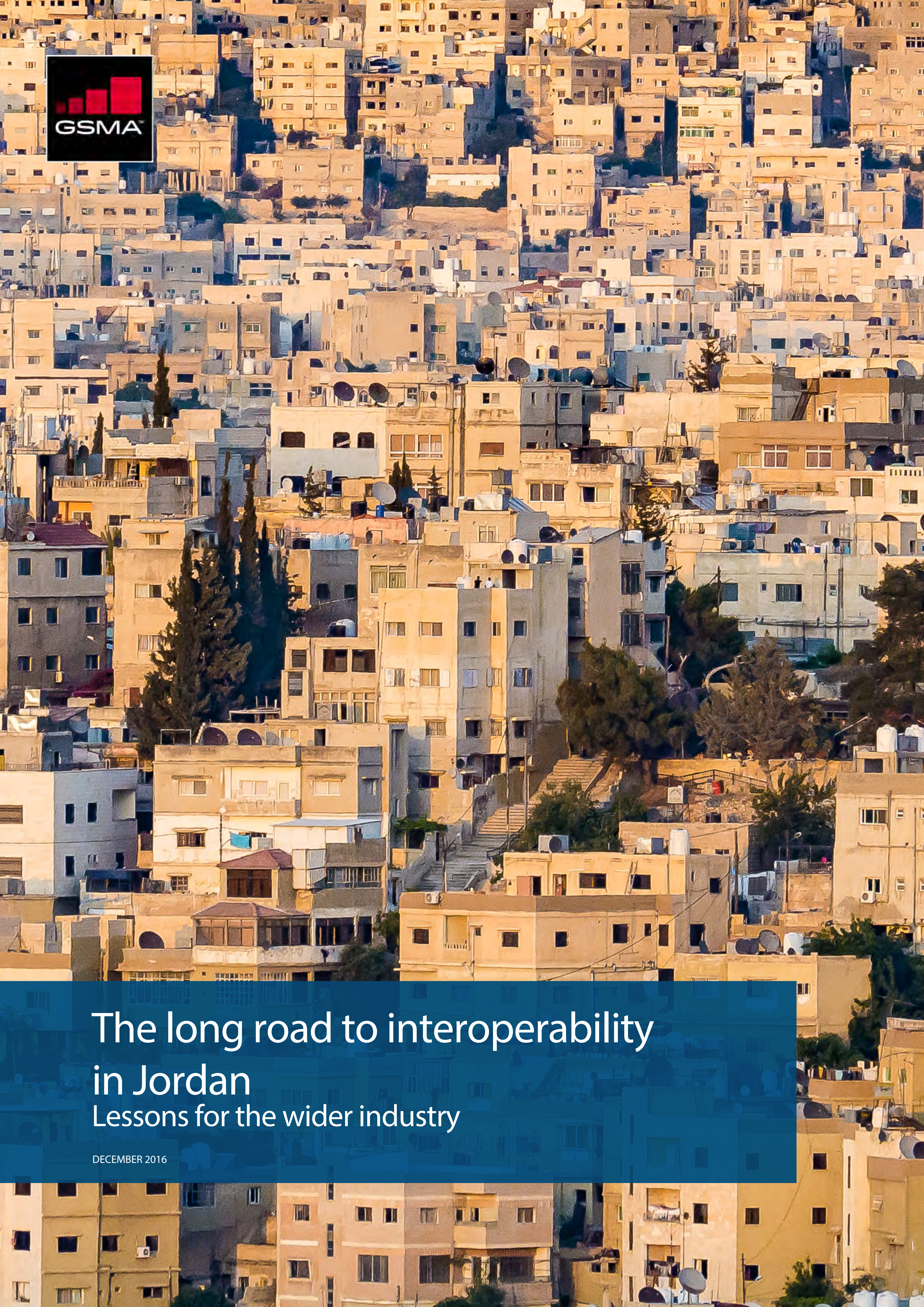

The long road to interoperability in Jordan

Lessons for the wider industry

DECEMBER 2016

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai and the Mobile 360 Series conferences.

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Mobile Money

The GSMA's Mobile Money programme works to accelerate the development of the mobile money ecosystem for the underserved.

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Acknowledgements

The story of mobile money in Jordan started in 2009, with the launch of the first mobile money service. Over the past few years, the Central Bank of Jordan has developed a clear regulatory framework for mobile money and initiated the process to develop a National Financial Inclusion Strategy. These critical steps are putting Jordan on the forefront of financial inclusion efforts in the region and globally. The Central Bank adopted a test-and-learn approach with the objective to build the best possible environment for mobile money in the country, and this has led to the development of an interoperable model for mobile money which is unique in the world. A lot can be learned from the rich experience of Jordan and we commend the Central Bank for their willingness to share that story.

In particular, the authors would like to thank Ms. Maha Bahou from the Central Bank of Jordan for her time, openness and unrivalled commitment to financial inclusion in Jordan. The authors would also like to express their sincere appreciation to the teams from Orange, Umniah and Zain for their great collaboration over the last year and a half, specifically Emma Lala Bouali at Orange Group, Mohamed Beides at Umniah, and Sultan Kashoura at Zain. Finally, the authors are grateful to Abbassi Law Office, CGAP, Enclude, Emerging Market Payments, eServGlobal, MadFooatCom, ProgressSoft and USAID for insightful discussions and for helping us to get a better understanding of the mobile money sector in Jordan.

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Introduction

In December 2013, the Central Bank of Jordan published Mobile Payment Services Instructions, providing the new regulatory framework for mobile money in Jordan. The new regulation allowed for an open and level playing field for banks and non-banks to provide mobile money services in a safe and sound manner. It also prescribed a specific model for interoperability between providers. Specifically, it introduced JoMoPay (an abbreviation of Jordan Mobile Payments), a national switching infrastructure with the purpose of enabling interoperability between mobile money services from day one.

At the beginning of 2016, Jordan became the first country in the Middle East and North Africa to have implemented interoperability of mobile money services. However, it took more than two years to launch the first mobile money service integrated with JoMoPay and in compliance with the 2013 Instructions. As of September 2016, there are two[1] live mobile money services in Jordan witnessing limited traction, while the full potential of mobile money remains to be seen. Thus, despite a strong commitment from the Central Bank to deepen financial inclusion in a country where less than a quarter of adults are banked, the intended impact has not yet materialised.

What lessons can we learn from the Jordanian experience? What were the key success factors, and what have been the main barriers slowing down the development of mobile money in Jordan? This story is very rich for the mobile money industry and shows that implementing interoperability can be much more challenging than expected. Specifically, this case study highlights that:

- Dialogue between mobile money providers and regulators is key to ensure alignment in understanding the timing, benefits, costs, and risks of interoperability;
- Interoperability is only a means to an end and cannot by itself guarantee the success of mobile money if solid foundations are not in place, such as strong distribution networks or good customer experience;
- The choice of the technical solution to support mobile money interoperability has a direct impact on the cost structure and on the business model for mobile money providers;
- The timing of interoperability is critical. If mandated and introduced prematurely, interoperability could undermine early-stage investment incentives and increase operational complexity and risk, without advancing market growth;
- Ongoing monitoring of mobile money interoperability in markets where it is live as well as further research will be necessary to ensure we continue to learn about how to swiftly connect third parties to the mobile money ecosystem in a safe and secure manner, and to develop new services to achieve the complementarity of mobile services in Jordan.

[1] The Central Bank has provided licenses to four service providers, but only two of them – Zain and Umniah – have commercially launched their mobile money service.

Part 1 – Market context & regulation

With its strong international reputation and prominent position on the world stage, Jordan is not a country many people would associate with financial exclusion – but that would be an oversight.

With only 24.6% of Jordan's adult population having an account at a formal financial institution, the level of financial inclusion in Jordan is lower than in many other countries – including Angola (29.3%), Zimbabwe (32.4%), and Somalia (38.7%).[2]

Jordan Market Context At A Glance		
Population: 7.7 million[3]	**GDP per capita**: $4,831[4]	**Smartphone penetration**: 70%[5]
Number of mobile connections: 10.3 million[6] **Number of unique mobile subscribers**: 5.6m[7]	**Adults with an account at a formal financial institution**: 24.6%[8] **And in Sub-Saharan Africa**: 28.9%[9]	**Gender gap in mobile ownership**: 21%[10] **Gender gap in financial account ownership**: 53%[11]

The figures above show that there is a clear opportunity in Jordan to leverage mobile technology to increase access to financial services, particularly for the following segments of the population.

- **Unbanked citizens, especially women**: The majority of adults are financially excluded and don't have an account at a financial institution. While the gender gap in mobile ownership persists in Jordan, the gap in access to financial services is actually much higher. In fact, the

[2] 2015 Findex data
[3] http://data.un.org/CountryProfile.aspx?crName=JORDAN
[4] http://data.un.org/CountryProfile.aspx?crName=JORDAN
[5] Figure obtained from Central Bank of Jordan. According to GSMA Intelligence (https://www.gsmaintelligence.com/markets/1826/dashboard/) there are 3,990,859 unique smartphone SIMs in Jordan
[6] https://www.gsmaintelligence.com/markets/1826/dashboard/
[7] https://www.gsmaintelligence.com/markets/1826/dashboard/
[8] 2014 Findex data
[9] 2014 Findex data
[10] Bridging the gender gap: Mobile access and usage in low- and middle-income countries, GSMA Connected Women, 2015
[11] Bridging the gender gap: Mobile access and usage in low- and middle-income countries, GSMA Connected Women, 2015

gender gap in financial account ownership reaches 53%, while the gap in mobile ownership stands at 21%.

- **Refugees**: According to the UNHCR, there were an estimated 664,118 refugees in Jordan in 2015.[12] These refugees are especially vulnerable and tend to live below the poverty line. Mobile money services can enable humanitarian assistance and cash transfers to refugees. Mobile money can also help to increase financial inclusion as well as access to other basic services such as education and healthcare.

- **Urban youth:** With the strong development of online shopping in Arab states where cash-on-delivery remains the most prevalent payment mechanism, digital commerce can also represent a strong use case for mobile money among the urban youth. In Jordan, almost a quarter (24.3%) of smartphone users use it for digital commerce[13].

Mobile operators Zain and Orange were quick to recognise the opportunity and, together with their partner banks, launched their initial mobile money services in 2011 and 2012, respectively. However, adoption remained low, largely due to the regulatory constraints preventing scale.

Regulation

Before 2013, mobile money services had to comply with the Central Bank of Jordan's 2010 circular on mobile payments. However, the circular was not adapted to the opportunities and challenges represented by the nascent mobile money sector. Namely, the circular allowed limited licensing and distribution models, preventing the private sector from building sustainable services and extending the reach of the formal financial sector. To address these challenges, the Central Bank published a new regulatory framework for mobile money in December 2013, which came into effect in March 2014. Orange and Zain were to comply with the new regulation if they wanted to continue their mobile money businesses.

This new framework forms part of the Central Bank's 2013-2016 payment systems strategy, designed to achieve its key objectives of financial inclusion, financial stability, financial integrity and consumer protection. This new regulation introduced a vision to address the main barriers to the growth of mobile money that existed under the old framework. In particular, the Central Bank was keen to:

- **Let mobile operators play a bigger role in the mobile money value chain**: Indeed, the Central Bank quickly realised that mobile operators were key to drive mobile money expansion. The new framework introduces an open and level playing field where non-banks, including operators, can become Payment Service Providers (PSPs) and provide mobile money services directly. Under the new framework, mobile operators who want to provide mobile money services are required to set up subsidiaries with paid-up capital of JD 1.5 million (US$ 2.1 million).

- **Encourage the development of large agent networks, beyond bank branches and postal offices, to reach underserved communities**: To that end, the new framework allows PSPs to use agents to register new customers as well as to provide cash-in and cash-out

[12] http://reporting.unhcr.org/population
[13] Electronic and Mobile Payments in MENA, Arab Advisors, October 2015

services. Agents don't need any licensing as long as they comply with the agents guidelines established by the Central Bank in the JoMoPay instructions, which include specific criteria on who can be a mobile money agent and which structure the relationship between the PSP and the Agent.

- **Allow a greater number of people to use mobile money, including refugees**: KYC requirements are designed so that new customers can register by providing either their National ID number (for Jordanian citizens), their passport number (for foreigners), their UN number (for refugees), or the number of their Ministry of Interior (MOI) service card[14].

- **Introduce interoperability**: The Central Bank decided to mandate interoperability of mobile money services from day one of the new framework, with the intention of boosting customer adoption and increase convenience. The regulation required interoperability to happen through a central switch, JoMoPay, owned by the Central Bank.

The introduction of an open and level playing field as well as the permission to use agents are key components of enabling regulatory frameworks for mobile money[15], and the fact that the Central Bank introduced these changes clearly put Jordan on the forefront of financial inclusion efforts in the MENA region. Beyond the regulation itself, the Central Bank of Jordan adopted a very enthusiastic approach towards mobile money, looking at how to stimulate market demand through the promotion of JoMoPay for example. It also proactively explored opportunities to review the regulation, encouraged the development of new mobile money products, and continued to support mobile money growth as the market matures. However, the fact that interoperability was mandated and that service providers had no flexibility around the timing or the choice of the technical solution created a number of challenges.

Differing approaches following the new regulation

Following the release of this new regulation, the country's three mobile operators adopted different approaches:

- While their existing service was on hold, Orange expressed concerns around the sustainability of the business model and the approach to interoperability under the new framework. As a result, they decided to temporarily pause their investments in mobile money, instead adopting a 'wait and see' approach.

- Umniah joined forces with the Emerging Markets Payments Group (EMP) and four banks to create a consortium called Al Hulool[16] – a strategy which allowed them to leverage assets from each member of the consortium while limiting individual investments in the service. Al Hulool applied to become a PSP in November 2014 and was approved in November 2015.

- Zain decided to offer mobile money on their own, in the belief that it would contribute to faster decision making while leveraging strong relationships with partners and stakeholders. Zain applied to become a PSP in March 2015. Their license was approved in December 2015.

[14] The MOI card is delivered by the Ministry of Interior to Syrian refugees seeking asylum in Jordan. The MOI card allows refugees to access public healthcare and education services as well as to travel within Jordan, within certain limits. Today, almost 85% of Syrian refugees in Jordan live outside refugee camps.
[15] "Is regulation holding back financial inclusion? A look at the evidence", Simone di Castri, GSMA blog, January 2015
[16] Note that since then, a new bank and an MFI have joined the consortium.

Part 2 – Rolling out interoperability

Building the switch

At the end of 2012, the Central Bank issued a request for proposal to build a switch. ProgressSoft, a payment solution provider based in Jordan, won the contract after proposing to roll out their mobile payment switching solution under the brand name JoMoPay. The Central Bank acquired the switch technology for free, as ProgressSoft offered it as a gift to the Kingdom of Jordan[17]. The switch was built by the end of June 2014 (see Text Box 1).

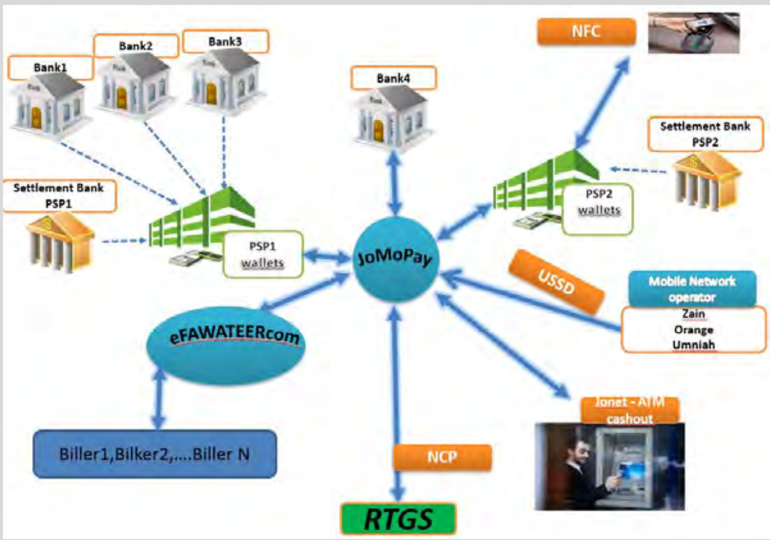
TEXT BOX 1

Overview of JoMoPay

JoMoPay is a real-time payment switch for processing and switching mobile financial and non-financial transactions in STP[18] basis and routing messages between multiple mobile payment service providers. It uses industry standard protocols, such as ISO 8583 for message exchange, along with other proprietary message formats.

It enables a wide range of use cases, including P2P, P2B and bill payment, P2G, G2P, B2B, international remittances, merchant payment, airtime top-up, cash-in and cash-out. It can support up to 100 transactions per second.

It is operated and managed by the Central Bank of Jordan. All PSPs and banks offering mobile banking and / or mobile money services have to connect to JoMoPay. All mobile network operators also have to connect to JoMoPay for the provision of USSD access. To ensure full interoperability of the mobile money ecosystem, JoMoPay has integrated with the following payment systems in Jordan: eFawateercom, Jordan's bill presentment and payment solution, the RTGS (Real Time Gross Settlement System) and JoNet, the national ATM switch.



[17] Podcast with Maha Bahou, Consult Hyperion, 2014. Available at http://www.chyp.com/podcasts/maha-bahou-central-bank-of-jordan-2/
[18] Straight Through Processing – order processing that doesn't require any manual intervention and is fully automatic.

Integrating with the switch

While the Central Bank had a simple and clear vision for JoMoPay, the actual process of integration proved to be much more cumbersome for the ecosystem players and took longer than expected:

- The Central Bank shared the first integration requirements for JoMoPay in September 2013. A long and complex process followed, with multiple cycles of specification reviews, software development, integration and testing. The review of specifications and engaging with the technology solution supplier took particularly long and involved upgrading the PSP's mobile money platforms to enable them to deal with a centralised system (i.e. Jomopay[19]), resulting in integration delays and increased costs for providers.

- Back-and-forth discussions between the platform providers, the PSPs, and the Central Bank were also required to clarify the integration requirements that were initially provided for JoMoPay, adding to the initial integration timeframe.

- Finally, the Central Bank shared additional specifications and requirements for all new products that were going to be implemented on JoMoPay, for example: bill payments when JoMoPay integrated with eFawateercom (Jordan's bill presentment and payment system); ATM cash-out when JoMoPay integrated with JoNet (the ATM switch); and mobile services on all point-of-sale (POS) machines using NFC technology.

Apart from tying up internal resources, this long process also imposed significant financial cost on service providers. Providers had to pay for multiple platform upgrades and to cover staff costs while their mobile money services were not yet live and generating revenue.

After 18 months of a grindingly slow process, mobile operators reached out to the GSMA in early 2015 for support. The GSMA established a mobile money taskforce with the three mobile operators to facilitate communication, ensure a common understanding of key information regarding JoMoPay, as well as offer international expertise and best practices on mobile money interoperability.

After a thorough analysis of JoMoPay against other mobile payment switches globally, the GSMA found that specifications were overly complex, and not necessarily proportionate to the risks of mobile money. In December 2015, the GSMA urged the Central Bank to simplify technical requirements for integration – a recommendation which the Central Bank took on board, consistent with the CBJ's open-minded and progressive approach towards adopting best practices.

Integration was finalised and live in early 2016 on the Zain Cash and Mahfazti platforms – nearly two and a half years after the first set of specifications were shared. Compared to the time it took for mobile money services to complete technical integration in other countries, the time taken to complete testing and integration for JoMoPay was significantly longer. In addition, due to the technical challenges, operators were not able to launch their services on the USSD channel and could only make them available through smartphone apps.

[19] Vericash in the case of Al Hulool and eServGlobal in the case of Zain

Defining the commercial model, operating rules and governance

While technical discussions started quite early, other critical areas such as governance, the interoperability commercial model and the operational rules are still being reviewed.

As the owner of JoMoPay, the Central Bank has been playing a critical role in these discussions. With regards to the commercial model, the operational framework states that JoMoPay may charge commissions on transactions routed through the national switch, to be paid by service providers and to be debited from the provider's account at the settlement bank. However, the Central Bank has provided the switching facility to mobile money providers free of cost for the first two years of operation to allow PSPs to keep their costs low and encourage customer adoption, a clear sign of their commitment to financial inclusion. What will happen after this period has not yet been defined.

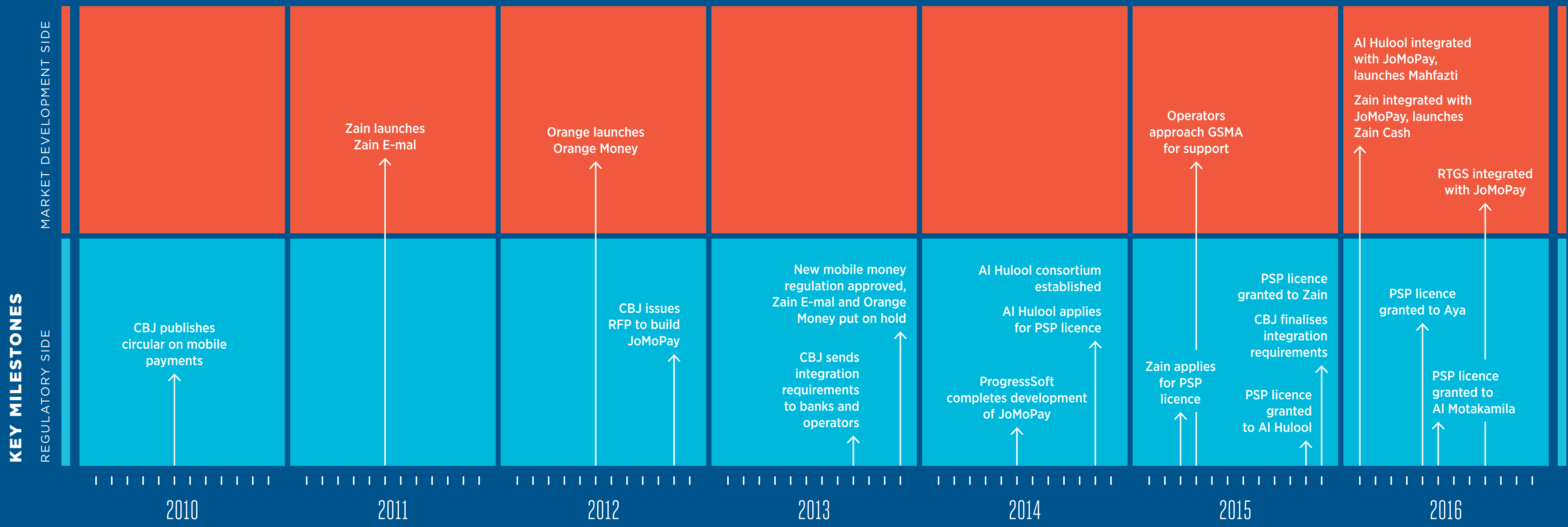
In terms of interchange fees for cross-network transactions, Al Hulool, Zain, other PSPs and the Central Bank agreed that there would be no interchange at the beginning, a decision that would be re-assessed once transaction volumes started to increase. Similarly, it was agreed that detailed operating rules would be defined as mobile money services scale.

At present, the Central Bank is reviewing different scenarios to change JoMoPay's ownership model—potentially spinning it off to the private sector once it reaches its full operational capacity. In that context, the Central Bank has recently approved the creation of a new retail payments company which will operate all the retail payment systems and will be owned by the Central Bank and the banking community.

While this may provide new opportunities for private sector players, it also creates new uncertainty.

GSMA Mobile Money

THE ROAD TO INTEROPERABILITY IN JORDAN



CBJ: CENTRAL BANK OF JORDAN
PSP: PAYMENT SERVICE PROVIDER

JORDAN
KEY FIGURES

ACTIVE MOBILE MONEY USERS
1,998

POPULATION
7.748m

REFUGEES
664k

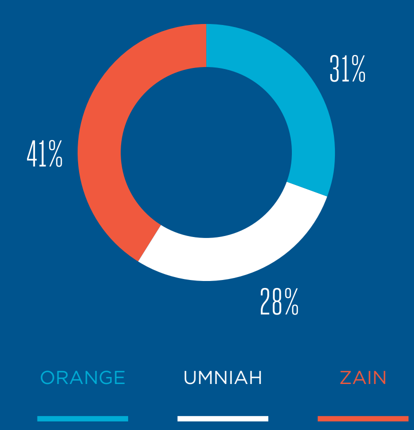
UNIQUE MOBILE SUBSCRIBERS
5.6m

MOBILE CONNECTIONS
10.3m

GDP / CAPITA
$4.8k

SMARTPHONE PENETRATION
70%

OPERATOR MARKET SHARES



Part 3 – Early findings from interoperability

Eight months on from the launch of the first service, the growth of mobile money has been slow. Mahfazti and Zain Cash have a combined total of 1,998 active mobile money accounts with 58 mobile money agents as of August 2016, and cross-network transfers representing 4.7% of all domestic P2P transfers.

In addition to the two live mobile money services in Jordan, Mahfazti and Zain Cash, the Central Bank had also issued two additional PSPs licenses to Aya and Al Motakamila at the time of writing.

Research[20] indicates that the most critical factors for the success of mobile money in the early days include the level of investment, the organisational structure, the customer acquisition and marketing strategy, and the approach to distribution. In the case of Jordan, resources and staff have been diverted to the integration with JoMoPay, leaving little leeway for providers to invest in distribution and marketing.

- With regards to marketing, Al Hulool and Zain have yet to scale up their marketing efforts to ensure the effective promotion of mobile money to the mass market, while the Central Bank has also started to promote the JoMoPay brand to the public in order to complement these efforts.

- In terms of customer experience, the fact that mobile money services were only available through smartphone apps initially has also limited their uptake. CBJ has been encouraging mobile money providers to provide their mobile money services via USSD to serve non-smartphone users.

- Finally with regards to distribution, mobile money agents remain limited to Zain and Umniah shops, as well as some foreign exchange bureaux. With a small number of shops in the country, this significantly limits the potential for mobile money to reach underserved customers.

Next steps and upcoming challenges

A lot has already been achieved in Jordan, with the release of a more enabling regulatory framework for mobile money in 2013, the development of JoMoPay, and the launch of two mobile money services in 2016. While it has been a long process, a number of key building blocks for mobile money success are now in place. In order to encourage greater customer adoption and to guarantee the sustainability of the model, the following issues will need to be addressed over the next few months:

- **Completing the integration of JoMoPay with the rest of the financial ecosystem**: Currently, the connection with the RTGS[21] and eFawateerCom, Jordan's bill presentment and payment solution, is live. However, it is still underway for JoNet, the national ATM switch.

[20] Claire Pénicaud Scharwatt, "State of the Industry – Results from the 2012 Global Mobile Money Adoption Survey", GSMA, 2013 (Part 3 – What makes the fastest growing deployments succeed?)
[21] Real-time gross settlement system

- **Addressing strategic questions related to JoMoPay**: A number of key questions related to the governance of JoMoPay, its branding and the business model for cross-network transfers are still unanswered. PSPs and the Central Bank will need to work together to clarify these points in order to ensure the sustainability of mobile money in Jordan. Specifically, the governance of JoMoPay will need to be designed in such a way that decisions related to mobile money cannot be blocked by non-PSPs. This is critical to ensure that mobile money is a success and protect the interests of the unbanked in Jordan.

- **Resolving channel issues** to make mobile money available on USSD for non-smartphone users. At the time of writing, Al Hulool was finalising the launch of Mahfazti via USSD using Umniah’s network. Zain Cash in collaboration with Zain has also activated the USSD channel for its customers.

- **Launching new products**: At the moment, the mobile money product offering in Jordan is limited to cash-in, cash-out, P2P transfers, disbursements and airtime top-ups. In order to build greater value and deepen financial inclusion for customers, other user cases will need to be added, such as bill payments, merchant payments, government payments or international remittances. At the time of writing, PSPs were testing ATM cash-outs through Jordan Kuwait Bank’s ATM network. The Central Bank and mobile money providers were also exploring a number of new services including international money transfer using mobile money (which would allow mobile money users in Jordan to send and receive transfers across borders) and NFC payments (which would allow mobile money users to make contactless transactions and unlock new use cases such as transportation and other government services).

- **Rolling out agent networks**: Al Hulool and Zain have both established partnerships with the National Post to use their branches for cash-in and cash-out. However, the key will be for providers to expand their distribution networks outside of operator shops and existing financial services access points if they want to effectively reach the unbanked and underbanked. Finally, while there is a defined vision on agent interoperability, more clarity on the model will be needed to implement it.

Lessons learned from Jordan

The journey towards interoperability in Jordan has been full of pitfalls and challenges, and the experience and lessons for the industry are important. Mandating interoperability in Jordan for mobile payment services through JoMoPay was technically sufficient for success. However, after mandating interoperability, the challenges faced by the mobile PSPs (in terms of time and resources invested due to the complexity of interoperability requirements) were significant. Specifically, there’s a lot we can learn from the Jordanian experience with regards to mobile money interoperability:

- **A dialogue between mobile money providers and regulators is key to ensure alignment in understanding the timing, benefits, costs, and risks of interoperability**. In Jordan, the role of the Central Bank has been critical to foster an inclusive approach, where all stakeholders – banks, operators, payment companies – were involved. For example, this approach allowed the regulator to mitigate the risk of the private sector curtailing investment in mobile money at the end of 2015 when integration delays were becoming a major issue.

- **The choice of the technical solution has a direct impact on the cost structure and on the business model for mobile money providers**. The Central Bank managed to limit capital investments to build JoMoPay and was therefore able to offer access to the switch infrastructure for free to mobile money providers. However, the complexity and the numerous changes to JoMoPay’s integration requirements resulted in high costs for mobile money providers.

- **Dedicated resources and focus from mobile money providers are critical to ensure interoperability is implemented in a smooth way**. This can be particularly challenging to achieve in markets where interoperability is mandated and introduced prematurely as this might undermine early-stage investment incentives. To guarantee the success of mobile money in Jordan by 2017, both interoperability as well as the development of strong mobile money foundations must be achieved. In order for this to happen, mobile PSPs must collaborate with developers of mobile phone payment systems (that have extensive experience in this space) to explore synergies between payment systems. They must also assign a dedicated and experienced team to focus on mobile phone payment services.

As the industry begins to grow in Jordan, the GSMA remains committed to supporting operators and the Central Bank to help create the first mobile money success story in the region. Going forward, ongoing monitoring of mobile money interoperability in markets where it is live as well as further research will be necessary to ensure we continue to learn about how to swiftly connect third parties to the mobile money ecosystem in a safe and secure manner.

TEXT BOX 2

An Interview with Maha Bahou, Executive Manager for Payment Systems & Domestic Banking at the Central Bank of Jordan

Why did the Central Bank of Jordan introduce JoMoPay in its December 2013 Mobile Payment Services Instructions? What were some of the goals and objectives that you wanted to achieve through the introduction of JoMoPay?

The Central Bank of Jordan intended to enhance and reinforce financial inclusion by providing the market with a comprehensive and robust piece of infrastructure that enabled full interoperability without requiring a huge investment from the potential service providers. By pursuing this strategy, our aim was to put Jordan at the forefront of the mobile money industry.

We also wanted JoMoPay to provide a level playing field to all types of service providers, and encourage interoperability at all levels for the benefit of consumers and service providers after the initial failure of mobile money in Jordan when it was launched by operators in 2011-12. Through JoMoPay, we wanted to ensure that all new switches, ATMs, Points of Sale (POS), card or mobile phone payments products issued or deployed by banks were compliant or interfaced with the national switch platform.

The Central Bank of Jordan also wanted to introduce a business model that would overcome the problems faced by other regulators and monetary policy agencies, as well as mitigate the risks associated with e-money issuance such as settlement risks and credit risks.

Finally, we wanted to ensure that JoMoPay would be rolled out in a safe and secure manner. The 2013 Instructions therefore clearly defined the roles of PSPs and other parties involved in the mobile money value chain, and provided a clear framework for risk management and consumer protection.

Were there any challenges that you faced in the process of developing and rolling out JoMoPay?

We faced tremendous challenges during the development and rolling out of JoMoPay.

- *Addressing the steep learning curve* - The first major challenge was related to our own understanding of mobile money. On the regulatory side, we needed to establish whether it was a banking product or a payment product and how we should regulate it (whether it would fall under payment systems oversight or within the banking and licensing supervision). We also needed to understand the risks associated with mobile money (for example with regards to fraud, money laundering and terrorism financing) and how to effectively mitigate these risks. From a technical perspective, we also needed to quickly learn how mobile money works in order to develop relevant specifications for JoMoPay.

- *Establishing the Central Bank's role* - The second challenge we faced was establishing our own role in this initiative. By setting up JoMoPay, would our role be that of an operator, facilitator, overseer or regulator – or all of them? Operating and managing the switch would require constant support, which presented us with added responsibilities but no corresponding increase in capacity.

- *Creating the right legal and regulatory framework* - The third major challenge we faced was creating the right legal framework for governing JoMoPay. When is the right time to introduce mobile money regulations: Before the service is launched or after it reaches a certain scale? The existing legal base was not ideal for JoMoPay and required changing some laws that took a long time to be amended and declared. For example, mobile network operators do not fall under the Central Bank's oversight; instead they are regulated by the Telecommunications Regulatory Commission (TRC). However, we were keen to involve MNOs in the provision of mobile money services as we knew this was a key success factor. This is why the 2013 Instructions introduced the PSP category. On the one hand, it allowed MNOs who were interested to provide mobile money services to apply for a PSP license. On the other hand, while the MNO remained under the TRC's supervision, any licensed PSP could be fully supervised by the Central Bank.

- *Getting key stakeholders on board* - Finally, getting the right level of support from all key stakeholders proved challenging. With the private sector, continuous dialogue was critical to ensure that all players – banks, MNOs, PSPs, etc. – were aligned. While this dialogue has allowed us to resolve a number of issues, some are still pending. For example, ATM machines operated by banks are still not ready to provide cash-in and cash-out services to mobile money users. On the other hand, PSPs need to invest more in distribution to ensure we have large and secured agent networks providing access to mobile money services to the unbanked and underbanked people of Jordan. Getting support from the government was critical although not always easy. For example, I'm really pleased that we managed to convince them to provide tax incentives to the system to maximize usage and benefits.

What are the key lessons learned from the process of introducing JoMoPay? What advice would you give other regulators that were thinking about going down a similar path?

From our own experience, we would advise other regulators and policy makers to study the risks that a system may face during implementation, and how they can be mitigated without complicating the customer experience. Regulations should be flexible, and more innovative than rigid. We would counsel other regulators to not simply adopt the standard approach of implementing a traditional risk matrix, but be more creative in their thinking for policies covering mobile-enabled financial services. Regulators need to focus on how to use mobile money to drive key efficiencies within the payment system, such as increased access to financial services among unbanked people, greater competition among service providers, and improved and more secure services for customers. It is also important to increase the financial literacy of citizens and promote the benefits and safety of using mobile payments.

With regards to mobile money interoperability specifically, in countries like Jordan where a central switch is being used, we believe it should be able to integrate with other payment systems domestically and worldwide. The switch should also comply with the global standards in this field. Building a centralised fraud detection and risk management system which covers the national switch also has the potential to reduce the cost of having such a system at the service provider level.

What are your hopes for JoMoPay and mobile money in Jordan going forward?

Now that JoMoPay is live, our hope is that as mobile money expands in Jordan. JoMoPay will help to generate greater interest among customers for mobile money. With the help of JoMoPay, we want to provide users with a full range of financial services, including:

- Processing all governmental payments through JoMoPay;
- Enabling entrepreneurs to collect payments for products and services through JoMoPay;
- Integrating JoMoPay with Jordan's Credit Bureau to produce a historical record for mobile money account holders that will facilitate their access to finance;
- Providing cash-in and cash-out services for mobile money account holders on at all ATMs in Jordan;
- Expanding the range of POS devices that accept mobile payment through NFC technology;
- Facilitating cross-border remittances by connecting JoMoPay with other mobile payment switches outside Jordan or with a global money transfer operator; and
- Producing high quality data about users' consumption behaviour based on age, gender, and geographical location, which will help the country and investors to make well informed and timely decisions.
- Building a comprehensive alternative dispute resolution mechanism to serve all mobile payment service providers.

We believe the time is right to seize the mobile money opportunity in Jordan and accelerate financial inclusion, particularly among the most vulnerable segments of the population such as refugees, women, the youth and the poor and we look forward to see the impact of mobile money in our country. We want to see impact not just in terms of the number of users or the number of transactions; what we really care about is having a positive impact on people's real life, both socially and economically.

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