E-Cheque)	“is a form of payment made via the Internet, or another data network, designed to perform the same function as a conventional paper check. Since the check is in an electronic format, it can be processed in fewer steps” (<i>Electronic Checks</i> , n.d.).

The humanitarian organizations use specific terms to express digital cash-based technologies that, in some cases, require more explanation so that they can be mapped to the digital payment technologies mentioned above. As such, we surveyed some key humanitarian organizations' websites and compiled the definitions of these terms in Table 2. In addition to the terms, we added the matching electronic transfer option mentioned in UNHCR's "Cash Delivery Mechanism Assessment Tool" (UNHCR, 2017). These electronic transfer options are: - **Bank accounts**, - **Mobile Money**, - **Smart Cards**, or - **Prepaid cards**. This will help us unify the terms used in our results.

Table 2: Terms used by humanitarian organizations in connection with digital cash-based assistance (surveyed through the Internet)

Technology	Description	UNHCR equivalent
Electronic cards (E-cards)	"WFP's electronic cards (e-cards) function like prepaid debit cards, automatically uploaded with cash each month to cover the basic food needs of beneficiaries" (WFP, 2015b), also (ACTED, n.d.).	Prepaid debit cards
Smart Card	"A smart card is a device that includes an embedded integrated circuit that can be either a secure microcontroller or equivalent intelligence with internal memory or memory chip alone. The card connects to a reader with direct physical contact or with a remote contactless radio frequency interface. With an embedded microcontroller, smart cards have the unique ability to store large amounts of data, carry out their own on-card functions (e.g. encryption and mutual authentication) and interact intelligently with a smart card reader. [Smart Card Alliance]" (CALP, 2011).	Smart card
E-Voucher	"A card or code that is electronically redeemed at a participating vendor. E-vouchers can represent monetary or commodity value and are stored and redeemed using a range of electronic devices (e.g. mobile phone, smart card, POS device)" (CALP, 2011). [Voucher: "A paper, token or e-voucher that can be exchanged for a set quantity or value of goods or services... Vouchers are restricted by default, although the degree of restriction will vary based on the programme design and type of voucher. They are redeemable with preselected vendors or in 'fairs' created by the implementing agency. The terms vouchers, stamps, or coupons might be used interchangeably"] (CALP, 2011).	Prepaid cards
Digital Payment = e-Transfer	"A digital transfer of money or e-vouchers from the implementing agency to a recipient. E-transfers provide access to cash, goods and/or services through mobile devices, electronic vouchers, or cards (e.g., prepaid, ATM, smart, credit or debit cards). E-transfers may also be referred to as digital payments; these are umbrella terms for e-cash and e-vouchers" (CALP, 2011). E-cash is "any electronic substitute for the direct transfer of physical currency that provides full, unrestricted flexibility for purchases. It may be stored, spent, and/or received through a mobile phone, prepaid ATM/debit card or other electronic transfer. E-cash transfers will usually provide the option to withdraw funds as physical cash if required" (CALP, 2011).	Mobile Money/ Prepaid cards
E-Wallet	"Software that resides on a smart card or mobile phone SIM card, and holds or can receive electronic cash and a digital signature" (CALP, 2011).	Mobile Money
Mobile Money	"Mobile money uses mobile phones to access financial services such as payments, transfers, insurance, savings, and credit. It is a paperless version of a national currency that can be used to provide humanitarian e-cash payments" (CALP, 2011). Mobile money: "is a service in which a mobile phone is used to access financial services. Mobile money often includes the ability to make payments, transfer money, or access insurance, credit or savings products through a mobile phone. Mobile money is a type of e-cash (or e-money), an electronic substitute for cash that provides full flexibility for purchases. Humanitarian agencies often utilize mobile money bulk payments (or bulk transfers), a simultaneous transfer of funds to multiple participants" (Reeve, 2016).	Mobile Money

In the following subsection, we will enlist the surveyed digital cash-based assistance technologies humanitarian organizations use to support displaced beneficiaries.

WFP's E-card Programme for Syrian Refugees Egypt, Jordan, Lebanon and Türkiye

In 2015, the World Food Program (WFP) supported around 1.7 million Syrian refugees in Egypt, Jordan, Lebanon and Türkiye through their e-card program. The WFP in the Middle East supported approximately 90% of beneficiaries by that time (WFP, 2015b).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-cards/E-vouchers	Prepaid cards	WFP	Jordan	Syrian refugees	WFP e-card programme	Camp and non-camp
			Lebanon			
			Egypt			
			Türkiye			

Source(s):

- (WFP, 2015b)
- (Nisbet et al., 2022)
- (Drummond et al., 2015)

WFP's E-card for Syrian Families at Turkish Camps

The WFP used e-cards to support Syrian families living in the Turkish refugee camps. The WFP reported that “[i]n Turkey, the WFP-Kizilay e-food card is currently assisting over 150,000 Syrian refugees living in 11 camps, and in July 2015 the programme was extended to support vulnerable families living outside camps in Gaziantep and Hatay. Plans are also underway to expand the programme to assist families living outside of camps in Şanlıurfa and Kilis” (ReliefWeb, 2012, 2015b; WFP, 2021a).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-cards	Prepaid cards	WFP and Turkish Red Crescent	Türkiye	Syrian refugees	WFP/KIZILAY Electronic Food (e-Food) Card Programme	Camp

Source(s):

- (ReliefWeb, 2015b)
- (ReliefWeb, 2012)
- (WFP, 2021a)
- (Nisbet et al., 2022)
- (Inglis & Vargas, 2015)

Emergency Social Safety Net Programme (ESSN) in Türkiye for Syrian Refugees

In Türkiye, the EU funded a cash assistance programme that reached half a million refugees using Emergency Social Safety Net Programme (ESSN) cards (ReliefWeb, 2017; WFP, 2017). “The cards can be used in shops, like any debit card, or they can be used to withdraw cash from an automated teller machine (ATM). The programme provides 100 Turkish Lira (roughly €26) for each member of vulnerable families every month. Registration began in November 2016 and continues across the country with the goal of assisting at least one million refugees in 2017” (WFP, 2017).

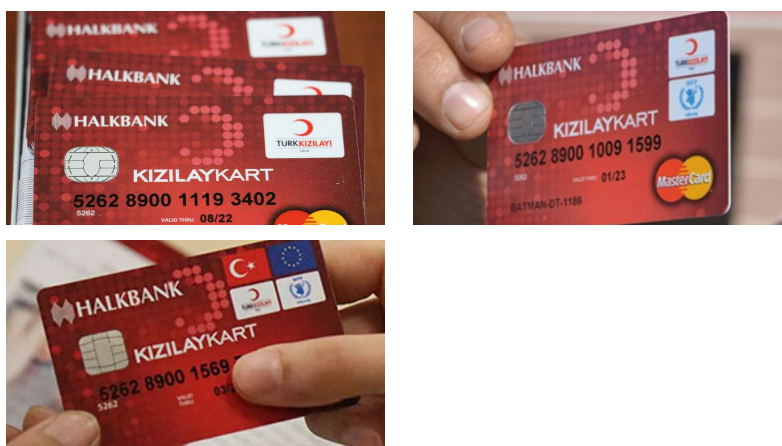


Figure 4: Variants of Kizilay e-card¹

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
ESSN card ¹	Prepaid cards	ECHO, WFP, the Turkish Red Crescent and the Turkish government	Türkiye	Syrian refugees	Emergency Social Safety Net Programme (ESSN)	Camp and non-camp

Source(s):

- (ReliefWeb, 2017)
- (WFP, 2017)

Lebanon One Unified Inter-Organizational System for E-card (LOUISE) for Syrian Refugees

In Lebanon, a collaboration between UNHCR, WFP, UNICEF and the former Lebanon Cash Consortium (LCC) produced the Lebanon One Unified Inter-Organizational System for E-card (LOUISE). LOUISE is multi-sectoral Cash and Voucher Assistance (Pelly & Juillard, 2020). “LOUISE can primarily be summarised as a payment platform, not a programme. As of June 2019, the modalities of assistance transferred through the LOUISE Common Card include e-vouchers for food, Multipurpose Cash Assistance (MPCA), and conditional

¹ “The cards can be used in shops, like any debit card, or they can be used to withdraw cash from an automated teller machine (ATM)” (WFP, 2017).

or unconditional cash assistance for specific objectives (including but not limited to food, livelihoods, protection, education, weather-proofing, winterisation, and school transportation)” (Pelly & Juillard, 2020).



Figure 5: Lebanon One Unified Inter-Organizational System for E-cards LOUISE MasterCardⁱⁱ

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-cards ² (Mastercard cards)/E-vouchers ³	Prepaid cards	UNHCR, WFP, UNICEF and the former Lebanon Cash Consortium (LCC)	Lebanon	Syrian refugees	The Lebanon One Unified Inter-Organizational System for E-card (LOUISE)	Camp

Source(s):

- (Pelly & Juillard, 2020)

Multi-Purpose Cash in Lebanon for Syrian Refugees

“The World Food Programme (WFP) supports Syrian refugee families living in extreme poverty in Lebanon by providing them with multi-purpose cash (MPC) transfers to meet their basic needs. WFP loads the assistance on an e-card, called the Red Card, each month and programme participants are able to withdraw the cash assistance from ATMs” (ALNAP, n.d.).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-cards (Red Card)	Prepaid cards	WFP	Lebanon	Syrian refugee families	Multi-purpose cash (MPC) transfers	Non-camp

² LOUISE common card include e-vouchers for food, Multipurpose Cash Assistance (MPCA), and conditional or unconditional cash assistance for specific objectives (including but not limited to food, livelihoods, protection, education, weather-proofing, winterisation, and school transportation) (Pelly & Juillard, 2020).

³ E-voucher is “a card or code that is electronically redeemed at a participating vendor. E-vouchers can represent monetary or commodity value and are stored and redeemed using a range of electronic devices (e.g. mobile phone, smart card, POS device)” (CALP, 2011).

Source(s):

- (ALNAP, n.d.)
- (Genovese et al., 2021)

Mercy Corps' Mobile Wallets for Female Syrian Refugees in Jordan

Via mobile wallets, Mercy Corps Jordan supplied cash assistance to female Syrian refugees (ReliefWeb, 2018b). “The beneficiaries first had to register for the mobile wallet, which required valid identification (Moi card) and a phone number. After the registration process, the beneficiaries were trained on essential mobile wallet services: - Cash deposits and withdrawals at Dinarak agents. - Receive and transfer money from/to JoMoPay (Jordan Mobile Payment) user. - Pay for goods and services at retailers/merchants. - Pay bills (utilities, telecom, etc). - Manage their account (balance, mini-statement)” (Mercy Corps, 2018).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Mobile wallets (Dinarak)	Mobile money	Mercy Corps	Jordan	Female Syrian refugees	Mobile wallet - Jordan	Non-camp

Source(s):

- (ReliefWeb, 2018b)
- (Mercy Corps, 2018)
- (ReliefWeb, 2018a)

Multi-Purpose Cash Assistance for Refugees in Jordan⁴

In 2021, the UNHCR’s urban basic needs cash assistance programme in Jordan reported that “through an automated teller machine (ATM) banking network equipped with iris scan technology, as well as, increasingly, mobile wallet technology, the agency disburses approximately 5.5 million USD per month to over 33,000 vulnerable refugee families across the country. UNHCR Jordan’s population of concern consists mainly (90+%) of Syrian refugees, but the organization also assists approximately 3,000 refugee families from other countries such as Iraq, Sudan, Somalia and Yemen. Assistance is designed to allow refugees who reside outside the camps in urban environments throughout Jordan to meet their basic needs and reduce their susceptibility to protection risks” (Samuel Hall, 2022).

⁴ Multipurpose Cash Transfers (MPC), Multipurpose Cash Assistance (MPCA) or Multipurpose Cash Grants (MPG): “are transfers (either periodic or one-off) corresponding to the amount of money required to cover, fully or partially, a household’s basic and/or recovery needs. The term refers to cash transfers designed to address multiple needs, with the transfer value calculated accordingly. MPC transfer values are often indexed to expenditure gaps based on a Minimum Expenditure Basket (MEB), or other monetized calculation of the amount required to cover basic needs. All MPC are unrestricted in terms of use as they can be spent as the recipient chooses. This concept may also be referred to as Multipurpose Cash Grants (MPG), or Multipurpose Cash Assistance (MPCA)” (CALP, 2011).



Figure 6: Iris Biometric Withdrawalⁱⁱⁱ

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Virtual bank accounts ⁵ and withdraw via biometric (iris) technology, or using ATM cards	Bank accounts	UNHCR	Jordan	Syrian refugees, Iraq, Sudan, Somalia, and Yemen	Jordan Multi-purpose cash assistance	Non-camp
Mobile wallets	Mobile money					

Source(s):

- (ReliefWeb, 2022c)
- (Samuel Hall, 2022)
- (Samuel Hall, 2021)
- (ReliefWeb, 2020)

Mobile Money Assistance in Jordan “eFAWATEERcom Platform”

The Central Bank of Jordan and the Gates Foundation established the Mobile Money for Resilience (MM4R) initiative to increase mobile money services in government and humanitarian cash and voucher assistance programmes provided to refugees. In Jordan, “refugees can register for a SIM card and open a mobile money account with either a passport or a Ministry of Interior (MOI) card. However, the latter is only issued to Syrian refugees. At the request of the Government, UNHCR issues an Asylum Seeker Certificate to each family, which is based on a dossier of information and biometric authentication (iris scans). The panellists explored the option of the Government recognising the UNHCR Asylum Seeker Certificate for refugees who are not issued the MOI card and do not have a valid passport. UNHCR and mobile network operators (MNOs) will continue to work with the Government on the appropriate identity documents.” (Khan, 2019)

⁵ “Virtual accounts are unique account numbers assigned within traditional, physical bank accounts, which are also known as settlement accounts. They can be used to send and receive money on behalf of the settlement account, where the funds are ultimately held. Businesses tend to create multiple virtual accounts, with each one designated to a specific client, transaction, entity, or any other business reason” (*What Are Virtual Bank Accounts?*, n.d.)

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Mobile money cash and voucher assistance	Mobile money	WFP	Jordan	Syrian refugees	eFAWATEERcom platform	Non-camp

Source(s):

- (UNHCR, n.d.-c)
- (Khan, 2019)
- (Baah, 2020)

Mobile Money Assistance in Jordan “JoMoPay Platform”

In Jordan, Save the Children use JoMoPay platform to support Syrian refugees. “JoMoPay is an electronic system that provides mobile payment services, where mobile wallets are registered on the system for the purpose of exchanging financial transactions between mobile wallets end-to-end from bank accounts” (JoPACC, 2014).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Mobile money	Mobile money	Save the Children	Jordan	Syrian refugees	Jordan Mobile Payment (JoMoPay) initiative	Non-camp

Source(s):

- (CBJ, n.d.)
- (Save the Children, 2018)

UNICEF and WFP’s Winterization Programme in Jordan for Vulnerable Syrian Families in Za’atari and Azraq Camps

In Jordan, UNICEF and WFP partnered to help vulnerable Syrian families in Za’atari and Azraq camps to protect their children against the winter cold. “The one-time cash assistance from UNICEF will target children from nearly 13,000 vulnerable families in the two camps through the existing WFP electronic food voucher programme (e-cards)” (ReliefWeb, 2015a).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-cards	Prepaid cards	UNICEF and WFP	Jordan	Syrian refugees	Winterization programme	Camp

Source(s):

- (ReliefWeb, 2015a)

- (WFP, 2015a)

UNHCR’s Regional Winterization Assistance Plan 2020-2021/2020-2022 in Lebanon, Jordan, Iraq, and Egypt

The UNHCR developed a regional winterization plan based on the assessed most vulnerable needs of Syrian refugees in Egypt, Iraq, Jordan, and Lebanon. (ReliefWeb, 2022d; UNHCR, 2020, 2021b).



Figure 7: Iris Identification of a Sudanese Refugee in an Egyptian Post Office to Receive her Cash Assistance Provided by the UNHCR^{iv}

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
LOUISE E-cards	Prepaid cards	UNHCR	Lebanon	Syrian refugees	Winterization Assistance Plan 2020-2021/Winterization Assistance Plan 2021-2022	Camp and non-camp
Virtual accounts ⁶	Bank accounts		Jordan	Syrian refugees, in addition to Iraqis, Yemenis, Somalis, Sudanese, and others		
Mobile money wallets	Mobile money		Iraq	Syrian refugees		
E-wallets	Mobile money		Egypt	Syrian refugees		
E-cards	Prepaid cards					

Source(s):

- (UNHCR, 2020)

⁶ "Virtual accounts are unique account numbers assigned within traditional, physical bank accounts, which are also known as settlement accounts. They can be used to send and receive money on behalf of the settlement account, where the funds are ultimately held. Businesses tend to create multiple virtual accounts, with each one designated to a specific client, transaction, entity, or any other business reason" (*What Are Virtual Bank Accounts?*, n.d.)

- (ReliefWeb, 2022d)
- (UNHCR, 2021b)

WFP’s Digital Cash Card Programme in Iraq for Syrian Refugees

In Iraq, the WFP has launched a digital cash card programme through electronic cards, known as SCOPE cards, to provide food assistance to displaced Iraqis and Syrian refugees across Iraq (WFP, 2016).



Figure 8: WFP’s Digital Cash Card Programme in Iraq for Syrian Refugees^v

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
SCOPE cards	Prepaid cards	WFP	Iraq	Syrian refugees	-	Non-camp

Source(s):

- (WFP, 2016)

Regular Bank Account for Rwandan Asylum Seekers in Uganda

In Uganda, Oruchinga was founded as a transit centre for Rwandan asylum seekers of Tutsi origin. Later, Oruchinga was officially recognized as a refugee settlement (UNHCR, 2014). The UNHCR Uganda country operation in Oruchinga refugee settlement reported supplying regular bank accounts to the refugee. A MasterCard comes with each account and can be used at all bank terminals, cash withdrawals from all ATMs having MasterCard, local and international transactions, online purchases and payments at local and international Point of Sales (POS) (Anyanzo, 2019).



Figure 9: Rwandan refugees' Equity bank card in Uganda^{vi}

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Regular bank accounts/Mastercard cards	Bank accounts	UNHCR	Uganda	Rwandan asylum seekers	-	Camp

Source(s):

- (Anyanzo, 2019)

Bank Transfers to Refugees' Accounts or Mobile Wallets in the Democratic Republic of the Congo

Refugees and asylum-seekers in the Democratic Republic of the Congo (DRC) come mainly from Burundi, the Central African Republic, and South Sudan (ReliefWeb, 2022b). Digital transfer mechanisms, through mobile money providers and direct cash through banks, were used to support refugees and asylum-seekers in the Democratic Republic of the Congo (DRC) (Lewis, 2018).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Digital transfer mechanisms, through mobile money providers	Mobile money	AIDES ⁷ and Help Age RDC	The Democratic Republic of the Congo (DRC)	Refugees from Burundi, the Central African Republic, and South Sudan	Cash for Shelter Programme	Non-camp

⁷ <https://en.wikipedia.org/wiki/AIDES>

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Direct Cash (Bank)	Bank accounts	ALDI ⁸				

Source(s):

- (Lewis, 2018)

WFP’s Bamba Chakula Programme for Refugees from South Sudan, Somalia, Ethiopia in Kenya

Bamba Chakula programme in Kenya is “monthly mobile cash transfers for food at registered shops” (Nisbet et al., 2022). Refugees from South Sudan, Ethiopia, Burundi, the Democratic Republic of Congo (DRC), Uganda, Sudan, Somalia

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Mobile cash transfers	Mobile money	WFP	Kenya	Refugees from South Sudan, Ethiopia, Burundi, the Democratic Republic of Congo (DRC), Uganda, Sudan, Somalia	Bamba Chakula programme	Camp
E-vouchers	Prepaid cards			Refugees from South Sudan, Somalia, Ethiopia		

Source(s):

- (Betts et al., 2020)
- (Nisbet et al., 2022)

plugPAY: Refugees in Zambia

In Mantapala refugee settlement in Zambia, WFP, Citibank Zambia Limited, and MTN Zambia provided digital cash assistance using plugPay⁹ by directly transferring cash to bank accounts or mobile wallets of refugees from the Democratic Republic of the Congo (DRC) (ReliefWeb, 2021b).

⁸ <https://en.wikipedia.org/wiki/Aldi>

⁹ “plugPAY is a digital payment solution for vulnerable communities to rapidly receive cash assistance through their payment instrument of choice” (WFP, 2021c).



Figure 10: plugPAY in Zambia^{vii}

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Bank accounts	Bank accounts	WFP, Citibank Zambia Limited and MTN Zambia	Zambia	Refugees from the Democratic Republic of Congo (DRC)	plugPay	Camp
Mobile wallets	Mobile money					

Source(s):

- (ReliefWeb, 2021b)
- (Smeulders & Mboshya, 2021)

UNHCR's Mobile Wallet Intervention in Zambia

UNHCR used cash-based intervention in the Meheba refugee settlement in Zambia by providing mobile wallets to refugees (UNCDF, 2018).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Mobile wallets	Mobile money	UNHCR	Zambia	Refugees from the Democratic Republic of the Congo, Angola, Burundi, Rwanda, Somalia, and others	-	Camp

Source(s):

- (UNCDF, 2018)
- (*Digitizing Refugee Payments in Zambia Meheba 2018 | UN Capital Development Fund (UNCDF), 2018*)
- (UNHCR, 2021a)

Cash-Based Interventions Programme for Refugees in Greece

Using the UNHCR Greece Cash Alliance Card and the UNHCR’s Greece cash-based interventions programme, the UNHCR helped enhance the well-being of refugees and asylum-seekers in Greece (Dunlop et al., 2018; Nisbet et al., 2022).



Figure 11: The UNHCR Greece Cash Alliance Card^{viii}

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Prepaid cards	Prepaid cards	UNHCR	Greece	Syrian, Iraqi, Afghani, Iranian, and other refugees	UNHCR’s Greece cash-based interventions programme	Non-camp

Source(s):

- (Dunlop et al., 2018)
- (Nisbet et al., 2022)
- (Pavanello, 2018)

UNHCR’s maib Prepaid Cards in Moldova for Ukrainian Households

At the enrolment sites in Moldova, the UNHCR cash assistance programme supplied the Ukrainian families with maib prepaid cards¹⁰ that are valid only in Moldova. The cardholder receives a notification via an SMS when money is deposited into the card (UNICEF, n.d.). “The card can be used free of charge for purchases in all stores and for cash withdrawal in ATMs” (UNICEF, n.d.).

¹⁰ <https://www.maib.md/en/carduri-de-debit>

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
maib prepaid cards	Prepaid cards	UNHCR	Moldova	Ukrainian refugees	UNHCR cash assistance programme in Moldova	Non-camp

Source(s):

- (UNHCR, 2022a)
- (UNICEF, n.d.)

Refugees and Asylum-Seekers in Moldova

In Moldova, refugees and asylum-seekers are supplied with debit bank cards (Liliana Pavlov, 2011). “Moldova is the first country in Europe where the UN refugee agency has implemented the debit card scheme to streamline the distribution of its monthly financial support via Automated Teller Machines (ATMs)” (Liliana Pavlov, 2011).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Debit bank cards	Bank accounts	UNHCR	Moldova	Refugees and asylum-seekers from Turkey, Uzbekistan and Ukraine	UNHCR initiative to expedite the distribution of the agency’s monthly subsistence allowance	Non-camp

Source(s):

- (Liliana Pavlov, 2011)

WFP’s E-vouchers for Rohingya Refugees in Bangladesh

Rohingya refugees crossed the borders to Bangladesh because of the violence in Myanmar (ReliefWeb, 2022a). “WFP assisted 859,900 Rohingya refugees in 34 camps. More than 98 percent received e-vouchers” (ReliefWeb, 2022a).

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
E-vouchers	Prepaid cards	WFP	Bangladesh	Rohingya refugees	-	Camp

Source(s):

- (ReliefWeb, 2021a)
- (Thapa & Snowdon, 2020)
- (World Vision International, 2020)
- (WFP, 2021b)

- (Hoddinott et al., 2020)
- (Nisbet et al., 2022)

UNHCR’s Debit Cards in Mexico for Migrants from Honduras and Nicaragua

In the south of Mexico, the UNHCR supplies debit cards for accommodation and medicines to migrants (Bensman, 2022). “The Center for Immigration Studies has previously reported after first seeing the cash cards distributed at a Reynosa, Mexico, migrant camp, the United Nations is sharply escalating the amounts of cash and other direct financial assistance to immigrants all along the migrant trail from Panama to Texas, at an uncharted series of some 100 waystations like this one in Tapachula. It is part of a program the United Nations calls ‘cash-based interventions’ (CBI).” (Bensman, 2022).



Figure 12: Haitian person in Tapachula, Mexico holding his debit card provided by the United Nations^{ix}

Technology	UNHCR equivalent	Organization	Host country	Beneficiaries	Programme	Scope
Debit cards/Mastercard	Bank accounts	UNHCR	Mexico	Migrants from Honduras and Nicaragua that form part of the so-called caravan in Guatemala	cash-based interventions	Camp and non-camp

Sources:

- (Bensman, 2022)

Table 3 below combines the dataset we collected with all the identified digital cash-based assistance technologies from our review.