

Preserving the obligatory passage point: SWIFT and the partial platformisation of global payments

Gary Robinson^{a,b,c}, Sabine Dörny^a and Ben Derudder^{d,b}

a Department of Urban Development and Mobility, Luxembourg Institute of Socio-Economic Research (LISER), Esch-sur-Alzette, Luxembourg;

b Department of Geography, Ghent University, Gent, Belgium

c University of Luxembourg, Esch-sur-Alzette, Luxembourg

d Public Governance Institute, KU Leuven, Leuven, Belgium

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Abstract

Crucial for international trade, cross-border payments are conducted via the correspondent banking (CB) system, a decentralised network of bilateral agreements between more than 11,000 banks in different jurisdictions, and supported by a centralised messaging network (SWIFT). This global twin infrastructure consists of highly complex socio-technical and socio-spatial arrangements pressured to change, but resistant to it. Beset by inefficiencies, from which the gatekeeper incumbent banks profit, the international payments system lacked alternatives until the recent tech threat of disintermediation and re-organisation of legacy serial messaging chains to big data arrangements and centralising platformisation. We show how the CB/SWIFT nexus, an integral part of the financial and advanced services providers (FABS) complex and, as such, also a specific and important part of obligatory passage points (OPPs), creates and extracts monopoly rents, now and into the future. Challenged by new technology and the resulting push to re-form its (global) organisational architectures, understanding and conceptualising change in and of OPPs – here, the global payment infrastructure – is therefore vital. We capture the complex relationships between the CB and SWIFT for a better analytical understanding of change at the system level. Methodologically, the analysis draws on insights from an explorative research design, including 30 semi-structured expert interviews. We show that mobilising 11,000 banks across the globe to innovate and upgrade from rent extraction to new, forward-looking sources of profit, that is, data, is no straightforward process despite the governance of SWIFT to ‘nudge’ its member banks to preserve incumbency and, ultimately, its survival.

Keywords

Innovation; SWIFT and correspondent banking; payment transaction data; platformisation; maintenance; change governance

“Shame on us. We repeatedly allow ourselves to be disintermediated. By the time we have barely gotten ourselves organized, nimble new competitors have staked out their superior claims.”

Heidi Miller (JP Morgan), Sibos conference, 2004

1. Introduction

Payments are a fundamental banking function and essential utility for the economy. Most international payments rely on the same underlying twin payment infrastructure of (1) correspondent banking (CB) – performed by more than 11,000 banks – and (2) messaging – operated by the Society for Worldwide Interbank Financial Telecommunication (SWIFT). SWIFT, formed in 1973 by banks to set up a secure, private digital messaging system, initially for payments messages, has since become an obligatory passage point (OPP) for international payments (Scott and Zachariadis 2014). Our study contributes to the recent wave of studies in the area of financial infrastructures (Bernards and Campbell-Verduyn 2019; de Goede and Westermeier 2022; Robinson et al. 2023), such as those for payments. Its importance and complexity require global financial infrastructure, and global payments in particular, to be *immune to failure*, also in the event of change. This fundamental stability requirement frames the change processes we unpack in this paper.

Global financial infrastructure is not only crucial in shaping the functioning of our economies and societies. It also forms a vital part of the advanced producer services (APS) or financial and advanced business services (FABS) complex (Hanssens et al. 2013, Taylor et al. 2014). The services firms in this complex are mainly banks and other (para)financial firms (Dörny 2015; Jones 2005), which together can be referred to as a specific, spatially clustered, and highly relational type of economic organisation integral to the global economy. Not least due to their structural positioning in global cities and financial centres, their functional relationships within and between cities/regions, and their specific agency in facilitating and orchestrating constituent mechanisms of globalised financial capitalism, firms of the FABS complex exert increasing leverage in and over particular economic activities, with significant functional, organisational and spatial consequences. These and other similar observations have prompted scholars to conceptualise the FABS complex – centred on *inter alia* finance, law, and accountancy firms – as an obligatory passage point (OPP) (Bassens and van Meeteren 2015; cf. Allen 2010) with channels set up to realise rent extraction. Comprised of cogent formal and informal interdependencies within and between (para)financial industries and networks, and characterised as an indispensable hinge between global production and financial spaces, the FABS complex is proposed to have the capacity to recurrently create new opportunity spaces, e.g., through ‘qualifying’ space/place to arbitrate (monopolistic) access to rent extraction (Pažitka et al. 2022; Dörny 2022). Scholars have located the OPP in a single component of the FABS complex, i.e., investment banks at the perceived core of the complex (Wójcik 2018; Pažitka et al. 2022), stressing that the FABS complex is collectively able to corner the market. Firms within the FABS complex also jockey for leading position, but the complex’ internal hierarchy remains contested and dependent on the source creation of rent (Wójcik 2020; Dörny 2022). OPPs, however, are not static, and studying the incumbent system of the CB/SWIFT infrastructure can help understand how (much) and why its architecture responds and alters under pressure to change.

Cross-border payments are provided as a business service by private commercial banks via the CB system. Other than firms defined in more ‘traditional’ FABS terms, international payments pass through multiple hops across ledgers of commercial banks and national domestic payment systems, thereby composing highly specific geographies. It makes the payment infrastructure of CB/SWIFT itself an OPP that (otherwise competing) banks have to *maintain* together. The dilemma here is preserving the stability of old yet critical infrastructure to shore up incumbency while also upgrading it to successfully compete with ‘the new’, i.e., pressure from technology (FinTech), to preserve the collective power of banks against ‘outsiders’. We analyse how reform dynamics of and in the CB/SWIFT infrastructure attempt to preserve itself.

The need for both stability and change for the CB/SWIFT infrastructure cannot be understood without referring to innovation processes. Studies of innovation usually imply a preoccupation with ‘the new’ but overlook the important, yet underappreciated, aspect of technology-in-use and its maintenance (Russell and Vinsel 2018). Innovation across a global network that needs to move and upgrade in step requires steady and successful governance efforts. To capture the latter, we draw on insights from Global Value Chain (GVC) research (Gereffi et al. 2005) and how forms of governance define change dynamics and upgrading potential. Though these insights were mainly developed for manufacturing and services firms, they add explanatory power to the empirical evidence at hand.

Methodologically, we draw on insights from an explorative research design, including 30 semi-structured interviews conducted between 2018 and 2020 with professionals from the payment industry, as well as from industry reports, conferences, and webinars. In our endeavour to gain a better analytical understanding of change at the system level, we derived structure and relationships. Researching an industry based on fast-changing technology is challenging (Robinson 2021): as the field constantly evolves, many empirical insights gained early in the research process become useful later as background information. Some of the identified and interviewed challengers, be they projects, start-ups, or new business fields of established firms, had vanished after being on the market for a short time only. However, three interviews with SWIFT employees in total, as well as the other interviews combined with in-depth desk research and data triangulation still provided valuable insights into (challenges of) the CB/SWIFT’s transformation.

In the remainder of this article, section 2 links the CB/SWIFT nexus with the OPP. Section 3 conceptually frames the discussion to structure the empirical findings presented in sections 4 and 5. The article concludes by summarising and critically reflecting on the main findings in section 6.

2. Global payments as an obligatory passage point

A payment is always connected with another aim or transaction and is expected to be invisible and inexpensive. While lower-value retail (B2C) payments are often conducted using card networks, like Visa and MasterCard, higher-value remittances and B2B (business) inter-bank payments are usually conducted via bank account transfer. Cross-border, inter-currency payments are complex. They cross multiple time zones and jurisdictions with different opening hours, regulations, compliance checks, and currency controls. They lack central governance because there is no global currency or central bank. Cross-border payments are therefore not settled on a central platform but across the books of a chain of commercial banks and national payment systems. This system works via CB arrangements (for a detailed account of the workings of SWIFT/CB, see Dörny et al. 2018, Robinson et al. 2023). CB is crucial for cross-border payments and has been the means of financial expansion across distance for centuries. Heavily concentrated in an oligopoly of large global clearing banks (ECB 2015), and with each bank taking a cut of each payment it processes, cross-border payments via CB have a 12% margin (interview fw020) and are a source of substantial and easy profit (Janczuk-Gorywoda 2013). The system is also flexible, allowing banks to choose which other banks to connect with (interview fw030). Messages conveying information about account changes at each bank in the payment chain are transmitted via the private secure SWIFT messaging network, cooperatively owned by the over 11,000 financial institutions that use it.

SWIFT user types are defined hierarchically, with three different levels of access to services. The first tier is supervised financial institutions (such as banks and securities broker-dealers), who can send and receive all SWIFT message types and can become shareholders. The second, non-supervised financial entities, can send all messages to first-tier users but not to other non-supervised entities. The third tier is closed user groups and corporate entities, who can access specific defined services, e.g., types of messages for particular business requirements. Although

less powerful, corporate members of the third type, at the bottom of the hierarchy, play an essential role in demanding services from their banks (SWIFT members). SWIFT can encourage these clients to pressure their member banks to implement changes for their benefit.

In this process, the fewer-than-20 global transaction banks (GTBs)¹, in which payments are heavily concentrated, are critical for system-wide change. Changing the GTBs' own systems would nudge other member banks to invest in change because other, lower-ranked banks are not only also SWIFT members but also GTBs' customers. There are also ownership/governance and regional/spatial hierarchies. While all banks are owners, SWIFT usage proportionally determines member share allocation and influence. GTBs, who process most transactions and are primarily Western, have the most business power and most say in the election of SWIFT's board of directors, including the authority to change bylaws and influence over strategy (Scott and Zachariadis 2014); SWIFT governance is not by equals. Although SWIFT operates in over 200 territories, in the decade to 2011, 90% of its messaging revenue came from banks in only 25 most developed nations. This replicates the geopolitical power of the Western world and extends the meaning of the OPP at hand beyond the geo-economic to the geopolitical realm. There is also a country-level element of governance stemming from the stipulated geographical composition of the 25-member board, as well as national user groups of SWIFT members who ensure communication between users and SWIFT. Individuals working at different banks are "committed to SWIFT's products and its success" (interview fw013, cf. fw028). The *cooperative* SWIFT model, therefore, also provides the opportunity for representation, involvement, and influence within SWIFT for smaller markets and institutions through their community representatives, which might not be possible in a purely commercial model (interview fw030).

The CB model, the other leg of the twin infrastructure, is criticised as inefficient, slow, opaque, and expensive (FSB 2020). Some inefficiencies arise from technical debt. Based on the previous legacy technology *telex*, SWIFT's original MT message format contains many free text fields and formats, which are not always standardised across banks. This means information cannot always be relayed in a consistently structured format, which would make them easily machine-readable. This causes breaks in straight-through-processing (STP), requiring human intervention to sort out, adding to transaction cost and time (Robinson et al. 2023: 486, figure 2, messaging part). Compounding this, messages are passed serially back and forth, from one participant to another along the chain, with no overall payment visibility. Multiple points of failure in a payment chain incur delays as local regulation compliance checks must be performed at each hop (Robinson et al. 2023: 486, figure 2, settlement part). For example, a payment from London/UK to Vietnam undergoes 16 stages of compliance checks (Amin et al. 2020); every party in a payment chain is liable for a violation (interviews fw018, fw020). Recent resulting de-risking strategies of banks have contributed to a reduction and concentration in the number of CB arrangements, in turn leading to higher costs and increased difficulties for payments to and from some jurisdictions. These technical and organisational details are vital; they define points of intervention within the OPP.

The entire payments domain has been undergoing upheaval, bringing about a convergence of previously fixed payment segments (FIS 2020) alongside a fragmentation of payments. Together, these factors put pressure on banks' legacy infrastructure and fee-based business models. Payments are also an essential customer interface function, allowing banks to have customer relationships and to sell other products to customers, such as accounts and loans. Losing the direct customer relationship could mean that banks are relegated to the role of a 'dumb pipe', thus losing much profit-generating potential. Fintech innovations are argued to bring about disruption and disintermediation of financial incumbents and the potential unbundling of

¹ They include Bank of America Merrill Lynch (HQ US), Barclays (HQ UK), Citigroup (HQ US), Credit Suisse (HQ CH, now UBS), Deutsche Bank (HQ DE), Goldman Sachs (HQ US), HSBC (HQ UK), J.P. Morgan Chase (HQ US), Société Générale (HQ FR), UBS (HQ CH), BNP Paribas (HQ FR), and Morgan Stanley (HQ US).

banking's core functions that do not require a banking license to be performed by different actors (Wójcik 2021). These grand claims have not yet materialised, but the global payment industry is pressured to respond to multiple challenges(r)s. In order to identify and grasp change dynamics at the CB/SWIFT nexus, we conceptualise governance dynamics at the levels of both SWIFT and CB, which go hand in hand with innovation and upgrading processes, targeting CB and seeing a governance shift from CB to SWIFT.

3. Innovation, upgrading, and governance

Various alternatives have emerged in the payments sector. New infrastructure based on blockchain and digital asset solutions offers a complete reconfiguration of cross-border payment built on a decentralised peer-to-peer monetary architecture without established financial intermediaries (Rodima-Taylor and Grimes 2019). Firms like Ripple target remittances, B2B payments, and payments messaging, thereby focussing mainly on the inefficiencies of CB/SWIFT (Robinson et al. 2023). Digital platforms and wallets like PayPal, overlay services like ApplePay, and neobanks specialising in foreign exchange (FX) like Wise and Revolut still run *atop* existing bank infrastructure. Unhindered by internal legacy technology, they use new technology to improve particular niches and provide a better customer experience. (Some) fintechs would like to have the accounts, data, and products, but care little about the infrastructure underneath: They do not need a banking license as long as the customer deposits are ultimately held with a bank and payments are ultimately processed between banks via payment systems.

Change of the CB/SWIFT nexus follows a specific development path, as creating a new tech path is impossible when more than 10,000 banks need to be forced into an entirely new business model, accompanied by high costs. Instead, SWIFT is moving incrementally towards platformisation, a model in which digital intermediary infrastructures enable interaction between different groups, relying on network effects to extract, analyse and monopolise large amounts of data for economic exploitation (Srnicek 2016). Compared to infrastructure, a platform is more easily upgradeable in the future, partly because it is more centralised and more modular (Plantin et al. 2018). Accommodating different kinds of connectivity (older MT messages, newer ISO messages, and API as explained below) further means that SWIFT will not be reliant on all users to change to upgrade the entire system – platformisation accommodates different speeds of tech change among banks.

As a defining characteristic, the concept of path dependence stresses continuity, that is, “the reproduction of what exists, to yet more of the same” (Martin 2010: 22) rather than fundamental change. It also considers human agency in processes of reproduction (Martin and Sunley 2006), using the stability of path dependence as an advantage. Composite entities like CB/SWIFT comprise numerous micro-level institutions, including organisational elements, structural arrangements, and sociocultural norms, in which incremental change is possible by changing some components but still exhibiting path dependence and some continuity (Martin 2010). This notion can be applied not just to institutions or organisations but also to technologies, and respective mechanisms of bricolage-like, incremental path-dependent change may comprise (1) *layering*, or the gradual addition of new rules, procedures, or structures on top of existing ones; (2) *conversion*, or “the reorientation of an institution in terms of form, function or both”, and (3) *recombination* of existing with new resources to create a new structure (Martin 2010: 14-15). While we link these mechanisms of change not only with forms (and locus) of governance and upgrading, we also apply them to SWIFT's gradual move from its old legacy messaging infrastructure to a new transaction management platform.

The concept of *maintenance* involves overhaul, improvement, and preservation (Edgerton 2019), thereby accentuating both stability and continuity (Vinsel and Russell 2020). Actions attributed to maintenance agency (Jolly et al. 2020) may include change agendas “directed at least as much at the reproduction of existing organizational and economic orders as at their transformation” (Suchman and Bishop 2000: 331), while the flipside of innovation is taken

to be resistance to change, or stagnation. Incremental change, however, is more about ‘artful integrations’ of prior experience and new, imaginative solutions (Suchman 1993), akin to *bricolage* (Engelen et al. 2010). This is particularly true for infrastructure, which is not just built and then left standing, but requires constant repair, extension, adaptation, and redefinition. Complex adaptive systems composed of multiple continuously changing, yet interacting parts, infrastructures are “also embedded in and overlaid across cultures, organizations, governments, and other social forms, which interpret, alter, and erode them” (Edwards et al. 2011: 1409). Tech-driven innovation, then, affects the organisation of what is serviced and produced, and how, but factors such as structure also determine the kind of technological change that is possible.

Global value chain (GVC) research suggests empirically and conceptually identified links between forms and locus of governance that define resulting upgrading potentials for corporations (Gereffi et al. 2005; for a detailed empirical analysis on the governance/upgrading nexus, cf. Dörny, 2008). In quasi-hierarchically structured GVCs, lead firms support rapid upgrading in the product and process areas. At the same time, they seek to prevent a functional upgrading in their own highly profitable areas of design and marketing. In non-hierarchical chains, relational governance structures essentially prevent such a lock-in situation, but here, upgrading requires different sets of investments. Borrowing this central GVC hypothesis and applying it to CB/SWIFT, SWIFT is not a direct analogue of the lead firm in GVCs but has some similar characteristics to arenas and patterns of upgrading processes. The importance of linking relational governance forms to SWIFT’s cooperative architecture and of linking member banks at the top of the CB quasi-hierarchical organisation (GTBs) to local banks at the (organisational and geographical) fringes can also realise upgrading potential, e.g., of banks’ internal services *processes* by means of re-organisation or new technology (to increase efficiency) and/or the quality of their offered *products* and services. Upgrading can subsequently be understood as a development process that manifests itself in expanding the *capabilities* of the entire global payment infrastructure and allowing banks to advance, for example, into more profitable and/or technologically demanding positions. To upgrade, banks’ own strategic decisions play just as much of a role as the (inter-)national institutional environment in which they operate. By means of *functional* upgrading, banks could then take over new, higher-value, and more profitable functional areas. In the age of digital platform development, payments may provide access to valuable transaction data, something that thus far remains under-utilised by banks. In contrast to process upgrading, in both product and functional upgrading, banks create new products for other customers and reposition themselves among cooperative members. However, anecdotal evidence so far suggests that it will still be the GTBs who retain their position, either by partnering with firms with data expertise, by eventually building that capacity in-house, or just by buying it. Such activities would be outside usual core banking capacities but might also entail a more significant change in what (some) banks do.

Incumbent GTBs are a defining part of the OPP at hand. In 2018, most of the top 10 GTBs were also among the top 12 biggest investment banks (CRISIL Coalition 2019), thereby putting the ‘hidden’ workings of the CB/SWIFT network in the spotlight (Panza and Merrett 2019). Transaction banking “addresses the operational needs and day-to-day transactions of business, corporate and institutional customers” and allows banks to maintain close relationships with corporate clients (Furió 2018: online). Providing over 40% of global banking revenues, the core products are trade finance and cash management, which includes payments (McKinsey & Company 2019). Since the financial crisis of 2007-8, there has been a shift by traditional investment banks to complement their exorbitant but more volatile profits with the steadier income of ‘less sexy’ transaction services (Bipart 2018). OPP in transaction banking is thus an essential counterpart to investment banking.

The CB/SWIFT global payments incumbent, however, faces further challenges in responding to competition from fintech, such as path dependence based on legacy technology debt; entrenched inefficiencies, from which individual incumbent firms benefit and have little incentive to change; and the lack of centralised governance to coordinate change across a

distributed global network. In essence, the OPP at hand needs fundamental changes to shift the locus of rent generation from an increasingly outdated source, that is, its (lucrative) fee-based business, and to secure future rent generation by monopolising access to the new source of rent: big data. The GTBs are *key* for system-wide change: a change of their systems would also encourage other member banks to invest in change, not least because other, lower-ranked banks are not only also SWIFT members but also GTBs' customers. SWIFT, however, holds the key not only for future-oriented, tech-based economic solutions but also to 'nudge' its member banks towards this new tech-based future. Potentially painful for banks, this entails embracing new data-centric business and profit models, a shift that symbolises turkeys' proverbial voting for Christmas. The effect of these changes is to maintain banks' capacity to arbitrate access to their *rent heavy*-infrastructure controlled through gatekeeping by quasi-monopoly power (Pažitka et al., 2022).

4. Reform that you may preserve: maintenance and innovation for stable cross-border payments

The decentralised nature of parts of the combined CB/SWIFT system means SWIFT cannot unilaterally order change. Instead, it co-creates and coordinates change with and among its competing members while maintaining organisational (including geo-economic) stability. Comprehending the nuanced agency involved in realising cooperative action among competing banks necessitates examining the qualitative nature of relations between actors: banks and SWIFT. Three tensions in particular frame the CB/SWIFT challenge for change: industry structure, innovation and change, and governance and coordination.

Starting with the *industry structure*, as with other infrastructures, payments is a network industry in which competing finance firms must also communicate and collaborate. For example, one bank cannot usually refuse to transmit a payment to an account held at another bank. This produces interesting organisational constellations: some challengers, e.g., neobanks, may be members of SWIFT; other challengers, e.g. digital asset firms like Ripple, must collaborate with SWIFT members (banks) to compete with SWIFT. Thus, many industry actors are simultaneously competitors, clients, and service providers to each other, resulting in *co-opetition*. Furthermore, not all banks are the same, embedded in different and multiple territories, operating at different scales and with widely varying resources and technology. Co-opetition involves cooperation in important efficiency-generating areas, such as interoperability via shared infrastructure and common standards and in some aspects of product development, but competition in practically every other way, such as fees, interest rates, and services (Evans and Schmalensee 2005). SWIFT's role now extends far beyond what it was originally created to do, and its membership has accordingly expanded since its inception. As well as running the network, SWIFT takes care of governance and defining and agreeing on common rules and standards for data and processes (Macknight 2018). In SWIFT's distinctive cooperative organisation, member ownership is important for several reasons: which stakeholders benefit, which stakeholders have control, which stakeholders bear transaction and governance costs. It also has broader systemic effects in terms of customer protection, monopoly, innovation, profit-seeking and risk-taking (Birchall 2011). While the few big tech firms are giants in their own fields, often with only minimal regulation, banking is a heavily regulated industry, in which no one bank is allowed to be a monopoly. Industry structure thus makes banking an oligopoly that competes in some areas but collaborates in others, like common payments infrastructure.

This has implications for *innovation and change*. Infrastructures are socio-technical configurations comprising both social and technical elements (Edwards 2003); change is, therefore, not solely about the diffusion of new technology. Stability is paramount in a critical infrastructure like payments, further complicating change. Payment systems, critical to the workings of a bank and to the economy, are highly interconnected within individual banks. Even short outages may attract the attention of politicians, making working on them akin to "performing open heart surgery" (interview fw015). While there are similarities between

platforms and infrastructures, there are also significant differences (Plantin et al. 2018). Compared to distributed infrastructure like the CB/SWIFT system, centrally-controlled platforms can be more easily upgraded. In a closed-loop payment system, e.g., Paypal, the platform is managed by a single company that profits from user lock-in to communication within the system (Verdier 2006). However, banking is an open-loop system in which users must be able to communicate with accounts at any bank. Thus, although finance incumbents mimic Silicon Valley practices like platformisation (Hendrikse et al. 2018), industry specificities shape this in distinct ways (Haberly et al. 2019).

Quick technological upgrade may be desirable but is impossible: it requires adequate governance and coordination arrangements. Banks are stand-alone entities with their own competitive interests. However, they are simultaneously members of a larger entity, SWIFT, which considers banks' collective interests, but also has its own franchise to protect. The need for coordination is vital when considering the CB system's distributed nature, but each member's destiny is entangled in the other. Just because SWIFT 'owns' the messaging network does not mean that it calls all the shots and can simply rule by decree. Change instead needs to be more consensual, or at least, members need to be persuaded of the network's continued benefits. Despite its limitations, efficient and automated payments transactions have long been technologically possible. SWIFT is "one of the fastest networks in the world", but it is banks that are slow (interview fw008), which is mainly for reasons of culture and practise, although regulation is non-negligible (interview fw023). The main barriers to change have to do with business and economics (Milne 2007), which, as an interviewee put it, are "bad reasons" (interview fw021). These include rent-seeking and costs of change/upgrading of a single bank's internal system, which might be of little benefit to a single bank but could improve cross-border payments as a whole.

Firstly, therefore, incumbent banks must make coordinated, complex, and unwanted changes (technological, organisational, social, e.g., business model) across a vast global network in order to stay relevant. Secondly, the importance lies in the role of SWIFT in bringing about such change, both directly and indirectly. SWIFT looks after member banks' collective interests and governs it since global collaboration in co-opetition requires coordination. This is understandably difficult because "turkeys don't vote for Christmas" (interview fw023). However, SWIFT is adept at and used to absorbing such tension (interview fw012).

5. Getting turkeys to vote for Christmas: upgrading CB/SWIFT for the big data era

A range of SWIFT initiatives combining incremental technological and social/organisational changes are responding to the profound challenges. The global payments system based on CB evolved organically over hundreds of years. If starting from scratch, it could be designed differently (interviews fw012, fw023). However, the serial nature of the CB system distributed across banks, the critical nature of banks' ageing internal payment systems, along with their lack of agility in process change means that change must be based on the existing system (interview fw012). Understanding payments as a *collective problem* and the CB system as a *legacy infrastructure* with vital socio-economic and technical components allows us to see that overcoming these barriers requires changing interwoven technological objects and social rules, conventions, and practices. SWIFT (2021) calls the collaborative innovation process with its members 'co-creation'. However, this elides the nuances of maintenance agency in resolving tensions and nudging many parties to do necessary but uncomfortable things. There are three main planks to this shift.

First, the ISO 20022 standard for electronic data: Financial messages, like specially formatted emails, may seem like a mundane technicality but are the lifeblood of financial flows. Key to fixing cross-border payments and in banks making better use of transaction data is the 'unsexy' work of data structuring and harmonisation (Buitenhok et al. 2020). SWIFT's original

MT messages with lots of freeform text fields based on legacy *telex* technology are being replaced with a new MX message format, containing many structured fields for granular and richer message data, based on ISO 20022, a new ‘data dictionary’, for consistent and interoperable financial standards across the industry. SWIFT wrote the original ISO 20022 specification in 2000 as part of an ISO working group (The SWIFT Standards Team 2020). The benefits of this new messaging standard and format are mainly: in terms of cost, efficiency, and risk mitigation, e.g., avoiding fines from regulators by doing more precise compliance checks, such as for sanctions screening; better structuring payment data to remove friction; and collecting richer transaction data. The global roll-out of ISO 20022 for payments messages was supposed to happen between November 2022 and November 2025 and is designed to nudge SWIFT’s members to make the shift within a specific timeframe, during which old and new SWIFT message formats will co-exist. This is, therefore, a conversion process, first by layering new technology and procedures atop existing ones, which are eventually phased out. This was delayed until March 2023 to coincide with the delayed upgrade of the Eurosystem’s payment system to the new standard (SWIFT 2022), highlighting the difficulty in implementing a new standard globally. It is not just thousands of banks but also critical national/regional payment infrastructures, often run by central banks, such as FEDWire in the US and TARGET2 in the EU, that must be upgraded in parallel. Upgrades need to be tested and coordinated to avoid any break in payment service that would halt economic activity. Coordination occurs via SWIFT forums, in which financial institutions liaise with other industry organisations and payment system operators across the globe, demonstrating SWIFT’s key role in ensuring alignment and interoperability across actors operating at different scales (Muir and Roels 2020; SWIFT 2019b).

Second, global payment innovation (gpi) and SWIFT Go: The launch of *gpi* in 2017 fixed some longstanding problems in cross-border payments and demonstrates the difficult intertwined technological and social changes required, with SWIFT again integral. Although competitors like Ripple made a lot of noise about problems in global payments, SWIFT was long aware of inherent inefficiencies (interview fw012) and had published several potential future upgrade scenarios based on in-depth interviews with banks as far back as 2011 (SWIFT 2011). These nascent ideas that became *gpi* were too early for the industry at the time (interview fw028), however, banks wanted *gpi* when SWIFT offered it later (interview fw020). The 2013 Sibos conference, the finance industry flagship conference run by SWIFT, had much talk about fintech and blockchain and served as a “wake-up call for the banking industry” (interview fw030). At Sibos, a few years later, a group of banks decided that something needed to be done, which led to *gpi* (interview fw028). *Gpi* recombined the existing SWIFT messaging system architecture with new technologies, social conventions, and processes. The main feature of *gpi* is the addition of a unique identifier to each message in a payment transaction to connect and be able to track previously separate messages. This enabled end-to-end payment visibility, visualised on a new cloud platform in the style of a metro line, like tracking a parcel. Accompanying these technological changes were social changes, chiefly a multilateral agreement (rulebook) between banks of new rules and service-level agreements (SLAs) for timely processing of payments and upfront transparency of payment fees. The key to implementation is getting the GTBs on board, as they are “the piece in the middle” of all transactions (interview fw030). Some of SWIFT’s corporate customers were involved in piloting; SWIFT could leverage corporate customers by educating them about its benefits and encouraging them to ask their banks to sign up. Enforcement of the new SLAs is via penalties for misbehaviour: public naming and shaming in the *gpi* observer. Because “no bank wants to be on the wall of shame”, this has not had to be used (interview fw012). However, the *gpi* rulebook did not directly reduce payment fees, as these are negotiated bilaterally in correspondent arrangements between banks. Instead, the *gpi* observer allowed customers to compare payment performance and price across banks, thereby indirectly pressuring banks to improve performance and lower fees. SWIFT thus leveraged technological change to bring about difficult social change among its member banks. The general move by payment infrastructures across jurisdictions towards instant payments and ISO 20022 helps speed up payments. By 2020, over 90% of payments were delivered in under 24 hours and almost 40% within 30 minutes, fees were reported upfront, and payments were tracked (SWIFT 2020).

The *gpi* implementation demonstrates that banks ultimately guide SWIFT. Still, SWIFT provides a forum for discussion and dialogue by bringing people together, putting problems on the table (interview fw030), and getting agreement across different banks (interview fw020), thereby nudging its members in the right direction. SWIFT has not been constrained by its board in what it proposes, although there may sometimes be limits to what it can deploy as it is a cooperative and lacks direct access to funding (interview fw020). Implementing *gpi* was “a really big deal for some banks”. It required a mindset shift: if adding a tracking number was hard, implementing a totally new system would have been unimaginable (interview fw012). Although lower-value cross-border payments are almost “nuisance level” for the CB/SWIFT nexus, given the low value, friction, and costs in changing currencies and crossing borders (interview fw023), it already did a surprising volume of such payments. Nevertheless, it wants to do more given this is a growing area, which new competitors such as Wise target (interview fw020). Building on *gpi*, a low-value cross-border payments initiative called *SWIFT Go* launched in late 2020, in which a core group of banks agreed to charge lower fees on payments below 10,000 USD and to process them within tighter service levels, repurposing the new *gpi* system to allow CB/SWIFT to compete in that segment.

Third, transaction management (TM): *gpi* has been described as a marginal improvement (Bermingham 2018) and a “practical optimisation” rather than an innovation (interview fw023). Others have questioned whether it is “the last gasp of the old order [or] the first step in the new direction” (Birch and Marais 2021: online). Globalisation today centres on big data strategies (Derudder and Taylor 2020), with digital platforms as the organisational mode of data accumulation and monetisation (Langley and Leyshon 2017; Srnicek 2016). In November 2022, SWIFT launched a new strategy based on TM, intending to leverage its trove of financial data to provide mutual services to its members and aid a shift towards a business model based on data rather than extracting gatekeeper fees. TM is not a new technology. It is, however, new for SWIFT and a step change, moving for the first time away from serial messaging chains and towards orchestrating transactions fully end-to-end: a first step in the *platform* direction. A new central SWIFT platform will maintain complete transaction data, to which authorised parties can connect via multiple methods, including older and new messaging standards as well as application programming interface (API). The shift towards API indicates a cultural change at SWIFT towards more openness of connectivity (interview fw008), allowing banks and fintechs to create new products (SWIFT 2019a). The platform will translate between message standards, thus fixing data truncation issues and accommodating all member banks, including small ones for whom upgrading is very difficult. TM workflow involves the creation of a data object on the platform by either API or message that can then be interrogated by users, indicating that the movement of platformised money is not so much a flow as an update (Westermeyer 2022). The platform enables the creation of new centralised services that can mutualise costs and processes for banks, for example, using artificial intelligence to perform compliance checking of payments once rather than by all parties in the chain, or performing payment pre-validation to check for errors in transactions that can be fixed before sending. Such mutual services are examples of things nobody but SWIFT will do because they do not make money (interview fw028). TM, therefore, builds on the continuity of previous incremental path-dependent upgrades, like ISO 20022 and *gpi*, providing rich data and reporting for financial institutions to leverage and develop new data-centred products for clients (Buitenhok et al. 2020).

Data-centred products are intended to compensate for the loss of fee revenue, while mutual services will lower bank costs. Additionally, a central platform will make future CB/SWIFT technological upgrades easier, thereby resolving the tension of coordinating change across thousands of technologically heterogeneous members worldwide and the tension between stability and change inherent in critical infrastructure. The outcome of this incremental upgrade is the maintenance and preservation of the CB/SWIFT system’s relevance as OPP – and thus a continued source of profits for banks, albeit less reliant on rent in the form of a toll for passing payments through their books in favour of providing data-centred products. A unique and irreplaceable part of this maintenance agency is SWIFT’s friendly pressure of nudging,

persuading, and cajoling banks to collectively change for their own good. In so doing, SWIFT resolves tensions across space and scales, essential for preserving the trust and stability of a global network industry and ensuring continued profitable cooperation between competitors.

6. Discussion and conclusion

In this paper, we examined to what extent the incumbent system of the CB/SWIFT infrastructure aligns with the FABS complex, and how this conceptualisation can help understand how (much) its relationships alter under pressure to preserve rent-extraction through an OPP. Demonstrating transaction banking as a key component of the FABS complex, we showed that, given the imperative to respond to challenges posed by tech challengers, the FABS complex itself is subject to both change and preservation/maintenance to sustain CB and its business model into the (near) future. Transaction banking can thus be summarised to be in the process of ‘qualifying’ new space/place to arbitrate (monopolistic) access to (new) rent extraction by employing an underutilised yet powerful data (re)source: SWIFT, the collectively owned messaging network. Transaction data is only relatively recently recognised as a strategic business resource. The spatio-organisational qualification strategies of the GTBs aim to preserve their collective power to collaborate against ‘outsiders’ and defend the domain of mid- and high-value B2B and interbank payments, while better competing in the growing lower-value payment segment, in part by also exploiting transaction data. Such new qualification processes, however, could also be argued to initiate a shift from rent extraction towards more genuine profit generation, thereby continuing to serve as an OPP, albeit with changing attributes. Yet, old habits die hard and the defence of GTBs’ organisational gatekeeping position to utilise their OPP and levy a toll on payments passing through may still prevail, despite SWIFT’s efforts.

Summarising change developments in broader conceptual terms, the CB/SWIFT nexus, as part of the broader FABS complex, can be defined as an OPP for the global payments industry that has long flown under the analytical radar. The multiple, often overlapping organisational and technological shifts presented in this paper are part of a larger upgrading and development project of the CB/SWIFT nexus that involves more than 10,000 banks across the globe and evolves around two key dimensions: change at technological and organisational levels. We elevated conceptual insights from strands in innovation/evolutionary as well as governance/upgrading studies to help order our empirical results in the complex change dynamics. While innovation studies are often concerned with ‘measurable’ innovation output, e.g., patents, here, maintenance due to incremental innovation and upgrading at both the technological and organisational level was our empirical focus. We found elements comparable to processes of layering, conversion, and recombination (Martin 2010), as well as strategies similar to those of process, product, and functional upgrading, enabled by what can be described as ‘relational’ (due to mutual dependency relationships) as opposed to top-down governance in hierarchical organisations (Gereffi et al. 2005; Dörny 2008).

We can further conclude that gradual platformisation may also be accompanied by governance shifting slowly from a distinct GTB/SWIFT-locus towards a slightly amended SWIFT/GTB-locus. However, this internal CB/SWIFT nexus hierarchy in the governance of technological and organisational intra- and inter-bank upgrading strategy is still not straightforward to delineate. SWIFT has its own franchise, but remains bank-owned, bank-led, and ultimately acts in banks’ interests. Compared to infrastructure, centralised platforms, as we have shown, can allow the platform manager to more directly influence the social relations that the platform mediates. Thus, contrary to fintech heralding the demise of outmoded technology, the immediate future may see more rather than less SWIFT. Overall, however, our empirical results also reveal that, despite forceful – and partially successful – market pressure and despite viable available technological solutions, social systems are hugely inert to fast and fundamental change, a claim that has been made elsewhere (for a detailed account on technology-driven change in large-scale real estate/financial infrastructures, see Proskurovska and Dörny 2022). Our

findings may therefore have broader relevance outside of our empirical study for the introduction of technological innovations in large networks in finance and beyond.

This is an important outcome for the conceptualisation of OPPs and a first clue for the need for future research into change processes of these pivotal elements in global finance. The CB/SWIFT nexus has paved the future way for greater economic use of data crucial to digital platforms. SWIFT's transaction management platform is not an exact analog of closed-loop digital platforms but still, has some platform attributes, leading us to conclude that the CB/SWIFT nexus is moving *towards* platformisation and *partial* platformisation.

Following on from the preceding, we suggest further avenues for future research. Banks capture tremendous amounts of data and recognise that this is evolving towards being a 'strategic enabler' (Claeys et al. 2020). However, they are still just scratching the surface of this shift. Payment transaction data is a potential comparative advantage, particularly against threats from new entrants, which banks will definitely be able to monetise and add value to, but the question is how and in partnership with whom, as this capability is not inherent to banks (Lumley et al. 2022). Therefore, the content and impact of data-centric products and profit models by FABS firms should be examined, as well as how they reconcile the potentially more liberal treatment of data with their traditional sensitivity to client information.

Several other factors drive recognition of the need for change in cross-border payments. The 2030 Sustainable Development Agenda aimed to significantly reduce the cost of remittances, some of which use CB/SWIFT (United Nations 2015). Regulatory change has opened up certain payments functions to a broader array of non-bank institutions to induce competition, and national retail payment systems are broadly moving towards near-instant settlement, normalising cheaper and faster payments. The interplay of 'outside' factors such as these with industry dynamics explored in this paper should be examined.

This paper has also shown that fintech is not just a phenomenon of outside disrupters but can also be wielded by incumbents to maintain their dominant position. Therefore, research into how other actors with large networks, such as the card payments schemes Visa and Mastercard, harness fintech to bolster their positions and expand into new areas is apposite. Following on from this, the trend in recent decades has been towards privatisation of once mutually owned financial infrastructures, such as stock exchanges and the aforementioned card networks. CB/SWIFT's continued relevance is mainly due to its cooperative organisational form and its unique emergent agency. Indeed, in contrast to the decentralisation aspiration of some fintech, which is more rhetoric than practice (Zook and Blankenship 2018), we suggest exploring how SWIFT's platformisation lays the foundation for potential further centralisation of common bank processes, as well as interoperability with new disruptive money forms such as tokenised digital assets and central bank digital currencies.

In light of the findings in this paper, we consider tech-induced transformations in well-established, economically sensitive, complex, and infrastructure-like socio-technical systems as part of the FABS nexus to be an essential final avenue for future research – not least concerning the (future) importance of OPPs.

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