



PayPal[™]

PAYPAL
A SMART STEP:
PUTTING
INNOVATION
AT THE HEART
OF PAYMENTS
REGULATION



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INTRODUCTION

A four-part paper:

1. Context
2. Problem
3. Solution
4. Actions

We are pleased that you want to read this paper and hope that you find it both insightful and stimulating. Join us in our vision to deliver a safer, easier and more rewarding payments experience to the market supported by better regulation.

Focused on the payments arena, this four-part document explains the transformation that is taking place in the industry, sets out why we think the approach to regulation can similarly innovate and transform, offers concrete ideas about how this could be done and ends with a case study and call to action.

Part 1 sets the scene and provides the context

Synopsis

Part 1 explains how the business of payments is being transformed across six key areas of the payments landscape. This transformation is challenging the existing regulatory approach and offers significant potential for more effective and more efficient regulation.

Part 2 describes effective and efficient regulation and why we think there is a problem

Part 2 sets out the 'timeless' goals and key objectives of payments regulation; goals that we believe are shared by all stakeholders. It then uses the attributes and principles underlying these goals to highlight where we think that the existing process is falling short.

Part 3 shares ideas to unlock the potential for better regulation

Part 3 shares our ideas for improving the current regulatory process by gathering market data and applying modern technology and analytics tools. It also advocates a new model for developing regulation - SMART Governance - so that the regulatory process can benefit from the same cutting edge practices that are revolutionizing today's industry.

Part 4 provides a case study, draws conclusions and makes recommendations

Part 4 applies our ideas to a key payment attribute, identity, showing how they can be employed to improve the effectiveness and efficiency of Know Your Customer regulation before making four concrete recommendations for putting them into action.

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EXECUTIVE SUMMARY

The overarching policy goals behind payments regulation remain relevant. However, rapid changes in consumer behaviour, technology and merchant need are transforming the payments industry. At the same time geopolitical instability and a greater sophistication in financial crime are also radically changing the payments industry threat profile.

PayPal believes that the overarching regulatory goals are widely shared; no-one questions the need to combat money laundering and fraud. Where there is less consensus and more debate is about how the existing regulatory process can be enhanced to bring these goals about.

The key challenge is to define and operate regulation to achieve these goals in the most effective, most economic and most efficient way possible. The issue is not so much about the “what” but more about the “how”. Developments in technology and data analytics provide new opportunities to improve the regulatory process.

PayPal advocates the use of a new decision-making model – **SMART Governance** – to better deliver these goals in a manner that benefits government, consumers, and industry.

SMART Governance uses technology and data to better inform and validate the regulatory development process. PayPal believes that this will get better regulation into the market with better results than is the case today.

The SMART Governance model applies complex systems thinking and the classic ‘Boyd Loop’ for structured analysis and problem solving, as conceptualised for regulation by Mark Fell in the paper “Smarter Intervention in Complex Systems” (2013) to payments regulation.

Fell’s “Smarter Intervention” presents a framework that allows policy makers to adopt an approach to problem solving akin to that employed by nearly all modern companies, not merely those in the technology sector.

The framework of **S**ecuring data, using **M**achines to organised databases, creating **A**lgorithms to derive insights, **R**eassessing results, and **T**argeting insights is making industry more efficient across the board; it will do the same for the regulatory process.

This approach respects the role of regulators and supplements it with cutting edge thinking by:

- Proactively identifying the most appropriate actors to collaborate with on an issue-by-issue basis;
- Understanding the opportunities to delivery policy goals in the new business models and operating models;
- Being more results and outcomes focused; and
- Using technology and results-based data from regulated entities.

Technology and data make up the engine of this new model, but collaboration, innovation and experimentation are the key to unlocking insights from the data; it is the application of these insights that will result in better regulation.

The Know Your Customer regime serves as an example. SMART Governance encourages the use of data analytics to scrutinise the traditional data elements (i.e. name and address) and the traditional methodology by which those pieces of data are collected (i.e. presenting picture ID).

To encourage a shift towards an agile, more collaborative and insightful regulatory process, this paper concludes with a series of specific recommendations to apply the SMART Governance model to forthcoming regulatory proposals:

1. **Reinforce the role of the Payment Systems Market Expert Group to apply SMART Governance to Payments**
2. **Employ Simplified, Efficient and Effective Due Diligence Requirements**
3. **Recognise That New Technologies Create Opportunities and not Only Risks**
4. **Expand and Generalise the Use of a Risk-Based Approach**





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Four factors are acting on the payment industry to drive innovation

Payments are critical to economic and societal well-being, which is why they are regulated

Access to payments, especially online, is particularly important to achieve economic, societal and financial inclusion

Reducing the time taken to originate, process, clear and settle a payment is key to driving up liquidity and economic growth

Increasing payments efficiency and avoiding regulatory friction is therefore really important.

PART I: CONTEXT. THE PAYMENTS LANDSCAPE

Over the last 30 years, the payments industry has been in a process of intensified transformation.

Four factors have been driving this transformation:

- 1 Retail customer needs, expectations and behaviours
- 2 Technology opportunity and development;
- 3 Economic and environmental developments; and
- 4 Policy intervention and regulatory action.

SECTIONS

- A. Payments are Really important
- B. Payment Attributes
- C. Payments Risk
- D. Payments Landscape – Past and Present

A. PAYMENTS ARE REALLY IMPORTANT

The Quantity Theory of Money shows the relationship that the payments business has to the economic output of an economy.

Without payments, markets would cease to function, production would halt and government would be unable to operate. If individuals have limited access to payments then they are constrained from effectively participating in society. Payments serve a variety of important purposes:

- From a retail perspective, payments allow people to share their wealth with others, to consume goods and services and to store wealth for a rainy day.
- From a corporate perspective, payments allow companies to purchase goods and services from suppliers, to recompense providers of capital and labour and to convert their propositions and products into cash.
- From a government perspective, payments allow taxes to be collected, benefits to be paid and for governments services to be paid for.
- From an investor perspective, payments allow investments to be made, returns to be received and capital to be exchanged.

The irony is that despite their importance, the majority of payments have little utility. “No-one gets up to make a payment¹” is a common phrase in the payments industry. This is evidenced in survey after survey, where consumers place a high premium on the simplicity and ease of use by which a payment can be transacted.

There are other factors that will motivate someone to use one payment instrument over another including price incentives, reward incentives and security incentives.

In short, the less friction in the payment process and the faster cash can be made to flow through a supply chain, the greater the opportunity for economic growth and for economic well-being.

The Quantity Theory of Money **$MV = PY$**

The stock of money (M) multiplied by the number of times that it is transacted/used (V), is equal to the amount of economic output (Y) multiplied by the price level (P).

This basic model conveys the core relationship of payments to the real economy. Making payments more efficient (V) and creating new forms of money (M) should contribute to increased economic growth.

¹ Anon

Payments involve a transfer of value between two parties

The application of technology has generated substantial new value potential in payments because of the:

- *data involved;*
- *the relationships between that data;*
- *the ability to analyse that data in milliseconds; and*
- *the ability to unbundle and bundle it.*

Typical payments risk taxonomies include:

- *Market risk*
- *Credit risk*
- *Operational risk*
- *Legal risk*
- *Reputational risk*

Identity and authorization are key risks within Operational Risk

Simply replicating a physical world control in an online context may be ineffective or inefficient

B. PAYMENT ATTRIBUTES

The concept of a payment has been in existence since c9000BC² and was created to solve a critical economic problem – the transfer of value (transient or stored) from one person to another.

The form of a payment, the instrument by which it is initiated and the process by which it is completed has changed significantly over time, but it has always involved a consistent set of payment and trust attributes, Figure 1. Common Attributes.

The payment context has also changed and become much more sophisticated; physical attributes have given way to abstractions, relationships between form and attribute have become less dependent and technology developments have put much more information into the payment process.

Figure 1. Common Attributes

Payment Attributes

- An instrument to initiate it
- A mechanism to accept it
- A process to undertake it
- A currency that is accepted
- A clear amount and valuation

Trust Attributes

- Recognised mark of authority
- Known identities
- Undertaken for good reason
- Prior experience
- Third party attestation
- Proper authorisation

C. PAYMENT RISK

A persistent feature in any payment transaction is the concept of payment risk.

Although many different taxonomies exist to describe payment risk, all of them consistently include operational risk and reputational risk and within them specific risks such as:

1. Identity impersonation;
2. Instrument counterfeiting;
3. Money laundering; and
4. Terrorist financing.

A key control in each of the examples above is the requirement that the parties undertaking a transaction are who they say they are and that they are acting within their powers. Where they are acting in the role of agent, the underlying parties must also be known. It also requires that the transaction being undertaken is an acceptable transaction.

These risks have required a public policy response and regulatory intervention to reduce the level of threat, to prevent risk from being accepted into the system, to detect it when it has been accepted and to minimise the impact on other system participants.

Care is required to understand how risk is changed in a different context and to assess the new opportunities for control. The key mistake is simply to replicate a physical world control since this may either not manage risk in the same way or to the same extent, it may also introduce inefficiency.

Where a payment mechanism is confined to a single organisation, these issues have relatively less importance, but where it is provided to the wider market then depending on adoption, volume and values transacted they can become much more systemically important and transmit risk between the financial sector and broader sectors - Figure 2. Market risk Transmission Mechanism.

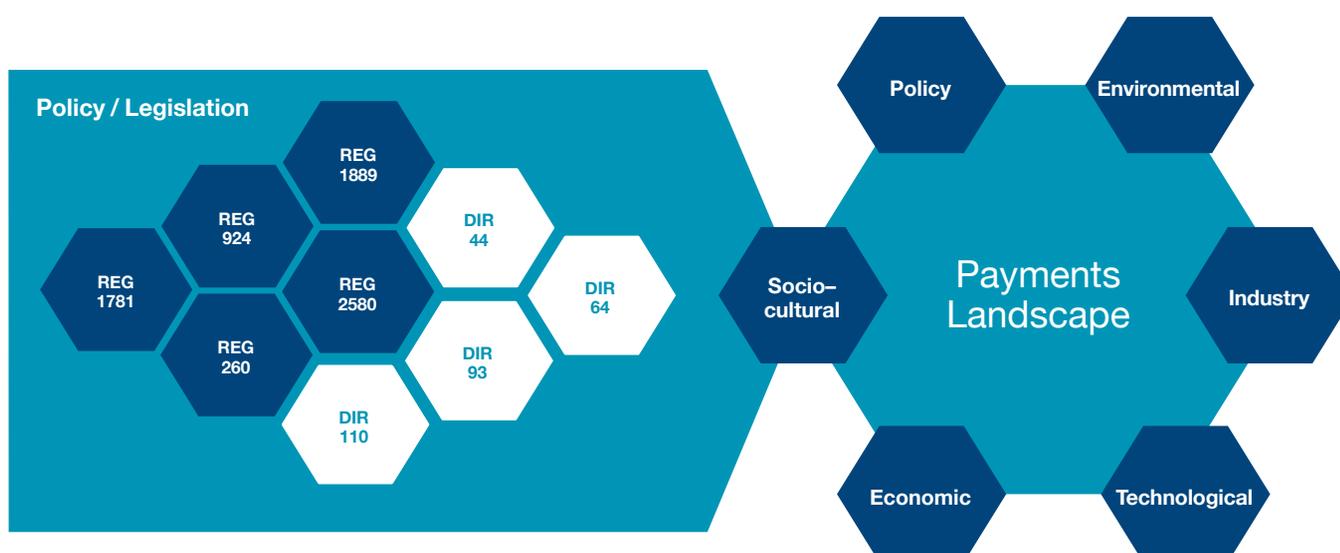
² Davies and Davies, 1999, *A comparative chronology of money*

Payment systems also transmit risk and a key element of Operational Risk, particularly in the context of automated payments, is Systemic Risk

Figure 2. Market Risk Transmission Mechanism

Markets	Scenarios	Participants	Mechanisms	Implications
Financial Sector	Market Credit Operational	<ul style="list-style-type: none"> Financial Institutions (Fis) Non-Bank Fis 	<ul style="list-style-type: none"> Financial Market Infrastructure Payment Systems 	Economic Political Societal Financial
Broader Sectors		<ul style="list-style-type: none"> Government Businesses Consumers Citizens 	<ul style="list-style-type: none"> Assets Markets Behaviours 	

Figure 3. Legislation



REG: Regulation
DIR: Directive

D. THE PAYMENTS LANDSCAPE – PAST AND PRESENT

The business of payments is a two-sided business and one with a complex ecosystem of users, providers and enablers.

A structured summary of the payments landscape – past and present – is summarised in Figure 3. The Payments Landscape, which provides a macro-economic framework tailored to the payments industry.

This summary provides the context to understand the opportunities and the threats to the payments regulatory framework.

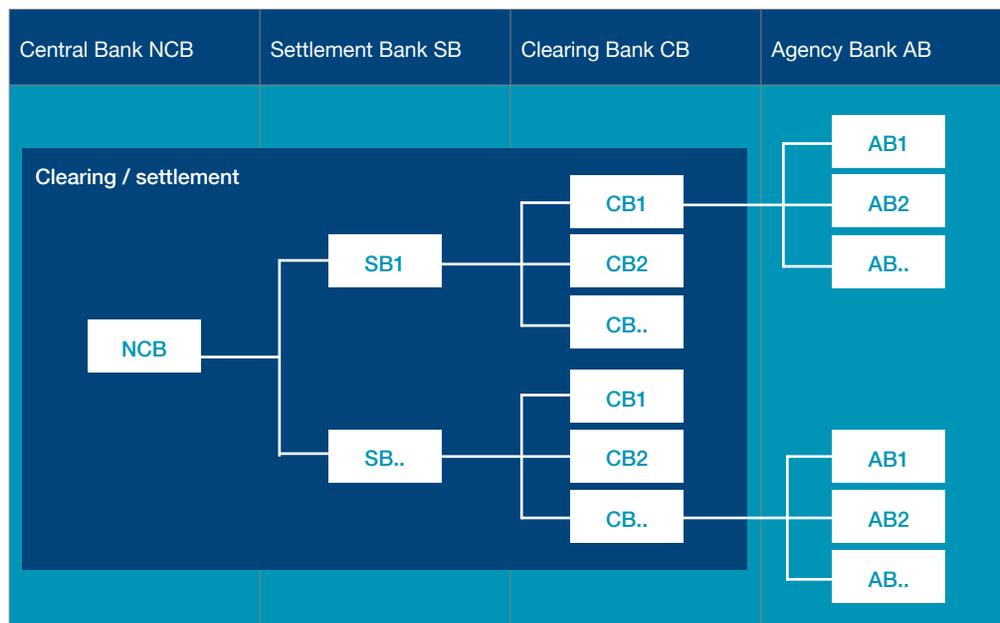
Environmental

Historically, payments was regarded as a banking activity, highly technical and best regulated by a national central bank. Perceived as a private good, the payments architecture was typically hierarchical and 'managed' by a small number of settlement banks with accounts at the central bank and clearing banks providing clearing services to other banks and financial institutions.

Today, policy makers increasingly understand the relationship between payments and the economic, social and strategic performance and welfare of their constituents. Increasingly the business of payments is regarded as a public good with basic bank accounts being sometimes regarded as a human right³.

³ Report in Worldcrunch about expected proposals for basic social rights expected from the European Commission in June 2013

Figure 4. The bank centric ‘payments architecture’



Industry

Historically, currency was the sole preserve of the central bank and payments were synonymous with banking as well as delivered by a hierarchical payments system; Figure 4 Bank Centric Architecture.

In this system, the ‘payments architecture’ that has evolved is one where:

- Local banks and branches held payment accounts;
- Clearing banks exchanged payment instructions;
- Clearing banks provided access to Agency banks and owned payment market infrastructure;
- Settlement banks settled clearing bank liabilities; and
- A central bank exchanged value between settlement banks.

Technology, policy and market forces are transforming this model, increasing access to market infrastructure and defining new regulated payment service providers such as Payment Institutions and Electronic Money Institutions. The Cloud allows new entrants to enter the market like never before. This is done by combining standardisation, the SEPA PE-ACH concept to increase reach, as well as the ubiquity of the Internet / TCP-IP enabled devices.

Companies from a variety of sectors are now launching payments-related products and services. What these companies have in common is a desire to make the payments process more efficient for consumers. Figure 5 Example Payment Innovations contains a slice of the range of players and innovations that currently exist in the payments sector

Figure 5. Example Payment Innovations

Company(s)	Industry Sector	Innovative Product(s) & Functionality	Company(s)	Industry Sector	Innovative Product(s) & Functionality
APPLE	Technology	Stores credit cards for app store purchases. Passbook App stores rewards	AT&T, T-MOBILE, and VERIZON	Telecom	ISIS stores payments credentials on smartphone; Near-Field Communication used for payments
EBAY INC.	Internet	PayPal stores payments information in secure wallet in the cloud for both online and point of sale	WALMART, TARGET, SEARS, BEST BUY	Retail	Merchant Consumer Exchange (MCX) currently developing and testing a mobile payments platform

⁴ e.g. telephony companies, merchants, money transmission companies, technology companies

Company(s)	Industry Sector	Innovative Product(s) & Functionality	Company(s)	Industry Sector	Innovative Product(s) & Functionality
VISA	Payments	Credit cards provide payments at point of sale; v.me for secure online payments	AMAZON	Internet Retail	Amazon Payments allows merchants to accept payments using Amazon account information
STRIPE	Startup Internet	Developer-focused method for accepting payments online.	DISCOVER	Payments	Cashback rewards provides consumers with cash rewards for payments
BARCLAYS + ORANGE	Bank + Telecom	Quick Tap allows UK customers to utilize their mobile phones for contactless payments	SQUARE	Startup Internet	Allows small businesses to accept payments using a dongle that attaches to a mobile device
GOOGLE	Internet	Wallet stores payment credentials in digital wallet; Near-Field Communication used for payments	INTUIT	Accounting and Financial Software	Intuit Pay smartphone app connects to a Chip & Pin reader that allows for point of sale payments acceptance
BANK OF AMERICA	Bank	Mobile Pay on Demand allows small businesses to accept payments using a smartphone dongle	WESTERN UNION	Payments	Enables online payments service for businesses making cross border bank-to-bank payments
Barclays	Mobile Payments	A mobile payment service, Pingit, for initiating payments using the mobile	Safaricom	Mobile Banking	A mobile telephone based service that overcomes physical infrastructure limitations

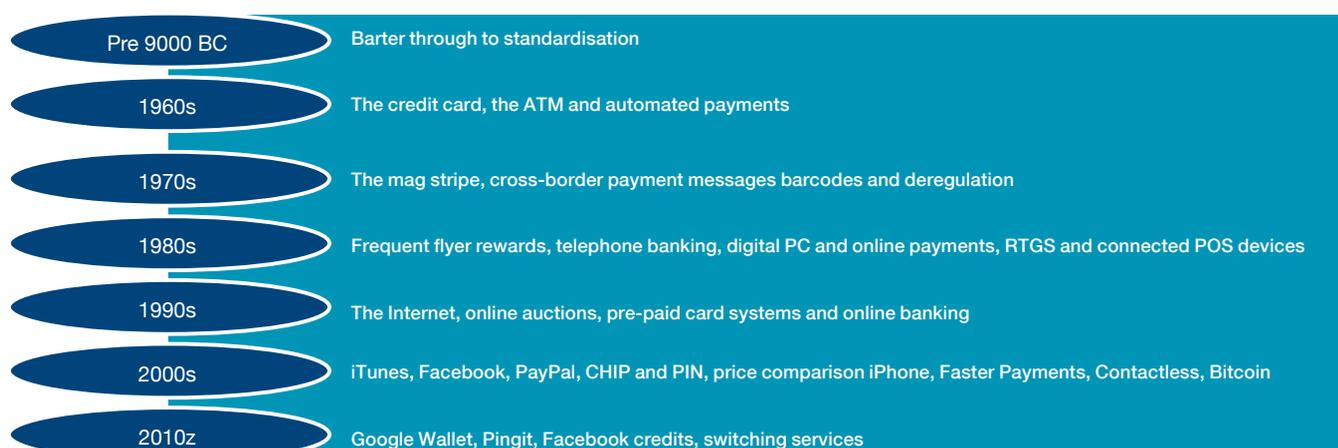
Technological

Historically, the payments business was a very manual process centred on the branch, which has been increasingly automated as technology has developed. Two innovations stand out as such in, Figure 6. Payments Timeline - the ATM and the card payment instrument. More recently online banking is evolving to meet the new transactional needs of today's market place.

Today the technology landscape is evolving at a dizzying pace, with component technologies seeing exponential growth in their performance and at ever decreasing levels of cost. The implications of this are impacting all elements of the payments value chain to create new value propositions and include:

- Fixed and wireless network capacity – more can be moved faster;
- Functionality and performance of end user devices, particularly mobile ones – propositions can be more rich and diverse; and
- Data storage capacity and performance – data can be accessed, manipulated and used more easily.

Figure 6. Payments Timeline



The Internet, the mobile device and the Cloud amplify the effects of these developments. Each of these technology-based services and propositions are being packaged and combined to create significant opportunity and drive change in the payments business.

Advances in cryptography are also transforming how and where payments are conducted – bringing security to mobility and enabling new digital currencies such as Bitcoin. New virtual currencies in gaming, social networking and other digital contexts are growing, becoming accepted in other contexts and challenging real-world currencies and regulatory controls. In 2006 a Chinese state prosecutor even suggested that QQ coins might challenge the legitimate status of the Yuan⁵.

Economic

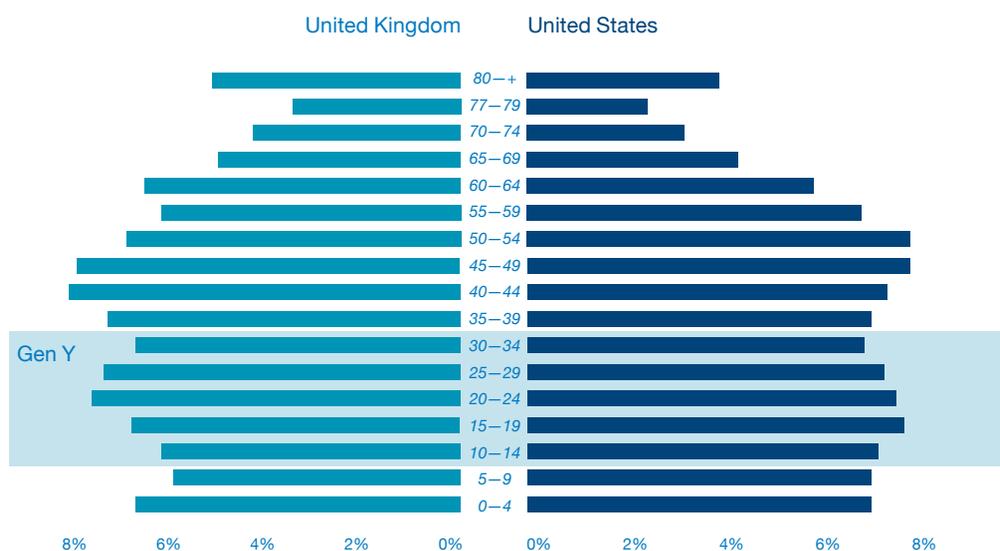
Historically, banks have derived substantial value from their retail payments franchise through Net Interest Income, the deposit multiplier and float in the payments process. However, the financial crisis in 2007/8, quantitative easing and the more recent economic recession have all combined to displace traditional sources of value in retail payments.

As economies work their way out of recession, the value pool of payments is likely to increase substantially and outpace growth in GDP. This is because of the shift from off-line to online payments with 50% of European consumers projected to make online purchases by 2013⁶, the displacement of cash by mobile instruments and the growth in payments for digital content purchases by virtual currencies.

Socio-Cultural

The retail customer has been evolving at the same time as the payments market and is typically classified in one of six generations; GIs, Traditionalists, Baby Boomers, X, Y and Z. Each of these generations has needs, expectations and behaviours that have been shaped by their experiences, values and characteristics.

Figure 7. UK / US Generation Y Profiles



Source: UN Demographic Yearbook (2011) /KPMG Analysis

Generation Y, people born between 1978 and 2005, make up a substantial proportion of the national demographic, Figure 7 UK / US Generation Y Profiles, and have been brought up with digital.

Connected, online and living their lives through their social networks they are large consumers of online content. With a high degree of social responsibility and a distrust of government they will embrace and want to embrace payment mechanisms that match their lifestyles – digital, online and mobile. Generation Y are therefore very comfortable shopping online with over 82% doing so⁷.

⁵ Asia Times online / China Desk
⁶ Internet Retailer / Eurostat
⁷ Visa

Policy

Understanding the differences between these generations, and in particular the data and data relationships that they create in today's more connected and digital world, allows regulators opportunity to imagine and identify new ways of achieving their objectives.

Historically, payments policy in Europe was limited and narrow. The business of payments was regarded as a bank issue and the level of intervention was relatively low. Where intervention did occur it tended to focus on delivering certainty and predictability of instruments like the cards and cheque.

Today, the business of payments is a major public policy issue. It is recognised as a part of critical national infrastructure and the threats posed to it by financial crime and geopolitical terrorism are high on the agenda. This shows no sign of abating in the foreseeable future.

Economic, terrorist and operational incidents have all stimulated substantial policy intervention:

- 2007/8 financial crisis – banking system fragility, recovery and resolution, ring fencing
- In 2001, “9/11” World Trade Centre in New York City - the Financial Action Task Force role extended to including combatting terrorist financing and extended its anti-money laundering recommendations;
- In 2012, a number of retailing banking incidents saw a significant number of UK customers unable to access their bank based payment services – up to one month in some regions.

These issues have resulted in new:

- Supervisory institutions being formed;
- Localised pieces of regulation;
- Prudential requirements being established; and
- Definitions of business conduct and processes.

In individual markets and at the community level, regulators have acted to stimulate innovation and transformation. It is important that the volume and nature of regulation does not of itself constrain innovation, which is why it is vital to develop it effectively and efficiently.



PART 2: PROBLEM. PAYMENTS REGULATION TODAY

INTRODUCTION

PayPal supports effective and efficient payments regulation

Policy is the expression of a society's choices about what must be either done or achieved and regulation is the means to make sure that this happens. Regulation per se is therefore a necessary part of a healthy and functional society.

PayPal's purpose in writing this paper is to contribute to making the regulatory process more efficient

Over time a set of timeless goals has evolved that underlie all effective payments regulation. This paper supports these goals and seeks to ensure their more efficient delivery through improvements in regulatory development and conduct.

SECTIONS

- A. Timeless Goals Behind Payments Regulation
- B. The Payments Regulatory Approach is Falling Short



Society needs payments to be well regulated from a prudential and conduct perspective. Doing so creates trust and fairness in the system as well as spurring innovation and growth in the market.

Payments regulation is founded on a timeless set of prudential goals and conduct objectives

The overarching goals are focused on achieving a safe, customer-focused and competitive market

The conduct objectives provide the detail on how the market goals are actually delivered in practice

A. TIMELESS GOALS BEHIND PAYMENTS REGULATION

There is a general consensus on the key policy goals that should underlie payment regulation amongst the key payments stakeholders around the world. National central banks, conduct authorities, prudential authorities and competition authorities are defined as key payments stakeholders.

Synthesising each stakeholder's specifically stated objectives produces a clear set of common prudential goals and conduct objectives. These goals and objectives should underpin the effective regulation of any world-class payment system in the market that the system serves.

Overarching Prudential Goals ⁸	Specific Conduct Objectives
<ul style="list-style-type: none"> • Efficient capital allocation/economic liquidity • Proper macro-economic functioning • Reduce economic volatility/increased resilience • Remove market imperfections • Protect depositors, investors and customers • Ensure safety of financial infrastructures • Deliver mandated political goals • Achieve demand-side/supply-side externalities • Balance interests of market participants • Foster innovation and competitiveness 	<ul style="list-style-type: none"> • Increase consumer protection • Reduce financial crime • More effective market and firm governance • Increase access to financial infrastructures • Greater transparency of information and pricing • More fairness in conduct and recourse • Increase innovation of products and services • Improve security of information and systems • Greater predictability in the operation of payments in all plausible scenarios • Legal certainty of systems and processes

Prudential goals

Prudential goals exist and persist because they underpin the operation of the market itself. Protection of depositors and consumers lies at the heart of trust in the financial markets. It also underpins the concept of credit and creates the confidence to make or receive payments.

1. Issuers may not innovate in payment instruments unless acquirers invest in acquiring devices and vice versa leading to an innovation impasse; or
2. Collaboration to resolve the innovation impasse may lead to market concentration of power, barriers to entry and barriers to long run innovation.

Equally, the governance structure and collaborative requirement in the payments industry provide policy makers and regulators with a relatively easy mechanism to affect change and deliver policy. This is evident in the development of Know Your Customer requirements.

Conduct objectives

Conduct objectives exist and persist because they support the prudential goals and deliver key policy objectives in how the market should function. Conduct objectives are where market participants are required to change the way they conduct their business or operational activities to address specific policy issues.

For example, this may be to address asymmetric information relationships in providing financial products and services, establishing requirements to treat customers fairly in terms of information disclosure and providing a clear means and mechanism of recourse.

Alternatively, this may be to more effectively operate sanctions restrictions on countries, organisations or individuals by requiring greater Know Your Customer controls and due diligence in the payments process and then filtering and screening transactions to identify prohibited transactions.



B. THE PAYMENTS REGULATORY APPROACH IS FALLING SHORT

A better understanding of the landscape is needed

Recent developments have begun to capture a wider range of organization and context ...

... but more needs to be done

It has only been relatively recently that payments regulation has begun to bring all organisations providing payment services into a more formal supervisory structure with the establishment of the Payment Services Directive⁹ in 2009. This followed an earlier intervention addressing Electronic Money Institutions in 2000.

Up until this point, in Europe these organisations had difficulty identifying applicable legislation. Despite this more still needs to be done for example:

- **A major prepaid contactless system** – A substantial payment mechanism that allows payment across a number of transport organisations, which has issued a significant number of payment instruments, c55 million that is roughly the size of the UK population.

It also runs a substantial cash liability; with 55 million cards in historic issue, c 8 million used in the last 12 months and an average prepaid float balance of GBP130M. It is therefore a substantial payments business but does not currently need to register as a Payments Institution or an E-money Institution.

- **A digital currency provider** – This is a new currency where the jurisdiction is unclear and customer protections don't yet exist.

Unlike today's payment systems, all of the currency holder's accounts are in the same place and therefore all payments are book entries over a single accounting system. Located in the Cloud, the service is available to anyone wherever an Internet connection exists.

A better approach to innovation is needed

The nature, rate and pace of change needs a new approach

Today, the rate and pace of change in payments is orders of magnitude faster than was the case previously. Where large set piece consultations could be conducted to deliver change in a bank and inter-bank payment system dominated context, the shift to online and mobile payments requires a more flexible approach. It also offers new opportunities.

Mobile app banking took only 3 years to reach 50 million users¹⁰, whereas the introduction of the ATM took 14 years.

Key elements of the control to deliver important payment attributes are outmoded

In the old world, a core payments concept such as identity was established through physical presence in a branch and the provision of a trusted document from either a governmental source and trusted third party like a notary public. Today, there is a need to establish identity in an online world and in a world in which people are using their bank branches less and less.

Technology creates new and better control opportunities too

Technology also offers substantial opportunities to address the question of identity differently; a key idea that we elaborate in a Know Your Customer case in Part 4. For example identity is inherent in and also accessible, from a mobile telephone contract or evident in a number of social networks and online to real world subscriptions. This information is increasingly accessible to the market.

The market needs a clear and coherent regulatory vision and strategy to make it confident to deliver change faster

Recognising the existence of this data and understanding how it inter-relates to other data allows these technology opportunities to transform both our expectation and experience of how regulatory needs can be met. For example is a person more likely to be the person that they claim to be if they:

- Physically present a utility bill at a bank branch; or
- A system can see that they have paid bills under that name to a biller for 3 years?

This depends on how well the information correlates and if it correlates well, how open it is to abuse.

It is vital that change is carried out in the regulatory framework with a detailed awareness and understanding of these new areas, in a way that creates both real and sustainable value. It is also vital

⁹ Title II – Payment Service Providers
¹⁰ Bank 3.0 King

Payments legislation includes technology bias

that this change is part of a coherent vision, strategy and plan. Without this, the danger is that change will be conducted for the sake of change. A leading figure in the payments industry once stated when faced with change for change's sake: "[well] something must be done, this is something, and therefore it appears that we must do it."

Recent payments legislation falls short of good outcome attributes?

In developing the Single Euro Payments Area banks wanted to achieve a high level of straight through processing (STP) in order to deliver better customer service at lower customer costs. They also wanted to deliver a higher information payload.

To achieve these objectives, a standardised bank account numbering convention was established and a messaging technology ISO XML 20022 was adopted. These are both appropriate to the context of the schemes that the adherents and proponents of the EPC scheme were developing.

However, by enshrining them into legislation in the technical annex this has increased barriers to entry to the wider industry and fallen short of the neutrality attribute.

More empirical testing would be helpful

In its analysis of what constitutes good policy making for the 21st century, the UK Cabinet Office identified nine principles of good practice. The development of the Single Euro Payments Area policy and enabling legislation falls short on a number of these:

- **'Use best available evidence'** – stakeholder engagement and collaboration was limited and no transactional / big data analysis and testing was undertaken to inform it;
- **'Be joined up'** – different Directorates General applied apparently conflicting interventions to the market that the market had to resolve. This inhibited the investment process and results in the Regulation 260 2014 deadline being put at risk since market participants are late to start their projects; and
- **'Be innovative and creative'** – the regulatory development process for creating the Payment Services Directive followed the traditional methodology with no data analysis about how different clearing cycles would affect market liquidity or risk for example.

Today's approach has a number of areas where improvement would be in everyone's interest

These issues expose a number of shortcomings in the existing regulatory process:

- **Market change:** Innovation creating new challenges that may have never been seen before and that regulation can struggle to deal with, e.g. the creation of new global virtual currencies in the private sector;
- **Outmoded ideas:** The rate and pace of change compromising the effectiveness of existing legislation, e.g. the application of advanced digital signatures using smartcards where mobile devices have not adopted the smartcard reader standard;
- **Competing policies:** The increasing number of policy and regulatory stakeholders focusing on payments can create uncertainty in the market and delay required change, e.g. between market efficiency and market competition policy objectives;
- **New opportunities:** New opportunities for regulatory intervention that are missed because no-one is focusing on them, e.g. A myriad of new sources and means of identity risk management outmoding traditional form factors.

Regulation needs to innovate too.

Outmoded ideas must be discarded, and new models for better regulation explored

To address these shortcomings, regulators and policy makers need to emulate the best practices of the markets that they regulate. In the new digital age, this means creating regulation that is outcome-focused and that cannot be compromised by the specifics of any one technology, business model or operating model. It also means adopting a more flexible engagement and formulation model with the market to develop new regulations and interventions safely and at the same pace as the market is developing.



PART 3: SOLUTION. A SMART NEW MODEL

*A new regulatory model
is needed*

INTRODUCTION

Dramatic changes are taking place in the payments market, and technological innovation is a key driver. This paper has explained how a combination of market trends and forces are combining to make the volume, rate and impact of this change more significant and urgent than ever before. The World Economic Forum describes how: “[w]e are living in the most complex, interdependent and fast-paced era in recent memory.”¹¹

A new model is needed.

SECTIONS

- A. Technology and Data Underpin Problem Solving
- B. A Better Framework is Needed
- C. A New Tool to Respond to Challenges in Policy Making – ‘Boyd Loop’
- D. The SMART Governance Cycle
- E. SMART Governance is More Dynamic
- F. SMART Governance Methodology Options
- G. SMART Governance can Work
- H. A Paradigm Shift



¹¹ See Executive Summary:
http://www3.weforum.org/docs/AM12/WEF_AM12_ExecutiveSummary.pdf

A new regulatory model is needed to meet the new needs of a continuously changing and technology based market

Fell proposes a model based on systems dynamics and founded on:

- Mindset
- Mechanism
- Principle

A new mindset will allow better use of data to improve insight and make regulatory risk management more effective

The Boyd Loop should be applied to policy making to deliver more effective outcomes and consists of a structured process of:

- Observe;
- Orient;
- Decide; and
- Act.

A. TECHNOLOGY AND DATA UNDERPIN PROBLEM SOLVING

In the payments sector, new players and business models are being introduced on a daily basis. This suggests that a similar “urgency in innovation” is needed in policy making and regulation to overcome the shortcomings we have described in Part 2.

It is difficult and challenging for policy makers to navigate this new context. A new adaptive policy making model is needed, where technology and data are used to better achieve public policy goals.

Such a model should apply similar problem solving strategies to those employed by nearly all modern companies. This requires a change in:

- **Understanding** – different business models and technologies;
- **Involvement** – of new and more relevant stakeholders;
- **Monitoring** – of market mechanisms for better regulatory monitoring;
- **Tools** – using the most effective tools available; and
- **Culture** – delivering a greater dynamism into policy making.

Technology and data make up the engine of this new model and are the key to unlocking the right outcome.

B. A BETTER FRAMEWORK IS NEEDED

Mark Fell, Managing Director Carré & Strauss, describes such a model in his “Manifesto for Smarter Intervention in Complex Systems” (the Fell Paper). The model that he proposes builds upon the discipline of systems dynamics and rests on three tenets: mind set, mechanism and principle.

Creating a public policy process for a society characterised by fast pace transformation requires a particular mindset. The Fell Paper describes the need for:

“An intervention mindset that abandons the illusion of predict-and-control in complex systems. Instead, we need to embrace uncertainty, proceed through survivable trial-and-error techniques and provide tools that release favourable system behaviours.”

Adding the element of data, Viktor Mayer-Schönberger and Kenneth Cukier describe a “big data mindset” in their book “Big Data: A Revolution That Will Transform How We Live, Work and Think” (2013).¹² They postulate a data dominated world, where our basic understanding of how to make decisions and comprehend reality is being challenged.

In many instances, we will have to give up on our expectation of exactitude and demand for highly correlated causality to gain new insights and more effective probabilities:

“As big data techniques become a regular part of everyday life, we as a society may begin to strive to understand the world from a far larger, more comprehensive perspective than before ... And we may tolerate blurriness and ambiguity in areas where we used to demand clarity and certainty, even if it had been a false clarity and imperfect certainty... ”.

We propose utilising this complex system big data mindset. This is not the traditional approach of policy makers. But, the real world examples from across modern industry are that this data model delivers better results.

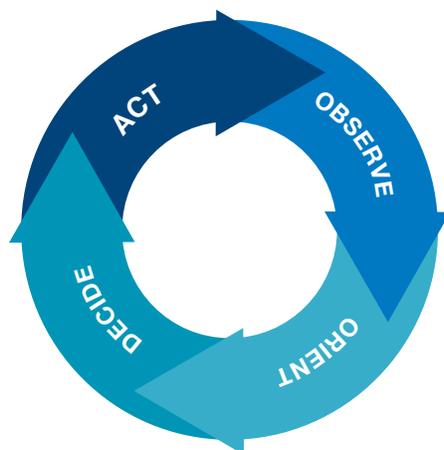
C. A NEW TOOL TO RESPOND TO CHALLENGES IN POLICY MAKING – ‘BOYD LOOP’

The Fell Paper advocates adoption of the OODA Loop – also called the Boyd Loop – in policy making; Figure 9 The Boyd Loop. The Boyd Loop is a decision-making model, first developed for fighter pilots and now increasingly applied in sports, business and technology contexts.

¹² Viktor Mayer-Schönberger is the Professor of Internet Governance and Regulation at Oxford. His research focuses on the role of information in a networked economy. Earlier he spent ten years on the faculty of Harvard’s Kennedy School of Government. Kenneth Neil Cukier is the Data Editor of The Economist; from 2007 to 2012 he was the Japan business and finance correspondent, and before that, the paper’s global technology correspondent based in London, where his work focused on innovation, intellectual property and Internet governance.

Figure 9. The Boyd Loop consists of four stages in a cycle:

1. Gather inputs from the environment (Observe);
2. Make sense of this data by creating a model of the situational reality (Orient);
3. Use this new knowledge as the basis for decisions (Decide); and
4. Translate this into action (Act).



The OODA Loop is one of the dominant ideas that Ben Hammersley lists in his book “64 Things you Need to Know Now for Then – How to Face the Digital Future” (2012).¹³

Mauboussin supports the use of experts in his book “Think Twice”, where he notes two universal characteristics of experts:

- Experts perceive patterns in their areas of expertise
- Experts can solve problems qualitatively

Application of the Boyd Loop allows hypotheses to be tested and validated before they are applied to the market at large

Hammersley describes how the OODA Loop has become a tool for developing web-applications by travelling fast around the loop, releasing small improvements to the application and watching to see what the changes do to the user experiences. In this way, a developer can try new things on a scale where failure is survivable and mistakes can be learnt from and generate new ideas. Responsible experimentation.

We recognise that the regulatory environment is different from a firm, and it is politically and socially unacceptable to experiment on a market-wide scale where a mistake is amplified many times over. In this context, a mistake may result in a loss of trust, a lower propensity to comply and a set of unexpected outcomes.

This doesn’t mean that policy makers shouldn’t experiment and test, it means that they should find a way of doing so that increases market confidence and the quality of intervention – a way in which we can “fail gracefully”. This could involve:

- Firm level pilots;
- Regional pilots; and
- Market simulations.

Consciously involve the right intervention agents

This new approach recognises the essential importance of good market wide consultation, but it also advocates an additional step in the process: the application of the Boyd Loop in pilot.

The Fell Paper attempts to provide insight into the actors who could operate an effective Boyd Loop in a regulation-making context – referred to as “intervention agents”. These intervention agents could include:

- Computer algorithms;
- ‘Crowds’; and
- Recognised experts.

Any process is only as good as the people who undertake it and power of the Boyd Loop and its experimentation lies in the people who are involved in analyzing it to draw insight and understanding from it

¹³ Ben Hammersley is currently UK Prime Minister’s Ambassador to East London Tech City, editor at large of Wired UK, a member of the European Commission High Level Expert Group on Media Freedom, and a non-resident fellow of the Brookings Institute

Involving people should be a conscious decision of mapping expertise to required outcome and need

Any group of actors should not be self-selecting, since this would result in bias and expertise risk. Instead, a conscious decision is needed to identify the right skill and experience mix and to objectively build the group based on this.

For example, experts are needed in areas where a combination of knowledge and initiative is required (between rule following and probabilistic prediction).

The judicious use of technology should also be a key part of this process

Computer algorithms can lead on pure rule-based decisions, provided that we keep in mind that computers lack the sensitivity to context held by humans. As put by Michael Mauboussin:

“Computers and collectives remain underutilised for decision making across a host of realms... That said experts remain vital in three capacities. First, experts must create the very systems that replace them. ... Next, we need experts for strategy. ... Finally, we need people to deal with people.”¹⁴

Good innovation in public policy making will involve finding the right “intervention mix” for a particular problem, and then to evolve that mix depending on the stage of the Boyd Loop.

Employ data and technology

Technology and big data can be a key mechanism for responsible experimentation

Technology and big data can be a key mechanism for responsible experimentation and could become the engine for the Boyd Loop applied to the public policy making process

Big data has been used by the technology sector for decades.

Defining Big Data

Gartner 2012:

“Big data are high volume, high velocity, and/or high variety information assets that require new forms of processing to enable enhanced decision making, insight discovery and process optimization”

From Wikipedia:

When the Sloan Digital Sky Survey (SDSS) began collecting astronomical data in 2000, it amassed more in its first few weeks than all data collected in the history of astronomy. Continuing at a rate of about 200 GB per night, SDSS has amassed more than 140 terabytes of information. When the Large Synoptic Survey Telescope, successor to SDSS, comes online in 2016 it is anticipated to acquire that amount of data every five days

In the last five years, it has transformed the way traditional industry conducts business. Big data has also transformed the way the government provides its services, and has improved governments’ efficiency with regard to procurement and law enforcement issues. However, big data has so far failed to lead to a reformation in the process by which regulation is created and implemented.

Now is the time to use big data in policy and regulatory development

The big data revolution has come as a result of several trends, namely increases in data acquisition capability, data storage, computing power, and algorithmic design, which have enabled better insights into developing technology. Policy makers can use the same techniques, skill and approach to transform the regulatory process of designing, implementing and improving public policy and legislation in collaboration with stakeholders.

The Australian government explains:

“Agencies have the opportunity to learn from the innovations occurring in the private sector to operate more efficiently and deliver services more effectively ... While needing to carefully consider the veracity of [private sector] data, it may be that agencies could consider using this data as part of big data analytics projects.”¹⁵

¹⁴ Michael J. Mauboussin was a chief investment strategist at Legg Mason Capital Management until January 2013 when he (re)joined Credit Suisse. He is also an adjunct professor of finance at Columbia Business School and is on the faculty of the school's Heilbrunn Center for Graham & Dodd Investing. He is affiliated with the Santa Fe Institute, a center for multidisciplinary research in complex systems theory

¹⁵ Australian Government, Department of Finance and Deregulation, Big Data Strategy Issues Paper (March 2013): <http://agimo.gov.au/files/2013/03/Big-Data-Strategy-Issues-Paper1.pdf>

SMART Governance is a five step process to deliver better regulation and more sustainable results

Step 1. Observe

Secure relevant data from all regulated actors

D. THE SMART GOVERNANCE CYCLE

Applying the Boyd loop to regulation in a step-by-step fashion, along with a complex systems big data mindset, will allow governments to transition to a more agile, collaborative and insightful regulatory model. These steps must be exercised repeatedly to gain significant benefits and ensure accountability.

This concept is referred to as the **SMART Governance cycle**:

Step 1. Secure relevant data from all regulated actors – Observe.

Collecting relevant data from the actors that are going to be subject to regulation in a centralised server is essential to beginning the process of gleaning insights from big data. Regulatory bodies do currently collect massive amounts of information from regulated actors, but they often do so in an inefficient manner (e.g. through a variety of paper forms), and can sometimes seek irrelevant or redundant pieces of information. This process could be made far more efficient through digitisation, calling upon regulated actors to submit data through an Application Programming Interface (API) that regulated bodies can directly plug in to in order to submit relevant data.

The process of securing data must also be created with a “level playing field” mind-set. Legislators must look to the specific pieces of data that all actors in a regulated environment would have. By harmonising the data request across regulated actors, regulators can better ensure that they have a relevant and comprehensive data set to work from. Moreover, comparison between regulated actors becomes simpler when the data points are harmonised. Experts, from among both the regulators and the regulated, should be relied upon to determine what data points are appropriate and relevant for a particular regulated environment. With regard to payments, as outlined in more detail in Part 4, we propose reinforcing the role of the Payment Systems Market Expert Group by complementing its sub-committees with the right combination of “knowledge and initiative” from the financial, regulatory and data science communities.

Reinforcing the Payment Systems Market Expert Group

A bridge to tomorrow’s Complex Systems Big Data Mindset

Made up of regulatory, issue-specific and technical experts

Tasked with implementing SMART governance including the feedback loops to ensure constant readjustment

Aligned, constituted and governed according to its terms of reference

Tasked with monitoring (prevent too much fishing expeditions, warn against overreliance/misuse) and ensuring transparency of – and proper information flows within - SMART Governance cycle

Step 2. Machines organise the data into centralised and interlinked databases – Orient.

Step 2. Orient

Use machines to organize the data into centralized and interlinked databases

Collecting an amalgam of data is not helpful if the data is not organised in a fashion that can be understandable. Currently, regulators are collecting large swaths of data, but it is oftentimes not organised in an understandable manner. Properly collecting and organising data enables it to be delivered towards addressing the right problem at the right time. Moreover, many government agencies struggle to share data – sometimes because of appropriate concerns – leading to situations where agencies are not be able to see the entire landscape. Encouraging the organisation of data from various sources will enable the strongest insights to be derived.

“The unification of multiple datasets from disparate sources in combination with advanced analytics techniques and technologies will advance problem solving capabilities, and in turn will improve the ability of predictive analytics to reveal insights that can effectively support decision-making”¹⁶

This step is about transforming data into information that can help in choosing the best course of action. Indeed, the ability to orient (to make sense of data) is likely the most important part of the cycle as it shapes the way we observe, decide and act.¹⁷

¹⁶ Australian Government, *Big Data Strategy Issues Paper (March 2013)*

¹⁷ Notes from talk “Organic Design for Command and Control”, John Boyd, 1987.

Step 3. Algorithms are created and applied to glean insights from the database – Decide.

Step 3. Decide

Algorithms are created and applied to glean insights from the database

Algorithm is a term that is widely misunderstood and is treated as far too technical for the average policy maker. But, this could not be further from the truth. An algorithm is merely a set of rules to be followed during an operation. An algorithm is basically an instruction manual. In the case of big data, an algorithm enables us to answer questions, or glean insights, from the database.

An example should help to further clarify. If there is a government health database containing information on blood types. If we wanted to know what the most common blood type is in the country, an algorithm that merely adds up all of the different blood types and then ranks them could be created to respond to the question.

It is important to recognise what big data can tell us and what it can't. Big data let us discover correlations – what is happening – rather than causation – why something is happening. Correlations allow us to capture the present and predict, with a certain likelihood, the future. Experts will be essential in designing algorithms and helping to interpret the insights from the results. Moreover, at this stage of the cycle, policy innovation includes using the data insights for thinking more broadly about where and how to introduce change into a system in order to achieve the set regulatory goals.

Step 4. Review and Readjust the data gathering, the database organisation, and the algorithms (Constantly) – Feedback.

Step 4. Feedback

Review and Readjust the data gathering, the database organization, and the algorithms (Constantly)

The key to success for entities using modern data analysis techniques is to be able to constantly innovate and adjust to the rapidly changing environment by generating and receiving feedback from current and previous iterations, Figure 10. Dynamic Repitition and Adjustment. There is no reason why government regulators cannot be equally agile in terms of both their processes and means of achieving their objectives. In fact, they should be. The regulatory model we envision therefore requires timely, plentiful and compelling feedback loops.

Feedback loops will also adjust the mechanics of our model: If gathering a particular piece of data does not help to achieve the goals that the regulator is seeking to achieve then it should no longer be requested. If databases are not structured in an efficient manner or are not integrated then the system must be reformed. Finally, if an algorithm is not leading to meaningful insights then the calculations must be readjusted. Moreover, proper feedback loops are essential in order to avoid the trap of misuse as well as overreliance on data.

Transparency and information flows will be crucial. However, we do not underestimate the difficulty in putting in (the right) place feedback loops that allow for well-targeted adjustments, corrections and innovation. To this end, we think that additional expert support would improve the efficiency and effectiveness of the feedback loops.

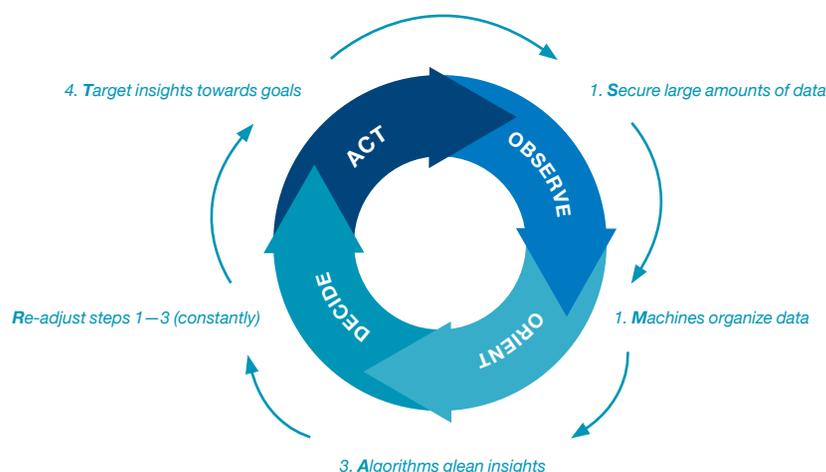
Step 5. Target the insights towards specific regulatory changes – Act.

Step 5. Feedback

Target the insights towards specific regulatory changes

Taking insights gained from the big data process and actually shifting the course of regulation is the step that will result in real benefits. This is again an area for human experts. Experts will interpret those insights in context and decide how to implement them into regulation and action. At this stage of the cycle, policy innovation includes putting the right intervention mix into action and allowing action to equate to experimentation. This is not saying we should introduce unnecessary risk into the regulatory process. However, remember that big data analytics is about predictions, and if we couple that with operating on a cycle with compelling feedback loops, we find ourselves equipped to try out new ideas on a scale where we can manage failure: “trial-and-error” in policy making.

Figure 10. Dynamic Repetition and Adjustment.



SMART Governance can be applied in 3 ways

E. SMART GOVERNANCE IS MORE DYNAMIC

SMART Governance is dynamic: the steps are interactive loops (within a cycle) where feedback forces them to be constantly readjusted and dependent on each other. The entire cycle is designed to help regulators make better decisions on how to improve the ongoing regulatory process and achieve the goals set out in their mandate.

- Legislators should utilise the SMART Governance model to design public policies including regulation;
- Regulators should utilise this model to improve the implementation of policy and regulation; and
- Legislators and regulators should utilise this model to work together when updating legislation.

F. SMART GOVERNANCE METHODOLOGY OPTIONS

The application of the SMART Governance model can be done in multiple ways.

This paper puts forward three methodologies:

Where the regulator undertakes their own analysis to establish the benchmarks against which it measures performance

1. The Regulatory Manager Method – The regulator works with the relevant advisory committee in the Payment Systems Market Expert Group to identify relevant pieces of results-based data, which can be collected from all regulated entities and applied to a particular results-based goal. The regulator houses a database where this information is collected. The regulator then creates its own algorithm and uses modern analytical techniques for deriving insights from the data. The regulator can then use its enforcement authority against entities that the algorithms demonstrate to be falling short of achieving specific results. This method tasks the regulator with managing the entire SMART Governance process, which lead to a serious resource constraint.

Where the regulator sets the outcomes and relies on regulated entities using their own analysis to demonstrate their results

2. The Regulatory Auditor Method – The regulator sets out a series of results-based goals for regulated entities to aspire to. The regulated entities house the relevant data (identified by the relevant advisory committee in the Payment Systems Market Expert Group together with the regulator as suggested under the Regulatory Manager Method), and create the algorithms to analyse the data. The regulated entities determine how they can best achieve the regulatory goals. The regulated entities must demonstrate, using results-based data, that they are meeting the goals set out by the regulators. The regulated entities must report their progress towards achieving those goals on a regular basis. The regulator can audit these reports, and use its enforcement authority if the results of the report fall below a certain threshold. This method allows the regulated entities the flexibility to innovate, but subjects the regulated entity to audit if they fail to achieve certain results. It also places the onus of responsibility on the regulated entity, but still places some burdens on the regulator to conduct regular audits.

¹⁶ Australian Government, *Big Data Strategy Issues Paper* (March 2013)
¹⁷ Notes from talk "Organic Design for Command and Control", John Boyd, 1987.

Where the regulator actively oversees the performance of the regulated entity and audits the analysis undertaken by them

- 3. The Regulatory Oversight Method** – The regulator sets out a series of results-based goals for regulated entities to aspire to. The regulated entities house the relevant data (identified by the relevant advisory committee in the Payment Systems Market Expert Group together with the regulator as suggested under the Regulatory Manager Method), and create the algorithms to analyse the data. The regulated entities determine how they can best achieve those goals. The regulated entities must create an internal independent auditor,¹⁸ which is subject to controls by the regulator. The internal auditor is also subject to annual review of its program. This method puts the onus of the burden on the regulated entity and allows the regulator to play an oversight role, while still subjecting entities to enforcement if they fail annual reviews or fail to utilise the controls set out by the regulator.

G. SMART GOVERNANCE CAN WORK

SMART Governance is used around the world

There are several examples of governments around the world utilising aspects of the SMART Governance model.

The South African government comes close to applying a complex systems big data mindset to analyse information from its national census program to find meaningful trends to help guide policy decisions.¹⁹

The Dutch Government has taken to the merits of system governance seeing its role as arranging, giving direction to and stabilising self-steering systems (see the “intervention principle” below), and to this end it experiments with a committee of experts from all sectors and database analytics with its accreditation regulator.²⁰

Finally, both the UK and US governments are experimenting with plugging in data directly from private actors into agencies by allowing citizens to use identity credentials from private actors to register for government services.²¹

H. A PARADIGM SHIFT

A paradigm shift is needed to put data and empirical analysis at the heart of the regulatory process

Our ambition is regulatory processes and public policies that follow the beat of data analysis to better achieve the goals regulators are seeking. But that requires a paradigm shift – in terms of methodology and in our way of thinking: we need to leave the comfort zone of “false clarity” and strive to evolve solutions, not determine them. This involves marrying a complex systems big data mindset with the OODA Loop logic; from there we can responsibly apply big data analytics to the policy making process and reap huge benefits in terms of better achieving public policy goals.

PayPal believes in regulation, but wants regulation to be better regulation.

The SMART Governance model moves us beyond the non-question of more or less regulation to instead focus on better regulation. To deliver better regulation, we will need something akin to the EU’s subsidiarity principle to guide us at the stage of (regulatory) action. The Fell Paper puts forward an “intervention principle” which could serve as a starting point:

It is not a question of quantity, it is a question of quality

“An intervention agent is to intervene only if, and in so far as, it is reasonably foreseeable that the objectives of the proposed intervention cannot better be achieved by the system running itself or in default of this by another agent”.

Applying the SMART Governance model to payments regulation will yield tremendous benefit

Important here is that with responsible big data use and with an improved understanding of the skills and know-how of the various intervention agents, we can begin to exercise “reasonable foresight” – we can predict with strong insights, and that is an extremely valuable ability:

“Big data’s predictions are not set in stone – they are only likely outcomes and that means that if we want to change them we can do so.” Mayer-Schönberger and Cukier

¹⁸ In their book “Big Data”, Mayer-Schönberger and Cukier describe the need for a new profession in response to ensure accountability, traceability and confidence in big data predictions: the “Algorithmist”. This is a new type of expert filling a similar need to the one that accountants and auditors did in the early 20th century with the new deluge of financial information. Mayer-Schönberger and Cukier envision (external) Algorithmists that would consult with government on how to best use big data in the public sector as well as (internal) Algorithmists, a sort of big data ombudsmen.

¹⁹ <http://www.wired.com/insights/2013/03/democratizing-big-data-to-bring-government-ahead-of-the-curve/>

²⁰ http://www.eesc.europa.eu/resources/docs/dutch_approach_2011_def_5_09082011.pdf

²¹ <http://www.finextra.com/News/FullStory.aspx?newsitemid=24448>; <http://www.nextgov.com/cloud-computing/2013/01/postal-service-host-cloud-based-public-private-id-protection-network/60468/?oref=ng-HPriVer>



PART 4: SOLUTION. PUTTING SMART INTO PRACTICE

INTRODUCTION

*The payments business
provides a good platform for
SMART Governance*

The payments market represents a particularly fertile space for the application of the SMART Governance model since it has:

- A broad range of market actors;
- A data-driven industry that is rapidly evolving;
- An industry used to collaborating and sharing information;
- An industry used to joint undertakings;
- A representative governance model;
- Clear, measurable and verifiable goals; and
- Baseline regulations are already in place.

A SMART Governance initiative would therefore be relatively easy to establish and deliver as the below case study and our recommendations will show.

SECTIONS

- A. CASE STUDY – Know Your Customer
- B. The Identification and Verification Process
- C. Putting SMARTER Payments Regulation into Practice
- D. Conclusion



Know Your Customer is a key issue for policy makers and regulators and is a complex compliance requirement for payment service providers

Know Your Customer requirements have detailed data assertion and evidence requirements

The specific data requirements depend on context

Specific rules vary by country, which makes compliance burdensome

Physical evidence requirements are typical and when converted to electronic format they create their own risks

A. CASE STUDY – KNOW YOUR CUSTOMER

Know Your Customer is a phrase used to encompass a range of business conduct activities undertaken to comply with regulatory requirements aimed at tackling money laundering and terrorist financing. The meaning of the phrase has since extended amongst practitioners to cover a range of customer due diligence activities to address the key policy goals of:

- Protecting consumers and treating them fairly; and
- Deterring, detecting and disrupting financial crime.²²

These goals are consistent with and align to the timeless goals in payments regulation set out in Part 2.

Know Your Customer is conducted by all payments businesses. For example, Sweden requires that “the principle of ‘Know Your Customer’ be applied within all of [an] undertaking’s business areas aimed at customers and in respect of all types of customers”.²³

Know Your Customer procedures involve:

- Identifying the parties to each transaction (e.g. payer and payee);
- Assessing the risks resulting from who they are (e.g. are they a politically exposed person);
- Understanding the nature of the transaction being undertaken (e.g. is it large or unusual?);
- Clarifying beneficial ownership or business relationship issues (e.g. are the parties agents); and
- Identifying any linked transactions (e.g. is the transaction one of related series).
- Reporting suspicious transactions.

The specific identification requirements will vary depending on whether the customer is a legal or natural person. The level of diligence required will also vary depending on how the transaction is being conducted; whether in person or remotely. The regulations and most jurisdictions allow the level of diligence to be determined by the level of risk involved. Irrespective of this dispensation, the requirement to conduct customer identification remains unchanged.

B. THE IDENTIFICATION AND VERIFICATION PROCESS

Customer identification is generally a two-part process: 1) obtain basic identification data; and 2) verify the reliability and accuracy of the data provided.

Specific Know Your Customer identification and verification rules vary significantly by country according to the nature and type of information sources used. This places a regulatory burden on organisations that are operating regionally or globally since local specificities have to be monitored and delivered.

For natural persons and taking the example of Belgium, there are a few basic pieces of data that are typically collected to meet Know Your Customer requirements:

- Surname;
- First name;
- Date and place of birth; and
- Whenever possible, relevant information on the address of the identified person.

For legal persons in Belgium, the following pieces of data must typically be collected under Know Your Customer rules:

- Corporate name;
- Registered office; and
- Directors.

In each case, identification must be verified by means of a supporting document. In the case of a natural person this means a copy of an identity card or passport. If this is done via mail, it is subject to its own set of interception risks and if it is required in person then it is inefficient. For a legal person, this means a copy of their constitutional documents such as their memorandum and articles of association.

²² UK HM Revenue and Customs AML guidance for money service businesses

²³ Finansinspektionen’s Regulations and General Guidelines Governing Measures against money Laundering and Financing of Particularly Serious Crimes in Certain Circumstances



The Current Know Your Customer Process

Traditional forms of ID are hard to use in the online world and technology advances have also made them less reliable

Regulators rely on information such as name and address combinations to match to entries on published lists of sanctioned individuals. Where there is a match, a payment can then be isolated and subjected to appropriate control measures to ensure that it is not subject to sanctions.

The level of evidence required to verify asserted identities will depend on the level of risk in both the transaction and the relationship. In several Member States, each source of documentary evidence is often graded in terms of sufficiency when compared to others. This usually means that a document issued by a government department is considered to be more reliable than a document issued by a company. Electronic evidence is acceptable to use, but where this is the sole base of evidence then it must be drawn from multiple sources collected over a period of time.²⁴

Using physical forms of evidence to support identity data is a more effective methodology for achieving the important regulatory goals of stronger identification and reducing financial crime. Arguably, it may not be the most reliable methodology for establishing the identity being asserted.

The Problem

Name and address are good but may no longer be good enough

There are several potential shortcomings with using the basic identification dataset to assert identity.

Name and address are important but they tell you nothing about a range of risk factors, including but not limited to:

- A person's relationships with any other person;
- Whatever constitutes 'normal behaviour' for the identified person; and
- Who that person is in terms of political life.

Where they may have value is if the name and address combination match an existing risk assessment in the form of that name and address combination appearing on a sanctions list, for example.

Identity documentation is subject to fraud. Reports from one Member State Passport Authority show that as many as ten to fifteen thousand valid passports have historically been issued to bogus applicants each year.²⁵ Also, such documentation primarily focuses on providing confidence about the name and address of the individual concerned or the name and location of registered office in the case of a company.

Developments in technology have undermined the value of traditional source of evidence

An additional observation is that relating these basic pieces of identification data to a physical person is itself open to risk of impersonation. Information security strategies apply three-factor tests to the quality of identity mapping. The first two of these is something that you know and something that you have. However, the third of these is something that you are. An individual can impersonate another by 'knowing' the other's identity data and forging documentary evidence. It is much harder to demonstrate their physical or biological characteristics.

Know Your Customer 2.0

SMART Governance can be used to improve identification and verification

We propose using the SMART Governance model to challenge the entrenched notion that name and address are akin to identity and to improve our ability of achieving the results of protecting consumers and reducing financial crime.

Today, modern payment services are looking at the entire electronic footprint of actors when determining identity. And the profusion of online data is being efficiently and effectively used by payments providers to combat risk. Moreover, modern payments providers are constantly adjusting the data points gathered, their methodologies for database organisation, and the algorithms that analyse the data.

To understand the potential value for regulators of these new data points in Know Your Customer regulation, a relevant advisory committee in the Payment Systems Market Expert Group as we have proposed above should be established. This committee would work with regulators to identify more meaningful data to manage Know Your Customer risks.

This process would involve determining which pieces of electronic data today's payment service providers collect, or could collect, to deliver an efficient, more reliable and more insightful correlation between customer identification and evidence.

For example, the relevant advisory committee in the Payment Systems Market Expert Group might suggest that capturing mobile telephone numbers or customer email addresses serve as better identity proxies than name and address. The Relevant advisory committee in the Payment Systems Market Expert Group could then assess the relevance and value of these new data points. Mobile numbers, device identifiers and active email addresses are dynamically linked to individuals, and they carry complex data relationships across a range of organisations that are difficult to forge.

The relevant data is available and increasingly being used in the industry

Indeed, most modern payment providers already routinely collect mobile telephone numbers, the airtime contract holders map device identifiers to individuals and both have customer email addresses. These data points could be subjected to detailed analysis in the context of Know Your Customer. This committee can carry out such detailed analysis of these data points to determine if their use in determining identity can yield better results in detecting financial crime and reducing its impact.

Big data offers the opportunity of better control and more effective risk management

Moreover, by analysing the underlying identity networks that connect to mobile telephone numbers, device registrations and customer email addresses, stronger identification and verification links could be established. For instance, the analysis could be extended to cover data items which could be linked to policy objectives or policy risks – for example:

- Personal tax return filing performance;
- Participation in national census taking; and
- Participation in customer surveys.

Applying the proposals set out in this paper could therefore deliver better outcomes, enable more effective regulation

SMART Governance could be used to determine if these data items (in any combination) are more likely to accurately establish identity and therefore better support the goals of detecting financial crime and protecting consumers.

In addition, by adopting the Regulatory Oversight Method described above, payments institutions would themselves (continue to) collect these data points, create the algorithm for assessing the data, and determine how to best act in order to achieve the goals set by Know Your Customer rules. These payments institutions could then be subject to an internal auditor that must meet program requirements set out by a regulator.

The process we have described is more akin to how modern payments providers assess this issue: they are constantly searching for new data points and improved algorithms that better address risk, confirm identity, reduce fraud, and protect consumers.

C. PUTTING SMARTER PAYMENTS REGULATION INTO PRACTICE

SMART Governance should be applied to current payments regulatory initiatives

We have outlined a new regulatory model and, as an example, explained how it could be applied to Know Your Customer rules to better achieve public policy goals. The first steps towards embracing more generally this new way of regulating payments should be taken today.

To that end, PayPal recommends application of the SMART Governance model to several ongoing initiatives in the EU.

EU policy makers should implement the following four recommendations:

Reinforce the role of the Payment Systems Market Expert Group to apply SMART Governance to Payments

Recommendation 1

Use additional experts to support the Payment Systems Market Expert Group in delivering SMART Governance

The case study of Know Your Customer regulation suggests that much of the substance currently underlying EU payments regulation has not been subject to data analysis. The reasons for this might be vary: classical entrenchment, lack of resources, and/or lack of expertise. Nevertheless, this paper calls for an application to payments regulation of the process of SMART Governance. One way to do this would be to set up issue-specific committees under the umbrella of the Payment Systems Market Expert Group and made up of financial services, regulatory, and technology/data experts who can assess the assumptions that underlie current payments regulation. These experts can also test the efficacy of new pieces of data by applying the SMART Governance model in the hopes of arriving at results that better achieve the fundamental goals underlying payments regulation.

Employ Simplified, Efficient and Effective Due Diligence Requirements

Recommendation 2

Employ simplified, efficient and effective due diligence requirements

(Draft Anti-Money Laundering – AML – Directive Article 15)

PayPal fully supports the principle of simplified due diligence measures in low-risk situations enshrined in the draft directive. Customers due diligence (“CDD”) requirements are designed to make sure obliged entities know who their customers are.

The idea of a simplified due diligence (“SDD”) is that where there is a low risk of money laundering or terrorist financing because of the characteristics of the product, transaction and/or customer, obliged entities do not have to comply with all CDD requirements provided for in the Directive.

The current wording of the Directive, however, leaves the definition of such measures and situations to the European Supervisory Authorities and the national regulators. The major risk of this approach is that European Supervisory Authorities and national regulators create definitions that are not data-driven and fail to reflect the current innovations occurring in the payments industry. Arbitrary guidelines adopted by national regulators to implement the AML directive could stifle future innovation; and, even if a certain degree of harmonisation in the national implementation is reached – which is far from certain – differences in enforcement may still unlevel the playing field.

We believe that by applying the SMART Governance model, public authorities will be better able to define low-risk situations and the appropriate simplified measures by relying on, and analysing, relevant data.

Pursuant to this model, the above described Advisory committee in the Payment Systems Market Expert Group would be tasked with determining what the relevant pieces of data are for determining a low-risk situation from all players in the payments industry.

Only after analysing that data should the European Supervisory Authorities (ESAs) create regulation on low-risk situations. Moreover, if the Regulatory Manager model is utilised, the ESAs should, together with the Advisory committee in the Payment Systems Market Expert Group, continue to test whether those data points, and its analysis, produce a better result by reducing money laundering while fostering innovation in the payments marketplace.

Recognise That New Technologies Create Opportunities and not Only Risks

Recommendation 3

Recognise that new technologies create opportunities and not only risks

(Draft AML Directive, Annex III)

New products, new business practices and new technologies are currently being identified as potentially higher-risk situations in the Proposed AML Directive. This is not just contrary to the Financial Action Task Force (FATF) recommendations which provide that new products, new business practices and new technologies should only be subject to a risk assessment, but is also contrary to the very idea of fostering economic growth and innovation which is at the heart of the European internal market.

New technologies can help to better identify and manage risks, as shown by the SMART Governance model. The proposed AML Directive language is arbitrary and is antithetical to the notion that technology can help to improve results.

Regulation should focus on objectives and outcomes, rather than favour one technology and by implication one set of providers over another. Any regulatory requirement has to be implemented at the firm level and it should be down to the firm to decide the most appropriate system for them to meet it. Provided that they do meet it, this is way to foster innovation.

The sooner regulation moves away from treating technology as a high-risk proposition, the sooner that the regulatory decision model can begin to adopt technology to improve its results.

Language suggesting new practices and technologies are potential high-risk situations should be removed from the directive. Moreover, the Advisory committee in the Payment Systems Market Expert Group, discussed above, should be tasked with identifying actual data points that can help to better identify and manage risk.

Expand and Generalise the Use of a Risk-Based Approach

Recommendation 4

Expand and generalize the use of a risk based approach

We recommend that the European legislator generally takes a risk-based approach to regulation. That means two things:

1. The legislator should focus on those areas that present the greatest risk to its regulatory objectives. For example, in the context of the PSD review, the Commission is considering extending the scope of the PSD to one-leg transactions (transactions where one leg is inside the EU and one leg is outside the EU). We believe that there are more pressing issues to address in this context and that the Commission should rather focus on reviewing the definition of payment services and the list of exemptions to make sure that regulation is technology neutral and provides a level playing field.
2. The legislator should abandon its traditional “one size fits all approach”. Currently in the PSD, all types of payment services are subject to the same set of rules, regardless of the actual risks posed by each of those services. We believe it would be preferable to take a risk-based approach and define requirements commensurate with the risks posed by each specific type of activity. For example, if a payment service provider’s sole activity is to hold customer funds (e.g. escrow type of services), there should be safeguarding requirements targeted to ensure only those funds are protected in case the payment service provider goes bankrupt. It does not make sense in this instance to apply AML requirements.

The risk-based approach is most effective when is applied through the lens of the SMART Governance model. Policy makers and regulators must utilise technology to gather, measure, and analyse data from regulated entities, to determine the real risks posed by a given activity. This will not only allow for better results but will also release useful resources for public authorities to concentrate their enforcement activities where it really matters.

The Advisory committee in the Payment Systems Market Expert Group could be helpful in evolving the risk-based approach in payments regulation. The This committee would be tasked with determining specific data points that are related to the PSD, AML, and ECB security recommendations and analyse their correlation to specific risks. Regulators would use the findings of the This committee to adjust regulatory requirements to correspond with the risks posed by specific activities.



*A new model to support the regulatory process – **SMART Governance** – and to deliver better regulation in terms of results and efficiency*

D. CONCLUSION

This paper has outlined a new model for the regulatory process.

The SMART Governance model introduces to the regulatory processes the same data analysis techniques and approaches to problem solving that are revolutionising industry. These techniques can be utilised by policy makers and regulators to glean new insights and make better decisions when it comes to regulation. We have demonstrated that this model is ripe for application in the payments market, where current regulation is failing to keep up with the fast-moving industry.

We think that payments policy makers and regulators should adopt the SMART Governance model in order to better achieve the timeless goals underlying payments regulation.



