Supporting Payment Sector Development:

B2B corporate payments requirements in the traditional retail sector

Guidelines for conducting a local market assessment

WORLD BANK GROUP

IFC | International Finance Corporation

Foreword

Access to and usage of payment services are important objectives within private and public sector efforts to enhance financial inclusion. Electronic payments (often now also referred to as "digital payments") can, at scale, provide a cost-effective means to facilitate economic activity of all kinds in the economy. Electronic payments can also provide for more efficient and cost-effective access to other financial services, including loans, savings, and insurance. These are essential for businesses and households to manage their finances, invest, and save in ways that contribute to welfare and overall economic development.

Retailers and their suppliers can play an important role in expanding use of electronic payments and encouraging their further adoption by consumers. Retailers sit at the crossroads of much of the economy that reaches the consumers not served by banking and formal payment services. Through the payments that they make and receive, many of which are in cash, they account for a significant portion of retail payment volumes in developing markets.

Despite innovations in retail and business-to-business (B2B) payment services, uptake by traditional retailers remains limited. Payment services may need to be better adapted to the circumstances and business operations of traditional retailers and their suppliers as well as consumers. Often in payment systems, network interoperability (or lack thereof) can also play an important role in enhancing (or undermining) value to end-users.

This guidance note has been prepared to inform policy makers and service providers about the business payment and related financial services needs of traditional retailers and their suppliers and the implications for payments systems strategy. The report shares insights about the particular needs, constraints, and motivations of traditional retailers and their suppliers. It sets out a framework of key business requirements and analyses their implications for payment systems strategy and collaboration between private sector providers.

The research that underlies this guidance note has contributed to and complements related research undertaken by the World Bank Group and the World Economic Forum, notably a global sizing and a 2016 publication entitled, "*Innovation in Electronic Payment Adoption: The Case of Small Retailers*".

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Acronyms

AML	anti-money laundering
API	Application Programming Interface
ATM	automatic teller machine
B2B	business-to-business
EDI	electronic data interchange
ERP	enterprise resource planning
ISO20022	International Organization for Standardization (ISO) standard that defines the ISO platform for the development of financial message standards
KYC	know your client
MNO	Mobile Network Operator
PAFI	Payment Aspects of Financial Inclusion
POS	point of sale
RTGS	real-time gross settlement
SMEs	small and medium enterprises
VAT	value added tax
XML	eXtensible Mark-up Language

Glossary

Authentication: The methods used to verify the origin of a message or to verify the identity of a participant connected to a system and to confirm that a message has not been modified or replaced in transit.

Authorization: The consent given by a participant (or a third party acting on behalf of that participant) to transfer funds or securities.

B2B: Business-to-business. Refers to payments or other related transactions between businesses as opposed to between consumers and businesses.

Beneficiary: A recipient of funds (payee). Depending on the context, a beneficiary can be a direct participant in a payment system and/or a final recipient. In the case of retailer payments to suppliers, a beneficiary may be the supplier.

Bilateral net settlement system: A settlement system in which participants' bilateral net settlement positions are settled between every bilateral combination of participants.

Clearing: The process of transmitting, reconciling, and, in some cases, confirming payment orders or security transfer instructions before settlement, possibly including the netting of instructions and the establishment of final positions for settlement. Sometimes the term is used (imprecisely) to include settlement.

Creditor: Person or company to whom money is owed; person or entity to which a payment is being made.

Credit transfer: A payment order or possibly a sequence of payment orders made to place funds at the disposal of the beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.

Four-party card scheme: A card scheme involving separate issuers and acquirers of payment instruments and transactions that clears payment obligations between the parties.

Interoperability: A situation in which payment instruments belonging to a given scheme may be used in other countries and in systems installed by other schemes. Interoperability requires technical compatibility between systems but can take effect only where commercial agreements have been concluded between the schemes concerned.

KYC: Know your client rules and procedures that must be followed by banks and other payment service providers to establish and verify the identity of the client on whose behalf they hold funds or execute payment instructions.

Large-value funds transfer system (wholesale funds transfer system): A funds transfer system through which large-value and high priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Although, as a rule, no minimum value is set for the payments they carry, the average size of payments passed through such systems is usually relatively large. Large-value funds transfer systems are sometimes known as wholesale funds transfer systems.

Large-value payment: Payments, generally of very large amounts, that are mainly exchanged between banks or between participants in the financial markets and usually require urgent and timely settlement.

Non-bank: Any entity involved in the provision of retail payment services whose main business is not related to taking deposits from the public and using these deposits to make loans.

Originator: The institution or party that initiates or makes the payment instruction or other transaction.

Payee: The recipient of a payment; also, the beneficiary of a transfer or payment of funds.

Payer: The party paying a bill or debt. Generally, but not always, this is the buyer, but payment can also be made by a third party on a buyer's behalf. See also Creditor.

Point-of-sale (POS) terminal: A device allowing the use of payment instruments, including but not limited to cards, at a physical (not virtual) point of sale.

Processing: The performance of all of the actions required in accordance with the rules of a system for the handling of a transfer order from the point of acceptance by the system to the point of discharge from the system. Processing may include clearing, sorting, netting, matching, and/or settlement.

Real-time gross settlement (RTGS) system: A settlement system in which processing and settlement take place on a transaction-by-transaction basis in real time.

Reconciliation: A procedure to verify that two sets of records issued by two different entities match.

Retail payment: Payments that are not directly related to or the result of financial market or interbank transactions; generally, the payer and payee are both consumers, businesses, and/or government entities but not financial institutions. The parties to the transaction are both participants in the payment system processing the transaction.

Settlement: Act that discharges obligations in respect of funds or securities transfers between two or more parties.

Straight-through processing (STP): The capture of trade details directly from front-end trading systems and complete automated processing of confirmations and settlement instructions without the need to rekey or reformat data.

Three-party card scheme: A card scheme involving the following stakeholders: 1) the card scheme itself, which acts as issuer and acquirer; 2) the cardholder; and 3) the accepting party. This contrasts with a four-party card scheme (see definition), where the issuer and the acquirer are separate entities and are separate from the card scheme itself.

Value date: The date on which it is agreed to place a payment or transfer at the disposal of the receiving user. The value date is also used as a point of reference for the calculation of interest on the funds held on an account.

Executive Summary

Grocery shops, supermarkets, and other retailers are central actors in the landscape of retail payments and important stakeholders in financial inclusion efforts in developing and emerging markets. Combining the payments they make to suppliers and those they receive from consumers, retailers account for a large portion of non-institutional[1] payment volumes in a domestic economy. Yet most of these payments are still conducted in cash[2].

Retailers' and wholesalers' payments to their suppliers (business to business, or B2B) provide a pragmatic way to use economic incentives to expand adoption of electronic payments. In the consumer to retailer transaction (C2B), both actors must be persuaded to adopt or acquire efficient payment instruments and then must be persuaded to use them. While many higher-income consumers and modern sector retailers may already use electronic payments, lower-income consumers and traditional retailers are less likely to be equipped with electronic payment instruments or to be acquiring electronic payments solutions. But in the case of B2B payments, many suppliers, such as distributors of packaged goods, are already entrenched users of electronic payments and banking. Hence only one party—the retailer—needs to be assisted in the transition away from cash.

While many small and traditional retailers remain unserved or underserved by banks, their suppliers are more often banked and are interested in reducing their reliance on cash. These incentives need to be leveraged to support change. Organized consumer goods producers and distributors often consider cash collections and manual processes a burden and hence have some incentives to help retailers adopt electronic payments and banking. This is an important opportunity to use market incentives to promote expansion of electronic payments, especially where low penetration and merchant fees act as disincentives for retailers to accept electronic payments from consumers.

Traditional retailers and their suppliers also have specific business needs that are not directly related to payments and preferences that condition their demand for electronic payments. These other business requirements are interdependent with payment and credit processes. If they are not well met by or integrated with payment services, they can undermine the efficacy of new electronic payments services. But to date, these needs have not been well targeted or supported by new consumer oriented mobile money solutions. More recently some mobile network operator (MNO) service providers have begun to expand into this market segment. Despite a wave of innovations, many of these needs of traditional retailers and their suppliers remain inadequately addressed.

To facilitate extension of payment services to this part of the market and encourage adoption, three key requirements need to be addressed:

- Digital payment solutions must be as easy to use as cash. Retailers that receive much of their income in cash need to be presented with payment solutions that address disincentives to adopting electronic payments. Retailers are reluctant to have to make frequent trips to a bank branch to deposit funds. Retailers can feel they have less control and visibility over sales and outgoing expenses if they move away from cash but are not provided with or are not comfortable using electronic tools to monitor accounts. Order and invoicing processes using paper receipts and records may also be replaced with digital solutions that are less user friendly or reliable for retailers.

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1 This excludes potentially high-volume financial market transactions, for instance between financial intermediaries, in securities, derivatives, foreign exchange, and the like.
2 See World Bank Group and the World Economic Forum (2016).

- Payments networks should be interoperable. Payment services are less likely to be used by retailers if they can only be used to pay some suppliers. There are additional disincentives to their use if competing suppliers require use of different banks or payment accounts. From a supplier's perspective, it should be possible to receive payments from a range of, if not all, possible accounts and institutions. These accounts and institutions need to meet requirements of interoperability at each stage of the process, including payment confirmation and account reconciliations.

- Other non-payment benefits need to be available for suppliers and retailers. The simple benefits of non-cash payments alone are not enough to overcome the inertia of cash. Accelerating the transition to deferred payment or credit terms can be instrumental in providing incentives for retailers to adopt non-cash payments while relieving some of the burden of having to deposit cash in a bank. Distributors can also be encouraged support change if digital payment solutions contribute to their sales or market development objectives, for instance by enhancing control over sales incentive programs.

Service providers should take account of these interrelated requirements that must be met to expand payments and finance to small retailers. Progress has been made in many markets where either vertical integration or limited competition in payment services have enabled principals, (anchor distributors) to impose a choice of payment and banking solutions. But in more fragmented markets or those with less developed payments infrastructure, coordination issues have led to a number of failed projects in this area of corporate banking. This guidance note provides an overview of the requirements of each respective party and highlights the key interdependencies that service providers and users should be aware of when developing new business initiatives.

Policy makers should help ensure that payments infrastructure can support access to finance and integration of non-payment services required by retail supply chains. A more open and interoperable framework for banking and payments could include facilitating access by or membership of non-banks to payments infrastructure, encouraging development by infrastructure providers of new payment functionality, development and publication of open Application Programming Interfaces (APIs), and easing of restrictions for entry and innovation by payment or merchant service providers. Policy makers should also assess whether new service adoption or commercialization is unduly constrained by anticompetitive behavior or impediments to interoperability. Regulators should also be careful that through promotion of common standards or steps to interoperability they do not stifle innovation and flexibility in the growing array of financial technology services that are also serving businesses in the distribution and retail sector. A balance can best be met through closer service integration and collaboration with services providers and users of the payments systems.

1. Introduction

This guidance note aims to inform policy makers and industry participants in their efforts to expand the use of digital payment and financial services in the traditional retail sector. It complements a report on the Payments Aspects of Financial Inclusion (PAFI) provided by the World Bank, the Bank for International Settlements (BIS), and other parties (see box 1.1 and figure B1.1).

The PAFI report provides broad guidance to policy makers and industry leaders on financial inclusion aspects of payments, such as infrastructure, related financial services, and regulation. It emphasizes the role that large-volume recurrent payment streams can play to build scale and reach of the financial ecosystem and enhance inclusion.

Small retailers' business–to-business (B2B) payments are one specific kind of such large-volume, recurrent transactions. They are especially relevant in developing and emerging markets, where traditional retail is often a large part of the overall retail economy.

This guidance note draws upon the broader PAFI framework and provides more detailed, operational, and targeted guidance on the foundations required to support B2B payments in the traditional retail sector: financial and information and communications technology (ICT) infrastructure, the legal and regulatory framework, and public and private sector commitment. It also identifies the requirements that need to be fulfilled by product design, access points, and awareness to leverage the potential of B2B payments as a catalytic large-volume transaction stream.

This report provides indications of the size and structure of this market, using examples from an assessment in Indonesia. It provides methodological support for conducting similar analysis in other markets. It also seeks to provide insights into the behavior, needs, and challenges of traditional retailers and explain the requirements that they place on B2B payments services and infrastructure. It presents a framework for this analysis of the end-to-end requirements of supply chain payments. The analysis highlights areas of payments systems that would benefit from industry coordination. The note concludes with discussion points for stakeholders from government and banks and other payment service providers.

Box 1.1. The context of B2B payments

The World Bank and the Bank for International Settlements (BIS) have, with other parties, developed guidance on the Payment Aspects of Financial Inclusion (PAFI) (see figure B1.1). In this report, emphasis is place on the role that large-volume recurrent payment streams can play – if properly addressed – to build scale and reach of the financial ecosystem and enhance inclusion. Small retailers' business–to-business (B2B) payments are one specific kind of such large-volume, recurrent transactions. They are especially relevant in developing and emerging markets, where traditional retail is often a large part of the overall retail economy. The PAFI report provides broad guidance to policy makers and industry leaders on financial inclusion aspects of payments, such as infrastructure, services, and regulation. This guidance note on B2B payments is a complement to the PAFI report. It draws upon the broader PAFI framework and provides more detailed, operational, and targeted guidance on the foundations required to support B2B payments: financial and ICT infrastructure; the legal and regulatory framework; and public and private sector commitment. It also identifies the requirements that need to be fulfilled by product design, access points, and awareness to leverage the potential of B2B payments as a catalytic large-volume transaction stream.

Figure 1.1. Payment aspects of financial inclusion (PAFI)
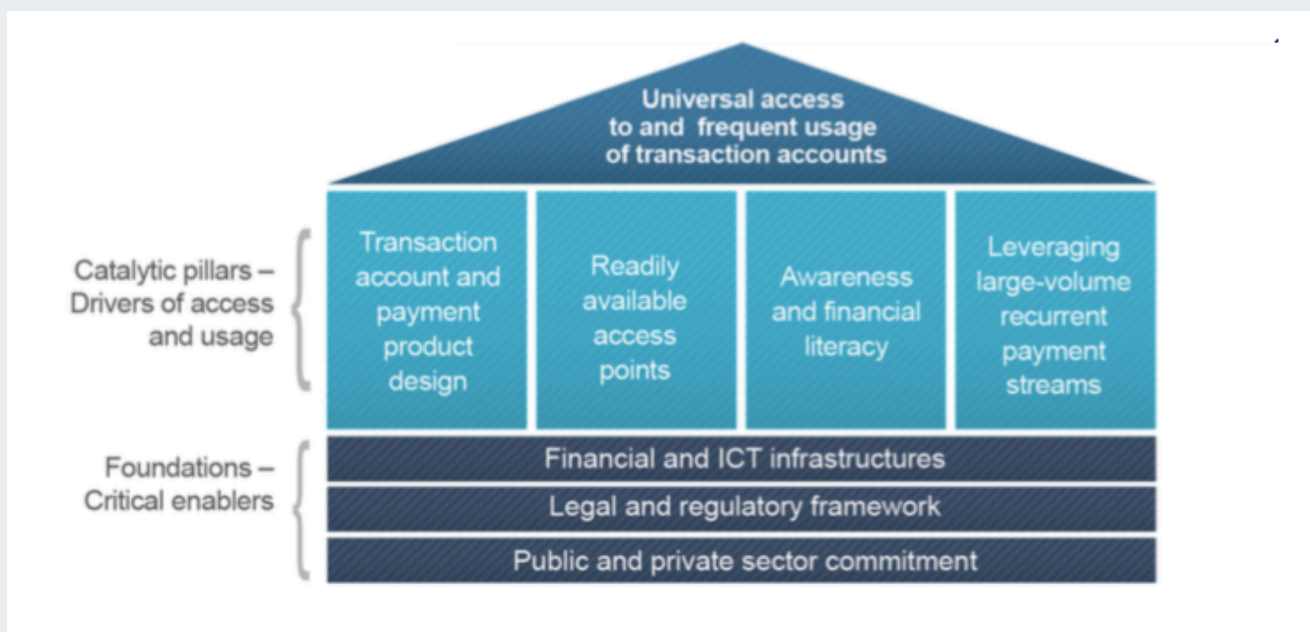
Note: ICT = information and communications technology.

Overview

Payments are important, even essential, services for households and firms. In a modern economy, electronic or digital payment services also form an essential backbone of the financial sector—part of the infrastructure required to conduct business, fulfill the functions of government, and through which to provide other financial and related services.

Many retailers, as well as other small businesses, still conduct transactions predominantly in cash. Evidence from surveys in a range of middle-income and developing markets indicates that many retailers, including those with a bank account, pay most of their suppliers and receive most income in cash. In markets across Africa and South Asia, in particular, only about 30 percent (by value) of all retailers' payments to their suppliers are made electronically (see map 1.1) This puts much of their savings and information about their creditworthiness outside the banking system. This in turn limits their access to interest earning and new sources of working and investment capital.

Map 1.1. Micro, small, and medium retailer-to-supplier payments
(annual value and percent electronic)

Global
Total: $13.3 trillion
Electronic: $7.1 trillion (53%)

High-income OECD
Total: $4.4 trillion
Electronic: $3.5 trillion (81%)

Europe & Central Asia
Total: $1.2 trillion
Electronic: $0.69 trillion (59%)

Middle East & North Africa
Total: $0.52 trillion
Electronic: $0.20 trillion (40%)

East Asia & Pacific
Total: $3.8 trillion
Electronic: $1.5 trillion (40%)

South Asia
Total: $1.5 trillion
Electronic: $0.4 trillion (26%)

Latin America & the Caribbean
Total: $1.4 trillion
Electronic: $0.61 trillion (45%)

Sub-Saharan Africa
Total: $0.61 trillion
Electronic: $0.19 trillion (31%)

GSDPM
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This map was produced by the Map Design Unit of The World Bank.
The boundaries, colors, denominations and any other information
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endorsement or acceptance of such boundaries.

Source: World Bank Group and World Economic Forum 2016

OECD = Organization for Economic Co-operation and Development.
B2B = business to business. B2B payments include only those payments by retailers
to their immediate suppliers, and do not include other B2B payments up the distribution channel.

Although cash does not impose overt nominal costs on retailers, its pervasive use along the supply chain imposes system-wide costs and can undermine efficiency of businesses in the real sector. Beyond lost interest earnings, the costs of physical logistics and operational costs of cash collection, invoicing, and reconciliations can weigh on retailers. Manual operations can open the door to error and fraud and undermine potential efficiency gains from better information management and planning along the supply chain[3].

New payment services are being brought to market that target unserved and underserved segments of the economy. Most have first gained traction in niche areas. These include services launched by non-banks, mobile operators, and technology companies to address the needs of the unbanked, for bill payments, remittances, and a growing array of e-commerce and digital services such as games or media. Meanwhile, banks and established actors such as credit and debit card networks and operators of inter-bank systems have also evolved their payment service offerings with the intent to expand penetration and usage in lower-income segments and areas of business dominated by cash.

Traditional retailers—under pressure from the modern sector[4]—would be better placed to compete if they could benefit from better access to credit and efficiency gains from supply chain integration. Digital solutions for procurement, stock management, accounting, and general business management can create efficiency gains that, in a competitive market, can pass on savings to consumers. As larger suppliers automate and integrate their supply chain operations, retailers that are not participating in this trend may find it more difficult to benefit from credit or discounts or from competition between alternative suppliers (figure 1.2). Being equipped to participate in new "digital" business practices is important for them to be able to compete with modern retailers that have greater economies of scale in the deployment and usage of technology.

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3 Refer to the World Bank methodology for measuring the cost of retail payments (World Bank 2015).
4 The modern sector refers in this context to organized and generally larger-scale retail companies, chains, or franchises that operate many outlets and support them with a scalable centralized infrastructure for purchasing, logistics, and distribution, as well as branding. Typical examples of minimart modern sector retailers in Indonesia include Indomaret, Circle K, 7-Eleven, and Alfamart.

Figure 1.2. Modern versus traditional retail market share, selected markets, 2013
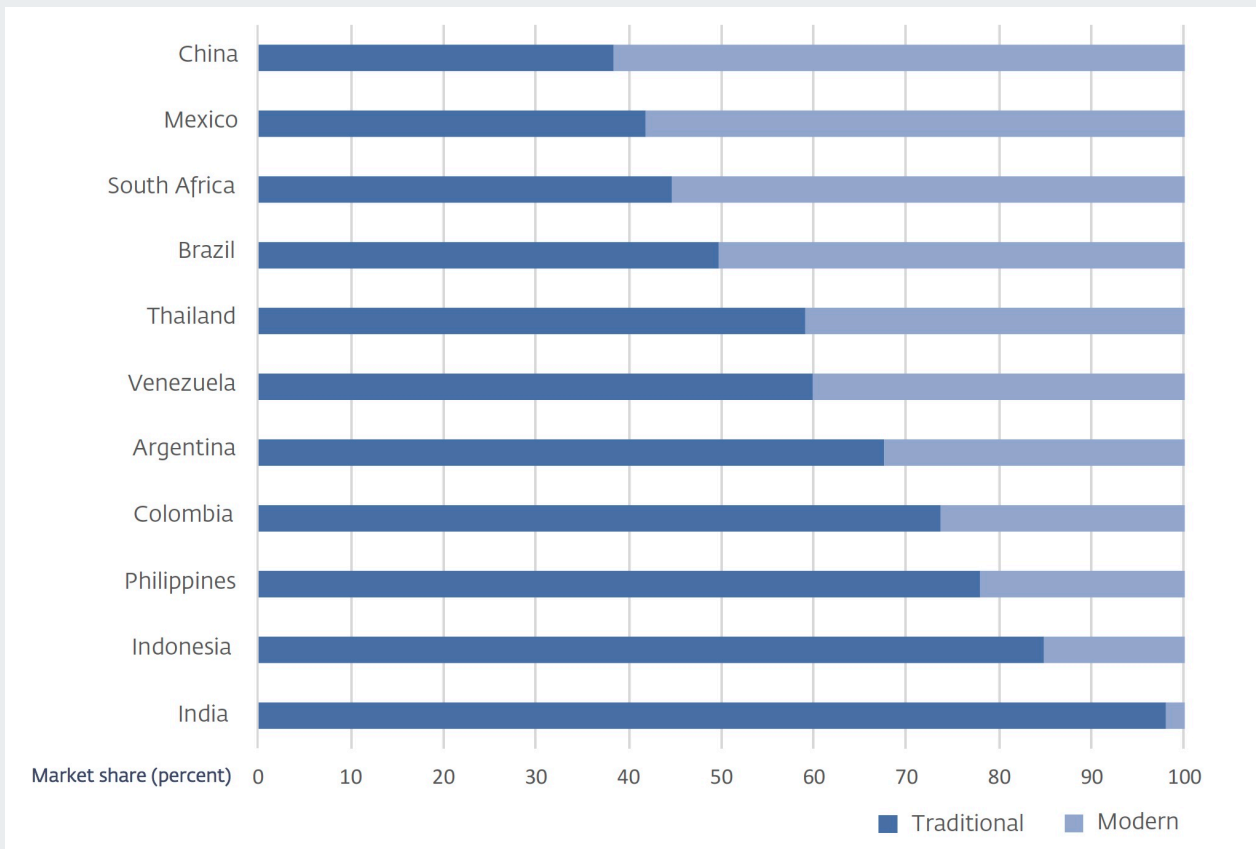
Source: Euromonitor

Note: Market share is in terms of value of sales.

Policy Context

Economic Development

Retail sector development and access by retailers to financial services raise important policy issues, including not only finance but employment, competition, taxation, and competitiveness. Expanding financial services to the retail sector can help government achieve policy objectives in these areas. Equally, to expand financial services access to this sector efficiently, governments should make use of policy initiatives and instruments in other areas beyond the financial sector to address relevant constraints. In particular, the following points and areas of policy should be considered:

The retail sector, especially food grocery, plays an important role in the welfare and development of lower-income economies. As the conduit through which consumption goods are supplied to households, the sector and its efficiency affect the overall cost of essential goods on which lower-income persons spend a large portion of their income.

Lower-income households spend a greater proportion of their income on consumption and via traditional retailers (see figure 1.3). Efficiency and pricing in this part of the market therefore has a disproportionate impact on poorer households. Expenditure on foodstuffs and consumers goods represents an important share of low-income households' income. So changes in the efficiency of this sector can have important welfare effects.

Figure 1.3. Cross-country comparison of GDP per capita versus food expenditure per capita
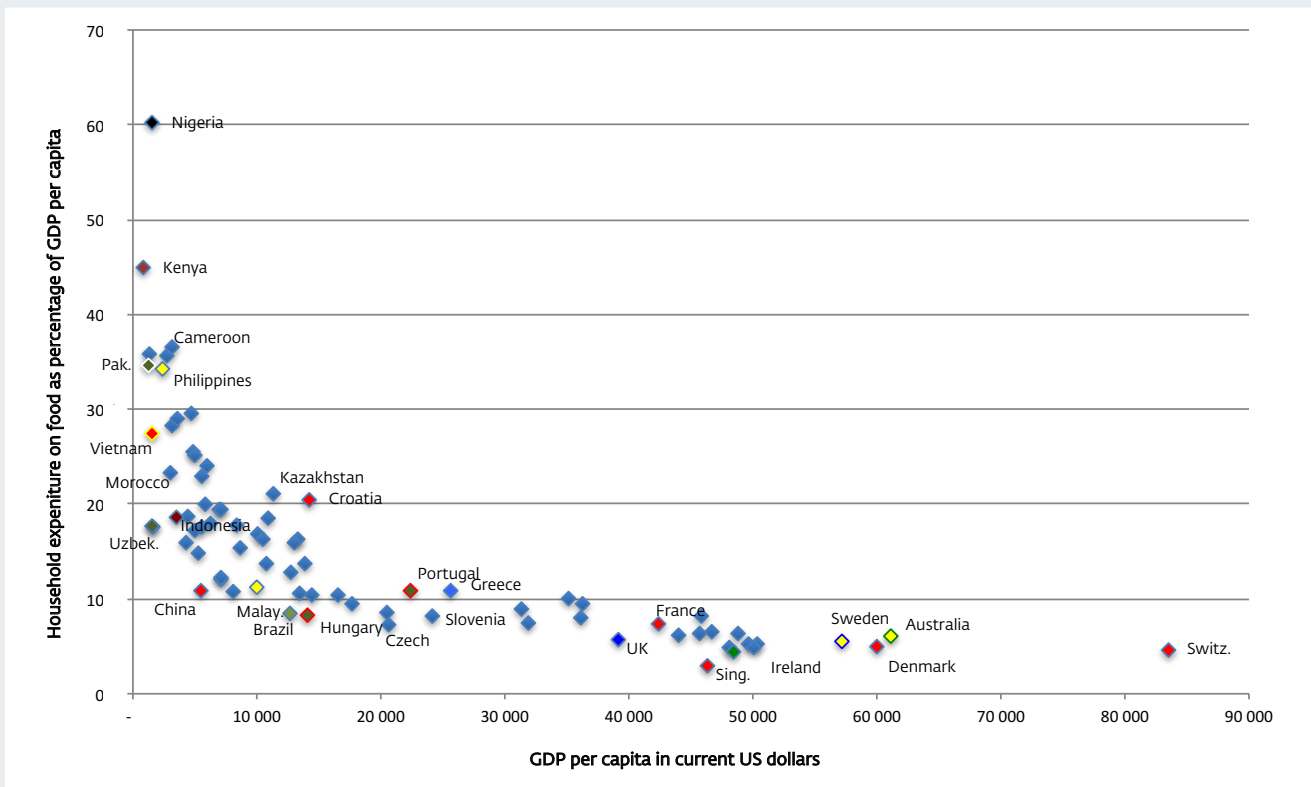
Sources: World Bank and Euromonitor

Note: Each blue diamond indicates a country. Data are for 2011 or the nearest year available.

Traditional retailers are also an important source of employment. Many traditional retailers are small, owner-operated businesses that generate an important source of income for lower socioeconomic groups and rural populations. Many small shops operate on the ground floor of the place of residence of a family and are run by women of the household, allowing them to take care of other domestic responsibilities while running their business.

Modernization of the retail sector and the rise of organized chains present a challenge to traditional retailers. Policy makers are concerned about the potentially negative impact of modernization in the retail and distribution industry on the traditional retail sector employment.

The retail sector plays a key role in expanding usage of electronic payments by consumers. Retailers generate a big portion of overall consumer payments in any economy. They are hence a focal point for efforts by banks, retail payment schemes and governments to reach important financial sector and inclusion targets. Low usage of payment cards and payment accounts for retail consumption has made acceptance by retailers in emerging markets a focus for efforts by the payments and financial services industry and policy makers to expand the payments sector.

Retailers and their suppliers also feature prominently in attempts to broaden the tax base and streamline and simplify operations of reporting, collections, and tax credits. Some countries, particularly in Latin America, have introduced e-invoicing obligations to reinforce the tax base. The obligation to capture invoices electronically has pushed distributors and in some cases retailers to digitize more of their processing, thereby increasing potential benefits from automating the rest of the process to include electronic payments.

In conjunction with tax issues, many countries are putting in place electronic invoicing and procurement systems. The aim is generally not merely to "digitize" these processes but also to help improve and simplify business operations, enhance transparency of government procurement, and improve the ability for small and medium enterprises (SMEs) to participate in tenders and gain access to new markets.

Financial Sector Development

Traditional retailers in emerging markets sit at the crossroads of financial sector development. The sector can play an important role in policies aiming to increase the access for the poor and underserved to better payments services, benefits of the digital economy[5], and finance for SMEs. With relevance to payments system strategy and development, several specific policy issues[6] and market developments are pertinent in most markets and should be taken into consideration when reviewing plans to promote B2B payments:

- **Switch to central payments and development of ACH (automated clearing house) infrastructure:** B2B payments in this segment bridge the gap between banked corporates and small firms often poorly (or not) served by financial institutions. Renewal or expansion of payments infrastructure can be designed in a way to accommodate better the access and utilization challenges of this segment of the economy. A growing number of countries are upgrading automated clearing house (ACH) infrastructure to support faster retail payments and enhance access to and management of associated of non-payment data.

- **ISO20022 payment standards:** Global payments systems are migrating to ISO20022, the International Organization for Standardization (ISO) standard that defines the ISO platform for the development of financial message standards (see appendix A). These payment message structures support automation and integration for business processes that are also important for the retail and distribution sector. While distributors may already have systems and operations that integrate with these standards, many of the smaller retailers that they supply do not use related banking or enterprise management solutions. Hence, they have little incentive or the capacity to use ISO20022 messages to support automation of their accounting and operations. Together, market participants need to set out plans to help make these enterprise resource planning (ERP) and payment-related services easier and more attractive for small businesses to adopt.

- **Promotion of financial technology and non-bank innovation:** The growing role of so-called fintech (financial technology) services has inspired many countries to set up policies, industry bodies, and funding sources to support the application of new technology and business models to promote financial sector innovation and development in their economy. New financial technology companies can help provide services that better adapt and connect underlying payments and banking services to meet the needs of specific users such as small retailers. There can be mutual benefits from facilitating or even directing new companies' attention to improving services to serve the B2B payments and financial services needs of the retail sector.

- **Expansion of networks to include agents and retailers**: Mobile money, bill payment, and agent banking models often target small retailers to act as agents for new payment networks. There can be important synergies between these efforts and addressing the B2B payment needs of retailers and their suppliers.

SME Finance

Many governments have policies to support access to finance for small and medium sized enterprises. These firms tend to account for a large portion of employment and output. But their capacity, scale, and level of formality often make them more costly and less attractive clients for banks to serve. Hence governments may pursue policies that help promote their access to financial services, for instance through lending targets, interest rate controls, lending subsidies, or capacity building projects.

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5 Small business may also face challenges in benefiting from the shift to offering government and business services as well as marketing and sale opportunities on internet-based platforms. For example, they may not be able to afford a computer or regular access to broadband, and/or they may lack skills to market their service or collect payment via internet channels.
6 Refer also to the publication on "Payment Aspects of Financial Inclusion".

Banks and non-bank financial institutions have an array of service models that aim to support distribution chain finance. Distributors themselves often provide deferred payment terms to retailers. In other instances, banks provide inventory or working capital facilities to larger wholesalers or retail chains. For high-value goods such as motorcycle parts or electronics, consumers may be provided with short-term lending products, either directly by the seller or intermediated by the seller and financed by a consumer credit organization.

2. An approach to market sizing

This chapter outlines a simplified methodology for estimating the size of payment flows in the traditional retail sector⁷. For illustrative purposes, it also provides estimates of different measures of the importance and size of the traditional retail segment in Indonesia.

Overall, the size of B2B transaction is important and exceeds many of the other payment flows that originate from or reach lower income parts of society. As shown in figure 2.1, retailers' payments to their immediate suppliers can equal as much as 25 or 30percent of GDP, while remittance inflows, while important, tend to be more in the realm of 5percent of GDP. The overall size of the B2B market is even larger, as many retailers buy from wholesalers or other intermediaries who in turn purchase from a chain of other distributors. This tends to multiply the overall number of transactions by a factor of 2 to 4 depending on the number of distribution layers in the market.

Figure 2.1. Estimated value of B2B grocery payments to immediate suppliers compared to remittances, selected developing countries
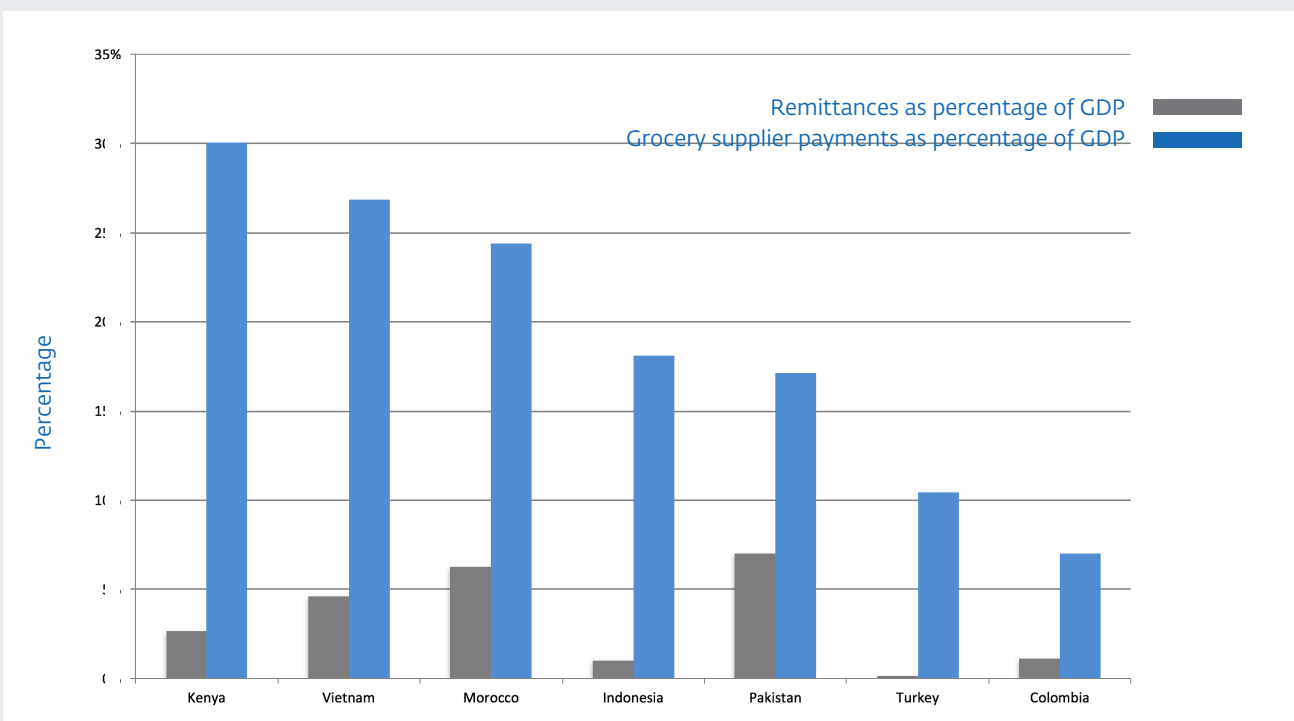
Sources: Euromonitor and World Bank

Market structure

The traditional retail sector tends to account for a large part of emerging and developing market economies. This section provides an overview of the size and structure of this market segment, based in particular on primary and secondary empirical research into selected markets.

Distribution in the retail sector usually passes through a series of channels, including direct key accounts, distributors, and wholesalers (figure 2.2). Key account clients may be large retail chains or hotels to which product is sold directly and then further distributed with their own networks. Larger distributors are used to reach another portion of the market for retail. They tend to be well organized, with a high proportion of them using formal banking and payments services. Many of them have some form of credit terms offered to them by the supplier or a bank. Wholesalers usually make up for the rest of the direct customers of consumer goods companies. They are less likely to use banking services or have access to credit from suppliers and are more likely to pay in cash.

7 This simplified methodology follows a bottom-up approach to market sizing that complements the approach used in the 2014 Euromonitor study for global market sizing. Refer to the World Bank and WEF 2016 report (http://documents.worldbank.org/curated/en/765851467037506667/pdf/106633-WP-PUBLIC-Innovative-Solutions-Accelerate-Adoption-Electronic-Payments-Merchants-report-2016.pdf)

Figure 2.2. Distribution Structures in the Retail Sector
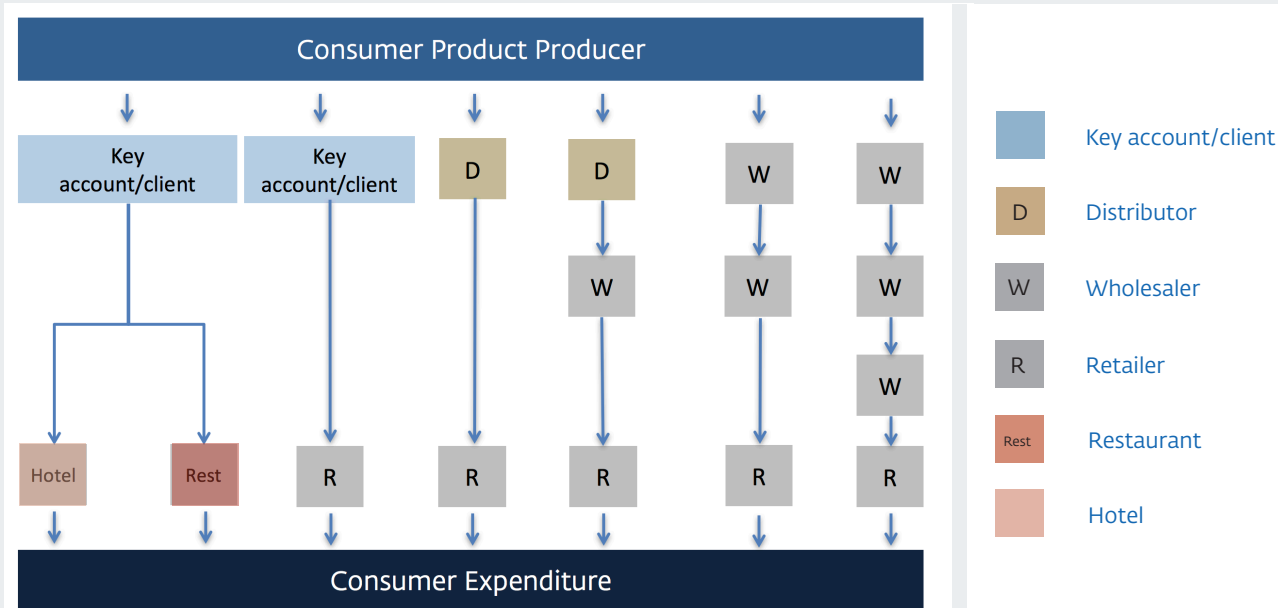
Estimating payment value and volume

Data on consumer expenditure provides a first-level estimate of B2B payment flows. Most countries have statistics on consumer expenditure, broken down by category of goods and services consumed at varying levels of aggregation. Private sector research firms also provide estimates of retail expenditure across different categories of goods, although these may underestimate or exclude informal (unregistered) retailers.

Estimates of B2B payment values also need to consider the level of margins retained by each layer of distribution. Retailers purchase supplies at a wholesale price, which represents their margin. If using consumer expenditure as a starting point for market sizing, it is necessary to first estimate the level of these margins and then deduct them from each payment leg. Otherwise payment value is overestimated. Information on retail and wholesale margins can also be useful to assess how payment or credit fees would impact profitability. Estimates of margins can often be obtained from private sector market experts. Some countries conduct input/output analysis that can provide estimates of margins, as is the case in Indonesia (see Box 2.1).

Box 2.1.

Total sales value per product category

Value of good sold by Producer by category

+ Wholesaler margins

+ Retailer margins

= Total value of retail sales per category

The value and volume of payments thus depends on the number of legs in the distribution chain. Some retailers may buy directly from a distributor supplied by the consumer goods company, generating one transaction from distributor to retailer. Other retailers, particularly smaller ones, may buy from wholesalers, who in turn purchase from another wholesaler that is supplied by the consumer goods company. This generates two payment flows from a given distributor to the end retailer. Similarly, getting product to some smaller or remote retailers may involve three or four steps. In this manner, the number of distribution legs determine the volume of B2B payments processed in the overall market. Hence sizing the market for these payments requires some estimation of this structure (figure 2.3).

Figure 2.3. Consumer Goods and Retail Distribution Market Structure

Goods Categories

Motor vehicles and parts	Construction materials	Household durables	Household Non-Durables	Grocery				Fresh Produce
				Tobacco	Beverages	Dairy	Foodstuffs	
Motorcycle spare parts	Cement	White Goods Electronics Apparel and footwear	Personal Care Fuels Home Care		NARTD (including water)	Milk	Confectionary Packaged Food	Grains Fruit & Vegetable Meat & Fish

Retailers and Distributors

Distributors

Wholesalers

Specialized Retailers	Food and non-food grocery retailers				
	Hyper/ Supermarkets	Mini-Markets	Small Retailers	Micro Retailers	Restaurants

Flow of goods

Flow of funds

Note: Size of individual boxes is not necessarily indicative of market share

To estimate the value of sales, the retailer and wholesaler margins must be deducted from the value at the point of sale. Industry expertise or data from input/output tables can be used to estimate the average margins across different product groups and retail structures within the market. Gross figures reported by statistical authorities for value of retail sales will generally include value added tax (VAT). For retailers for which this is applicable, it should be deducted from the total value of sales to estimate payment values to distributors. However, it should be noted that there are variations in the way in which VAT is charged and collected, depending on the tax regime.

Volume and value estimates require information about the number of retailers in the market, segmented by size or business model. This kind of data is often available from market research firms as well as enterprise surveys conducted by government agencies. But care must be taken using these sources because many such surveys either look only at formal sector firms and hence exclude informal enterprises in the retail sector or may underestimate their number. Interviews with a balanced selection of consumer goods companies can also help provide a quick overview of the total number of retailers. Depending on the country, there may also be reliable information available from industry associations or chamber of commerce organizations. However, small and traditional retailers may not be members.

Lastly, it is essential to estimate the number of suppliers that retailers have and the frequencies with which they purchase supplies from each of them. Overall expenditure needs to be divided by the number of retailers and supplier relationships they have in order to estimate how many actual payments are being made on a regular basis. This requires some survey-based work to estimate the number of suppliers and average purchase frequency and size.

Combining estimates on overall expenditure, number of retailers, and purchase frequencies with data on market structure allows an estimate to be made of gross payment values and volumes in the retail market. Further input from interviews with retailers and distributors can then be used to estimate the portion of these payments being made in cash instead of through electronic payment instruments or other non-cash means.

Box 2.2. Extracts from retailer survey in Indonesia

Retailers source suppliers of different kinds at different frequencies. Figures B2.1.1 and B2.1.2 summarize the frequency with which retailers within the sample purchase specific product types, expressed as a percentage of the overall sample base.

Figure B2.1.1. Frequency of stock purchases by food category
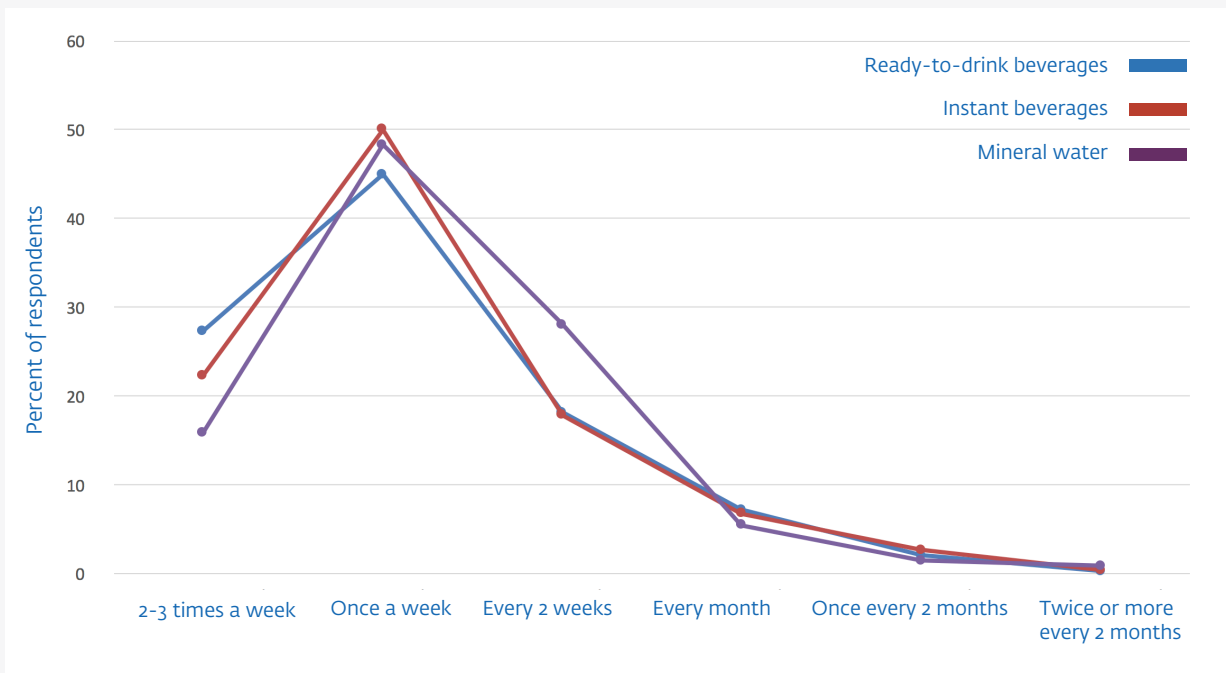
Sources: Indonesia traditional retailers survey, IFC and e-Mitra 2014

Figure B2.1.2. Frequency of stock purchases by product type
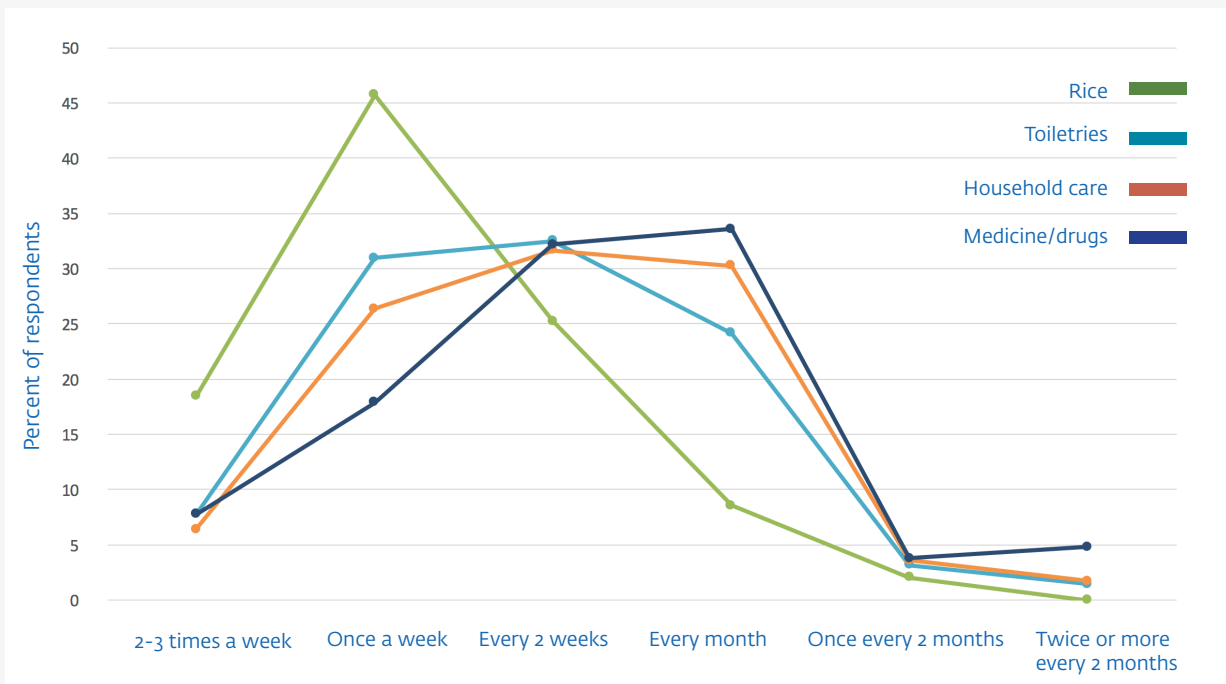
Sources: Indonesia traditional retailers survey, IFC and e-Mitra 2014

Box 2.3. Examples of Consumer Expenditure Data Analysis, Indonesia

The Indonesian Central Bureau of Statistics (Badan Pusat Statistik, BPS) estimates spending per expenditure category for households of different levels of income. Lower-income households spend proportionately more on basics such as food, as seen in figure B2.2.1.

Figure B2.2.1. Household expenditure, by expenditure category and income segment, Indonesia 2012
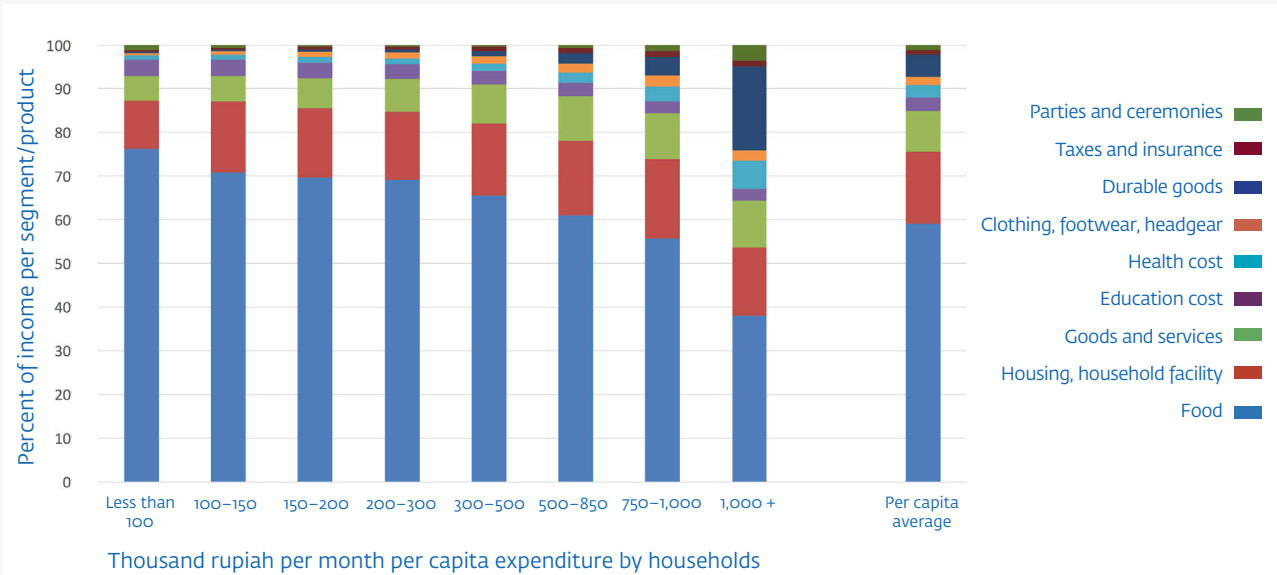
Sources: Indonesia traditional retailers survey, conducted by IFC and e-Mitra 2014

Using input/output tables, estimates of wholesaler and retailer margins can be obtained per expenditure category (figure B2.2.2, next page). These figures can improve understanding of the structure of the distribution sector and the competitive environment.

Wholesale and retail margins: BPS statistics provide one indication of how the final expenditure by consumers is shared among the main stages of production and distribution. Overall, wholesale and retail margins in packaged consumer goods range from about 8 percent to 16 percent. These figures help estimate the value of purchases between retailers, wholesalers and distributors.

By way of comparison, comparable studies in Australia find total gross distribution and retail margins for food and nonalcoholic drinks to be notably higher, closer to 35 percent (D'Arcy et al. 201). As the study notes, margins often depend on the competitive structure of the market. In Indonesia, lower gross margins may reflect the fragmented nature of the retail industry relative to suppliers (table B2.2.1), as well as the relatively lower wages in the retail sector.

Table B2.2.1. Number of Grocery and Non-grocery Retailers, Indonesia

	2007	2008	2009	2010	2011	2012
Grocery retailers	2,501,964	2,540,273	2,573,589	2,596,201	2,589,430	2,582,875
Non-grocery retailers	224,374	230,804	236,216	241,258	245,115	248,368

Source: Euromonitor World Retail Data and Statistics 2014

Figure B2.2.2. Consumer expenditure, retail and wholesale margins, by product category, Indonesia 2005
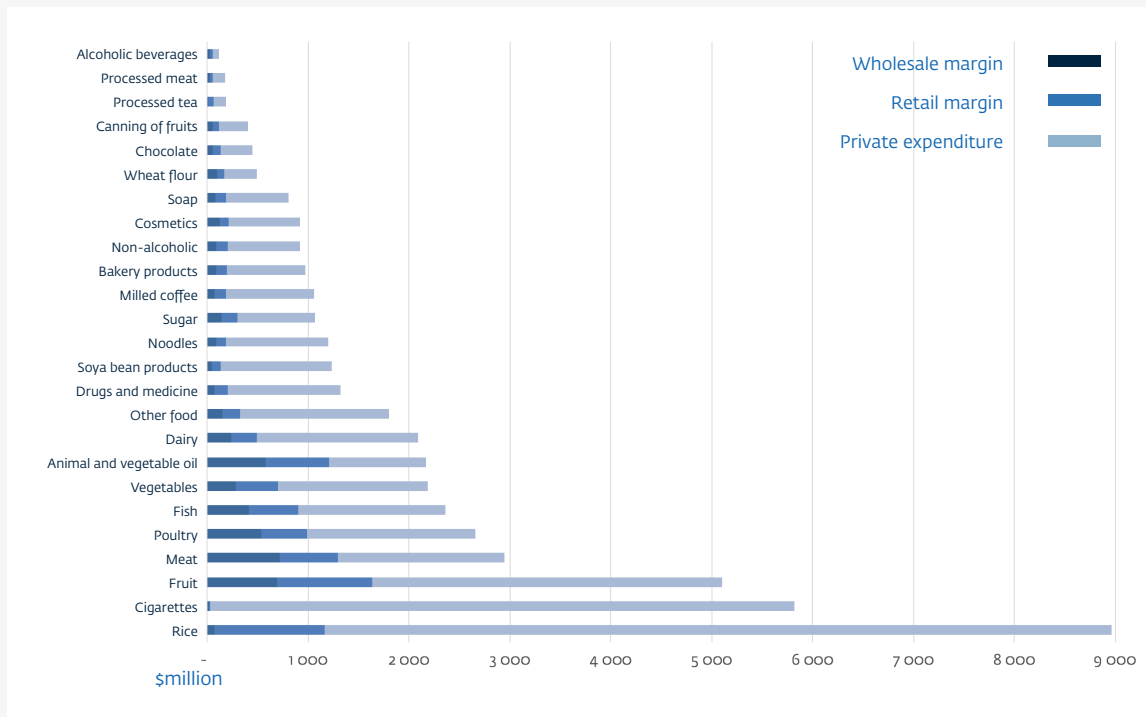
Source: Indonesia National Statistical Authority.
Note: Data are based on 2005 input/output equivalent in US dollar equivalents.

Box 2.4. Value and volume estimates for traditional retail B2B payments, Indonesia

Indonesia's market has an estimated 2.5 million retailers. The vast majority are in the traditional and informal space. Most of these pay their immediate suppliers in cash. Estimates of annual sales of packaged consumer goods are about $92 billion, with up to about $164 billion in total consumer expenditure on food. Estimates of sales through tradition retail range from about $46 billion to about $80 billion depending on the scope of goods covered and the classification of traditional versus modern retail. Using a conservative estimate of $46 billion, it is likely that overall value of sales through the supply chain to such retailers totalled about $130 billion in 2014 (figure B2.3.1).

Figure B2.3.1. Estimating the value of payment flows from traditional retailers to wholesalers and distributors, Indonesia 2005
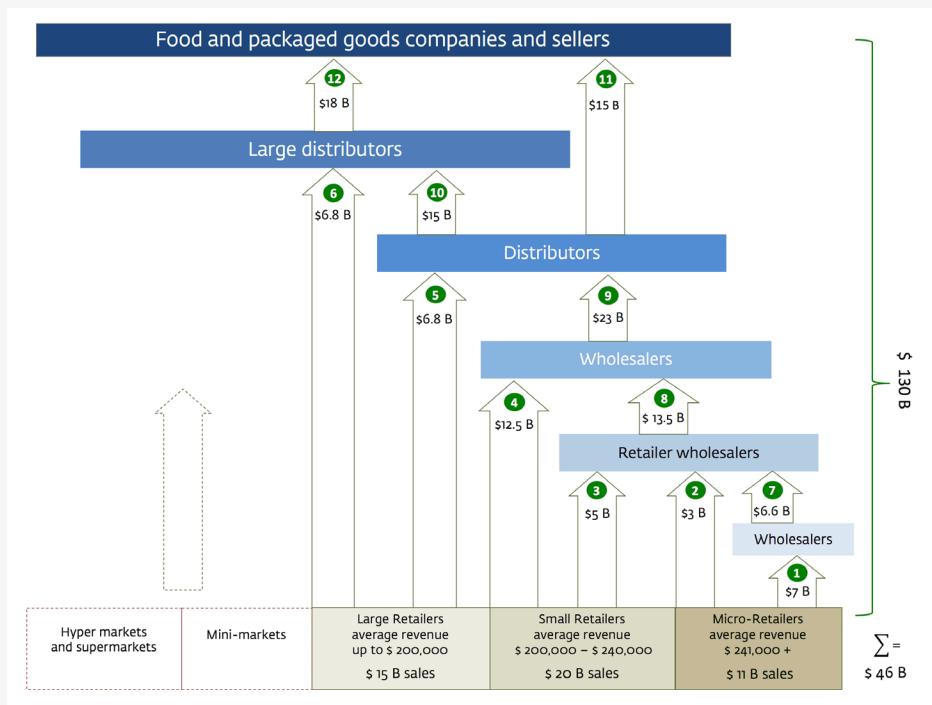
Note: B = billion.

Traditional retailers tend to source goods from smaller wholesalers and distributors, with a higher frequency of purchases. Based on overall markets statistics and the results from surveys of small retailers in Indonesia, it is estimated that retailers and wholesalers completed more than 1.4 billion transactions per year in the traditional retail market segment (figure B2.3.2).

Box 2.4. Value and volume estimates for traditional retail B2B payments, Indonesia (continued)

Figure B2.3.2. Estimating the volume of payment flows from traditional retailers to wholesalers and distributors, Indonesia

		Distributors
	Wholesalers	
	Retailer Wholesalers	100,000 wholesalers
	Wholesalers	52 million supplier purchase transactions per year

1.4 billion transactions per year

| Large Retailers average revenue 000 - $200,000 **40 tsd** | Small Retailers average revenue $201,000 - $240,000 **350 tsd** | Micro-Retailers average revenue $241,000 + **1.5 million** |

Traditional retailers
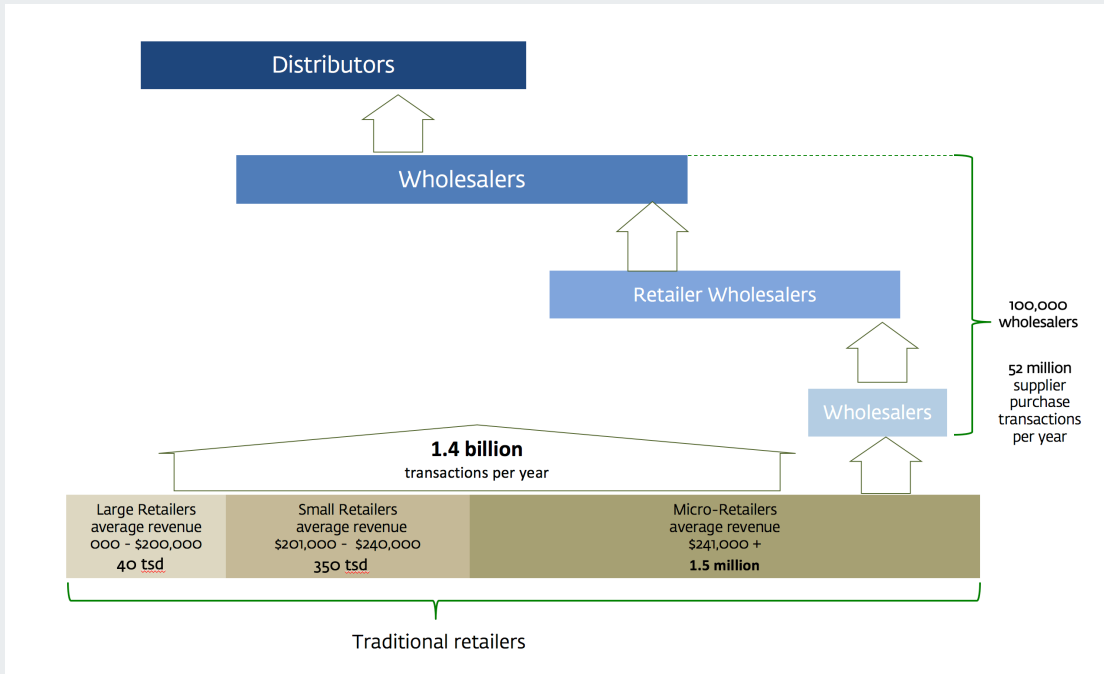
Note: All figures are estimated.

3. Traditional retailers

This chapter highlights some of the specific needs, behavior, and challenges of traditional retailers related to B2B payments. It draws in particular on surveys and market research conducted in Indonesia.

There are over 2.5 million traditional retailers across Indonesia. They encompass a wide variety of enterprises, in terms of the size of the business, number of customers, distributors, and purchases, access to financial services, and their overall views and preferences with regard to relevant financial services and business operations. These differences play a role in the requirements for B2B payments, and the impact that access to credit and electronic payments offer. It is therefore necessary to understand traditional retailers within the context of these key differences. While no retailer is the same, traditional retailers can generally be grouped into the following four stylized profiles, as shown in Figure 3.1.

Figure 3.1. Stylized profiles of traditional retailers

	Automated/Integrated				Manual/Off-line			
Wholesalers and large retailers > 3 billion Rp annual turnover ~ 12 suppliers ~ 2-5 employees	Large operations with some minor technology and automation. Have bank accounts, bank loans, supplier credit and may occasionally pay suppliers via ATM transfer.				Large to medium operations without any technology or automation. Have bank accounts but do not take bank loans or credit from suppliers (even if offered). Pay all suppliers in cash, for very large amounts.			
	Order process	Some on-line steps	Inventory management	Yes	Order process	Some on-line steps	Inventory management	Yes
	Stock check	Semi-manual	Credit?	Up to 14 days from suppliers	Stock check	Manual	Credit?	None
	Sales tracking	Ad hoc/ manual	Payment method	Mostly cash, some ATM transfers	Sales tracking	Ad hoc/ manual	Payment method	Cash
Small and micro retailers < 3 billion Rp annual turnover ~ 4-5 suppliers ~ 1 employee	Have bank accounts and take advantage of supplier credit. May have a bank loan. Pay suppliers in cash and frequent wholesalers when out of stock. Use of technology limited to use of mobile phones to sell Pulsa for additional income.				Unbanked retailers without access to bank or supplier credit. Face significant cash flow challenges and can only purchase goods with cash on hand. Use of technology limited to use of mobile phones to sell Pulsa for additional income.			
	Order process	Some on-line steps	Inventory management	Yes	Order process	Manually, or via canvasser	Inventory management	No
	Stock check	Semi-manual	Credit?	Up to 14 days from suppliers	Stock check	Manual	Credit?	None
	Sales tracking	Ad hoc/ Manual	Payment method	Cash	Sales tracking	Ad hoc/ Manual	Payment method	Cash

Note: Pulsapulsa is the Indonesian term for airtime credit. ATM = automatic teller machine.

Wholesalers and Large Retailers

Wholesalers and large retailers represent businesses with annual turnovers typically greater than Rp3 billion[8]. While their customers differ (wholesalers sell to traditional retail businesses), both wholesalers and large retailers stock a variety of products, deal with as many as 12 suppliers, and serve a large client base. To handle the business, they may employ up to 5 people. Purchase orders can be in the range of Rp 8 million.

Some of these wholesalers and large retailers can be quite sophisticated. They may have multiple bank accounts, take bank loans, offer some form of digital payment to their customers, and may pay their suppliers electronically via card-based transfers initiated via ATM. While they may not make use of technology for their business, there is a precedent of use of technology such as text messaging (short message service, SMS) or mobile banking for their personal expenses. These retailers tend to be more open to the use of technology in their business if it can be provided at a fair price, has clear benefits, and is easy to use.

8 Equivalent to about $230,000 at exchanges rates in September 2016.

At the other extreme, some wholesalers and large retailers operate entirely manually and informally. These retailers do not have bank accounts, do not make use of bank loans or supplier credit, and conduct 100percent of their business manually and in cash, despite the complexity and size of their business and purchases. They consider credit and financial services to be a burden. They show no interest in taking advantage of bank loans or supplier credit and often do not wish to expand their business any further.

Traditional retailers tend to be family-run operations that have been in business for many years. Ranging from small shops on the side of the road to large wholesalers, often these businesses were started with very little capital as a means to supplement the family's income when a woman had children or if a family member lost his/her job. Traditional retailers do not need a formal education, significant capital, or access to formal financial services to start their business. In many markets, women play a significant role as a business owner, or partner with their husband or other family members.

Most traditional retailers manage their business manually and pay their suppliers in cash. Inventory management, stock taking, order placement, and simple business management functions are performed by the shop owner either mentally or on a piece of paper, with interaction from their suppliers' sales staff. Payments are made in cash; traditional retailers receive payment from their customers in cash, and they in turn pay their suppliers in cash.

Small and Micro Retailers

Small and micro retailers are defined as having annual turnovers of less than Rp3 billion[9]. They are usually family-run operations and may employ one additional person outside the family to help with the business. Small and micro retailers purchase weekly or every other week from distributors in the range of Rp100,000 to Rp500,000 per order. They also frequently top up their stock by purchasing directly from wholesalers. A large portion of Indonesia's retailers—probably more than 1.5 million of the estimated 2.5 million retailers—fall into this category.

Small and micro retailers also vary in their attitude toward financial services and the future of their business. Many small and micro retailers start out with limited capital and manage to grow their business into profitable ventures. These types of businesses represent retailers that take advantage of supplier credit or deferred payments, take bank loans, and have bank accounts (albeit for personal use only). They may even use banking services to pay their suppliers, sell mobile phone credit, or transfer money to their relatives. These retailers want to grow their business but may not be aware of how to make use of financial services or have the technology to do so.

Many retailers of this size operate a small shop to supplement household income but do not necessarily have strong ambitions to expand. These retailers do not have any exposure to the formal economy or financial services and have less capacity or incentive to use greater access to capital to expand sales or outlets. They tend to be very small in size and have limited scope of products and customers. Surveys and field interviews found these firms to be less interested improving access to finance or electronic payment services.

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9 Equivalent to about $230,000 at exchanges rates in September 2016.

Retailer profiles from Indonesia

As part of the research for this guidance note, field interviews were conducted with retailers of various sizes and types. Some profiles follow.

Traditional retail can be an important economic stepping stone.

Bibi Maryam, 45, is a high school graduate. She has been running her business for 17 years after her second child could not take baby formula and she had to quit her job. The store is now her primary source of income. She is able to send her daughter to study in university.

Type of Business:	Small retailer
Annual Turnover:	312 million rp.
Years in Business:	17
No of Employees:	0
No of Suppliers:	4
Bank Account:	Yes
Average purchase:	IDR 600 tsd

"With the profit from my business, I am sending my daughter to university."

Inventory Management and Ordering Process: Ibu Mari keeps track of her inventory manually. She orders an average of Rp2.4 million in stock from four distributors who visit her shop to take her orders. She keeps track of stock by sight. If she sees she is running low on a product, she calls the sales staff to visit her or she goes to a wholesaler if she cannot order from the distributor in time.

Payment Process: She pays all her suppliers in cash.

Management Functions: Ibu Mari provides credit (deferred payment) to 15percent of her customers. To manage cash flow, she took a bank loan but feels it is a burden and will not consider expanding her business until she can pay off the loan. She has a bank account from her previous job but does not use this for her business or for any electronic payments.

Most traditional retailers pay suppliers in cash, even for large purchases.

Mr. and Ms. Sunama, elementary school graduates, started their business 7 years ago with Rp. 300 thousand startup capital. The shop is run by Ms. Sunama who has grown it to sales of IDR 20 M per day. They save on a weekly basis in their son's bank account to buy large orders during high season and to start a second store.

Type of business:	Wholesaler
Annual Turnover:	6.24 billion rp.
Years in Business:	7
No of Employees:	0
No of Suppliers:	10
Bank Account:	No
Average purchase :	IDR 750 – 1400 tsd

"We pay all our distributors in cash, even for big orders worth millions."

Inventory Management and Ordering Process: The Budimans manually manage their inventory by visually checking what stock is low. Ms. Budiman checks stock before each order and records a list of the stock to be ordered. She discards the list once the distributor has received the order.

Payment Process: All payments are made in cash, even for their largest orders of rice, which are Rp14 million every four days.

Management Functions: The Budimans do not have a bank account, but they deposit their savings each week in their son's bank account. They use these savings for large orders and are saving to start a second store for their son. They do not provide credit to any of their customers, have not taken a bank loan, and only receive four-day deferred payment terms from their rice suppliers.

Retailer profiles from Indonesia (continued)

Some traditional retailers are more open to technology than others.

Khalid is a university graduate. She manages a retail store with her brother. She serves a local housing complex; while her brother manages the airtime top up business through his mobile phone. Khalid has two bank accounts; she pays one suppliers via the ATM. She tried using mobile banking but found it too complicated.

Type of business: Small retailer
Annual Turnover: 624 million rp.
Years in Business: 5
No of Employees: 0
No of Suppliers: 3
Bank Account: Yes
Average purchase: unknown

"I can pay my supplier by transferring money through ATM, but I stop trying to use mobile banking because I forget how to do it."

Inventory Management and Ordering Process: Ibu Eni keeps track of her inventory by maintaining a list to indicate what is running low. When the sales person visits her store, she will match her list against the salesperson's record of her past orders to confirm the stock and quantity.

Payment Process: Ibu Eni pays one of her suppliers electronically via ATM, and the rest in cash.

Management Functions: Ibu Eni has two bank accounts. She uses them to pay her suppliers and for mobile recharges. She does not offer credit to any of her customers. She would like to expand her business by accessing credit from a bank but does not know how to approach a bank.

Ms. Hasuna, 43, is a high school graduate. She has two children and started the business as a way to work from home. Initially she received stock and learned about the retail business from her older sister who owns a retail shop in a traditional market. Ms. Hasuna had a bad experience with electronic payments and then closed her account; she manages her business entirely in cash.

Type of business: Small Retailer
Annual Turnover: 324 million rp.
Years in Business: 8
No of Employees: 0
No of Suppliers: 10
Bank Account: No
Average purchase: IDR 200 tsd

"I had a bad experience paying with debit card once so now I will never use it again."

Inventory Management and Ordering Process: Ms. Suna has 10 suppliers. She records sales and stock movements daily in a book, but relies on the salesperson to recommend how much/what to order based on past records.

Payment Process: Ms. Suna pays suppliers in cash. After a bad experience using a debit card (she was charged twice), she refuses to use or offer electronic payments in her store.

Management Functions: Ms. Suna does not have a bank account. She manages all her business, including her savings, in cash. She does not offer credit to customers; she does not have a bank loan or use supplier credit. She wants to expand but does not want a loan.

Many retailers do not keep records, pay taxes, or know how to calculate profits.

Ms. Mulyono, 49, is a senior high school graduate who opened her shop two years ago. She was previously employed in a pawn shop.

Type of business:	Micro Retailer
Annual Turnover:	156 million rp.
Years in Business:	2
No of Employees:	0
No of Suppliers:	3
Bank Account:	No
Average purchase:	IDR 100-200 tsd

"If the stock is still there, and I still have money in my cash box that means I am making profit."

Inventory Management and Ordering Process: Ms. Mulo does not keep any records of her business; she buys stock from wholesalers. She mostly sells small sachets of products and cigarettes.

Payment Process: All her payments are made and received in cash.

Management Functions: Ms. Mulo understands the margin of her products but does not know how to calculate her profit. If she has money in her cash box at the end of the day she thinks that means she had made a profit. She does not keep any records.

Purchasing Operations

Table 3.1 summarizes contextual issues and concerns related to traditional retailers purchasing operations.

Table 3.1. Characteristics of traditional retailers' purchasing operations in Indonesia

Seller (Distributor)	Buyer (Traditional retailers)
Customer/Vendor set-up and management	
■ Distributors try to maintain customer records of their traditional retailers to track sales, issue invoices, manage orders and outstanding payments, and optimize logistics/delivery. ■ Many traditional retailers are not registered entities and do not have unique IDs; address details may be ambiguous. ■ Distributors keep a record of whether they need to issue a tax invoice. ■ Information about retailers is manually entered into systems by sales staff and prone to errors and duplicate entries. ■ Recently some banks and distributors in Indonesia have approached retailers to ask them to set up and store bank details with suppliers to support e-payments. ■ Some retailers and wholesalers are eligible for deferred payment terms.	■ Traditional retailers manage their suppliers informally. They rely on the distributors' schedule to visit their shop to take orders (usually weekly or biweekly) and are less likely to proactively plan orders ahead ■ If they run out of stock before the next visit, they may call or text the salesperson to order more stock or visit a nearby wholesaler to buy the necessary products.
Marketing and Sales	**Inventory Management and Purchasing**
■ Distributors sell their products to traditional retailers through sales staff who physically visit the shops on a pre-agreed schedule. Incentives (such as discounts, marketing brochures and deferred payment terms) are administered face-to-face by the sales staff. ■ The sales staff keep records of their retailer's historic purchase orders. They use these, together with any incentive programs, to track specific stock keeping units (SKUs), to take orders from traditional retailers. Some distributors may use a hand-held sales automation device, while others do this manually. Upon their return to the office, the sales staff will submit the orders for processing and delivery. ■ Some distributors also employ a canvassing sales model for very small purchase orders. Traditional retailers will simply point and choose which products they wish to buy on the spot.	■ Traditional retailers manually manage their inventory either by visually keeping track of quantities or through written records of daily sales and stock quantities. They use their experience to identify which products have a high demand and/or high margin. ■ The order process typically takes place face to face between the traditional retailer and their supplier's sales staff. Even if traditional retailers keep a record of their stock requirements, they rely on the sales staff to help them decide what to order based on historical purchase records. Once they have submitted their order to the sales person, the goods will generally be delivered the next day. ■ Alternatively, traditional retailers visit wholesalers to purchase new stock. ■ Discounts may influence the decisions of traditional retailers to buy products.

Note: ERP = enterprise resource planning; VAT = value added tax.

Delivery, Logistics, and Invoicing

- In the traditional retail sector in Indonesia, the delivery, logistics, invoice presentment and payment processes are usually executed by the same person at the same time, although some companies have separate staff for sales, delivery, and collections.

- Once the sales person has submitted the order, it is processed by the warehouse to load the delivery truck with the stock and by the invoicing team to issue the invoices. Distributors will rely on the data captured in their systems to issue the invoice and tax receipt (if the retailer is registered). Distributors will typically deliver orders the next day based on a geographical route.

- Order taking may be automated via a hand-held device and integrated to the distributor's inventory management system. If not, sales staff will not know whether the stock they have sold to traditional retailers is available in the warehouse until they return to the office and submit the order. Hence there can be differences between ordered stock and the delivery; distributors may propose to deliver alternate products.

- Delivery trucks are loaded with the stock and corresponding invoices. At each location, the delivery driver will deliver the goods and corresponding invoice to the retailer. If the delivery is small, the delivery driver may physically select the individual goods from the truck based on the invoice and carry orders to multiple retailers at one time.

- At the time of delivery, the traditional retailer will inspect the goods to ensure they match the invoice and amount. Any discrepancies such as incorrect stock or damaged goods that result in a difference between the invoice amount and payment amount will be physically marked on the invoice by the delivery driver.

- Payment is nearly always made in cash. Traditional retailers are expected to pay cash on delivery and delivery drivers will not release goods unless they receive cash payment from the retailer. Some distributors even offer a cash discount if retailers pay upfront.

- Distributors mostly manually reconcile cash payments against invoices. When they return to the office, the delivery drivers will hand over the cash to the collections and cashier team, which will reconcile and count the cash. The accounts receivables team will then close the outstanding invoice in their system. For most distributors in Indonesia, this entire process is done manually and results in the physical counting and transportation of cash multiple times.

- For larger distributors, some banks collect cash from their sub-distributor partners and credit such funds to their banks account. For others that collect cash themselves, such distributors undertake significant cash handling and safekeeping functions.

Credit Management

- Distributors offer some buyers, including some traditional retailers, interest-free credit or deferred payment terms. Distributors must manage credit limits in their systems. However, these credit limits are often informally managed between delivery drivers, branch managers, and retailers.

- Distributors employ collections staff whose sole job is to collect deferred payments.

- The cost of offering credit to their buyers affects distributor's working capital costs. Cash discounts may be offered to retailers that pay upfront/on delivery.

Financing

- Traditional retailers need to manage their cash flow in order to be able to buy stock.

- Some traditional retailers and wholesalers provide credit to their own customers.

- Many traditional retailers do not have access to the formal sector credit. If they do not have sufficient cash, they may buy less, holding less stock and operating on shorter replenishment cycles.

- Some traditional retailers have the ability to take a bank loan or accept deferred payment terms from their suppliers. To repay bank loans, traditional retailers visit the bank each month to reimburse the loan in cash. Others borrow from friends and family.

Management Functions

- Most distributors will have some technology to manage their business. They may range from sophisticated enterprise resource planning (ERP) and Treasury management systems to basic accounting and simple ERP programs.

- Distributors often have multiple banking relationships and accounts. Employees need to reconcile across banks and accounts to manage their accounts receivables.

- Distributors will pay value added tax on their purchases to the government. The management of this process can be quite onerous for distributors when invoice amounts change (due to returned goods/rejected items by retailers), which affects the amount of the value added tax (VAT).

- Formal business management functions such as accounting and tax management are simply not performed by most traditional retailers. Most traditional retailers do not keep track of their stock or their profits. If there is money left in the cash box at the end of the day, it signals a profit.

- Most traditional retailers are not registered business entities and do not pay tax. The impetus for a traditional retailer to register their business is to be able to receive a loan; this is a prerequisite for a bank.

- Most traditional retailers do not use a bank account for their business. They mix their personal and business finances. Generally, the only use for a bank account by traditional retailers is for savings, or a bank loan. Once the loan has been repaid, they often stop using the bank account.

4. B2B payments and supply chain integration

Business Operations and Requirements

Business payments are part of a larger end-to-end process involving multiple actors. When a company purchases supplies or inventory from another company, the payment is part of a broader set of integrated business tasks and operations (process steps). In an increasingly integrated and automated environment, payment processes and operations need to fit into this end-to-end process, which may encompass operations of the seller, the buyer itself, various banking and payment services providers, as well as third-party logistics. The purchase-to-pay process is also integrated within other company functions that have an impact upstream or downstream from the purchases (figure 4.1). Preceding a purchase, such functions include the set up and management of client and vendor data, sales planning, and inventory management. After a purchase, several other downstream functions are affected, notably finance and accounting.

Figure 4.1. Overview of macro-processes and actors in the purchase-to-pay process
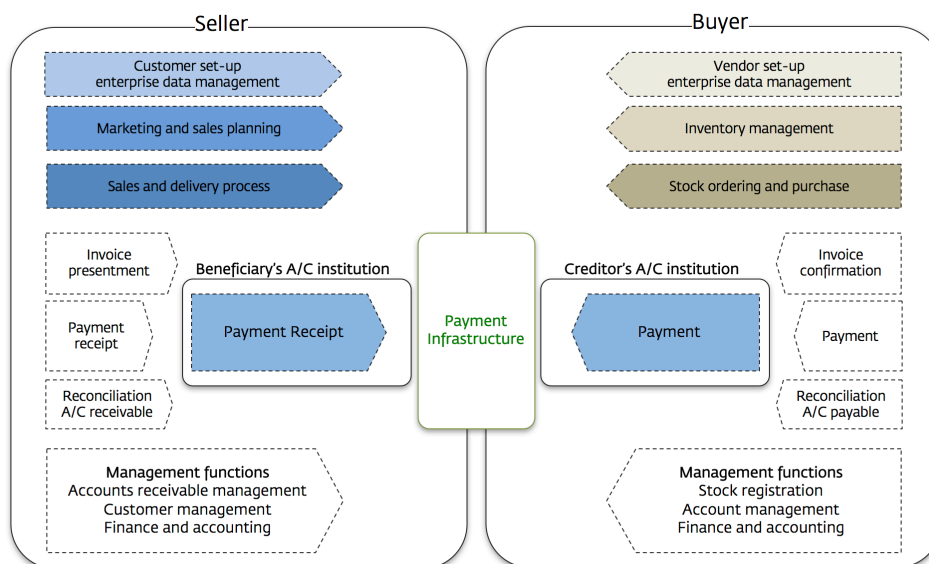
Note: A/C = account/client.

Process integration is important for larger firms and those making more extensive use of digital information technology. Companies organize the many different aspects of the purchase-to-pay process in subprocesses. At larger or more organized firms, several different people and departments generally manage these process steps. This applies to the purchasing firm as well as by multiple people at the selling firm. One reason for organizing the process with multiple sub-processes is the sheer volume of transactions, which cannot be handled by a single person. Another reason is that structured controls are much more important within the context of a company than for a private individual or the operations of a sole trader. Companies not only need to put in place such controls to manage risk of error and fraud but also to ensure compliance with rules and regulations.

Payments are just the culmination of this business transaction. As payments become supported by digital infrastructure and integrated within the broader operations, each step in the chain needs to be supported for overall business requirements to be met. The subprocesses and supporting functions and processes that may generate or affect requirements that payment services need to fulfill or accommodate are outlined in figure 4.2. This constitutes a framework for analysis of the specific requirements for B2B payments in the subsequent sections of this guidance note.

Business Process Steps

As firms and banks move toward greater integration and digitization of this end-to-end transaction, service requirements become more specific and interdependent. Hence it is important to understand at a more detailed level what subprocess and operations are required, how they may be met, and which interdependencies may need to be addressed by collaboration among actors, including payment providers. This section describes relevant features of the business subprocesses of seller and buyer, as outlined in figure 4.2.

Figure 4.2. Sub-processes and supporting functions for purchase-to-pay

Macro- and sub-processes in end-to-end payments

Seller	Buyer
Customer set-up processes — Customer set-up; Marketing and sales planning	**Vendor set-up processes** — Vendor set-up; Inventory management
Sales process steps — Sales proposals; Order processing; Order preparation; Delivery and logistics; Returns and amendments; Invoicing; Payment receipt; Reconciliation	**Purchase process steps** — Stock check; Order placement; Returns/discounts; Stock inspection; Invoice confirmation; Provisioning and credit; Payment; Stock registration
Management functions — Accounts receivable management; Manage credit and risk; Cash and liquidity management; Finance and accounting Tax reporting and claims	**Management functions** — Credit/payables management; Account management; Cash and liquidity Management; Finance and accounting Tax and VAT

Note: VAT = value added tax.

These processes are interlinked within each company and may be executed by multiple people with the support of one or more systems. The buyer who purchases from another company needs to interact with the various people and systems of the seller. This applies not just for the payment, but also for the steps that precede the payment and relate to the purchase. The buyer may obtain marketing information from the seller about the seller's company and its products. The buyer may be contacted by the seller to discuss his/her needs, what products he/she may buy, the price, and the other terms and conditions that apply to his/her purchase. In order to formalize the purchase for tax and legal purposes and for the purpose of having recourse to the seller of the goods to claim funds if the retailer does not pay, the purchaser registers himself with the seller and may formalize an agreement with the seller. When the product is out of stock or the buyer notices there is something wrong with it, he/she may be in contact with the seller about returning the product and a possible replacement. When the buyer pays, he/she may be in contact with the seller about when to pay, how to pay, how to inform the seller about the payment, and how to be informed about payments received by the seller.

Most process steps and related exchange of information can affect the payment process. This of course includes the amount that the seller charges the buyer for the purchased goods and the amount that the buyer believes he/she needs to pay for his/her purchases. But other less obvious information elements information can determine reliability, ease of use, and the extent to which processes can be automated or efficiently supported by information technology (table 4.1.).

Table 4.1. Transaction and supply chain process interdependencies between sellers and buyers

Seller	Buyer
Customer/Vendor set-up and management	
The type, size, and location of the buyer can affect calculations of sales tax, price discounts, and delivery charges. Inaccuracies and omissions in the registration of the buyer may then lead to incorrect calculation of prices and charges. Higher sales taxes may be levied on certain goods. Incorrect registration of list prices and sales tax will lead to errors in data that may be transferred to invoices and other documents used internally by the buyer or seller and potentially also to the tax authorities. **Important static data for business and payment operations may be recorded when setting up a customer or vendor file.** Information about bank accounts, preferred payment methods, and credit terms may be defined. Customer identification may also at this stage make use of a company register or tax ID or some other unique form of identification. But in traditional markets with low levels of automation, many of the inputs may be missing or incompatible with the requirements of banking systems and procedures.	

Seller	Buyer
Marketing and sales	**Inventory management and purchasing**
The seller may be able to influence what and how much the buyer purchases. Distributors' sales staff can have incentives to influence retailers' purchase of specific products or brands, or to test new products and combinations. Sales officers may use marketing campaigns and discounts to influence buyers' decisions and meet their own personal sales targets. If discounts are not administered correctly and marketing campaigns fail, retailers may not pay what the distributor expects. **Decisions may be based on historical payment data and purchase patterns.** Sellers may use this data to decide on whether to provide discounts, and how to manage requests for deferred payments or credit.	**Retailers need to prioritize what they stock and at what price.** Their success as a business depends on how well they identify a product's contribution to their profitability, what the best ways are to display these products, which products attract customers to the store, which products generate cash flow, when best to have these products available, and what is the best frequency to purchase these products and with what volumes. **Buyers may influence the price levels and will need to check that discounts and other terms are properly applied.** Retailers will try to influence delivery and terms and conditions of the sellers or take advantage of discounts and promotions offered by the seller.

Delivery and logistics	
Sellers and buyers may need to deal with partial delivery and/or multiple deliveries of a given product. A product may appear to be faulty before or after delivery and returned by the buyer to the seller. The buyer will only want to pay for what he/she has received. He may pay for the delivery but then request a discount for incorrect deliveries or returned products or incorrect charges and settle the discount in a subsequent invoice/payment.	

Invoicing	
Invoices formalize agreement on how much needs to be paid, for what, to whom, by whom, and when. Any document issued by the payee-company—such as contracts, orders, delivery notifications and even letters—could serve as formal trigger for payment. But in practice in formal markets, the invoice, which is the basis for fiscal registration of the sale and purchase, serves as the payment trigger for payment and is an important feature of the process for larger consumer goods and distribution companies. **The invoice is formal confirmation of request for funds to be transferred.** Together with credit notes—for both the payer (buyer) and the payee (seller)—an invoice is the formal basis for any funds transfers between them. To facilitate the actual payment, the invoice should not also include the requested total amount to be paid by the buyer but also the payment method acceptable for the seller, the agreed/required payment date, and the details the buyer needs from the seller to make the payment. **In countries where sales tax is levied, invoices are mandatory.** They provide documentation for the seller of his/her sales and for the buyer of purchases. The invoice is a formal document that states the value and documents relevant details related to the underlying transaction.[a] **Invoices may include a reference number to facilitate accounting and reconciliation.** Given that the invoice is a formal document for tax and accounting purposes and serves as the basis for payment by the buyer, it is also used as a key control instrument for both the corporate seller and buyer. To support the auditing processes of both firms, it needs to provide sufficient information for the identification of both the seller and the buyer, information about what has been purchased and by whom, references to relevant documents such as orders and contracts, and the payee's payment address. **Last-minute alterations often need to be made to invoices.** To minimize the risk of issuing invoices that will not be paid, they may need to be finalized and issued at the moment the product is delivered to and accepted by the retailer. Assuming that the retailer has been able to verify the quantity, quality, and price of the delivered goods at the time of delivery, there will be few reasons for the retailer to dispute the invoice. Discrepancies between invoice amounts and actual payment are more likely to arise if invoices that are issued earlier in the process.	

Table 4.1. Table 4.1. Transaction and supply chain process interdependencies between sellers and buyers (Continued)

Credit management	Cash and liquidity management
Some suppliers provide credit to retailers. This can be in simple form of deferred payments, even just a few days. Or it can be for longer periods. Credit needs to be accounted for in the invoice and payment amounts and reconciled with an outstanding balance that the retailer holds with its supplier.	**Buyers review their funding and ensure they have enough to pay for new stock.** The buyer may decide to pay partially or delay payment when he/she does not have enough cash available at the moment the payment is due. He may take advantage of short-term credit or deferred payment terms offered by the supplier. In many markets, distributors may informally allow a retailer a grace period, agreeing to collect payment at the next delivery or even just later in the day.
Suppliers may make discounts and bonuses conditional on the payment behaviour of the retailer. This could be done based on metrics such as whether the buyer pays electronically at the right time to the right payment address, whether the buyer uses the payment method of choice of the seller, and whether the buyer informs the seller or distributor of the correct payment reference when making the payment.	**Retailers need facilities and time to deposit cash earning to their bank.** Most earnings of small retailers are in cash. Funding electronic payment accounts requires an extra step in the process to ensure that funds are available. Retailers need to be able to verify quickly and easily how much they have available.

Finance and accounting
Financial reporting or taxes can affect the payment and in particular its timing. Budgets, financial targets and the calculation of income tax and sales tax are defined for a given period. The desire to stay within budgets, to meet certain targets, and the postponement of paying taxes can result in delayed sending and acceptance of invoices but also in delayed payments.

Note:

a. These invoices are generally created by the seller and then sent to the buyer after the sale and before or after the payment. In some tax jurisdictions such as the United Kingdom, the Netherlands, and New Zealand, invoices can also be generated by the buyer and sent to the seller. These are then called "self-billed invoices."

Payment Process Steps

Payments involve a number of distinct steps (figure 4.3). Actual payment processes and operations depend on the infrastructure and services available in a given market. Several steps and their sequencing also depend on whether the payment is initiated by the seller (a pull payment) or by the buyer (a push payment). But there are general business-level requirements that set the framework for identifying gaps and recommendations for the development of a national payment system. The following section provides an overview of the main process steps.

The buyer can verify the invoice and make the payment instruction the payment solely based on the data provided with the invoice and the eventual complementary invoice and credit note. From a controls point of view, the payment address or bank account to be credited should always be provided by the payee and not altered by anyone in the organization of the payer (buyer).

The retailer may want to make partial payment. If the buyer does not agree with the requested payment amount stated in the invoice and there are no matching credit notes received from the seller (the distributor or wholesaler), then the buyer may want to pay in part and make a note of this in his/her own accounts. In view of cash flow considerations and possibly contractual considerations, the buyer may want to pay one part of the invoice at a certain data and another part at a future date.

The buyer has the option to notify the seller of the payment and inform the seller about how much is being paid, with what value date, and which invoice(s) and possibly to which credit notes the payment relates.

Figure 4.3. Payment process steps
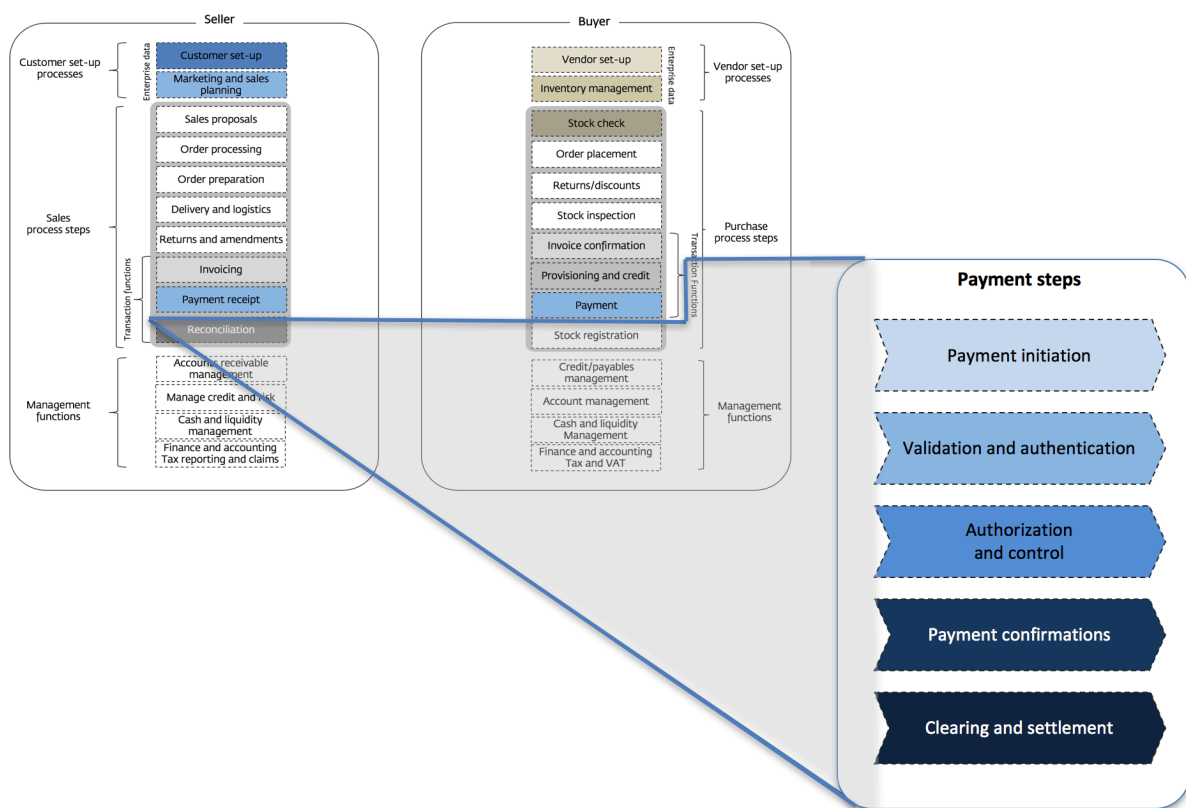
If the payment is initiated by buyer, the payment service provider will inform the buyer of the status of the payment: Has it been accepted for processing, refused, or upheld? After the payment has been accepted for processing and the account is debited, the buyer (payer) is informed of the debit in his/her "account statement." These statements can be provided in real time or, as often is the case, electronically in a batch after the clearing and settlement cycle for the relevant payments infrastructure has been completed. This often occurs the next day (on a T+1 basis), but in many countries is moving to multiple cycles within the day and even near real time[10].

Alternatively, for a payment initiated by the seller (the distributor or wholesaler), an important step will be for the payment service provider to confirm to the seller that payment is valid and that they can under their contractual terms now expect to receive the funds due.

■ **Payment initiation**

Payment can be initiated by the buyer, the seller, or a third-party agent that facilitates the billing operations. Initiation involves setting up and filling in key elements of an instruction that will be executed by a bank or payment service provider. In the context of electronic payments, this will at least need to include identifying:

- The buyer or payer
- The payer's account and the institution/account holder
- The currency, amount, and value date of the transaction
- The seller (also known as the payee or beneficiary)
- The account and institution at which the funds should be credited to the seller
- A reference number that can be used to facilitate reconciliation.

10 Many countries/economic zones, including Australia, India, Malaysia, Singapore, the United Kingdom, and the European Union, have or are planning to introduce more frequent and near-real-time clearing and settlement cycles for credit transfers. In some countries, such functionality also exists based on card payments infrastructure. Where this type of infrastructure exists, it can be well adapted to the needs of B2B payments discussed in this guidance note.

The challenge for B2B payments for serving traditional retailers (and other users in general) is that this information must be able to be entered into a payment instruction quickly, reliably, and easily by either the supplier's delivery agent or the retailer himself or herself. A cash transaction can be conducted very quickly without needing to formalize and enter all of the above details into a device[11].

Most successful payment solutions enable some or all of the above data to be entered automatically, drawing on preregistered information and digitized formats such as bar or QR codes (matrix barcodes). Time and manual errors are minimized. The seller and buyer then only need to check information manually.

■ Validation and authentication

The information entered (manually or otherwise) needs to be confirmed as accurate and correct and the transaction need to be authenticated by the buyer/payer.

The **validation** of completeness and accuracy of the information in a payment instruction is critical is the overall service is to be reliable and support the kind of automation that sector development requires. There are several checks that may be needed[12]. For example:

- Is the account number valid? Does it conform with the number of digits and structure of the institution?
- Is the code or identifier for the bank or payment institution valid?
- Does the account number exist with the identified bank? Does it belong to the named account owner?

Even a small error in a number or formatting may result in the payment being rejected or to require manual intervention, undermining efforts to automate and streamline the overall payment and business process.

Many checks or validations can be automated. Banks and payment processors put in place rules to help ensure that data entered into a payment instruction will conform to the format, length, or type of information required. In some systems, the identifier or a bank or the owner of a bank account number can be checked online with a central register or institution as part of the payment validation process. But in manual environments, with offline or cumbersome technology processes, many of these automated checks cannot be performed, with subsequent impact on the risk of errors and the time and effort required by the users.

A payment instruction also needs to be authenticated. This means that checks need to be made to ensure that the person or representative a company that is instructing the payment is indeed authorized to do so. This may just be taken on trust, for instance if someone writes a cheque. But it may also be addressed by requiring the payer to have pass some level of security such as use of an account number and personal identification number (PIN) before being able to enter and confirm payment details.

■ Authorization and control

Once the payer confirms the instruction, the bank or processing institution must control and authorize the actual transfer of funds. Banks (and other payment service providers) are trusted by their clients to execute only those payment instructions that they have authorized. So a first step is to control instructions to ensure that they are legitimate and accurate.

Additional controls may need to be made. This may include procedures to ensure that the client has sufficient funds available for the payment and to check that the payment does not contravene embargo, exceed legal limits such as those imposed under e-money regulations or currency

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11 Cash payments, however, do not enable retailers to use deferred payment or credit terms. Combining credit facilities with electronic payments can make the overall transition from cash to electronic payments more attractive for retailers.
12 A more extensive list of checks and validation is discussed in Chapter 5.

restrictions, and to comply with anti-money laundering (AML) requirements. Only then can the payment instruction be authorized also by the account holding/deposit institution.

■ Payment confirmation

It is important for seller and buyer to obtain timely and reliable confirmation of payment (figure 4.4). This can be confirmation that payment has been made, that funds have been received by the seller's institution, or simply that the seller can be sure of "good funds." Although many larger companies may be able to pay in arrears on credit, small retailers are often required to pay on delivery before the supplier leaves goods with them. Even if credit is provided to or used by the retailer to fulfill the transaction, sellers are likely to want to receive confirmation in some form in order to conclude the overall business transaction.

■ Clearing and settlement

Funds ultimately need to be settled between the institutions at which the seller and the buyer hold accounts. How this is achieved depends on their respective payment services providers' arrangements with other market players and infrastructure to enact clearing and settlement.

Moreover, final receipt of funds by the seller does not occur until the institution at which he/she holds the transaction account has credited his/her account. In a very simple scenario, the seller and the buyer may hold accounts with the same institution. In this case, clearing and settlement are simple operations within a single payment service provider. Most often though, in markets like Indonesia, there are many different banks and payment providers and small retailers are unlikely to voluntarily hold bank or transaction accounts with the same institution that their suppliers use. It is also unlikely that all suppliers use the same payment service providers.

Figure 4.4. Payment service models
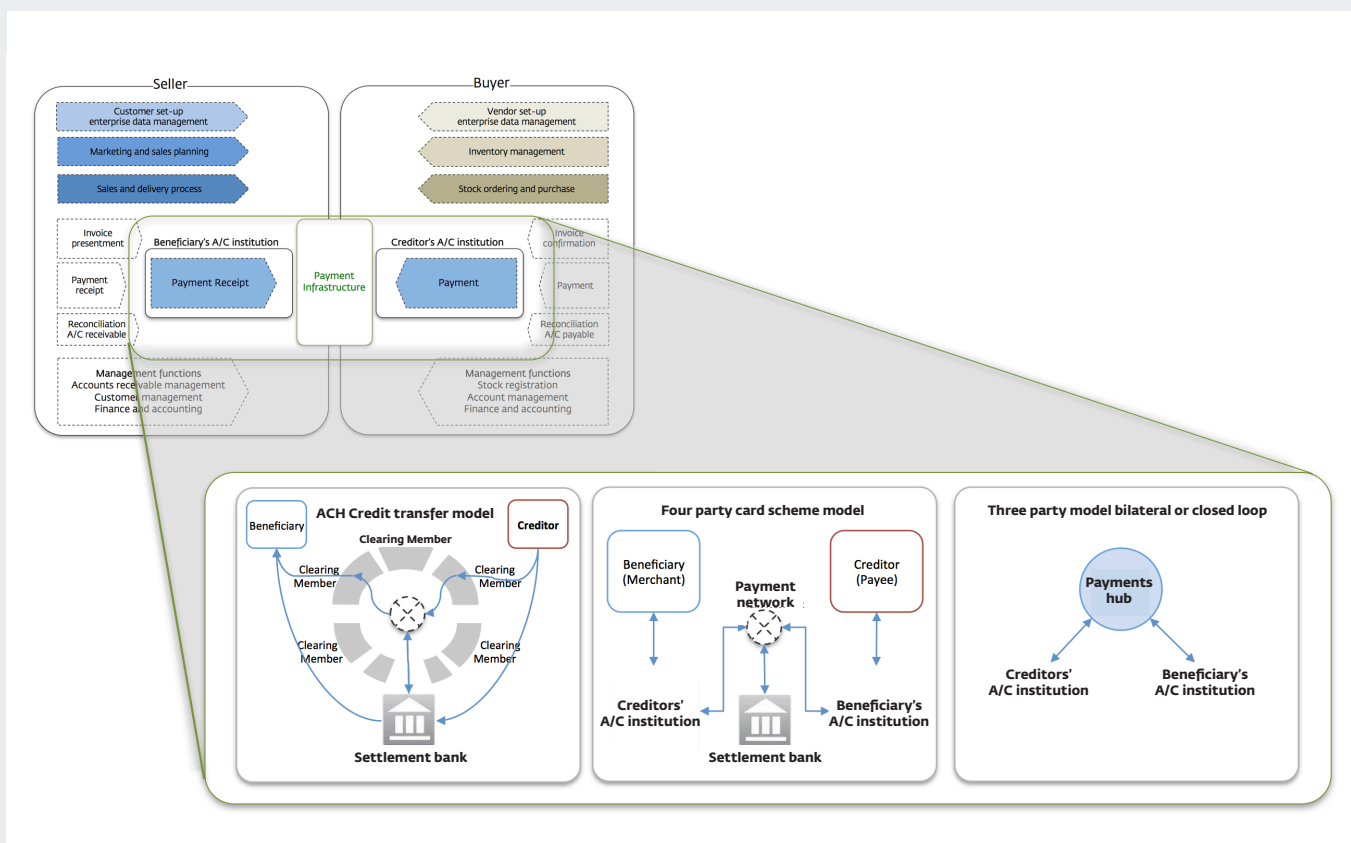
Note: ACH = automated clearing house.

The arrangements for clearing and settlement influence how payment is finalized as well as how other parts of the process are fulfilled. The payment infrastructure used may determine, for instance, how payment can be initiated and confirmed and if (or how) payment references are captured and transmitted to facilitate reconciliation (figure 4.5).

Figure 4.5. Differences in payment steps per stylized payment service models

Payment Steps	Inter-bank credit transfers	Four party	Three party bilateral or closed loop
Payment initiation	Credit transfers can be initiated by the payer; direct debit instructions can be initiated by the payee; bank provides interface	Payment usually initiated by the payee by entering payment details into a point of sale device or similar application, e.g. on a smartphone	Proprietary service provider sets process and means to initiate transactions
Validation and authentication	Participants may have access to central database of valid bank identifiers and account numbers to verify details of the beneficiary; security set by participant	Process and standards set by the network/scheme operator; all identifier codes such as card number validation checked through scheme; on-line validation supported	Set by the payment provider as bespoke process; all members IDs and accounts are pre-registered
Authorization and control	Bank participant manages authorization and any credit controls before authorizing the payment instruction	Controlled by scheme and issuers; business rules set by/for the payment scheme; requires on-line connection and settlement risk guarantee	Process and controls set by the payment service provider
Payment confirmations	Usually sent immediately to the payer; confirmation to the payee from their bank may come later; new "instant payment platforms" enabling real-time confirmation to payee	Confirmation provided to payee and the payer immediately at point of sale; can be supported by additional services to merchants or transaction notifications to card holders	Payee and payer are linked directly to the same payment processor; this facilitates immediate confirmations
Clearing and settlement	Via a centralized system run or sponsored by the central bank; timing/cycles moving from batch to near real time for retail	Net settlement positions calculated by scheme and settled through a common designated institution; crediting of beneficiary/payee depends on account institution	Handled by the sponsoring or controlling payment service provider; limitation is that all account providers to distributors and retailers must be members

The way in which B2B retailer payment requirements can be supported in Indonesia will depend on the infrastructure options available. There are many variations and combinations of the above models in practice.

Post payment processes and functions

An overview of payment processes and functions, with a focus on post payment and account management, is presented in figure 4.6.
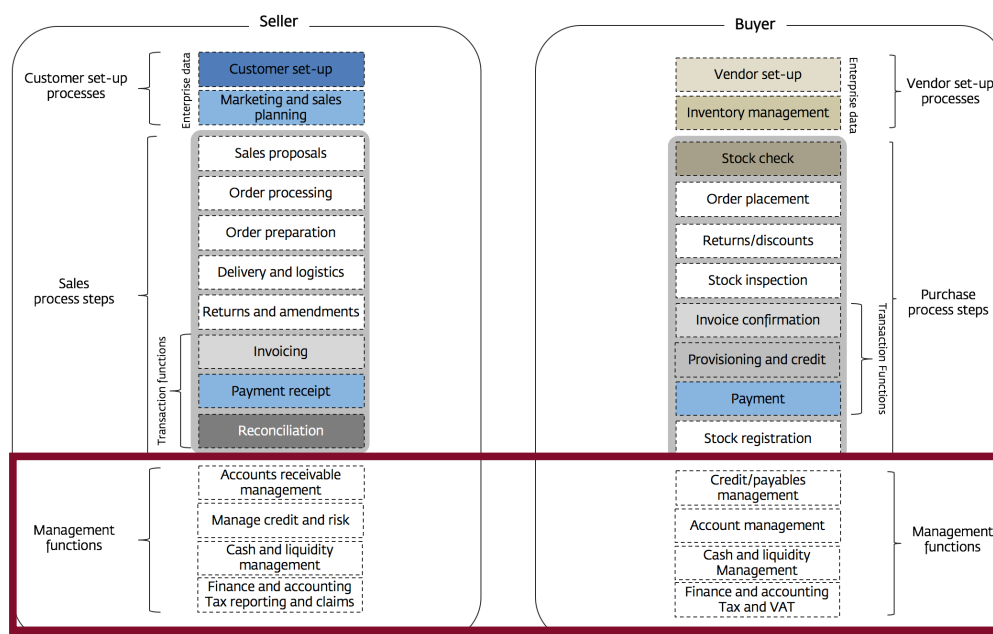
Figure 4.6. Overview of payment processes and functions

Key post payment management functions are summarized in table 4.2.

Seller	Buyer
Reconciliation of receivables	**Registration of payments**
Sellers need to verify their accounts and match receipts with expected payments. In an online procure-to-pay process, the seller collects the relevant data and presents sales orders, delivery notifications, and invoices electronically and defines the amount to be paid. This means that the seller can fully reconcile all incoming payments (triggered by the seller himself or herself) with the invoices, complementary invoices, and credit notes issued by the seller.	**Retailers may register and track stock, purchase prices, and margins.** Whether manually or using semi-automated processes, they may need to match records in an inventory system with payments made to suppliers, track overall spending and monitor profitability of items. Invoices may be used to support this stock registration and reconciliation process.
Large B2B sellers such as Fast Moving Consumer Goods Companies and distributors process millions of incoming payments per year. When they are not in control of the details of the payment instruction by the buyer (when purchases and payments are not made via the seller's website), their degree of reconciliation of incoming payments with their receivables depends on the structuring of these payments by buyers and the payment infrastructure.	**Internal control and tax requirements may increase the importance of keeping electronic records.** For instance, the absence of credit notes would expose the buyer to the risk of inadvertently overstating the tax declaration of purchases and hence overstating the value added tax (VAT) credit claimed with tax authorities.

Automation between buyer and seller

Payment services are being pressed to adapt to the increasingly integrated and online manner in which business operate. Most large companies now run "Enterprise Resource Planning Systems" (ERPs) to support their sub-processes for selling and buying. Spurred by the rapid rise of information technology services, smaller companies and even sole traders are now conducting some or all of their business with help of technology. This provides opportunities for smaller firms to benefit from broader supply chain automation. But it expands the set of requirements that must be met by payment service providers and infrastructure.

Large companies led the introduction of ERP systems and their gradual standardization. In the 1980s, the availability of processing power and electronic communication links made large-scale, internal structuring and automation viable for larger organizations. They initiated the development of ERP solutions by third-party vendors. These vendors then began to deploy their solutions with other organizations. Many corporates and banks began through this organic process to adopt structures and to automate processes in a relatively consistent manner. This made the establishment of electronic links viable between companies, between banks, and between companies and banks for the exchange of data on the processing of orders, invoices, and payments.

Scale is important to reap the benefits from digital integration and automation. Companies have a commercial interest in reaching as many suppliers and buyers as they can for the exchange of orders and invoices. Doing so with standardized file exchanges between the ERP systems of these firms is attractive. In some countries, the harmonization of and adoption of electronic invoices has been accelerated by a need to comply with new tax or reporting requirements. In the European Union (EU), tax authorities promulgated EU-wide legislation in the 1990s, which stipulated that data elements were to be included in invoices and how invoices could be exchanged electronically. The invoice embedded data about the products and services ordered and delivered, which helped further in the structuring of the exchange of order information between companies. The result was a set of comprehensive standards for the electronic data interchange (EDI) between companies for orders and invoices.

Until recently, the costs of EDI have been a barrier to adoption by smaller companies. The cost of integration between companies via EDI has been high (approximately $ 50,000 per connection). EDI interfaces were limited to high-volume connections between a limited numbers of companies. Smaller companies were given access to the systems of larger companies via dedicated terminals.

But automation is now reaching smaller companies at lower cost. The evolution of the Internet and mobile plus the improvements in open standards for connecting diverse systems has enabled companies in recent years to reach any other companies electronically at low cost. This has resulted in the last decade in an increase in electronic communication between buyers and sellers with the internet as the primary communication channel. Although B2C (business-to-consumer) e-commerce receives a lot of attention, the volume of B2B transactions in the broader economy is larger than the B2C e-commerce sector. According to research conducted by the U.S.-based International Data Corporation (IDC), it is estimated that global B2B e-commerce, especially among wholesalers and distributors, amounted to $12.4 trillion at the end of 2012. This compares with an estimated value of $1.2 trillion of global business-to-consumer (B2C) transactions at the end of 2012, or about 10percent of total B2B transactions.

Open standards and technology allow smaller companies to break out of trading silos.
E-commerce via webshops and mobile applications is currently often a one-sided automation for the seller, with manual data exchange by the buyer with the seller, who may automate the processes at his/her end (the buyer visits the website of the seller and enters details about himself/herself and his/her purchase requests, often without the option to upload or download any data). Buyers are then forced to operate in "trading silos" dictated by their sellers with only accidental synergies for the buyers. This is very similar to the creation of such "trading silos" by large buyers when they impose their automation on smaller suppliers, giving them access to websites or portals to submit their invoices online.

Figure 4.7 depicts the integration of data and information flow along the purchase-to-pay process. Box 4.1 discusses some initiatives in the evolution of automation in the payments industry.

Figure 4.7. Data flow and integration along the purchase-to-pay process
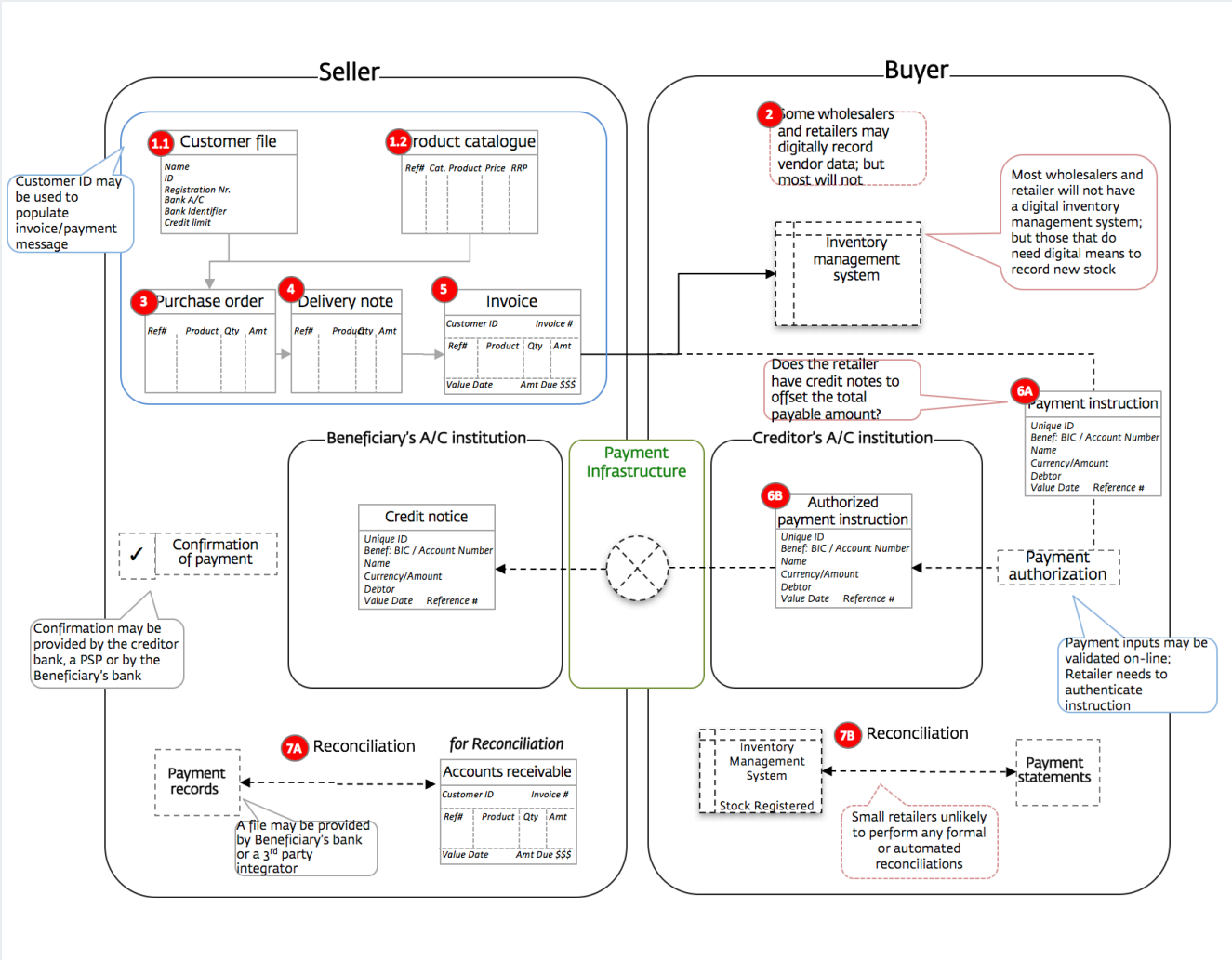
Box 4.1. Selective initiatives in the evolution of automation in the payments industry

In the same period when large companies and tax authorities triggered the establishment of electronic data interchange (EDI) message standards and built many bilateral interfaces between companies for the electronic exchange of orders and invoices, banks worked on their own structuring and automation of the inter-bank payment processes.

To provide an alternative for the exchange of faxes and telexes for instructing payments, 239 banks established an interbank EDI network in 1973 with its own message standards, called SWIFT. This was set up as a closed network among banks because these banks had an interest in automation and standardization among themselves, but not in standardization of their data exchange with bank clients—because this could simplify the migration of clients between banks and could result in payments rapidly becoming a commoditized business.

The banks did, however, develop dedicated interfaces between themselves and their larger clients. These interfaces enable sellers to receive data about incoming payments (in electronic bank statements) directly in their payment systems, which they can reconcile with invoices and credit notes. These same interfaces enable buyers to send payment instructions to the bank electronically that are generated in the same systems that register the incoming invoices to be paid and the related credit notes.

In some countries, companies came together to develop and implement open solutions that can be used to instruct payments to multiple banks and receive bank statements from multiple banks via one single interface design or possibly via one single interface. An example is the collaboration of German corporates in development of the Banking Communication Standard (BCS/FTAM).

In 1995 it became compulsory for all German banks to comply with this standard, which thus established itself as the German industry standard for corporate customer payment transactions. This means that for many years, German corporate clients have benefited from flexibility in their choice of a financial institution — a situation largely unknown in many markets. The standard's user neutrality regarding business transactions, data formats, and system-to-system communication protocol ensured that specialized solutions were developed (such as Multicash) as gateways for corporates to exchange payment transaction data files with multiple banks in Germany through one single interface.

Other examples are the efforts around 2000 of RosettaNet to establish one standard between information and communication technology (ICT) companies and their banks for the structuring of remittance information and the efforts of TWIST to create the first version of ISO 20022 XML standards for payments, billing of bank services, and the opening and maintenance of bank accounts.

When the European Commission created the PEPPOL network, payments were explicitly left out of the system. Financial industry stakeholders explained that the standards applied by corporates would not be applicable for bank services. Instead the European banks offered to deliver electronic payment services based on International Organization for Standardization (ISO) standards. These standards would structure data sent and received between banks and their customers but would not structure system-to-system.

The PEPPOL standards are themselves an evolution of the EDIFACT standards, just like the ISO 20022 XML standards are an evolution of the EDI payments standards that were originally developed by SWIFT.

Public procurement authorities throughout the EU began in 2016 to implement the PEPPOL standards, setting staged deadlines for suppliers to be compliant within the next one to two years. The United Kingdom has become one of the most advanced implementers of the PEPPOL framework. The UK government recognizes the value of these standards in improving procurement controls and processing efficiencies, as demanded to manage costs in the public health care sector.

In the meantime, corporates at the national level have become active in some EU countries in negotiating with their banks to use bank-independent solutions and open standards complementary to ISO 20022. One such initiative is in the Netherlands, where large billers, including the tax authorities (together representing 60 percent of the payment volume in the Netherlands) are supporting solutions that are not owned or developed by banks for direct debit eMandate management.[a] They have specified code lists for direct debit returns that enable automated handling of these returned direct debits.

a. Electronic mandates (E-Mandates) are electronic versions of payment mandates or standing instructions that support direct debit functionality.
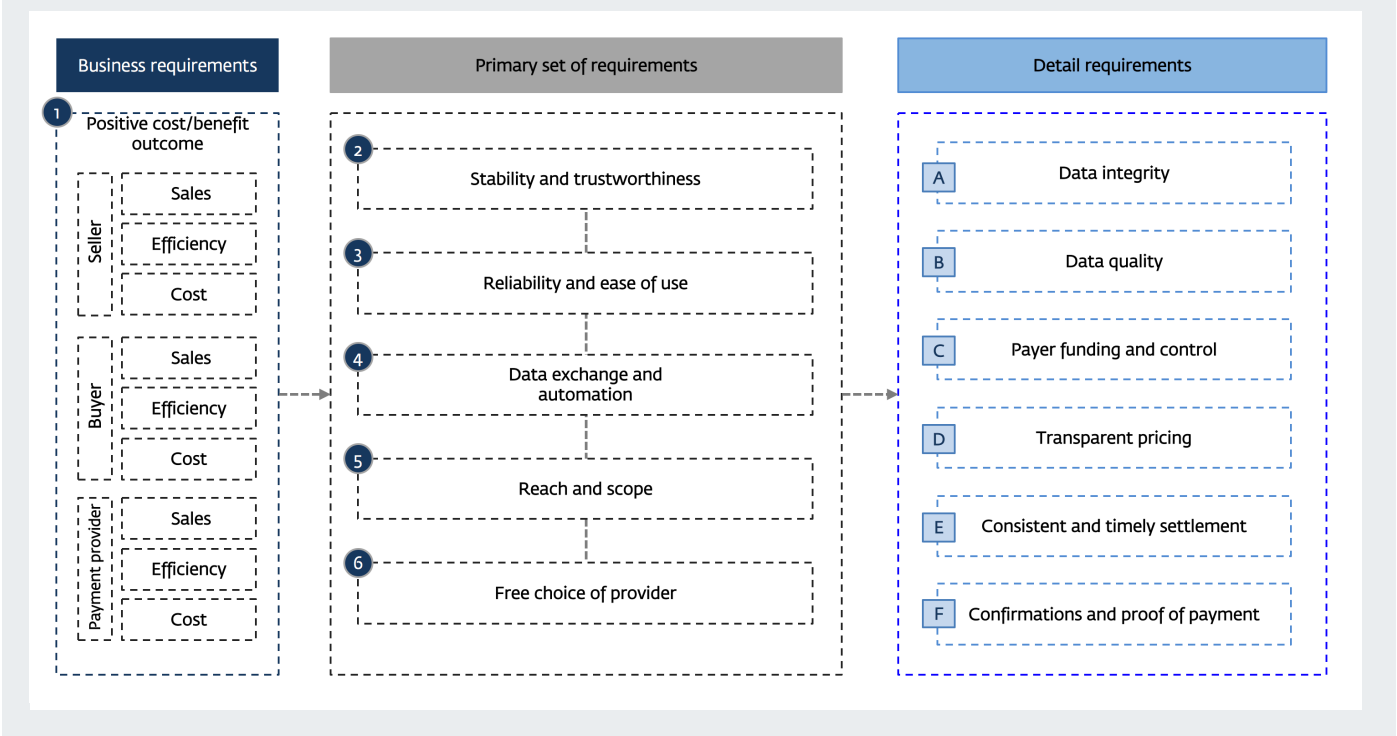
5. Payment Service Requirements

This chapter describes the high-level and detailed requirements for expanding the use of electronic payments for B2B transactions. These requirements are determined in part by the general business and operational requirements described in the previous chapter. But many choices about infrastructure, standards, and solutions are also dependent on context. Solving for some problems may impose indirect requirements on other parts of the process. Meeting the needs or demands of actors in one part of the process may constrain or impose choices in other areas. For each requirement, key concerns by the seller and buyer are stated in boxes in Italics.

Business Requirements

Please use the overview of business and operational requirements depicted in figure 5.1 below as reference for this chapter.

Figure 5.1. Overview of business and operational requirements

1 Postive cost/benefit outcome

Seller	Buyer
"Can I electronically support customer set-up, sales, and delivery, payment collection, and multiple management functions so that the sale of my products is profitable?"	*"Can I electronically support vendor set-up, stock ordering and purchase, payments, and multiple management functions so that I can run my business much better?"*

"Can I use electronic payments and technical solutions to fully replace cash payments and manual activities?"

Electronic payments must compete with the main incumbent: cash. Overall solutions need to generate enough benefits for users to switch, and to hold them there in the long term. Benefits can include enhancement to sales of distributors or retailers, or even banks and payment providers. Important benefits also come in the form of firm- and sector-level efficiency gains from automation and supply chain integration.

Payment solutions need to adjust to the extent to which underlying business processes and operations of suppliers and retailers are digitized. Electronic payments and supply chain bring the greatest efficiency gains when they fit well with automated, effective, time saving, and low-cost processes between sellers and buyers. The more these parties have already adopted automated or semiautomated processes, the more likely this will accelerate the adoption of electronic payments.

Payment services need be designed in a manner that supports the aims of sales and commercial development. Payment services may not need to fulfill other business processes like promotions, credit, or sales analytics. But where process automation and data collection steps are needed, they should support these aims in order to enhance incentives to adopt and use formal sector electronic payment services.

Efficiency comes from linking activities in the chain and achieving scope. Island- or silo-based payments solutions will undermine or negate the potential gains in efficiency or control that automation and digital business processes otherwise support. The applicability of electronic payments as an integral part of the buyer's and seller's business further depends on the combination of payment services, system applications, and other third-party services.

Adoption will be influenced by the marginal cost and ease of implementing solutions that stretch beyond just payments. Retailers and distributors' decision to implement electronic purchasing, management, and payments will depend on many aspects such as their functionality, ease of use, ease of implementation, trustworthiness, accessibility, and obviously price. Multiple service providers need to be in the market and multiple solutions need to be made available that are interconnected with "plug-and-play" interfaces, based on comprehensive data standards plus mature and secure electronic communication protocols.

Primary Requirements

2 **Stability and trustworthiness**

Seller	Buyer
"Am I informed by my bank that instructed the payment? Can I trust that the payments I receive are instructed by the specific buyer indicated in the payment?"	*"Can I trust that the payments I instruct will be received by the specific seller I listed in my payment instruction and that the seller is informed that the payment comes from me?"*

"Can I trust that all data included in the payment instruction by the payer are unaltered when processed by the banks and delivered to the payee?"

Payments services must inspire a high degree of trust in users. Payments are ultimately about the transfer of value from one individual to another individual or – in the case of B2B payments—one company to another company. Banks and their regulators have incentives to ensure the integrity and reliability of the payments system. The payment infrastructure needs to be robust from end-to-end for transactions on a day-to-day basis and increasingly on a 24-hour basis. Payments systems also need to protect against fraud or misuse—both internal and external—to ensure that everyone has confidence in the payment systems to do what it is expected to do.

Measures need to be taken to ensure the integrity and mutual coherence of data. Payment data are entered by users and used by the banks and other payments providers. Some data are contained in the payment instruction to be delivered to banks by the payers. Even in markets with mature payment infrastructures, consumers, businesses, and other organizations may not always be confident that electronic payments are made to the correct payee. Data format, syntax, and reference standardization are key means adopted by banks to ensure that the quality and consistency of instructions can support automated payment processing.

Other measures to ensure the integrity of data relate to the governance of payment systems. Access to the system needs to be controlled and member roles, obligations, and capacities need to be carefully defined. Participation in a payment system or scheme generally requires fulfillment of proportionate obligation in terms of training, security, and skills, as well as financial capacity. Data sources for systemic information such as a bank code, a client identifier or authorizations must be appropriate and secure. Although users themselves can sometimes help monitor and control information, the overall integrity of data that runs payment systems must be strong for it to provide a stable infrastructure that users can trust.

Many countries have undertaken steps to enable participants to confirm that a bank account and holder exist before making a payment. For example, in the United Kingdom, banks created a "central billers database" that is used to advise payers—before the bank of the payer accepts the payment instruction—if they have incorrectly formatted references. UK banks also collaborate with the UK government in assuring the identities of individuals and businesses and in providing highly secure authentication systems that make sure that users of payment services (both the payer and the payee) are who they say they are and are entitled to participate in and transmit payment on behalf of customers and account holders.

3 **Reliability and ease of use**

Seller	Buyer
"Can I account for incoming payments electronically without the need to take additional steps such as calling my bank or the buyer?"	*"Can I instruct payments electronically in a few steps that I can remember and that I can do quickly?"*

"Does the bank allow me to use the in-house system, online tool, or mobile solution that I find very easy to operate without any need to use bank systems as well? Or, if I do not need any system of my own, is the bank system, online tool, or mobile solution of the bank easy to operate?"

Convenience of cash versus electronic payments for companies. When companies make electronic payments, the reliability and ease of use depends on the systems those companies have put in place to support the payment process and whether these systems can be connected directly with the systems of the bank or payment service provider. For instance, if the bank requires payments to be authorized only in the bank system, companies may need senior officers to authorize in both their own systems and in the bank system. This may be impractical and cause senior officers to use cash instead.

Handling of cash can be cumbersome for businesses, particularly when these businesses involve more than one person in the payment process. When the owner of a business makes the payments himself/herself, cash can be convenient because he/she can easily control what is paid to whom. When cash payments are delegated to another employee, however, he/she needs not only to secure the cash but also prove that he/ she is handling the cash correctly. In this situation, electronic payments might be simpler to handle and pose less of a personal risk than the handling of cash payments.

Cash and checks will have to be accounted for. Electronic payments can be accounted for automatically. Cash and checks must be manually counted at least on a daily basis and any outgoing or incoming cash recorded, which also is a manual process. When cash is not accounted for, handling cash can be convenient. But as soon as payments and collections must be recorded and are recorded in systems, electronic payments surrounded by automated controls can be more convenient.

The process for the retailer needs to be completed in no more than three steps. Making electronic payments should be as intuitive and consume as little time as paying by cash or writing a cheque. This not only avoids errors but also makes electronic payments as convenient as paying by cash or cheque. Ideally, the relevant details of the payment are already filled in for the payer, for instance by presenting an invoice, so that the payer only needs to verify and either authorize or reject the payment. The authorization or rejection should also be intuitive and not time-consuming. For the authentication of the authorizer, one extra step might be needed, such as the verification of a code or the typing in of a passphrase. The result would be that payments could be verified, authorized and authenticated in no more than three steps.

Data entry and validation needs to facilitate use and reliability. Payment errors can be costly but also inconvenient to handle. Some data such as the payment amount can be reviewed or defined easily by the user of an electronic payment mechanism. But other data, such as the account details of the creditor or even of the debtor, can be hard to obtain, are often not intuitive, and can easily be typed in erroneously. The creditor generates most data in the payment instruction. An invoice, for instance, contains all the data elements of a payment instruction, apart from the bank account details of the debtor. Therefore, the best way to facilitate data entry and validation of payments is by electronically presenting the invoice to the payer for payment. This would also enable payment reference data to be correctly and accurately recorded with the payment data, so that the creditor could reconcile them automatically with original invoices. If an invoice or bill is not presented, providing the account details and identification of the creditor to the payer at the moment of payment will help reduce the time spent with data entry and minimize errors in the payment instruction.

Technical issues such as network stability must not undermine user experience. The end-to-end technical infrastructure used to transmit and process payments must be reliable and robust. Systems must be able to operate on a regular basis without errors or inaccessibility. The devices and networks that users, banks, payment providers, or end customer used to access, transmit, and receive payment information are quick, stable, and reliable. Appropriate telecommunications infrastructure must also therefore be considered a requirement for fulfilling the payment needs of this segment of the economy.

④ Data exchange and automation

Seller	Buyer
"Will I receive the information the payer included in his/her payment instruction about invoice reference(s), credit note(s), other payment triggers, or possibly information about partial payments?"	*"Along with the payment, can I deliver the payee information about invoice reference(s), credit note(s), references to other payment triggers, or references to payment notification(s) and possibly information about partial payments?"*

"Can I trust that all data that are included in the payment instruction by the payer are unaltered when processed by the banks and delivered to the payee?"

Payment services need to support data exchange and automation of related business processes. Very detailed descriptions of data, how they are to be generated, and how they are to be processed or used in other business operations are essential for ensuring that each system in the payment chain understands exactly what it receives from the system that feeds it and what it must do to deliver data to the next system in the chain.

Payment services should also enable the payee to automatically match or reconcile incoming payments and credit notes to receivables. When paying invoices (possibly complemented by credit notes), it is important that the payer can inform the payee what he/she is paying. This enables the seller to link the incoming payment from specific buyers to the outstanding invoices and credit notes for that buyer or to any other payment trigger provided by the seller to the buyer. Ideally this should be done in a manner that enables reconciliation to be performed in an automated fashion with little intervention or error handling required. Companies generally process large volumes of payment instructions and reconciliations in daily routines. This means that in practice most companies will combine any outstanding invoices and credit notes of a seller in one single payment that day to the seller. It will then be important for the seller to receive information about the multiple invoices and credit notes—or the part thereof—the buyer has paid with the single payment.

Even when specific data fields are dealt with slightly differently by systems, the integration between them can become complicated. As an example, when sending payment instructions through the real-time gross settlement (RTGS) payment infrastructure in Indonesia, a data field needs to be filled that has been given the number 50 and is called "Ordering Customer." This field has a maximum of 140 characters that are to be grouped in four "lines." RTGS recommends that this field is filled with "Account plus Name & Address of Customer," which means the bank customer that instructs the payment, not the customer of the payer. Indonesia's other payment infrastructure, SKN, currently supports the field "Nama Pengirim" ("Sender Name"), which is 40 characters. It is not very clear whether the "Account" and "Address" of the sender are also important and what to do if the account and address of the payer are known by the system that is linked to SKN. The result is that for payments processed by SKN, the payee can only know the name of the payer and can probably not do much in case the payment is made inadvertently, whereas for payments processed by RTGS, the payee also knows the payer's account number and address and can contact him/her when necessary.

It is important to provide for structured exchange of data about the payment, such as in the form of an invoice reference or credit notes. Structuring the data of what exactly is paid for in a payment instruction is useful for both buyer and seller. Banks and payment service providers can help validate the data input by the buyer, for instance by creating a data field for invoice reference(s) and credit note(s), a data field for references of other payment triggers, and a data field for the reference of the payment notification of the buyer to the seller. Technically these do not need to be separate fields as long as the payer can inform with the payment which "field option" he/she is using and that this choice is delivered together with the content (such as the invoice reference) to the seller. For example, in Scandinavia, banks have introduced the option for the data input of invoice references to be validated with a check-digit. As long as this functionality is made optional, sellers and buyers can choose to implement it in their processes and systems when they like it at the moment that suits them best.

Additional automated controls are needed that filter data before it is integrated and used by seller and buyer systems. With electronic payments, the exchange of data between corporate and bank systems makes the collection process for a seller efficient but also allows automated controls to be applied. These automated controls, for instance, ensure that data are validated before they are accepted by the system, that new data input is linked to data that are already in the system, and that two or more people are needed to authorize the processing of certain data.

Timely cash flow management of distributors should be facilitated. Companies that manage their cash tightly can identify at the moment payments are to be made how much funds are available for that day and which creditor will be paid and how much. It will then be important for the payer (the buyer, in this context) to be able to inform the payee (seller) what invoices and credit notes are paid in full with the specific payment, what invoices are paid partially, and preferably when the remainder is expected to be paid.

5　**Reach and scope**

Seller	Buyer
"Can I receive the funds in the bank account or wallet of my choice?"	*"Can I easily instruct funds to be transferred from my bank account or account with my e-Money provider to the account with the bank or e-Money provider of choice of the payee?"*

The more counterparts that can pay or be paid, the more valuable the payments infrastructure is. Payers are likely to want to be able to make payments to any of their suppliers/payees without opening a new service. Likewise, sellers (payees) will want to ensure that their bank or payment service provider can collect payment on their behalf, regardless of which bank the buyer uses.

Large companies consolidate their finances with banks. Firms beyond a certain size and level of formality have a broader range of payment and financial operations to address, most of which need to be catered for by formal sector banks. Even very small companies that wish to grow their business will at some point open bank accounts. In many markets, including in Indonesia, non-bank payment service providers can also offer payment services. These payment services may serve individuals and businesses that are beyond the reach or focus of banks and often far from fixed infrastructure, such as branches and ATMs. For sellers, it will be important for their clients to have access to a range of payment solutions that will ensure that payment is not impeding the completion of the purchase.

Solutions need to address the incentive that payment service providers have to build on their payer network and encourage payees to become direct users of their payment service. The commercial model of most of these payment service providers is such that payers have the convenience of the service but are not charged any or only very low fees for it, whereas the businesses that are being paid have the benefit of receiving funds from the payer and pay for the service.

Solutions need to build on the existing reach of other payment providers and retailers' existing accounts to minimize the extra costs of opening and maintaining new accounts. For businesses, the opening and administering of accounts where money resides is costly. Every account needs to be safeguarded against errors and fraud and every account needs to be properly accounted for. To consolidate controls and to ensure that the company's funds can be used easily to pay its creditors, credit balances are nearly always concentrated in one bank account. A key requirement for companies in structuring banking services is to minimize the number of bank accounts.

6　**Free choice of provider**

Free choice of service provider that can be given access to payment accounts

Seller	Buyer
"Can I seamlessly incorporate information about incoming payments in my applications that support customer set-up, sales and delivery, and multiple management functions?"	*"Can I seamlessly instruct payments and incorporate information about payments made in my applications that support vendor set-up, purchases and delivery, and multiple management functions?"*

"Can I trust that I am not dependent on the solutions and tools of banks and payment service providers for the efficient and effective management of my purchase-to-pay and sell-to-collect processes?"

Payment initiation and account information are integral part of the purchase-to-pay process for a buyer and account information is an integral part of the sell-to-collect process for a seller. For account information to be used efficiently in large systems or smaller applications, it is important that banks and other payment service providers can deliver this information in a standardized and accessible manner. For payment instructions to be generated in a controlled manner from any system, standard protocols should be used for the secure and efficient transfer of instructions from the buyer's systems to any bank or payment service provider.

When buyers or sellers wish to make use of third-party service providers to administer their bank accounts and interconnected functions, banks and other payment service providers should not be able to impede this. Third-party access to the payment account must not be made dependent on the consent of an individual bank or other payment service provider since they may have no interest in allowing non-bank solutions or third-party service providers to potentially compete with bank solutions or bank services. To ensure controlled electronic access to banks for payment initiation and bank account information, the regulator should request banks and payment service providers to implement standardized secure protocols and to support their implementation by customers and third-party service providers based on predefined rules of engagement.

Operational Requirements

A   Data integrity

Data sources and coherence need to be ensured to support trustworthiness. Two sets of operational requirements need to be addressed:

A.1. Standards to support mutual coherence and consistency of data exchange. Data need to be structured and protected to ensure that they are reliable, mutually intelligible by automated systems, and uncorrupted. Agreement on and adherence to common standards for payment messages helps address these requirements. Standards are composed essentially of agreements on:

- **Syntax:** Represents the structure of the message. One of the most widely used syntax in the world today is eXtensible Mark-up Language (XML). XML syntax sets out the format for which data are structured and enables universal understanding of the message content. XML data are structured by using opening and closing tags that indicate the meaning and structure of the information that is communicated. This enables message content to be electronically recognized and validated.

- **Data elements:** Represents the content of the message. Data elements are organized in a logical hierarchy within the message. Data elements in a payment message may include such information as currency, amount, and debiting and crediting parties and may or may not be mandatory depending on the context.

- **Reference repository:** While syntax and data elements are important for ensuring standardization of format and content, message standards should also refer to a reference repository, to guarantee universal understanding of the message content. A reference repository is like a dictionary that users can access to ensure consistent understanding of the data elements.

A.2. Legitimacy and consistency of reference data

- **Beneficiary and payer identification/identifiers:** Actors involved in the supply chain as well as government authorities need to be sure of the identity of the payee, payer, and other actors in the process. Distributors, banks, and retailers may use inconsistent forms of identification. Certain standards and data may or may not comply with legal or other procedural requirements. Tax or company IDs are often used a common and unique basis for client identification.

- **Debtor banks might consider including the/an identifier of the debtor in the payment instruction.** An identifier may just be the name and address of a private individual; it may instead be the number from an official government issued license or other certificate issued to the debtor company, such as a registration or tax ID. This supports creditors in correctly identifying creditors and hence improving their reconciliation. But it also forces banks to keep the registration of their customers up to date and encourages debtors and creditors to use their identifiers between themselves as these are registered by their banks.

- **Anti-money laundering requirements:** Payment service providers need to ensure that they use know-your-customer (KYC) procedures to identify retailers (payers) in a manner consistent with anti-money laundering (AML) and combating the financing of terrorism (CFT) legislation with which distributors' (sellers) banks are obliged to comply.

- **Bank and account codes:** Consistent and current reference data are required to identify the right actors in the payments chain, including the institutions that hold accounts for the payer and payee, and the account identifiers for the payee and payer or other agents. These codes need to be mutually intelligible to all actors involved in the payment process along the chain, including non-bank payment providers.

B Data quality

Automation of the payment and related processes requires measures to ensure that data standards are adhered to and that content is valid and accurate. Payment providers put in place mechanisms to check data and minimize errors from manual inputs. Of particular importance for B2B payments in the retail chain are the following requirements:

B.1. Existence of bank/transaction, payment service providers and accounts
This would include being able to verify bank IDs and Mobile Station International Subscriber Directory Numbers (MSISDN)[13], at least where the latter are used by mobile operators as account identifiers.

B.2. Creditor's preferred bank account to be credited
This data would be important to register if billers pre-populate credit or debit instructions for the retailer. Updates to these data would need to be assured in order to avoid errors and account for changes in the retailer's banking relationships.

B.3 Amounts and application of appropriate taxes
Sellers —and where registered, also buyers — will need to document amounts including taxes in order to maintain appropriate records.

B.4. Payment limits and available credit limits
Suppliers need to be sure to apply the terms of credit or deferred payment as well as any credit limits before finalizing the invoice and payment amount due

B.5. Payee and payer identification
The set-up of the invoice and the payment instruction require some appropriate identifier of the parties to be used. This should conform with or be able to match with the client records of the supplier as well of the payment providers.

B.6. Invoice reference (and applicable credit notes)
Payment data should be structured in such a way that retailers can include invoice reference and applicable credit note details. This is especially important to support partial payment of invoice amount and/or payments for multiple invoices. These are currently very challenging for suppliers to reconcile.

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13 The MSISDN is the mapping of the telephone number to the SIM card in a mobile/cellular phone.

C   Payer funding and control

Retailers in the traditional space need to be able to easily fund, monitor and control spending.
There are three operational requirements that payment solutions need to address in order to ensure that retailers or other payers can manage funding of their payments accounts and enjoy sufficient control over the payment process.

C.1. Building on the requirement of reach, solutions must make it easy for retailers to fund their payment account. Traditional retailers are generally cash-based businesses. They do not have ready funds in bank or other payment accounts and hence require means to easily deposit cash or have it collected before funds are available for payment. Short-term credit facilities, although at a cost, can also help fund accounts and reduce the urgency or frequency of cash deposits or collections. In instances in which this expanded liquidity supports greater sales by retailers, the cost of a credit line may be warranted.

C.2. Retailers may need to verify available funds and cash flow before making a payment. Retailers may not know how much they have available in an account and hence may not be sure whether the total payable amount can be covered. A failed transaction could result in loss-of-face and delay or could generate a negative position for which the retailer might incur penalties. Retailers should be able to check the current available balance of their account before making a transaction, or at least they should be assured that they will have time to address any shortfall. This could be achieved through a delayed value date—such as the case with usage of checks—or through short-term funding or delayed debit.
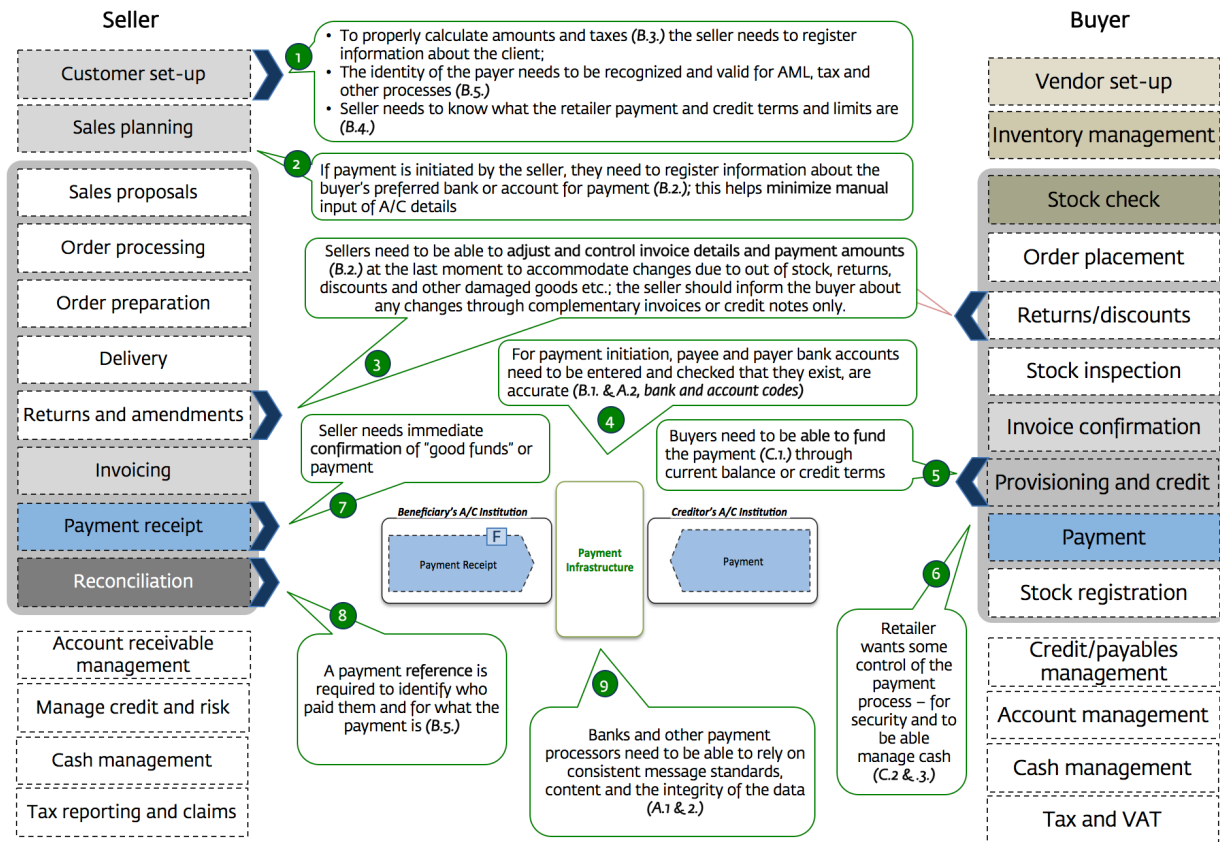
When the retailer's funds are held with multiple providers, such as multiple banks or a combination of banks and e-money providers, the retailer should be able to view the balances of the accounts with the distinct service providers in one single solution, such as his/her accounting system or via an online aggregator service. This means that account balances and account statements should be made available electronically, applying a single and uniform reporting format.

C.3. Along with ease of use, retailers will demand some control over the payment process. As a specific "ease of use" requirement, the actual payment process should ensure that retailers have legal control over payment – and crucially also feel that they exercise control through an appropriate process and service design. Although distributor or biller led payment processes can help reduce the effort required from retailers, they can make the retailer feel a loss of control or insecurity. This is often the case with direct debit systems, which require a payer to provide an open-ended agreement or payment mandate to a biller. In many countries, while consumers widely use and accept direct debits, they often do so grudgingly. Poorer clients and those with irregular cash are often concerned about being overdrawn and incurring penalties[14].

Figure 5.2 depicts the selected impact of these business requirements on payment services. The letters and numbers in parentheses (A.1–A.2, B.1–B.6, C.1–C.3) correspond to the data integrity and data quality requirements discussed in the text.

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14 The UK Payment Systems Regulator has launched a consultation on how to improve upon or provide alternatives to direct debits, among other issues. See https://www.ft.com/content/d251599o-799f-11e6-aoc6-39e2633162d5.

Figure 5.2. Selected impact of business requirements on payment services

Seller

- Customer set-up
- Sales planning
- Sales proposals
- Order processing
- Order preparation
- Delivery
- Returns and amendments
- Invoicing
- Payment receipt
- Reconciliation
- Account receivable management
- Manage credit and risk
- Cash management
- Tax reporting and claims

Buyer

- Vendor set-up
- Inventory management
- Stock check
- Order placement
- Returns/discounts
- Stock inspection
- Invoice confirmation
- Provisioning and credit
- Payment
- Stock registration
- Credit/payables management
- Account management
- Cash management
- Tax and VAT

1. • To properly calculate amounts and taxes (B.3.) the seller needs to register information about the client;
   • The identity of the payer needs to be recognized and valid for AML, tax and other processes (B.5.)
   • Seller needs to know what the retailer payment and credit terms and limits are (B.4.)

2. If payment is initiated by the seller, they need to register information about the buyer's preferred bank or account for payment (B.2.); this helps minimize manual input of A/C details

3. Sellers need to be able to adjust and control invoice details and payment amounts (B.2.) at the last moment to accommodate changes due to out of stock, returns, discounts and other damaged goods etc.; the seller should inform the buyer about any changes through complementary invoices or credit notes only.

4. For payment initiation, payee and payer bank accounts need to be entered and checked that they exist, are accurate (B.1. & A.2, bank and account codes)

5. Buyers need to be able to fund the payment (C.1.) through current balance or credit terms

7. Seller needs immediate confirmation of "good funds" or payment

6. Retailer wants some control of the payment process – for security and to be able manage cash (C.2 & .3.)

8. A payment reference is required to identify who paid them and for what the payment is (B.5.)

9. Banks and other payment processors need to be able to rely on consistent message standards, content and the integrity of the data (A.1 & 2.)

Beneficiary's A/C Institution — Payment Receipt

Payment Infrastructure

Creditor's A/C Institution — Payment

D Transparent pricing

Pricing structures and fees need to be transparent and avoid creating surprises for payers and payees. To ensure that the seller receives in full the agreed amount to be paid, the buyer needs to be sure that banks and service providers in the payment chain cannot deduct any fees from the nominal payment amount. When fees are deducted from the nominal payment amount, sellers cannot reconcile these incoming payments automatically with their receivables. Transferring the funds in full also avoids discussions between buyers and sellers about who is responsible for covering these deducted fees.

E Consistent and timely settlement

Settlement periods, timing, and arrangements need to be consistently managed. It is very difficult for buyers and sellers to accommodate different settlement periods for different sellers or buyers, respectively. Given the lack of control by individual payment service users over such settlement periods, regulators are required to stipulate maximum settlement periods for distinct payment methods. Preferably these settlement periods are aligned or even harmonized for multiple payment methods to avoid complexity for smaller buyers and sellers, in particular, in managing their cash position with multiple payment service providers and banks.

F Confirmations and proof of payment

It is important for buyers to have proof that the payment was made to the seller and for the seller that the payment was received from the buyer. This is required for both the buyer and the seller to minimize the risk of error and fraud or at least be able to detect errors and fraud rapidly after payments are processed. This proof is also required for both buyer and seller as formal proof of the sale equal to the purchase: even if no formal contracts are exchanged, the fact that a buyer has paid for a purchase means that he/she intended to make the purchase. A third reason for having proof that payments were made and from whom to whom is for accounting and fiscal compliance reasons. Ultimately the payment is also proof for the tax authority that a purchase has been made, which means that the seller will have to pay sales tax and the buyer can credit sales tax.

Before completing the delivery, sellers want to have confirmation or proof of payment. When using cash and checks, this is easily achieved through the physical exchange of paper from buyer to seller. But when a payment is electronic, the seller needs to obtain some other form of proof or confirmation from the buyer that the funds are transferred   or at least will be   from buyer to seller.

Real-time payment infrastructures are not needed to meet this requirement, but can help. In India, Singapore, the United Kingdom, the United States, and other countries, instant retail payments infrastructure (such as FasterPay, IMPS, and FAST) are either already implemented or under development. These services can enable the payer to transfer funds in real time or near real time and the payee to receive a nearly instant confirmation from their institution that funds have been received. Short periods between debiting the accounts of buyers and crediting the accounts sellers are desired, as mentioned above, but to deliver proof of payment to the seller a real-time settlement infrastructure is not needed. Such proof can also be provided when payment service providers and banks send a message to the payer or his/her system that the payment instruction has been accepted. This message can then be shown or forwarded electronically by the buyer to the seller, as long as the payment service providers and banks deliver the acceptance of the payment instruction electronically to the buyer and in a standardized format.

The way in which these requirements are met depends on the systems and infrastructure used by the participants. Payment processes are part of a broader interdependent structure that for business payments requires increasingly levels of automation and customization. It is hence wise to try to understand these content, process, and other interdependencies before making individual changes to payments infrastructure or policy. A better understanding of the business requirements of small retailers and their suppliers should inform decisions to improve or enhance specific payment systems.

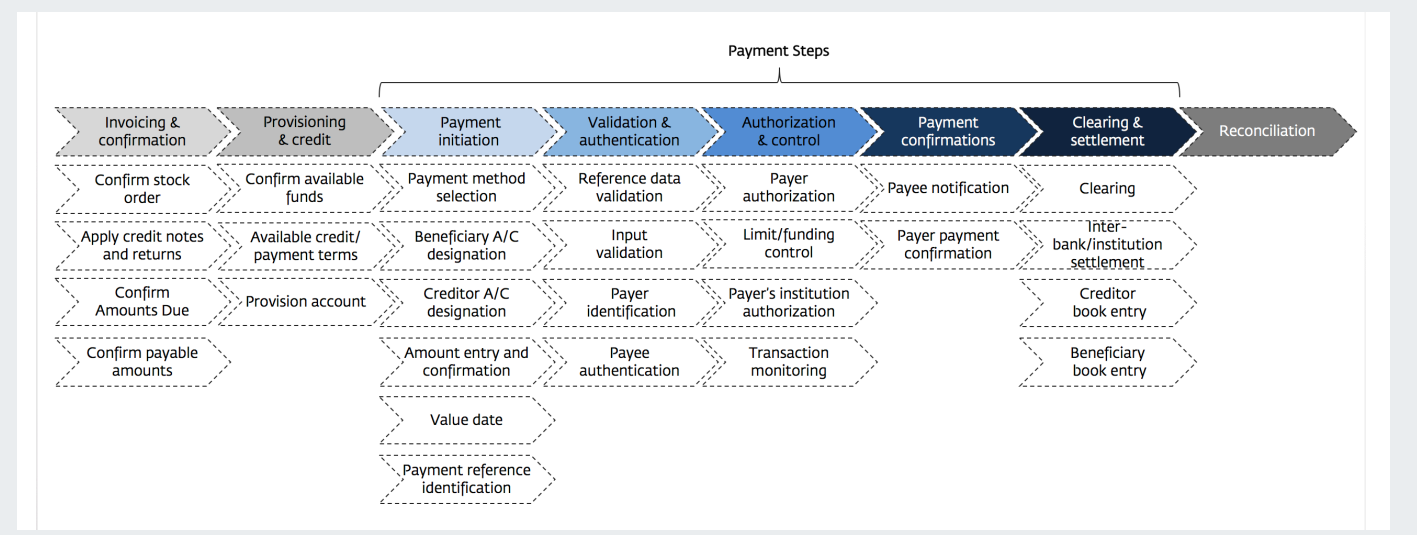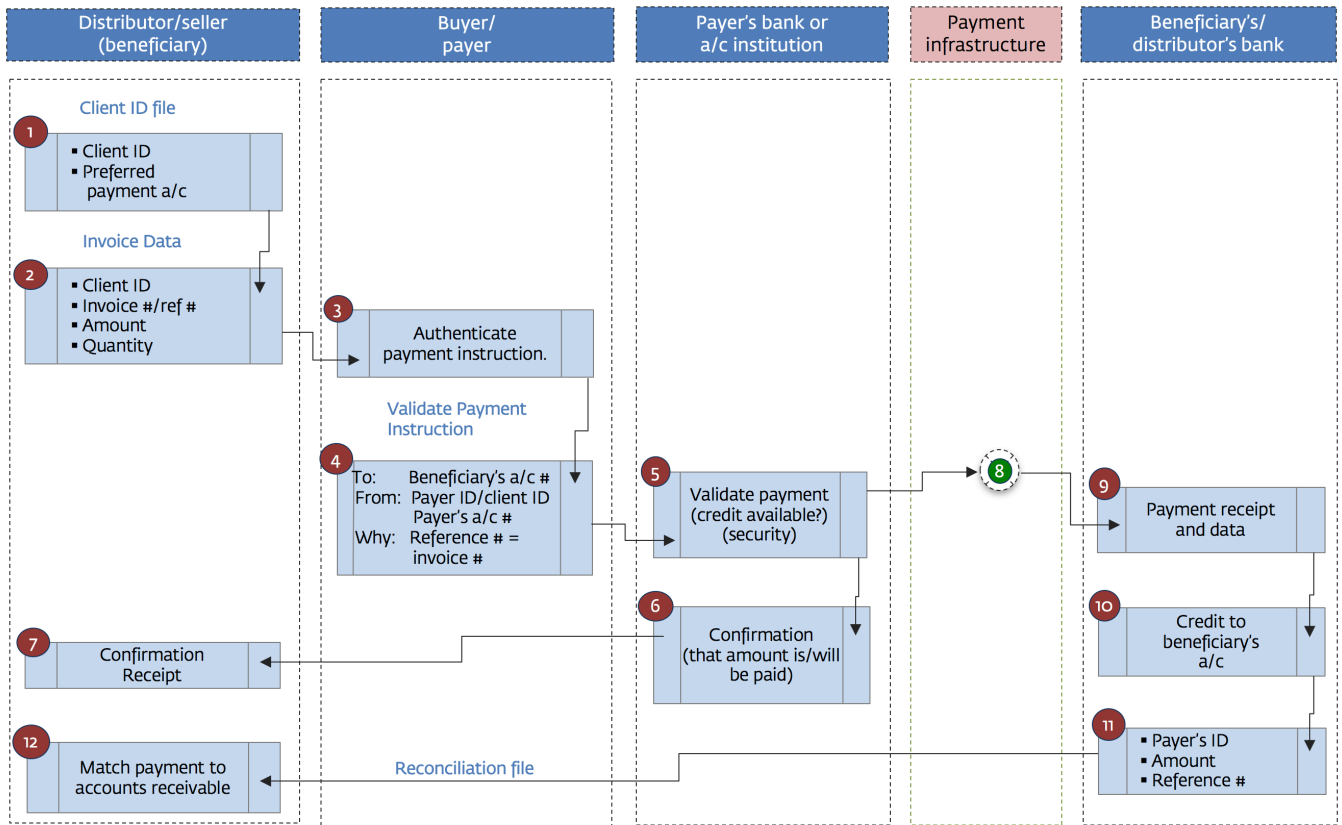### Figure 5.3. Detailed payment process steps and tasks

Figure 5.3. Continued

Process Step	Task	Requirements
Payment initiation	Payment method selection	• Retailers and suppliers (buyers and sellers) should be able to choose which payment and bank service provider they use for the transaction
	Beneficiary A/C designation	• It should not be necessary to manually enter in these a/c and institution ids; they may be pre-registered or looked up on-line to ensure they are valid and correct.
	Creditor A/C designation	• These codes should be mutually recognized by all actors involved in the payments chain and enable them to process payment instructions in an automated and reliable manner.
	Amount entry and confirmation	• Amount needs to be verified and consistent with invoice, taxes, credit notes; note that many countries require very long numbers to be entered or captured automatically to avoid errors and displayed in an easy to confirm manner
	Value date	• The buyer and seller may need to alter and specify value date based on credit terms and settlement cycles agreed upon by them; this must be recognized by the payment processors
	Payment reference identification	• The payment should be able to be matched to an invoice and payer; a consistent payment reference, easily captured and carried with the payment instruction may fulfill this requirement
Validation and authentication	Reference data validation	• All the entries for bank codes, account numbers, ids and amounts or dates need to be validated for syntax, accuracy and correctness before the payment is confirmed. This cannot be an iterative process that lengthens or complicates the payment experience
	Input validation	• The other payment instruction data such as amount and value date or references need to be validated in real time by systems and controls by the creditor's (i.e., buyer's) account holder or the payment service provider
	Payer identification	• The payment processor or account holding institution must authenticate the ID of the payer using appropriate security means
	Payee authentication	• The account holding institution must confirm that the named beneficiary (payee/seller) account matches with the indicated name of beneficial owner of that account.
Authorization and control	Payer authorization	• If the preceding controls and authentication steps are positive, the payer should be able to quickly or without an additional step confirm and authorize the instruction to pay.
	Limit/funding control	• The account holding institution or other (including the supplier) needs to immediately confirm that funds or a credit line are available for payment of the stated amount; banks may need to check against other outstandings
	Payer's institution authorization	• The account holding institution of the payer must if preceding checks and controls are positive either authorize payment or reject it.
	Transaction monitoring	• The payer institution may need to capture payment data on ID, beneficiary in a standardized format that enable them to match to and monitor overall payment and transaction patterns in compliance with AML & CFT rules.
Payment confirmations	Payee notification	• The supplier or its collection or delivery agent must receive immediate confirmation via secure means that payment has been made of of "good funds" this message may need to be processes via their internal systems
	Payer payment confirmation	• The payer should receive immediate confirmation that the payment instruction was accepted and successful. This may need to constitute commercial/legal proof of payment and not the reference of the invoice.
Clearing and settlement	Clearing	• The payer and the payee's institutions need to have direct or indirect clearing arrangement with each other to be able to confirm and process transactions
	Inter-bank/institution settlement	• Settlement can be via the central bank or another institution; it should be regular and enable payee and payer to rely on a set schedule as well as avoid unforeseen fees or charges depending on the settlement parties
	Creditor book entry	• The payer's banks should provide terms to the retailer to manage risk but also allow if agreed for deferred payment, credit or overdraft facilities
	Beneficiary book entry	• The payee's institution should be able to collect or contribute to funds aggregation and sweeps on a timely basis.

As an "ideal" scenario, payment and data integration enable a straight-through process to be put in place between sellers, buyers, and their banks with minimal extra intervention to adapt data or manually intervene in the overall process (see figure 5.5). This view of the requirements helps to set a benchmark for how B2B payment services can be facilitated.

Figure 5.4. Summary of key requirements from a user perspective

Figure 5.5. Illustrative distributor-led scenario to fulfill operational requirements

Process step		Assumptions	Implications for coordination
1	Client file set-up	If retailers set-up payment a/c terms with distributors for payments initiated by the distributor, payment a/c details need to be stored by the seller	Client IDs are recognized by bank and non-bank providers and can be matched with Distributor data IDs comply with applicable KYC and AML requirements
2	Invoice data population/entry	The billing information is set-up by the seller, with valid banking details and amounts already entered	Account numbers and Identifiers of payment/bank institutions are consistent and can be validated on-line
3	Payment authorization by buyer	The buyer only needs to validate a payment by entering a PIN or equivalent form of authentication	Buyers can use simple and secure payment authorization processes consistent across banks
4	Payment instruction file	The full payment file contains consistent and validated data needed for settlement and reconciliation	Banks and payment providers use consistent message standards and adhere to field usage to minimize need for integrator services
5	Payment validation by the payer institution	The account holding institution of the buyer approves the payment request sent by the system of the seller	Payment instructions can be validate in real time to avoid errors or delay in the payment process
6	Payment confirmation	The seller is notified immediately whether the payment has been approved and deemed "good funds"	The payer's institution provides immediate confirmation of good funds
7	Confirm payment and release goods	The seller is able to confirm payment is good and release the goods to the buyer	Suppliers receive immediate confirmation through reliable and auditable confirmation message in real time
8	Clearing and settlement	The payment instruction can be routed to clear and settle with any party in the market using the data	Different banks and e-money account holders will need to be able to reliably and quickly settle funds between each other
9	Receipt of credit and related data	A/C institution can extract all relevant data including ID and invoice or reference field in order to transmit them to the buyer	Payment operators will need to adhere to common or compatible standards in order to facilitate automation
10	Credit book entry	The seller's account institution credit their account with the amount due	Reach of institutions must be assured so that payer's institution can reliably pay suppliers at other institutions
11	Reconciliation file generation	The seller's institution compiles all data from payment receipts and transmits them to the seller	Payment files need to adhere to some consistent standards for data; payment integrators can fill some gaps in data format standards
12	Reconciliation	Seller can match payment receipts to accounts receivable positions, invoices and clients	Seller's ability to match records will depend on bank's and payment integrator's capacity to aggregate payment records and adapt file standards to supplier ERP

6. Implications for Payment Systems Development

Improving payment service for the traditional retail sector can generate broader benefits for the economy.

- **Traditional retailers and their suppliers can benefit from efficiency gains if improved digital payment solutions are introduced, along with associated supply chain and management automation.** These efficiency gains may help traditional retailers compete more effectively with modern retailers and enable them to share in the gains that modernization of the consumer goods industry generate. These efficiency gains currently accrue mostly to the larger companies in the sector.

- **Given the large market, in terms of value and volume of payments as well as employment and GDP, efficiency gains can also have a positive impact on consumer welfare** if they are shared in a competitive market with consumers.

- **Improvements can also contribute to achieving broader objectives of increasing electronic transactions in the economy**, given that the volume and value of payments in this market segment can help achieve economies of scale in emerging non-bank and agent-based payment solutions..

- **Traditional retailers can contribute to broader uptake of digital payment solutions by under-banked consumers**. Use of electronic payments and banking services by traditional retailers can set an example for consumers. Many small retailers are or may become agents in e-money and agent banking schemes. With appropriate alignment of commercial incentives, retailers can encourage end clients to increase their usage of non-cash payments.

Government and industry need to come together to address a set of interrelated challenges to improve the use of electronic payments and banking services. Each link in this chain must be strengthened for efforts to be effective and help increase the use of electronic payments. Additional developments and improvement will need to be pursued by individual services providers including banks, payment processors, and technology companies. A working list of payment system recommendations follows. They warrant discussion by stakeholders from industry, payment service providers, banks, and government.

Recommendations

1. Encourage and facilitate industry-level collaboration—such as through as National Payments Council—to identify challenges to broader usage of electronic payments in the traditional retail market segment and the role of collaboration and central infrastructure.

- Industry and policy makers should consider the evolution of distribution models for payments services to small enterprises and retailers. Many markets are witnessing a growth in non-bank service providers and payment service aggregators that complement traditional modes of distribution of banking and payments. There may be a need to encourage or facilitate entry into the market of such intermediaries to extend the reach of formal payment services.

- National Payments Councils (where they exist) should be encouraged to consult with the retail and distribution sector and deliberate on the evolving requirements of corporate payment users. Payment Councils may need to review how they interact with and take account of users' needs, possibly integrating representatives of this industry as members or within selected working groups.

2. Adopt forward-looking message standards that support broader industry modernization and are consistent with international standards.

- Migration to ISO20022 standards can be leveraged to harmonize use of payment messages by the banking industry and accommodate requirements of industry users with regard to automation and the reach of payment references.

- Integration of mobile payment with ATM operations could leverage ISO 8583 (messaging standard used commonly for payment card and ATM transactions) to harmonize message standards for bill payments

- Government should review the scope to adopt practices from other related standards, such as e-invoicing, and procurement (PEPPOL), as well standards being adopted by the banking industry, such as EBICS, to address security and payment authorization issues in the emerging areas of internet-based systems.

3. Expand the reach of payment systems and services by integrating new participants and ensuring such services support a wider range of specific payment types and broader uses (such as for business as well as consumer payments).

- New payment services and services providers, particularly agent- banking and regulated non-bank payment service providers, should be allowed or enabled to become members or effective participants in existing inter-bank payment networks.

- This may require agreement on adoption of consistent payment message formats and reference data, and development of appropriate business rules for governance, risk, and operations for clearing and settlement.

- Support and encourage early expansion of services to agents/e-money agents. This may include amendments to the payment types and limits that these agents and their business partners can support and the roles that they can play in overall collections and payment services.

4. Enhance and strengthen existing interbank clearing and settlement arrangements.

- To meet the specific needs of small business payment flows, specific enhancements may need to be made to existing infrastructure. These may include adaptations to validation processes, settlement cycles and confirmations, as well as setting up appropriate rules and technology to enable non-bank payment initiators to extend reach.

- To support the reach of payments infrastructure (see No. 2)—especially to integrate payment flow to and from e-money providers and agents banking operations—other enhancements to membership rules and clearing and settlement arrangements may need to be introduced.

5. Identify requirements and appropriate means to enhance data quality and integrity, such as through central reference data repositories or standards.

- Identifiers for bank and payment institutions and account numbers may benefit from central reference sources that enable participants to minimize manual inputs, validate codes, and reduce errors.

- Common client identifiers or the establishment of equivalency may help to address know-your-customer and anti-money laundering issues, as well as facilitate reconciliation and payment processing.

6. Improve mechanisms available to generate and transmit real-time confirmations to payee and payer across networks.

- Services may need to be put in place to ensure that payees (and payers) can receive timely confirmation of payment in a recognized and reliable manner even if payment are conducted across different networks. This will become important in conjunction with an expansion of the reach of payment systems (see No. 2).

7. Build capacity of small retailers and wholesalers and facilitate their adoption of digitization and process automation.

- Adoption by small retailers and wholesalers of electronic inventory and management tools will reduce the barriers and enhance benefits from adoption of electronic payments. Government can play a role in facilitating and providing incentives for the adoption of appropriate technology and business practices.

- Government may consider programs to simplify adoption of technology by retailers and the role that incentive schemes and e-invoicing or tax reforms can play in promoting modernization of traditional retailers' business practices.

8. Ensure that communications infrastructure can support new payments services to the broader industry.

- Most of the proposed initiatives require very strong and cost-effective telecommunications infrastructure. Mobile network-based services to initiate, validate, and complete payments require secure data exchanges to take place quickly and without broken connections. Service interruptions, bandwidth restrictions, or other technical issues can severely undermine the overall ease of use and trust in alternative payment mechanisms.

- Telecommunications firms may need to carefully assess existing network quality and make new investments. Inability to establish a wireless signal, interrupted communications, and slow data speed can all contribute to a very poor payment experience. If more than occasional, they can totally undermine other investments in payments infrastructure.

An interdependent set of changes needs to be made to meet the full requirements of retailers, suppliers, banks, and other actors in traditional retail the supply chain (see table 6.1, following page). While individual banks and service providers can make some incremental enhancements, many others will require coordination with other providers and central infrastructure. In a country like Indonesia, with a fragmented financial services market and widely dispersed population, no single bank or payment provider can hope to cover the full needs of supply chains. Hence the overriding priority for industry is to expand and enhance connections between payment networks.
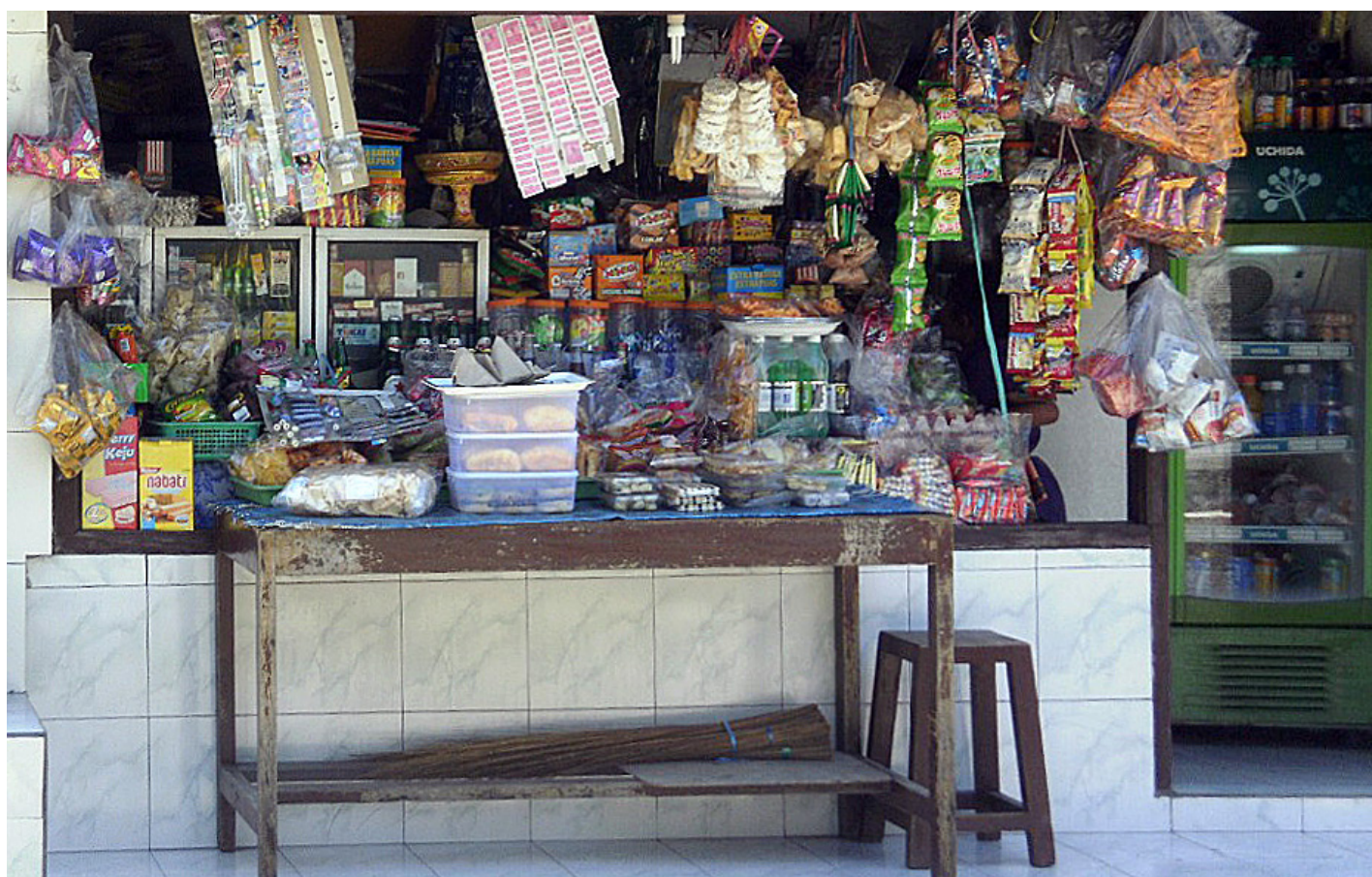
Table 6.1. Summary recommendations for improving payment service

Actions for coordination	Actions for individual service providers

• Enable automated payments across e-money and bank networks:
 	
  - Align institution and account identifiers
  - Adhere to consistent message standards and usage
  - Facilitate user validation of reference data and identifiers
  - Address Client ID consistency issues and AML requirements
  - Automate clearing and settlement
  - Establish appropriate confirmation messages
  - Facilitate integration of standard payment references
	• Improve user design and support
	
	• Facilitate funding, balance enquiry
	
	• Enable short term credit or deferred debit facilities for retailers
	
	• Promote or facilitate integration with merchant/ retailer services and platforms
	
	• Accommodate anomalies, bespoke requirements and billing adjustments

• Create standards guidelines and APIs that facilitate provision of integration and payment initiation services by third parties	
• Support common security guidelines and user education	
• Ensure new payment and related services are anchored in a sound legal and risk management framework	
• Establish appropriate commercial terms and conditions to incentivize uptake and usage	

Appendices

**Appendix A. ISO20022 Payment Message Standards Explained**

Appendix B. Information flow analysis of the end-to-end process

Appendix A.

ISO20022 payment message standards explained

Corporates and banks are gradually adopting ISO20222 internationally to improve integration of business and payment service automation. Good payment standards and implementation guidelines offer detailed and unambiguous descriptions and can easily be obtained by system developers. The standards that are most widely used for electronic payments are developed by the International Organization for Standardization (ISO) and freely available via the internet. The most modern version of ISO payment standards is called ISO20022. This standard makes use of a language that is readable for systems and ensures minimal misunderstanding by a receiving system of what the sending system is sending. This language, called XML (eXtensible Mark-up Language), provides a description of the data elements that are sent together with the data in a "document" (figure A.1).

Figure A.1. Highlights of the simplified ISO20022 payment initiation message format and content
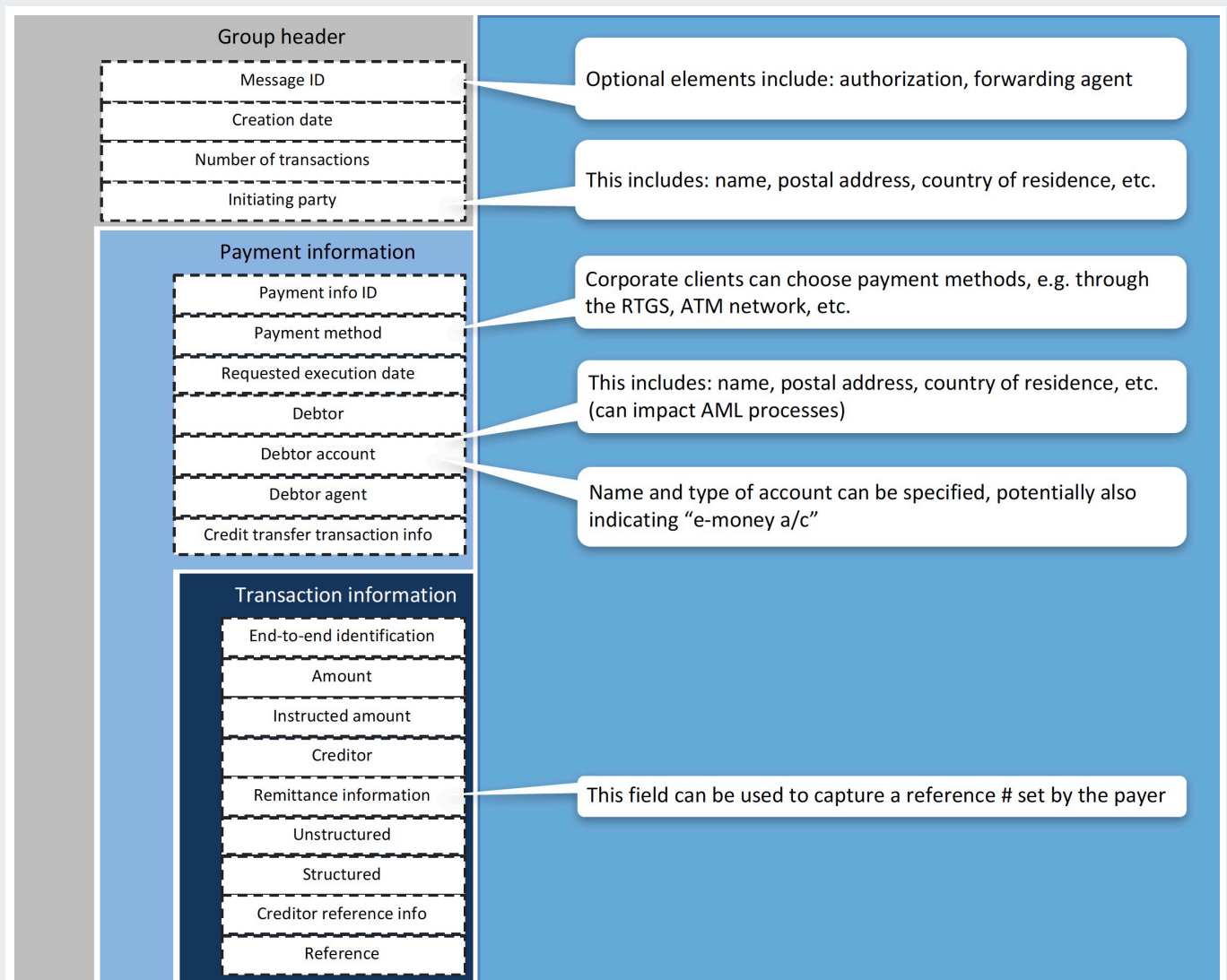
Note: AML = anti-money laundering; ATM = automatic teller machine; RTGS = real-time gross settlement.

As more markets in the region prepare for ISO20022 migration, policy makers and industry should consider how implementation and adaptation of these standards can help address the needs of small business and benefit from the extra reach that new e-money, non-bank, and agent-based payment services can provide.

In implementations elsewhere, the ISO20002 standard has proven not only to be aligned with older standards but also more prescriptive, richer, and easier to be incorporated in fully automated processes. The richness, however, also means more options concerning what information is used and what is not used. To ensure simple and rapid implementation, it is advisable to provide clear implementation guidelines and reuse functionality and data structures that already exist in the corporate systems that generate and read the data in the ISO 20002 standard. A good way to achieve this is to copy and paste implementation guidelines already tried and tested elsewhere and to stay as close as possible to standard functionality of corporate systems.

Appendix B.

Information flow analysis of the end-to-end process

This appendix describes in greater detail the possible steps of the full purchase-to-pay business operation. It starts with the process for a buyer to identify services and products that fulfill his/her needs, and to find suppliers that he/she would like to use, and then proceeds to the processes to register / contract with the supplier, order the goods and services, handle any issues around delivery and ultimately make the payment. The structure described here is driven by requirements of a buyer-user journey where the buyer only provides data about himself/herself when required for his/her own objective of the purchase and where the buyer does not need to provide any data element more than once.

The structure is described on the basis of process steps and documents that are exchanged between seller and buyer. These documents could be exchanged via the internet or mobile phone, where either the seller or the buyer interacts electronically and the other party uses a web-based or mobile-based user interface to receive data and type in data. These documents could also be exchanged by file transfers between the systems of the seller and the systems of the buyer. A third option is a combination of the above, whereby for instance the identification of products/services and suppliers happens via web-based or mobile-based interface, but orders, invoices, delivery notifications, and payments are handled between the systems of the seller and the buyer (plus the payment infrastructure for the payment).

The structure of the data exchange and the "customer experience" of the small retailers with their procure-to-pay process could be as follows.

1. Identification and selection of products and distributors

When using the internet/mobile phone to buy products or services, the first step for the small retailer could be to search the web for products and services. To minimize the time spent with the search for the combination of seller/buyer and product offered/product needed, the app could enable the potential buyer to share a minimum set of data to identify what product or service may best suit his/her needs.

1.1. Preliminary registration by the buyer

Examples of the data that the buyer may share with the potential seller are:

- Type of business the buyer company is in
- Size of the buyer company
- Period for which the buyer is willing to contract (no contract/annual contract)
- City in which the buyer company is located
- Type of product/service the buyer is looking for
- Quantity of product/volume of service the buyer is looking for

1.2. Catalogue of products

In the case the buyer already knows what type of products he/she needs, he/she may skip the previous step and search directly for specific products. The seller will have a catalogue of products, their attributes, and prices, which can be accessed on-line. The buyer likely requires seeing the following data displayed by the potential seller:

- Product category (examples: soft drinks;packaged food;household items)
- Product identifier (such as a standard barcode)
- Product description (examples: Diet Coke; Dolmio Bolognese Original Sauce; Ecozone Non Bio Laundry Capsules)
- Measurements (examples: 1. 8 x 330ml; 320g; 20 per pack)
- Other product attributes (examples: ingredients; sugar content)

- Picture of product
- Price offer yes/no
- Offer (examples: Buy any 2 for $5; Only $1, was $1.50; Buy any 1 add 1 free)
- Remarks about availability (example: "This product is available for orders to be delivered after 6am on Thursday") or the number of items the seller has in stock
- Indicator whether price includes/excludes tax (normally tax is excluded when purchased by a company)
- Price
- Normalized price (Examples: Price per 100ml–16.6c; Price per 100g–31.3c; Price each– 52.5c)
- General delivery charges

When the buyer likes the products/services of the seller and the attributes that come with it, he/she may decide to purchase the products/services as long as he/she is happy with the terms and conditions for the purchase stipulated by the specific seller.

2. Registration by the buyer

The next step then is the registration by the buyer of the buyer's general company details plus details of the buyers' representative who acts as the first contact for the seller. These are usually the following data:

- Buyer's legal name
- Buyer's registered legal company address
- Buyer's registered official registration number
- Buyer's registered fiscal registration number
- Buyer's contact first name
- Buyer's contact surname
- Buyer's contact email address
- Buyer's contact office phone number
- Buyer's contact mobile phone number
- Buyer's contact log-in identifier for the website or mobile interface of the seller
- Buyer's contact password to enter the website or mobile interface of the seller

Upon registration, the buyer contact will receive a Client number that may serve in combination with the log-in ID and password as authentication of the buyer.

After registration of the company details the buyer books a delivery. This can involve the following details:

- Delivery address or collection point
- Requested delivery date
- Requested delivery time slot on the day
- Accepted specific delivery charge

Finally, the buyer is presented with the payment methods that are acceptable for the seller. Depending on the payment method selected by the buyer, the buyer must provide the following details:

- Billing address (required for paper-based invoice as a trigger for a credit transfer)
- Name of bank account (in the case of a direct debit)
- Bank ID + bank account number (in the case of a direct debit)
- Card details (in the case of a card payment)
- Credit terms (in the case of a credit transfer or direct debit)
- Payment date(s)

By instructing the payment via card or direct debit, the buyer formally acknowledges the purchase.

3. Purchase order buyer = purchase order seller

The result will be an order which for the buyer is a purchase order and for the seller is a sales order. This order contains the following data elements:

- Date of issue of the order
- Order number
- Seller's name
- Seller's registration number
- Customer's name
- Customer's official registration number
- Customer's registration number with supplier ("Client number")
- Delivery date
- Delivery time slot
- Delivery address
- Product descriptions
- Price to pay per product description
- Estimated subtotal cost
- Delivery charges
- Discounts
- Estimated total cost

The subtotal cost and total cost are estimated because some of the items that might have been ordered, such as meat and cheese, are generally sold by weight. The exact cost will be shown on the delivery notification when the order is delivered, as well as on the invoice.

4. Delivery notification

When the products are delivered, the buyer receives a delivery notification. The delivery notification has the same data elements as the order but with its own date of issuance and sequential and unique number, plus a list of the actual items delivered, potentially information about substitutes for ordered products, and the planned delivery of missing items. The estimated cost is replaced with actual cost (the weight of the item is known at the time of delivery).

The seller may send a delivery notification before the actual delivery, enabling the buyer to refuse substitutes or even make last-minute changes to his/her order. This minimizes the risk and cost of delivering items that the buyer wants to return.

5. Invoice

Requirements for the invoice from a tax perspective:

Booking an invoice into the company account is one of the main objectives of the invoicing process. In those countries where sales tax (value added tax, or VAT) is levied, tax authorities define what constitutes a "VAT invoice.". For example, an invoice that is sent or received and accounted for in the European Union (EU) must support the following data requirements for VAT:

- The date of issue of the invoice
- A sequential invoice reference number, based on one or more series, which uniquely identifies the invoice
- The seller's VAT identification number
- The buyer's VAT identification number (when the buyer is liable to pay the VAT)
- The seller's and the buyers full name and address
- The quantity and nature of the goods or services supplied, or the extent and nature of the services rendered, per item.

- The date of the supply or the date a payment was made or completed if the payment preceded the invoice.
- The taxable amount per rate or exemption, the unit price exclusive of VAT, and any discounts or rebates if they are not included in the unit price, per item.
- The VAT rate applied per item.
- The VAT amount payable, except where a special arrangement is applied under which, in accordance with the EU directive, such detail is excluded.
- In the case of an exemption or where the customer is liable for payment of VAT, reference to the applicable provision of the EU directive.

Requirements for the invoice from an accounting perspective:

Booking an invoice into the company account is one of the main objectives of the invoice. An invoice must provide for information at the document and line level that enables booking both the debit and the credit side. The details required by tax authorities are generally enough to account for the sale or purchase of goods or services.

Requirements for the invoice from a payment perspective:

The invoice represents—together with credit notes—the formal basis for any funds transfers between buyer and seller. To facilitate the actual payment, the invoice should not include the requested total amount to be paid by the buyer but should include the payment method acceptable for the seller, the agreed/required payment date, and the details the buyer needs from the seller to make the payment. The relevant details are the name and address of the seller as already requested for the invoice by the tax authorities, complemented with:

- The payment method acceptable for the seller
- Relevant details to make the payment (account details for electronic credit transfers, website or link to instruct card payment online, telephone number to instruct card payment via telephone)
- The option for partial payments of the invoice (when applicable)
- The required payment date(s)

Requirements for the invoice for invoice verification and audit:

Given that the invoice is a formal document for tax and accounting purposes and serves as the basis for payment by the buyer, it is also used as a key control instrument for both the corporate seller and buyer. To support the auditing processes of both seller and buyer, it needs to provide sufficient information for the following:

- Identification of the relevant parties
- Identification of the product/services traded, including description, value, and quantity
- Information for connecting the invoice to its settlement
- Information for connecting the invoice to relevant documents (such as contracts and orders).

In practice, this means that the following data elements are added to those required for tax purposes and payment to ensure the invoice can be verified by the buyer and in general enable the auditing by seller and buyer of the purchase-to-pay process:

- Preceding purchase order number/contract number (to be provided by the seller)
- Description of the products and services delivered as provided in both the order and delivery notification (to be provided by the seller)
- The buyer's reference for the invoice (to be provided by the buyer)
- The buyer's responsible person or department for verification and approval of the invoice for payment (to be provided by the buyer).

6. Payment

When it comes to the payment, the buyer can verify the invoice and can instruct the payment based on the data provided with the invoice and the eventual complementary invoice and credit note.
In case the buyer does not agree with the requested payment amount in the invoice and the credit note is provided by the seller, the buyer will want to pay in part and make a note of this in his/her own accounts.

When the process of purchasing and paying is entirely online via the website of the seller, then the buyer is generally forced to pre-accept the payment before the delivery in full and request a refund afterward.

Generally, the seller provides the buyer with a payment confirmation after the successful collection by the seller of the payment from the buyer.

7. Reconciliation

In the online procure-to-pay process, the seller collects the relevant data and presents sales orders, delivery notifications, and invoices electronically and defines the amount to be paid. This means that the seller can fully reconcile all incoming payments (triggered by the seller himself/herself) with the invoices, complementary invoices, and credit notes issued by the seller.

The buyer, however, may have a manual process of retrieving purchase orders, delivery notifications, invoices, and payment confirmations. This may satisfy internal control requirements but does not guarantee the complete documentation of the purchase for auditing and tax purposes. For instance, the absence of credit notes would expose the buyer to the risk of inadvertently overstating the tax declaration of purchases and hence overstating the VAT credit claimed with tax authorities.

Table B.1. Data fields per order to pay process steps

This table provides a check list of generally important data fields that systems and processes may require along the full supply chain process from order to pay to support end to end systems integration

Preliminary registration buyer	Product catalogue	Registration buyer legal entity and contact	Registration delivery preferences	Registration payment preferences
• Type of business • Size of the buyer company • Period for which the buyer is willing to contract • City in which the buyer company is located • Type of product/service the buyer is looking for • Quantity of product	• Product category • Product identifier • Product description • Measurements • Other product attributes • Picture of product • Price offer yes/no • Offer • Remarks about availability of stock • Price excluding VAT • VAT rate • VAT amount • Price including VAT • Normalized price	• Buyer's legal name • Buyer registered legal company address • Buyer registered official registration number • Buyer registered fiscal VAT registration number • Buyer contact first name • Buyer contact surname • Buyer contact email address • Buyer contact office phone number • Buyer contact mobile phone number • Buyer contact log-in identifier for the website or mobile interface of the seller • Buyer contact password to enter website/mobile interface of the seller	• Delivery address • Requested delivery date • Requested delivery timeslot • Accepted specific delivery charge	• Billing address • Name bank account • Bank ID + bank account number • Card details • Credit terms • Payment date(s)

Order	Delivery note	Invoice	Credit Note	Payment
• Date of issue of the order • Order number • Seller name • Seller registration number • Customer name • Customer official registration number • Customer registration number with supplier ("Client number") • **Planned delivery date** • **Planned delivery timeslot** • Delivery address • Product descriptions • Price to pay per product description excluding VAT • VAT • Prices to pay per product description including VAT • **Volume of products ordered** • Estimated subtotal cost • Delivery charges • Discounts • Estimated total cost	• Date of issue of delivery note • Delivery note number • Seller name • Seller registration number • Customer name • Customer official registration number • Customer registration number with supplier ("Client number") • **Actual delivery date** • **Actual delivery timeslot** • Delivery address • Product descriptions • Price to pay per product description excluding VAT • VAT • Price to pay per product including VAT • **Volume of products delivered** • Subtotal cost • Delivery charges • Discounts • Total cost	• Date of issue of invoice • Invoice number • Order number • Seller name • Seller registration number • Customer name • Customer official registration number • Customer registration number with supplier ("Client number") • Delivery date • Delivery timeslot • Delivery address • Product descriptions • Price to pay per product; excluding VAT • VAT • Price to pay per product description including VAT volume of products delivered • Subtotal cost • Delivery charges • Discounts • Total cost	• Date of issue of invoice • Invoice number • Seller name • Seller registration number • Customer name • Customer official registration number • Customer registration number with supplier ("Client number") • Product descriptions returned products • **Volume of products returned** • Price of product excluding VAT • VAT • Price of returned product including VAT • Total amount	• Date of issue payment • Payment identifier • Name bank account customer • Bank ID + bank account number, customer • Name bank account seller • Bank ID + bank account number, seller • Payment amount (from invoice/, credit note) • Payment date(s) • Remittance information (invoice/credit note)

Note: Items in blue indicate elements that can be derived from data collection earlier in the process.
VAT = value added tax.

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