The Future Use of Instant Payments – are we investing billions just to do mobile P2P?

2 January 2017

Published in book "Digital Payments", Edited by Prof. Dr. Jürgen Moormann et. al., by Frankfurt School of Finance & Management, September 2016 http://www.frankfurt-school-verlag.de/programm/digital_payments.html#stop

Published in Journal of Payments Strategy & Systems, Volume 11, Number 1, Spring 2017, pp. 58-77(20), Henry Stewart Publications

Published in BIT Banking and Information Technology, vol 19, issue 1, March 2018, pp34-50 under "The Future Use of Instant Payments – the real benefits, much beyond mobile P2P, especially for business",

Extract published on PPI Consultancy "on the latest monumental topics" forum https://www.paytoday.de/klassischer-zahlungsverkehr/instant-payments-der-tueroeffner-fuer-innovationen-im-zahlungsverkehr/

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Biography

Michael is Executive Adviser at equensWorldline SE, Europe's leading payment provider which processes over 17 trillion Euro per year.

He is an internationally recognised leader on business innovations especially in the digital and financial services space. In this capacity he is board-level advisor to banks, associations (e.g. the German Banking Association and the 3700 banks of the EACB) and numerous European bodies, for example the European Commission, the EPC (the decision making body of the 8000 banks in the 31 countries of Europe) and the ERPB (the central multi-stakeholder strategy board chaired by the Executive Board of the ECB for the future of payments in Europe) and further national and international boards.

He is a regular keynote speaker and appears on TV/radio/print/social media on advances in finance and is quoted extensively (Financial Times, Harvard Business Manager, Cyberlaw, New Scientist, Handelsblatt, Börsenzeitung, etc). His work has been translated into many languages including German, Italian, Dutch, Finnish, Polish, Russian and Japanese.

Previously he was IBM's Director of Market Development Media and Communications Technologies and studied at Cambridge University, UK.

Abstract

Europe is joining the fold of geographies where Instant Payments will be the new norm. This will likely take many years to implement (hopefully not as long as SEPA: the first idea was mooted in the early 1990s and became a reality in 2015) and will certainly require significant investments in billions of Euros. It will also absorb many years' of management attention at banks and regulators that can then not be devoted to other topics, notably innovations beyond infrastructure.

Is all this effort just to make P2P payments happen ? Peer-to-peer payments based on mobile phones (mP2P) are already, although very rarely, enjoying some success, notably in Sweden (Swish), US (Venmo) and Kenya (M-Pesa). However, countless attempts at mobile payments by digital disruptors, banks, mobile operators and others all over the world have largely failed.

This paper will analyse why successes are so rare, explore the interesting fact why the successes so far only happened outside the Euro-zone and whether a true underlying instant infrastructure is necessary for them at all. Finally we take the learnings from these lessons to map a success for the future: how the emergence of the new pan-European instant payment infrastructure may catapult Europe to the forefront of new services - well beyond infrastructure and beyond just mobile payment between consumers.

Comparisons are made between policy decisions in Europe versus other geographies (notably US) and the consequences therefrom.

This paper in no way aims to give a complete overview of all possible new use cases, scenarios and solutions. It can also not aim to give all the pros and cons of each idea nor to show the often significant complexities, risks and threats – especially for banks - in making them happen. This paper instead aims to widen the debate beyond the current focus on infrastructure and simple peer-to-peer applications.

We argue that the success – both in commercial terms and in added value to consumers – will surely come from a plethora of *applications* (not infrastructures). Such new services are clustered in P2P (the "only" current focus), P2B (for new experiences at the POS and online), P2G (for eGovernment services), M2M (the connected car, the Internet of Things) and finally – and maybe most disruptive - in B2B (just-in-time commerce linked with just-in-time payment).

Thus we welcome the advent of a pan-European (and increasingly global) instant payment infrastructure and aim to show that its real value comes in its application – and what surprising new opportunities this may afford to all.

Background

The European Central Bank (ECB) and the Euro Retail Payments Board (ERPB) have together motivated the European payments industry to put in place an instant payments (IP) infrastructure that will allow all-year, around-the-clock payment with the recipient having access to the funds immediately (i.e. within a few seconds). It is "cashless cash" with the same immediacy, availability and finality – but with reach not just between people facing eachother but remotely anywhere across Europe. The complexities in realizing this in the diverse European payments world of over 4000 banks and many other players are considerable and is discussed elsewhere[1].

Most of the considerations so far have been on the technical, organisational and commercial questions of the infrastructure. Here we wish to discuss more the potential *applications* and *use cases* once such an infrastructure is available.

We believe that this "what for" question (rather than just the "how" – and indeed the "how much" - questions) is essential and may have been somewhat neglected so far. The ECB have openly "admitted" that there was no prior use case analysis. It was simply – and maybe rightly - felt that Europe needs a modern infrastructure to accommodate the increasing internet and mobile real-time commerce and that future generations will expect this. "Send money as quickly and as easily as an email" is the slogan.

Is the assumption that better infrastructure will lead to better services justified? Infrastructure development will consume many man-years of management attention and likely more than a billion Euro of investment. We here debate some of the arguments around this case and show some likely outcomes of this development.

Scenario 1 – the case around infrastructure investment

We have seen a number of countries throughout the world investing heavily into new IP infrastructures[2]. These range from Japan which has had instant payments for 40 years to Australia which is currently rolling this out. Ca 20 countries in the world have so far developed an IP infrastructure of some description[3] and for diverse reasons[4]. In Europe instant payments are so far available only in *non-Euro* countries such as UK and Sweden.

[1] Ref EACHA Clearing Cooperative http://www.europeanclearingcooperative.com/ - or see other paper in this book

[2] Ref Real-time: Why It's Not Going Away http://lipisadvisors.com/white-papers/ or A trip around the world in immediate payments https://www.fisglobal.com/-/media/FISGlobal/Files/Report/Flavours_Of_Fast.pdf

[3] some do not operate at the weekend/holidays, some "look" more instant than actually providing immediate availability of funds etc – thus not all conform to the ECB/ERPB definition that is to rule in future in the Euro zone

[4] some countries e.g. Brazil have implemented IP against hyper-inflation (if money can take days to move it will lose significant value in transit), some as part of national policy measures (e.g. Sweden's campaign to reduce cash by making electronic alternatives available), some that were under national regulatory pressure to improve banking service (e.g. UK), some (e.g. Nigeria) wanted to defend against encroaching mobile operators, some that simply needed to modernize their legacy systems and wanted to employ modern technology etc

Have the countries that have a history of IP proven the case that the investment has been worthwhile ? Have Japan[5] and UK forged so far ahead in payment and e/m-commerce to justify that IP has been a good investment for them ? We fear the case is not easily made.

It has certainly been clear that the investments – and equally importantly the management time and attention – have been significant. Well informed sources estimate that "implementing real-time payments in a bank will be more expensive than implementing the Euro"[6]. The UK "Faster Payments" infrastructure is estimated to have cost £200 million plus investment costs borne by each participating bank[7]. This figure is low in the international comparison since UK has large concentration (single clearing house and ¾ of the UK accounts are concentrated in only four banks[8]) making deployment of IP comparatively easier. It is also widely accepted that the true costs of instant payments lie largely within each bank and that maybe only 10% is at the central infrastructure. Making each bank's system – its ledgers, its booking engine, its backoffice, its AML/sanction checking, etc – capable of processing in real time is a massive and costly task, also given most banks' extensive history of legacy systems. Thus although standard software (e.g. for real-time core banking systems) is increasingly becoming available and although several market initiatives are underway (EBA, EACHA – not to mention Blockchain) to construct the real time clearing and settlement networks, we can confidently predict[9] that implementing IP across Europe will absorb very many man-years of management attention and developer resources and cost in the region of billions of Euros. These can then not be used for other purposes.

Other geographies – notably US – have not been investing so heavily in infrastructure. Indeed their payments infrastructure can reliably be described as well behind Europe – even before the introduction of IP. Sending money from one account in one bank in one state to another account elsewhere in US is nothing like as efficient as in Europe. Some banks even print cheques in their back-office and send these by postal service to the recipient bank in the other state in order to complete the "online banking" request of a customer ! The US payment infrastructure is not leading the world. The US has also been behind on mobile infrastructures (having backed competing standards and "pagers" in the past before finally adopting Europe's GSM[10]) and is still behind on other infrastructures such as fibre and general internet speeds:

[5] actually Japan remains one of the most cash-heavy countries in the entire world (Paysys 2010): The average cash holding per person is ca. 3x that of the average in Europe. In UK the amount of cash in use has actually *increased* (Link 2016), despite Faster Payments, Contactless, PayM etc.. Thus "cashless cash" IP does not necessarily lead to less physical cash and more efficiency

[6] Ref Time to unearth the gold of SEPA http://www.banking-gateway.com/projects/time-to-unearth-the-gold-of-sepa-equens---ceo-michael-steinbach/

[7] Ref Costs and Benefits of Building Faster Payment Systems: The U.K. Experience and Implications for the United States https://www.bostonfed.org/economic/current-policy-perspectives/2014/cpp1405.pdf

[8] Ref Competition and Markets Authority Retail banking market investigation on the supply of personal current accounts (PCAs) and of banking services to small and medium-sized enterprises (SMEs) https://www.gov.uk/cma-cases/review-of-banking-for-small-and-medium-sized-businesses-smes-in-the-uk

[9] drawing also on experience in implementing SEPA across Europe

[10] Ref GSM Case Study – 3G Licensing Policy 2000 – A comparative analysis https://www.itu.int/osg/spu/ni/3G/casestudies/GSM-FINAL.pdf

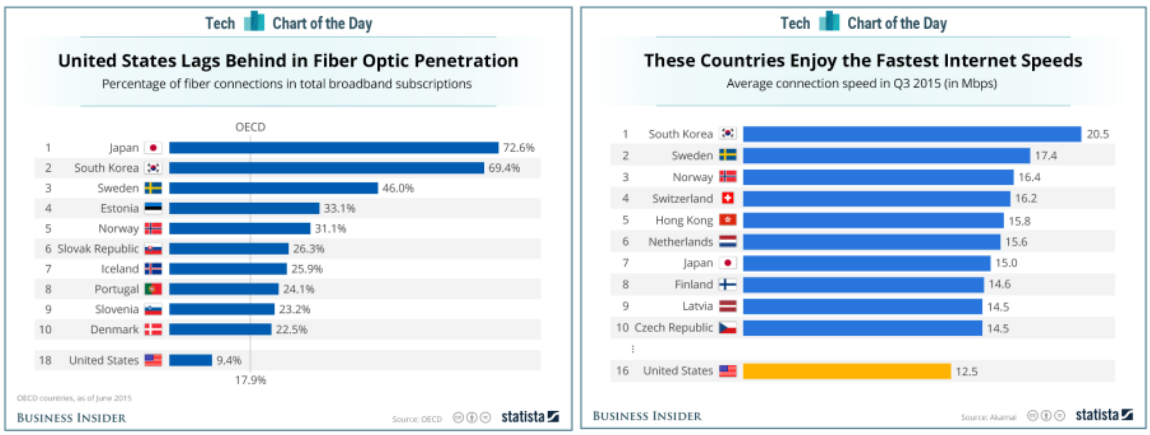

Fig 1: US is way ahead on services – but way behind on infrastructure
Source: Statista/Business Insider 2016

However it is critical to note that the US – despite[11] being behind on many topics of *infrastructure* – are very much in the lead in the topic of *services*. Most of the modern industry-redefining services such as Amazon/eBay (Retail), Netflix (TV), PayPal (Payment), Uber (Taxi), Facebook (Networking), Apple (Communication), Google (life changing in many ways from Mail to Translate to Maps and more), AirBnB (Hotel) etc etc have all originated in US despite (or maybe even actively stimulated by?) the poor underlying infrastructure.

In Europe new services largely seem to have emerged only in *non-Euro* countries: PayM/Transferwise/etc in UK, Swish/iZettle/etc in Sweden.

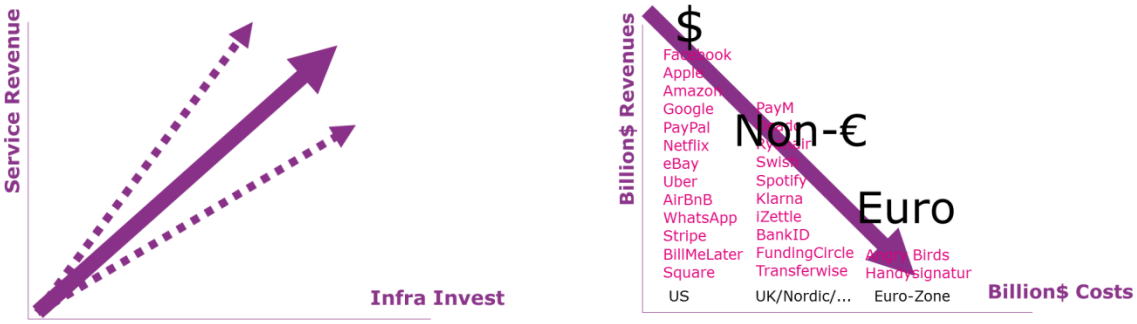

Fig 2: Infrastructure investment: theory and practice
Source: EquensWorldline Research 2016

Where are the innovative new industry-changing services from the Eurozone ? How has the massive investment in time and money in SEPA infrastructure paid off ? It seems that those countries that were "forced" into SEPA had little time and resources for innovations. Is it therefore wise to mandate another huge new infrastructure project – IP - upon Europe ? Will the main effect of the European IP investment be to allow US giants like Amazon and Netflix to glide even faster and more efficiently across Europe ? These are hard questions for policy makers.

[11] some even argue that the poor infrastructure has actively unleashed creativity to develop compensating new services that add value

The European Commission has the noble aim[12] to increase the global competitiveness of Europe, to create jobs and growth, to support innovation and the digital revolution - but in fact the European Digital Single Market Agenda may have a disproportionate focus on infrastructure topics: fibre penetration, telecoms, parcel delivery, standards, platforms and such. The topics of developing appropriate skills, creating a climate for innovation, developing new market and funding models, tolerating (or indeed encouraging) failure and iteration, developing models for working with regulators[13] etc are comparatively underdeveloped – especially compared to US and UK[14].

Many regulators outside US seem to feel a natural draw towards telling the industry what plumbing[15] to implement.

As a company working in the infrastructure field we of course very much welcome this focus and development.

However in the interests of Europe on the stage of international competition we must note that jobs, growth, competition, investment and innovation – the declared goals and priorities of Europe's Single Digital Market[16] - will only be achieved through new services. Infrastructure can not be *l'art pour l'art* but must only be engaged in to add value to consumers and businesses and to let new services flourish.

As this paper will aim to show, it may[17] have been wise to invest in infrastructure in the *past*, but we recommend that the European policy focus should *henceforth* be on the development of services. Although less measurable than fibre speeds and transaction times, there are clear policy choices[18] that can and should be made to develop new services – and hence innovation, growth and jobs – and prepare Europe for the future.

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[12] Ref https://www.qed.eu/Events/The%20Digital%20Single%20Market%202.0%20-%20Innovation%20and%20the%20digital%20revolution/Programme/

[13] Ref https://innovate.fca.org.uk/ or https://www.fca.org.uk/news/regulatory-sandbox

[14] But even in the UK the new Payment Systems Regulator PSR which again has the noble policy to promote innovation and ensure new services in the interests of users (see PSR Policy Statement https://www.psr.org.uk/sites/default/files/media/PDF/psr-publications-consultations-psr-ps-15.1.pdf) largely focusses on how systems are operated, how operators, PSPs and infrastructure providers should connect and looks in particular at the infrastructure (see PSR Goals https://www.psr.org.uk/about-psr/psr-purpose),

[15] maybe also because fibre penetration, mobile speeds etc are so easily measureable. Encouraging new services seems comparatively "woolly" and abstract and unquantifiable (although excellent, proven methods to unleash services and creativity are available that policy makers may be wise to consider)

[16] Ref http://ec.europa.eu/priorities/digital-single-market_en

[17] Time will tell if the current European service deficit will accelerate so much in later years on the basis of the better infrastructure to overtake other geographies – or if the headstart in US services can never be caught up with

[18] Ref The Knowledge Future: Intelligent policy choices for Europe 2015 – A Report to the European Commission, Directorate-General for Research and Innovation, by Expert Group on Foresight on Key Long-Term Transformations of European Systems: Research, Innovation and Higher Education (KT2050), Luxembourg, 2015

Scenario 2 – the case for new services

Given that Instant Payments (IP) infrastructure will be built, we suggest to focus our efforts on services that add true value and that are enabled by this infrastructure.

Europe's initiative to promote this modern infrastructure has galvanized the US Fed[19] into considering a modernization of their infrastructure so as not to fall even further behind. Thus there is clearly the feeling, also in US, that IP has potential to drive new services, growth and jobs and is important for a geography's competitiveness.

The only new *application* that has so far been discussed at any depth, however, in the public sphere is mobile person-to-person payment (mP2P)[20]. We here consider mP2P a good first step but see this not as the only benefit of IP but rather as the beginning of a whole family of new services.

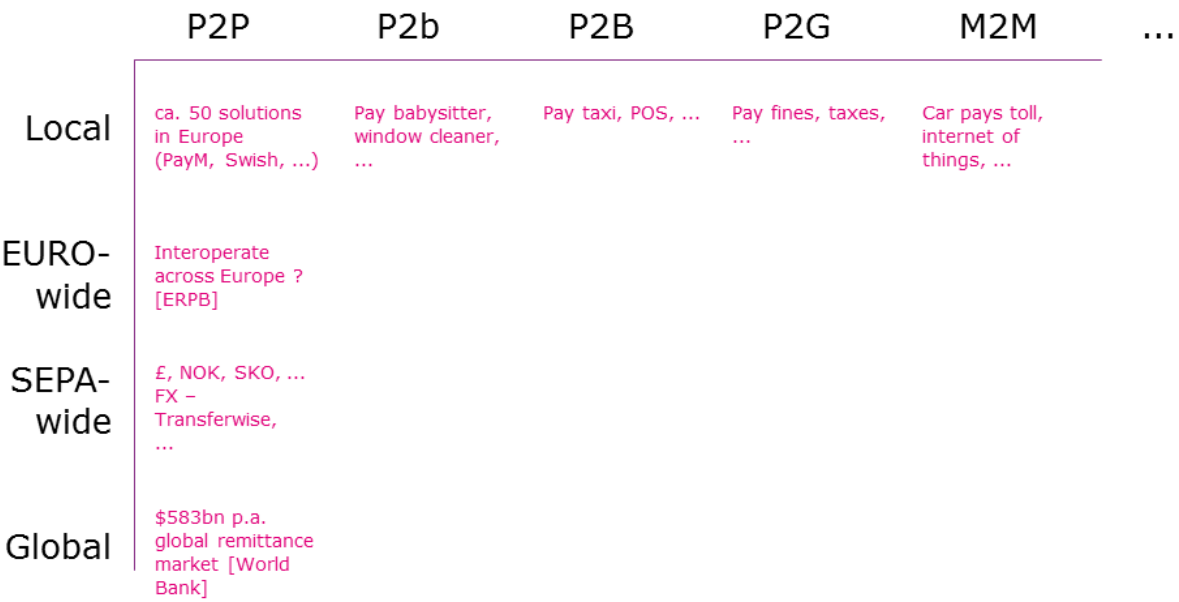

Fig 3: P2P is only the beginning - it will spawn a whole family of new services.
Source: EquensWorldline Research 2016

Indeed mP2P can largely be implemented on conventional payment infrastructure – without IP. PayPal has been providing P2P for decades by employing a wallet, Venmo (US's mP2P) is massively successful (in a country where we have established nothing like a modern IP exists),

[19] Ref https://fedpaymentsimprovement.org/faster-payments/task-force/

[20] Refs Salmony, M. (2016) Pan-European Mobile Peer-to-Peer Payment - and beyond.
to be published in inaugural edition of Journal of Digital Banking (in press);
Salmony, M. (2015) Setting up pan-European mobile P2P payment.
E-Finance & Payments Law & Policy, 9 (5), pp 4-6;
Salmony, M. (2015) Pan-European Peer-to-Peer Payment by Mobile Phone
- including considerations on technical and commercial implementation options.
Banking and Information Technology BIT ibi Research, University of Regensburg, 2 (2105),
pp 33-37.

PayM is widely deployed in UK although Faster Payment only "looks" like IP but actually relies on next day settlement. Other "instant looking" services have been set up based not on IP but on underlying *guarantee* services (provided by OBePs like iDeal) which give confidence to the recipient that he will receive his money even though the actual funds transfer through the underlying infrastructure may take a day (SEPA D+1) or longer (weekend/holiday). As discussed before, a plethora of applications have been developed in US which provide excellent fast new services despite a lack of high speed underlying payment infrastructure.

Thus we should focus our discussion on what new services - starting with P2P but not ending there – that are made possible through *true* IP – when funds really are moved immediately, instantly available, 24x7 every day of the year, irrevocably.

Mobile peer-to-peer payment

Beginning with mP2P we should note all simulacra (like PayPal, PayM etc) do not provide immediate availability of funds. Thus if one wishes to send one's daughter money to be used immediately at a supermarket checkout or to withdraw money immediately at an ATM only the real thing – IP's "cashless cash" – will do.

The larger topic of cash reduction is discussed elsewhere[21] but here it should be noted that a very large percentage (e.g. 87% in Germany[22]) of person-to-person payment transactions are currently conducted in cash. Pocket money, refunds for drinks etc are all paid out using notes and coins. Thus if a convenient electronic alternative (tapping father's phone against son's phone to top up his pocket money) were available we could reduce the current massive share of cash transactions in this space. This would be beneficial to society and industry as evinced by many studies[23].

A market analyis by the ERPB[24] revealed that ca 50 mP2P solutions already exist in Europe. US's Venmo has knocked Starbucks off the throne as the most popular mobile payment app of all. Thus there is clearly customer demand and provider supply of mP2P.

However this can only be the beginning. The ERPB has launched an initiative to interconnect the 50 mP2P solutions in Europe for pan-European reach. Once this is based on IP the funds will also be available to the recipient immediately and thus provide a "cashless cash" alternative that even works with the father in Germany helping his daughter to pay the bistro bill in Paris.

However paying back a work colleague from UK for lunch would require a solution for currency conversion. This is around the attractive, and hence hotly contested, topic of Foreign Exchange (FX). The success of Transferwise documents the need for an efficient, international, multi-currency payment solution. With IP new FX services can be offered instantly and with good business cases for the providers.

Finally mP2P can - and should - be extended beyond Europe and its currencies and geographies. Connecting Europe's mP2P to US's Venmo[25] would allow fathers to help their offspring while at business school or during their gap year travels in America. More importantly this opens the door for electronic remittance payments. This is a huge and exceedingly profitable market. The World Bank estimates[26] that 583,000,000,000$ worth of remittance payments are sent around the

[21] Ref Salmony, M. (2011) Why is the use of cash persisting? Critical success factors for overcoming vested interests. JPSS Journal of Payments Strategy & Systems, 5 (3), pp 246-272

[22] Ref https://www.bundesbank.de/Redaktion/DE/Downloads/Veroeffentlichungen/Studien/zahlungsverhalten_in_deutschland_2014.pdf?__blob=publicationFile

[23] Ref The Economist Abolishing notes and coins would bring huge economic benefits http://www.economist.com/news/finance-and-economics/21618886-abolishing-notes-and-coins-would-bring-huge-economic-benefits-leaving-dead

[24] Ref https://www.ecb.europa.eu/paym/retpaym/shared/pdf/3rd_erpb_meeting_item5_report_recommendations_P2P_mobile_payments.pdf

[25] or to the Indian solution described in the case study that is to connect 1 billion Indian citizens, or to M-PESA which famously connects citizens widely across Kenya allowing local mP2P money sending, etc

[26] Ref https://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1288990760745/MigrationandDevelopmentBrief24.pdf

globe every year. Migrant workers send money home to their families in Eastern Europe, Asia, Africa, South America and more. This is almost exclusively done in cash !

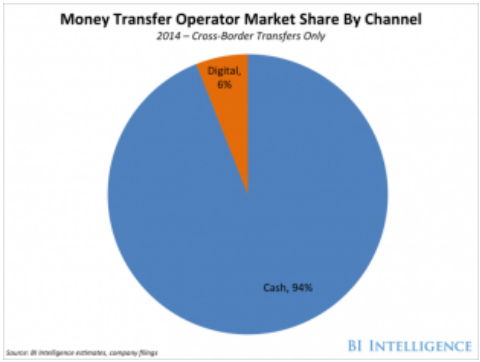

Fig 4: Remittance payments are almost exclusively in cash
Source: Business Intelligence 2015

Most of the world's population is increasingly equipped with a mobile phone. If money can be remitted home using mobile person-to-person payment in an efficient modern electronic form, this would be a huge benefit to migrant workers, their families, increase social inclusion and benefit society at large. And would clearly be a huge business opportunity for those wishing to offer such new services as alternatives to current international cash remittance solutions.

However, as noted before, instant payment may actually not be a prerequisite. To pay in a restaurant or to send money home every month, then it may not necessarily need to arrive in a few seconds. In many scenarios the reliability and *predictability* (I know that the money will arrive, I have an upper limit – which can be days – when it will be on my account) may be more important than the speed of settlement.

However in summary on mP2P let it not be said – as it often is – that this is a niche (see billions of remittance payments), provides little benefit (see today's user expectations), has little demand (see success of Venmo) and that no-one can make any money out of it (see FX, PayPal, Transferwise). mP2P is an excellent application area and the basis for more.

Case Study: India - mP2P, instant payment, convenient identity, biometrics, micro ATM

The interested reader is advised to look at an initiative driven by the National Payments Corporation of India (NCPI) and the Indian Government towards a unified payments interface[27]. This is to increase financial inclusion and modernization of society in India thus leapfrogging a country with only six non-cash payments per person per year (i.e. one of the most physical currency dependent countries in the world) towards a more cashless society. Every person is issued a unique ("Aadhaar") number by the government and, since mobile penetration is also prevalent even in the remotest villages and poorest sectors, money can be sent from any person to any person using this service. Addressing of the recipient is done either via the Aadhaar or via another memorable[28] alias e.g. mobile-number@carrier or account@bank or userid@mailprovider etc[29]. A very convenient way for the wage earner to send money home to his wife in the remote rural village or for a passenger to pay the taxi driver. The money is available immediately since the service is based on India's real-time Immediate Payment Service (IMPS) – the first large scale system not based on cards or SWIFT. The potential disadvantage of low literacy has been turned into an asset by the Unique Identification Authority of India (UIDAI) setting up a biometric[30] database which allows transactions to be authenticated with a fingerprint or in future iris recognition. This raft of initiatives is quite remarkable in that is designed to scale (to cater for 1 billion Indian citizens), is explicitly designed around social inclusion/a fairer society (and hence cash reduction) and is continuously spawning further true innovations.

One such innovation not seen elsewhere is the "micro ATM"[31]. This allows rural communities, previously typically unbanked, access to banking services even if they do not have access to a mobile phone or may have limited literacy (only fingerprint required for electronic transaction). It allows cash services via the thousands of micro ATMs carried by authorized agents into the villages – the local residents can withdraw and deposit cash with the agent by identifying themselves with their fingerprint at the micro-ATM which registers the transaction on their account.




Fig 5: Micro ATM

A true combination of innovations (identity services, customer-friendly addressing, mobile payment, biometrics, instant payment) targeted for real local customer needs that make a real difference.

[27] Ref http://www.mpf.org.in/pdf/NPCI%20Unified%20Payment%20Interface.pdf

[28] unlike Europe's IBAN

[29] a user may set up several aliases in this way and closely control their use e.g. limit for one-time use, only up to a specific amount, limited only for certain times of day, only for specific payees thus increasing security without sacrificing convenience by creating any number of virtual payment addresses (e.g. one-time-token@mypsp) and attaching various authorization rules to them

[30] Ref Steinbach, M. & Salmony, M. (2013) Biometrie: Ich bezahle mit mir selbst ("Biometrics: I pay with Myself"). In special "Technologie" supplement "Finanzen und Technik" of Börsenzeitung, 31.08.2013.

[31] Ref http://timesofindia.indiatimes.com/business/india-business/HDFC-Bank-to-roll-out-micro-ATMs-across-India/articleshow/48210628.cms

Beyond P2P: P2B

Person-to-person payments have been shown above to have quite some potential, especially when extended across Europe, across currencies and even beyond to the enormous largely untapped market of electronic remittance payments. But of course the IP use cases do not end at person-to-person payments.

Once people become more used to paying eachother electronically in convenient cash-equivalent ways (cf tapping father and son's phone together, donating to charity by holding phone app up to TV screen) one will surely begin to pay the window cleaner, the handyman, the babysitter – any small "merchant" offering their services – electronically. In Sweden, where paying by cash is the exception, there are even electronic alternatives to paying the collect at church or donating to the homeless person in the street. Only the coin for unlocking the supermarket trolley has resisted all attempts at modernization …

In countries where contactless cards have been rolled out (in Europe notably UK and Poland) people find it much more convenient to tap a card rather than counting out the coins for a coffee. In the UK the contactless limit has recently been raised to £30 so that convenience store items, newspapers, snack lunches etc can be bought at the flash of a card.

Case study: mobile payment

Some see the next stage of evolution to be in tapping a phone instead of a card. We have been skeptical of this proposition since it was first raised[32]. Tapping a phone raises a very large number of significant complexities[33] and adds negligible value (indeed is provably more difficult and slower[34]) than tapping a card. Hence the hundreds of mobile payment pilots all embracing this model have failed[35]. Mobile payment has not even taken off in Japan[36], where contactless infrastructure, mobile phones, techno-embracing population etc are all given – the usual "excuses" as barriers against mobile payment. Even Apple – usually so smart in all consumer propositions – has succumbed to the hype of tapping phones (or watches) at the POS and thus met with very limited success.

Mobile payment will surely only take off if it adds value. Within Europe, added value tends not to be found in loyalty schemes and coupons (as US consultants like to comment). A big added value is surely *convenience* (e.g. pay by click, instant biometric authentication). That is the main potential advantage of the mobile. Apple and others have made a big success with their in-app payment which allows one to purchase goods with a simple click of a button or finger scan.

The future of mobile payment is not tap-and-pay but app-and-pay.

[32] Ref Consult Hyperion 2009 iTunes podcast M Salmony on Mobile Payment

[33] security, ecosystems of industries that must work together, standards, TSMs, business models to share the negligible revenue, configuration, infrastructure, usability and many more … down to practical questions of battery life and availability

[34] Ref Michal Polasik et al (2013) Time Efficiency of Point-of-Sale Payment Methods: Empirical Results for Cash, Cards and Mobile Payments, Volume 141 of Lecture Notes in Business Information Processing, Springer pp 306-320

[35] for example Canadian banks spent 500M$ on mobile payment projects with 5000 customers finally adopting mobile-tap-and-pay at the POS. The banks could have paid those customers $100,000 each and saved themselves much trouble

[36] Ref Salmony, M. (2011) Why is the use of cash persisting? Critical success factors for overcoming vested interests. JPSS Journal of Payments Strategy & Systems, 5 (3), see p264 on Japan mobile payment penetration

As a first evolution P2P will lead to P2b (small "merchants") and then to P2B (real merchants online and in the physical world).

The migration from P2P to P2B is not trivial. Merchant payments are different and more complex in a number of significant ways (refund procedures, eCommerce law, etc) but although the evolution is not easy, it has been shown to be done, for example by Venmo (the massively successful US P2P service operated by PayPal) which announced its expansion into in-app shopping services and partnerships with sports ticket and food delivery organisations to allow payment information stored in Venmo to be used to buy tickets or order meals. This aligns well with Venmo's stated ambition to be more than a payment method, but also a social channel for friends to connect: to message, to form groups, to repay eachother after a night out and hence also to go to concerts and cinemas together and order a pizza after. All this is integrated into what was once simply P2P.

Looking now at P2B, we will surely see this large future use case for new Instant Payments. The current P2B solutions – both online and at the POS – are largely card based. These have typically not innovated significantly since the beginning of eCommerce (1990s) or retail (first EFTPOS in the 1980s). 16-digit card numbers are typed into mobile web sites and pieces of plastic are inserted into traditional, single-function, lock-in/closed, high cost devices. However new solutions *are* emerging in the online and physical shop space. POS solutions using open elegant iPads[37], beacons recognizing customers as they enter the shop, self-checkout[38] solutions at supermarkets and hundreds of new ideas are being promoted as alternatives[39] to traditional POS checkout that make life easier for merchants and consumers. If the money can then also be transferred instantly between bank accounts (the premise of IP) then there will be less need for intermediaries, wallets, and other such complicating solutions. Also reconciliation and risk will be much improved for merchants. It will also benefit *banks*- and their new competitors - to have money being directly paid between bank accounts rather than being disintermediated by intermediaries, wallet providers, in-game currencies etc.. This is thus a win-win for many industries and stakeholders.

Similarly modern *online* P2B payment methods improve significantly upon entering card credentials in extensive forms, following online authentication procedures, employing intermediate wallet providers with their own registration and balance management complexities etc.. One can pay at the mobile checkout using modern security methods, provide the delivery address conveniently with the payment data so that the merchandise can be shipped home reliably, the merchant gets all necessary data for automatic bookkeeping and reconciliation and embrace all the other advantages that modern technology offers. (See app-to-pay in mobile payment case study above)

Increasingly one is seeing *hybrid* solutions that allow electronic checkout in the physical world. Examples are mobile phone payment solutions in the Apple stores (where the salesman's phone helps the customer to check out in the physical store) or the Amazon Go store (where the customer can just walk out - with his own phone running the Amazon app in his pocket - to pay

[37] opening up acceptance infrastructure also means "everyone can be a merchant" easily and cheaply (see mPOS, Stripe, etc)

[38] where the entire physical shopping experience is optimized and improved (see physical Apple store experience, for example, where the checkout clerk/desk/queue has disappeared), rather than just optimising the few seconds at checkout

[39] the card infrastructure was so successful in the past as it was largely the only way to offer instant guarantees (internationally, 24x7 etc) to the merchant - IP can change all this

for goods taken off the shelves). Another example is the successful Pizza Express app which allows one to pay (and importantly to leave a tip) without summoning a waitress after having sat down for a meal. Most famously Starbucks has shown how convenient mobile payment adds value to a merchant (not only through faster more hygienic checkout but also by providing massive extra liquidity to Starbucks' corporate treasury through the aggregated balances of tens of millions of wallets) and is very much embraced by its customers (10 Mio uses every week). Uber has shown that paying electronically in a physical situation is a major advantage and can generate disruptive business models. The list is endless.

Alternatives to classical POS device and modern electronic P2B checkout solutions and hybrids where the classical distinction between online and offline commerce are increasingly blurring, are described extensively in the literature[40] and thus will not be developed further here.

However it is to be noted that beyond generic solutions, we also see a large number of specific solutions emerging for specific industries. Especially, of course, for those industries that are particularly ripe for disruption in this area. For example, today's custom in some countries of paying for petrol by an integrated card reader in a pump before being able to get any petrol is hardly a compelling proposition – as anyone who has experienced this in France or Belgium can testify. The oil industry has developed own card and own payment solutions since the classical payment industry has so far not developed integrated solutions (that allow a fleet driver to pay and also register his mileage on one card), for drivers to register interest in a snack before approaching a petrol station etc.. Also Petrol is an example industry where it may be critical to get the money reliably and in real time around the clock from customers who may be driving in from other countries before the goods are delivered. Thus Instant Payment infrastructure (instant, irrevocable, pan-European 24x7) can clearly play a role here for the garage operator to get his money immediately and irrevocably before the driver leaves the station and also to offer new integrated (milage, shopping) applications on his mobile together with the petrol filling.

More widely we can see that there is a very large "long tail"[41] of industry-specific solutions, certainly not restricted to the oil industry, that can be significantly improved and which offer excellent business opportunities for innovative players.

Instant Payment and PSD2

Extrapolating the above thought on how Instant Payment may benefit specific industries, one can surmise that the combination of IP with PSD2 – both of which will enter the market more or less simultaneously around 2018 – will be a catalyst for innovation.

PSD2 mandates that third party payment providers (TPPs) will be able to offer new services by initiating a payment directly from a bank account (PIS – payment initiation service) and/or by using data directly from the bank account (AIS – account information service). This will enable a whole new industry of FinTech and FinPay players to develop new solutions. Much like the app store[42] model for iPhone and Android, PSD2 will allow merchants and consumers to choose from

[40] Ref McKinsey 2014 PayPal's Big Vision http://www.mckinsey.com/industries/high-tech/our-insights/paypals-vision-for-a-global-marketplace

[41] Ref The Long Tail: Why the Future of Business is Selling Less of More, Chris Anderson, Hyperion Books/Wired, 2006

[42] Ref Salmony, M. (2015) Access to accounts: Why banks should embrace an open future.
JPSS Journal of Payments Strategy & Systems, 8 (2), pp 157-171.

many new services (bank "apps") – not only from their bank – on how to manage their finances and make payment.

One example of a FinTech "app" could be in the area of public transport. Paying for tickets is a large industry and currently very complex. Transport for London (TfL) has a history of being ahead of the game, introducing contactless "Oyster" payment cards over ten years ago and having massive success. Paper tickets and cash payment have disappeared and 24 million journeys are paid daily in London using this quick, convenient solution[43]. However TfL, just like the petrol industry mentioned above, actually did not want to set up a payment solution – they are a transport company and wish to focus on transport and only developed a payment solution out of need since nothing suitable was offered to them from the payment industry. Now that contactless cards are prevalent in the UK, TfL is rolling back their own proprietary Oyster solution and is allowing normal generic contactless bank cards as means of payment. This use of bank cards for public transport is being met with good takeup since customers much prefer to use their usual debit/credit cards rather than having to carry another single purpose (Oyster) card and manage/top-up its pre-paid wallet.

However the complexity for TfL and the banking industry to introduce bank-card-based payment was considerable. Normal bank cards have no means for managing daily caps (Oyster ensures that you never pay more than a certain amount per day), for handling sometimes checkin only (bus) and sometimes checkin/checkout (tube) scenarios, have complicated online and offline authentication procedures, typically do not work at the milli-second speeds required at transport gates etc.. Only with massive effort by several parties was a workable[44] solution with bank cards found for public transport.

Thus in the new world of IP and PSD2 the answer seems to be to allow a third party (TfL TPP) to develop an app that automatically initiates a payment (PIS) to TfL whenever a ticket gate is crossed. A user can conveniently check which journeys he took and how much he paid for them (AIS[45]). This can be effected either by touching one's card/watch on a reader, or even better a beacon signals to an app to open automatically once one enters the underground station or steps on a bus. The Uber experience in public transport.

Judging by the creativity unleashed by the iPhone being opened up for third party developers, we can expect much creativity to be unleashed once payments and bank accounts are opened up to FinTechs[46] via PSD2. Adding Instant Payment into the mix, which enhances the proposition

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[43] emulating similar successes in Asia e.g. Suica/Pasmo contactless card for Tokyo public transport, Octopus card in Hong Kong etc

[44] and even then the topic of "card clash" was not solved adequately. This is causing major aggrevation to customers and much effort for TfL to explain and mitigate. If multiple contactless cards are presented at the reader (e.g. by putting one's wallet of cards on the gate) then the reader will beep and signal an error (best case) or the wrong card will be used which will cause later conflicts at checkout etc (worst case). Thus by not considering that customers will of course today have multiple contactless cards together and must now extract them manually and individually from a wallet – rather than the conflict being resolved automatically – was much of the value of a contactless card payment (tap and go) destroyed. In Japan, by contrast the view of the user was prime consideration and of course a whole stack of cards can be put on the gate and no contactless hotel key card etc distracts the system from paying with Suica

[45] the new General Data Protection legislation ensures that the TfL app can only see relevant (i.e. transport) data

[46] no bank can be expected to develop solutions for coffee (see inset use case), petrol, public transport and the hundreds of other industries each requiring specific "long tail" solutions. APIs for specialist third party developers to come up with creative solutions based on secure banking infrastructure (PSD2) can be the only answer

significantly by providing immediate guaranteed funds, we will surely see innovative solutions that we can not imagine today.

Novel use cases through Instant Payments

Previous examples basically showed natural extensions to existing scenarios. While they may still add good value, doing POS in a different way is still a POS payment. Paying on a mobile for a transport ticket is still an electronified version of a paper ticket. Giving one's son pocket money by mobile phone is essential the same use case as giving him a cash note. An app paying for petrol as one pulls out of the service station is still the use case of paying for petrol. This section would like to explore whether there may not actually be totally new use cases, which were just not possible before the introduction of Instant Payments.

Looking at the banking industry in those countries that have introduced Instant Payments, one could glean the impression that one could do the same as before – only faster. Similarly the basic case in Europe is to move from SEPA Credit Transfer (SCT) to Instant SEPA Credit Transfer (SCT^{inst}). The same as before, only faster. Will that be all ?

The ATM industry – once a true innovation – does not seem to have moved much since its introduction in the 1960s. Paying bills at an ATM, paying cash in as well as out, topping up a mobile phone at an ATM are only marginal improvements on the experience. Some true innovative concepts consider getting rid of the ATM card, or indeed of the ATM itself (e.g. "social ATM"[47] or cardless ATM[48]). However the goal can surely not be to make ATMs – and thus cash - even more efficient[49] but to provide credible electronic *cashless alternatives*. Thus we will not explore further here how to improve cash ATMs, but instead look at use cases for IP "cashless cash".

Looking at non-banks one can often see more creativity than just doing the same as before, only faster. Staying for a moment only *within the bounds of the financial services space* one could witness the rapid emergence of the payday loans[50] industry. Whereas applying for a loan used to be a lengthy process (documentation, application, credit check, payment terms, payout, repayment, issue resolution, etc) new service providers are now leveraging instant services to complete the full process from application to payout in 15mins. This makes it possible for applicants who are short on cash at the end of the month to get immediate relief – a service that was not practical before (e.g. if the application procedure already takes longer than a month !)

The secret to make this possible was in the provision of online real-time credit checks (e.g. an API at Experian to provide Wonga with an instant credit score) and – this is now possible with IP – immediate availability of the funds as soon as the loan is granted. The client in dire straits before the weekend shopping has the money immediately and not after the weekend (SEPA D+1 working/business day) and can really spend the money at the supermarket or withdraw cash at

[47] Ref Smartphone App kesh Offers an Alternative to ATMs http://www.fintechgroup.com/fileadmin/fintech/content/pdfs/2015/news/en/pm_151130_kesh_offers_an_alternative_to_ATMs.pdf

[48] Ref Your Phone Will Replace Your Wallet at the ATM http://www.wired.com/2016/01/cardless-atms/

[49] similar to the "innovation" proposals for cheque imaging/cheque truncation which again only serve to perpetuate outdated, inefficient, paper-based payment instruments by marginally reducing their friction rather than truly innovating

[50] an industry that has made negative headlines due to astronomical charges (1500% APR) – but that is a topic well beyond the scope of IP and will hence not be discussed here

an ATM (having not just an iDeal "guarantee" message or the virtual money in his PayPal wallet - but the real money on his real giro bank account).

Looking at *financial services beyond payments and loans* one can find further examples in the insurance industry. In order for an insurance to be legally valid, the money must – by law - be physically on the account[51] of the insurer before it is activated. Thus, for the first time, now that we have IP, it is possible to open the market for instant insurances. For example if one is standing at the head of a ski slope, one can legally sign up and pay for an immediate insurance for the next 30 minutes to cover bone breakages. Or spontaneously insure the car and its passengers for the next few hours in unexpected heavy and dangerous traffic. Or have instant third party insurance: your son borrows your motorbike or you borrow your friend's vintage car or stay in his holiday home – you may want spontaneous extra insurance for the next two hours or two weeks. It is expected that many such new insurance P2B scenarios may emerge due to IP.

The insurance industry is also a good case for instant B2P (i.e. the other way around). If a fire should destroy a home, the claimant will want his money instantly (not a cheque to be cashed during banking hours, not a guarantee, not credited after the weekend). The insurance can pay out directly to the customer's bank account in real time and the family can take a hotel, get emergency treatment and pay for repairs. This can be truly life critical.

Another new scenario in the B2P space is emerging in the UK. Since the advent of Faster Payment, labourers are paid on a Friday the exact amount based on the actual hours worked that week (rather than a standard weekly amount which is corrected later – as is the case for non-instant countries). This allows the recipient to plan his weekend spending better and relieves the employer of complex procedures of accounting, pre-paying assumed totals, demanding excesses back and paying the right tax. Again this was not possible in the "old" SEPA days.

In the related G2P space, citizens will surely appreciate receiving benefits cheques in electronic form through IP. Due to the Payment Account Directive (PAD) everybody has access to affordable banking and thus benefits can be paid to everyone electronically and – thanks to IP – instantly. Benefits and pension recipients are famously sensitive to time delays[52] thus IP's high predictability (not only "sometime within the next three days" but "*now* and every month at exactly the same time" is of paramount importance). Access to electronic banking instant funds transfer may improve social fairness as low earners typically pay excessively for cash services (e.g. paying utility bills in cash bureaux), pay higher rates for loans (since they have poor electronic transaction history etc.) and, although already at the disadvantaged end of society, are thus even more disadvantaged if they have to rely only on cash. Thus moving benefits claimants into the banking and instant payment space might also make for a slightly fairer and more inclusive society.

Looking *beyond financial services*, beyond payment/banking/loans/mortgages/insurances, there will surely be a host of new applications that are enabled through IP. Gambling, lottery and securities industries will be much facilitated by the money being reliably, irrevocably on the

[51] again no guarantee or promise of payment is sufficient

[52] the hotlines of banks run wild if benefits/pension payments due at 12 noon do not appear by 12:05

account before the bet is made. This will reduce fraud[53] significantly in this area and reduce the effort for payment management and reconciliation. This in turn leads to much better user experiences and lower costs. The clients will also appreciate the instant payout when the gamble paid off.

The author – bound in his thinking by payments and financial services – can not begin to speculate what further new use cases will appear. However the enormous proliferation of in-game currencies (Linden dollars, World of Warcraft gold, Simoleons etc), of social media payments (Facebook credits etc) and more, is evidence enough that once an electronic cash-like cash is available, this will bring fruit in all industries that are online and that want to make money i.e. all industries.

As mentioned before PSD2 will unleash this creativity on the market with the developer power of user-centric non-financial service professionals. These new entrants not with bank-internal views, but with the user in mind, with design and usability backgrounds will likely bring about an explosion of new creative solutions akin to the app explosion (driven by creative third parties not in the MNO world but with good understanding of games, of users, of design, of fun, of usefulness) on the mobile phone.

[53] the gambling/lottery industry is particularly beset by fraud. Users typically try to say "it wasn't me", "I didn't put the money on red" if the gamble did not win. With instant payment there is no revocability and hence no possibility for such fraud.

Case study: buying Coffee

A surprising hotbed of payment innovation is the coffee shop industry. Starbucks has been one of the few companies to develop a compelling mobile payment proposition. By any measure this is a huge success: the number of users, the number of transactions, the number of shops, the cumulative value held in the Starbucks wallets[54], the usability, … all show a clear win for all participants. Only recently has another mobile app (Venmo mP2P) overtaken the Starbucks app and claimed the crown as the most popular mobile payment solution.

The coffee industry was also one of the first to allow customers to pay by card instead of by cash/coins even in small retailers by embracing the mPOS trend (iZettle, Square, etc). This turns the coffee shop's owner's iPhone/iPad into a quick, cheap, flexible card payment acceptance device. Large coffee chains like Pret-a-Manger were also one of the first sectors to adopt contactless card payment to allow the purchase of snacks and drinks with the tap of a card rather than with cash or by the comparatively slow and cumbersome and unhygienic chip and PIN technology. (Cash being, of course, the most unhygienic[55] solution of all, and often perceived as such[56] - an important factor in the food industry)

Thus further new innovations can confidently be expected in the area of coffee purchase. Some are already on the market. In Denmark, where mobile payment is widely accepted and cash is rightly considered rather old fashioned, coffee shop chains have come up with a solution that improves not only payment but the whole purchasing experience.

In most coffee shops today one has to wait in line, then tell the server what kind of coffee one wants, pay for it, then stand aside in another (usually more informal) line to wait for the coffee to be brewed, and when one's name is called out to collect the beaker of coffee and leave the shop.

The Danish solution, by contrast, makes your app pop up as soon as the phone notices that you are approaching your usual coffee shop, asks you to confirm with one click whether you want your Cappuccino as usual with extra shot and no sprinkles, will then set one of the brewing machines at the front of the shop in motion which will have your personalized coffee ready for you as soon as you come in through the door. You pick up your freshly made personalized cappuccino and leave. They payment is made automatically in the background, like every morning – the Uber experience of coffee.

[54] however, as outlined before, the days of the wallet are numbered once PSD2 allows third parties (e.g. Starbucks) to connect directly to bank accounts. Then no intermediate wallets are necessary; this makes life much simpler both for the merchant and the customers.

[55] Ref Pope, T. W., Ender, P. T., Woelk, W. K., Koroscil, M. A. and Koroscil, T. M. (2002) 'Bacterial Contamination of Paper Currency' Southern Medical Journal, Vol. 95, No. 12, pp. 1408–1410, December.

[56] Ref Mastercard (2014) The dirty cash, dirty habit report - overview of key expert findings and analysis http://newsroom.mastercard.com/wp-content/uploads/2014/05/MasterCard-Dirty-Cash-Report-FINAL.pdf

B2B

So far we have looked at new use cases in P2P, P2b (small merchant), P2B (POS and Online purchase), B2P (Insurance payout), G2P (Benefits payout) and even ATM (P2myself). This already includes many scenarios not usually examined in the context of Instant Payment – where, if at all, "the" use case is largely assumed to be mobile P2P or just making things faster (SCT^{inst} instead of SCT). Thus we hope to have already shown that the discussion and usefulness of IP should and will be wider.

One use case domain remains: B2B or business-to-business payments (including G2B, B2G and G2G for government payments including taxes, subsidies, public procurement and more).

As the reader well versed in payments will be aware, the value of B2B payments is a *much* bigger market than retail payment. Retail is often the focus of discussion since everyone is in daily contact with it and since it has large volume (not value) and since many headline-grabbing innovations (not necessarily related to business value) take place in this space.

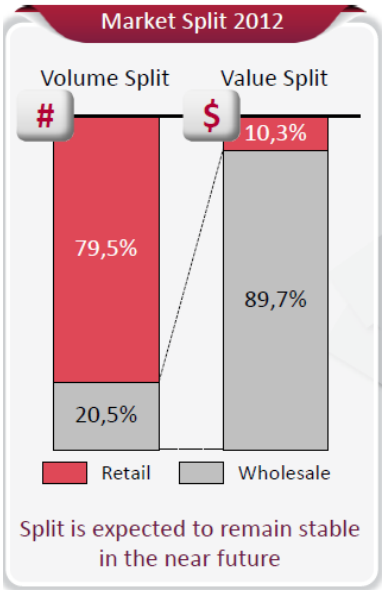

Fig 6: Wholesale payment value much bigger than retail
Source: CapGemini & RBS World Payment report 2014[57]

Despite retail payment volumes being large, actually almost all business is B2B (supplier-manufacturer-government-consultant-outsourcer-etc) with only the final part of the chain being visible to the consumer as B2C.

[57] https://www.uk.capgemini.com/thought-leadership/world-payments-report-2014-from-capgemini-and-rbs

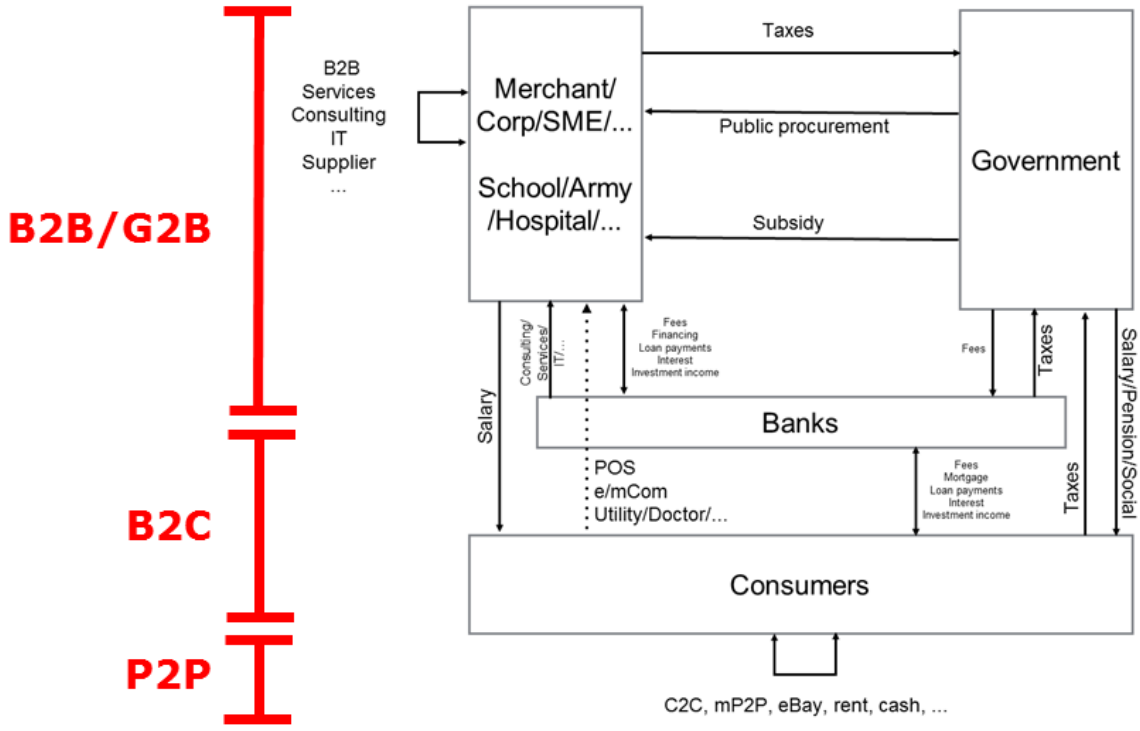

Fig 7: actually most payment is in B2B/G2B space – with small "exception" of consumer/retail payment at the end – we tend to only look at this end segment.
Source: EquensWorldline Research 2016

We believe the true disruptive business impact of IP may turn out to be in the B2B space. Not only because this market volume is much larger but also because many inefficiencies can truly be solved and business processes significantly innovated in this area.

Examples are:

- Instant payment can make cash management, liquidity management, accounts payable, accounts receivable and treasury considerably simpler. Instead of planning when payments are coming in, when to have sufficient cash to cater for later outgoings, and when one needs to send payments to make sure they arrive on time everything is settled instantly. This means much simpler accounts-payables, accounts-receivables and corporate treasury.

- Instant payment can allow for just-in-time payment for parts that are inserted in a production line, just as the parts are delivered just-in-time. This means a massive reduction in complex reconciliation procedures of orders and stock and payment.

- Instant payment can allow invoices to be paid at the precise optimal time, rather than at a time dictated by international and interbank clearing and settlement and cut-off logics. One can pay an invoice late to improve one's working capital position or one can pay early if one wishes to use surplus funds and/or negotiate discounts.

- Wages can be paid at the correct amount when work is done and tax paid correctly and automatically (see above section on B2P).

- Invoices and payments can be reconciled instantly. Ship insurances can be paid instantly allowing the freight to leave the harbour immediately. Truck drivers can pay customs at a border at 2am and pass through without delay.

With only these few examples it can be surmised that the business impact through IP by improving STP in industry processes, improving working capital, reducing unnecessary treasury and cash management effort could be truly significant for Europe. B2B may prove to be the surprising winner.

Another reason for an expected push towards B2B, rather than P2P and other consumer services, is that those who provide solutions can charge a good fee based upon a business case and costs saved – unlike consumer payments.

However it is important to be aware in B2B – as in many other scenario areas outlined before – that the new business process may in future depend more critically on the immediate payment (once immediate reconciliation, immediate tax payment, instant cash management etc are the norm). Just as the modern physical production line is now more critically dependent upon the just-in-time delivery of physical components: a lorry with a batch of critical bolts that is held up on the road can halt an entire car company's production line. Thus it is critical that the instant payment infrastructure is operated at a high level of service. This is more critical than in the days when payments were in transit for days and the processes assumed this and did not rely on instant. Thus high professional, scalable institutions are required to operate the new infrastructures.

Case study: B2B Cheques

It is important to note that a new technology or infrastructure (such as instant payment) may not be sufficient to change behavior. A case in point is the continued heavy use of cheques in the B2B world. One would think that such an inefficient paper-based instrument would have no place in a modern cost-, efficiency- and business-driven environment. Especially since electronic alternatives (ACH and card payments) have been around for a very long time. Sending money from one business to another electronically is clearly much more efficient, faster, cheaper, leads to less errors than sending a paper cheque with accompanying letter by stamped envelope and manual postal service.

However it is precisely these imperfections that are an advantage to some business partners. For example a merchant has a direct advantage paying for the oranges he receives from the lorry from Spain by cheque:
- he can sell the oranges before the cheque is cashed (and thus pay for the materials with the revenue, using cheque processing delay as a means of credit)
- the driver of the lorry can return immediately back to Spain with the payment/cheque in hand (an integrated process, usually obviating any need for later demands/reconciliations, no need to trust that buyer has transmitted the money electronically)
Even if some of the oranges have rotted in transit, the merchant can agree on a reduction with the driver, issue the cheque for an agreed lower amount or at least partial pre-payment and both have completed the transaction with fewer later disputes.

Some examples of the dimensions of B2B cheque payment in Germany (a country normally noted for its focus on efficiency):
- a single bank saw a single national merchant issue 20.000 such cheques for precisely the above reasons in 2015
- in 2014 the total number of cheques[58] issued in German was 29,7million with a total value of 189bn€
In US a total number of *5.9 billion* cheques were issued for B2B in 2012[59]; another report[60] found that a typical US business makes *half* of its B2B payments by paper cheque.

Thus even by providing good alternatives (electronic ACH payments, let alone instant ACH) other hurdles must be examined and eliminated by process improvements (eInvoicing, Supply-Chain-Financing, purchasing cards or solutions from Dwolla etc) to increase the efficiency of payments. A new technology or infrastructure is not enough.

[58] Ref Bundesbank Statistik 2015 and Blue Book

[59] Ref Federal Reserve Payments Study
https://www.frbservices.org/files/communications/pdf/research/2013_payments_study_summary.pdf

[60] Ref 2013 Electronic Payments Survey from the Association for Financial Professionals

Summary

This paper has aimed to show that there are many more use cases which may benefit from an Instant Payment infrastructure than just doing the old things quicker or just thinking about mobile person-to-person payments.

Although some questions remain about Europe's focus on infrastructure rather than services, we see that IP does have the potential to catapult Europe ahead with new innovative services which were simply not possible before the advent of IP. This may prove to be an internationally competitive edge for Europe.

A brief *tour d'horizon* across P2P, P2B, G2P etc revealed that each sector shows opportunities for innovation due to IP. Maybe the biggest benefit will come in the B2B sector.

	From Person	From Enterprise
To Person	• friends & family • emergency payment* (for use at ATM, POS) • window cleaner/babysitter • split bill • eBay(*) • P2P lending • used car* • drugs/shadow economy • …	• payday lending(*) • insurance payout(*) • social benefit* • refund • (wages) • …
To Enterprise	• taxi/restaurant + tip • lottery • spontaneous insurance* • vending machine* • late bill/tax payment* • brokerage* • film on demand/ software download* • web merchant/in-app • bill payment • top-up pre-paid card/ e-wallet/mobile minutes* • POS • instant gambling & payout • (charity) • …	• JIT production line payment • immediate ship insurance cover • truck pay customs duties/toll instantly at 2am at border • real time treasury, liquidity mgtm & cash pooling • pay invoices at optimal exact time • …

+ M2M …

Fig 8[61]: use cases for instant payments: P2P, P2B, B2P and B2B
Source: EquensWordline Research 2016

This paper in no way aims to have given a complete overview of all possible new use cases, scenarios and solutions. It can also not aim to give all the pros and cons of each idea nor to show the often significant complexities in making them happen. The main goal of this paper is to widen

[61] note (*) denotes use cases where guarantee is not sufficient but true immediate availability of funds are required – typically when the goods paid for are consumed immediately/irrevocably

the debate to show that ECB/ERPB's pressure on Europe to develop Instant Payment may indeed be well justified and that the new benefits will likely go well beyond just mobile P2P payment.

This paper in particular does not cover the undeniable large complexities, risks and threats especially for the *banking* industry in the face of these developments. It should never be assumed that all this will be easy!

The interdependency with other legislations (especially PSD2, PAD, SEPA, GDPR) with Instant Payments were touched upon to show how smart combinations may yield yet further benefits. The "Gestalt" phenomenon that 1+1 may equal more than 2 applies also to legislation.

Many, many topics could not even be touched upon, for example the emergent field of M2M/Internet-of-things which will surely also yield new use cases for instant payment in the years to come.

Thus it is hoped that despite many deficiencies and many topics having to be touched upon only very lightly this text may stimulate the discussion in Europe on where our joint journey in payments may take us in the future. It promises to be an exciting time.

Key takeaway messages

On European Policy for Innovations:

- Success – both in commercial terms and in added value to consumers – will surely come from a plethora of *applications.* Infrastructures can, at best, be enablers
- The case is not easily made that countries which have invested in Instant Payments have forged so far ahead in payment and e/m-commerce to justify that it has been a good investment
- Indeed there is a risk that the main effect of large European infrastructure investment could be to create a highway for US giants like Amazon and Netflix to glide even faster and more efficiently across Europe
- Thus it is a hard questions for policy makers whether it is wise to mandate huge new infrastructure projects upon Europe
- Infrastructure can not be *l'art pour l'art* but must only be engaged in to add value to consumers and businesses and to let new services flourish. This, not infrastructure alone, will create jobs and growth
- It may have been wise to invest in infrastructure in the past, but we recommend that the European policy focus should a) henceforth be on the development of *services* and b) based on concrete *evidence* to support any major investments

On Applications of European Instant Payment Infrastructure:

- Let it not be said – as it often is – that mP2P is a niche, provides little benefit, has little demand and that no-one can make any money out of it
- As application, mP2P is a good first step but hardly the only benefit of Instant Payments. Instead it is the beginning of a whole family of new services (FX, cashless remittance, P2P, P2B, G2B, B2P, M2M, novel POS and alternatives to ATMs - and much more)
- Some applications will simply be faster versions of what is done today. Really new value-adding solutions will enter fields that were previously not possible before the advent of Instant Payments. Examples are instant insurance, payday loans and more.
- Combining Instant Payment with the creativity of third party payment development unleashed through PSD2 we will surely see innovative solutions well beyond financial services (i.e. payments, loans, insurance etc) that we can not imagine today
- The true disruptive business impact of Instant Payments may turn out to be in the B2B space