21ST CENTURY REGULATION
PUTTING INNOVATION AT THE HEART OF PAYMENTS REGULATION

PayPal™

ebay inc™

21ST CENTURY
REGULATION
PUTTING INNOVATION
AT THE HEART OF
PAYMENTS REGULATION

CONTENTS

SYNOPSIS

This document explains – in four parts – the transformation that is taking place in the payments 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 recommendations.

Part 1 explains how the business of payments is being transformed across 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 sets out the 'timeless' goals and key objectives of payments regulation; goals that we believe are shared by all stakeholders. It then highlights how the existing process is falling short of achieving those goals.

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 based upon Dynamic Performance Standards and SMART Governance so that the regulatory process can benefit from the same cutting edge practices that are revolutionizing industry.

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 several concrete recommendations for putting our ideas into action.

AN OPENING NOTE FROM EBAY INC. VICE PRESIDENT OF PUBLIC POLICY AND GOVERNMENT RELATIONS, TOD COHEN

PayPal recently launched a program called PayPal Galactic, an initiative designed to bring together leaders in the space industry to ask the important questions about how to govern payment systems in space. On the path towards payments systems that apply in outer space, it is important that we ask some fundamental questions about how we govern payments on the surface of the Earth. In the same spirit of long term thinking as PayPal Galactic, this document offers a revolutionary, but practical and intuitive, new way to approach regulatory decision-making.

We recommend that regulators use the same data analytics techniques that have transformed the payments sector, as well as the healthcare sector, and the getting-a-taxi sector. These techniques rely on collaboration and iteration; they use technology and data to measure performance and deliver results. We believe that implementing this new approach will enable regulators to better achieve their goals, benefit consumers, and allow for a faster pace of innovation in the payments industry. Finally, we believe the ideas presented in this report can be applied beyond payments regulation; we hope this paper kicks off a discussion among regulatory experts about how modern data analytics techniques can transform the process of regulatory decision-making in every sector.

PayPal is ready to work with governments around the world to think about how to implement this innovative model for regulation.

Tod Cohen
Vice President of Public Policy and Government Relations
eBay Inc.

EXECUTIVE SUMMARY

RAPID IMPROVEMENTS IN TECHNOLOGY ARE ENABLING BUSINESS MODELS IN THE PAYMENTS ARENA THAT WERE SIMPLY NOT POSSIBLE 20 YEARS AGO. THE INNOVATIONS IN INDUSTRY, THOUGH, OPERATE WITHIN A REGULATORY SYSTEM THAT IS STRUGGLING TO KEEP PACE.

PayPal believes that the overarching goals behind payments regulation are widely shared; no one questions the need to combat money laundering and fraud. There is disagreement, though, about how the existing regulatory process can be enhanced to better achieve these goals. Current payments regulations generally utilize rigid design standards – that impose specific business methods on innovative businesses – and a methodology that cannot iterate with rapid developments in industry. There is uniform agreement that the current model for regulation cannot keep pace with the rapid changes in industry. This frustration is especially widespread among leaders of technology-based businesses.

The key challenge is to define and operate regulation to realize governmental goals in the most effective and efficient way possible. The concern is not so much about the "what the government is trying to achieve" but rather more about the "how it is trying to achieve it".

PayPal advocates the use of a new decision-making model – **SMART Governance** – to better deliver the important goals underlying payments regulation in a manner that benefits government, consumers, and industry. SMART Governance combines the use of technology and data with a collaborative and iterative process to measure performance of covered entities, creating a better informed regulatory development process.

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. We are calling for the application of **Dynamic Performance Standards**, regulatory policies that measure results; that iterate based upon new data and new insights arrived at through a collaborative process. Performance standards have failed to become the dominant regulatory paradigm in part because industry found them overly static and carrying too much regulatory risk in exchange for too little real world flexibility. Dynamic Performance Standards utilize modern data analytics techniques, iteration, and collaboration to overcome the traditional shortcomings of performance standards.

This paper calls for a shift in the regulatory decision-making model; one that is the next logical step in the evolution of regulation. PayPal believes that utilizing Dynamic Performance Standards and SMART governance will get better regulation into the market with better results than is the case today. Moreover, applying these concepts will enable regulation to better keep pace with the highly innovative and transforming industry.

The SMART Governance model applies a framework that allows policymakers 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 on performance, using **M**achines to organize databases, creating **A**lgorithms to derive insights, **R**eassessing results, and **T**argeting insights to improve performance 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:

- Making decisions based upon iterative data analysis

- Encouraging collaboration with the most appropriate actors on an issue-by-issue basis;

- Focusing on performance rather than design; and

- Understanding the opportunities to better delivery policy goals while enabling new business and operating models.

The classical Know Your Customer regime serves as an example of applying these innovative decision-making concepts. Dynamic Performance Standards and SMART Governance encourage the use of results-based measurement and data analytics to scrutinize the traditional data elements underlying Know Your Customer (i.e. name and address) and the traditional methodology by which those pieces of data are collected (i.e. presenting a picture identification document).

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

1. **Create a Payments Market Expert Group to Apply the SMART Governance Model**

2. **Review Design Standards that Fail to Account for Innovative Payments Business Methods**

3. **Remove Repetitive Burdens, Particularly in the Case of Cross Border Transactions**

4. **Expand and Generalize the Use of a Risk-Based Approach**

Policymakers and regulators will benefit from adopting Dynamic Performance Standards and the SMART Governance model, as will industry and consumers.

PART 1
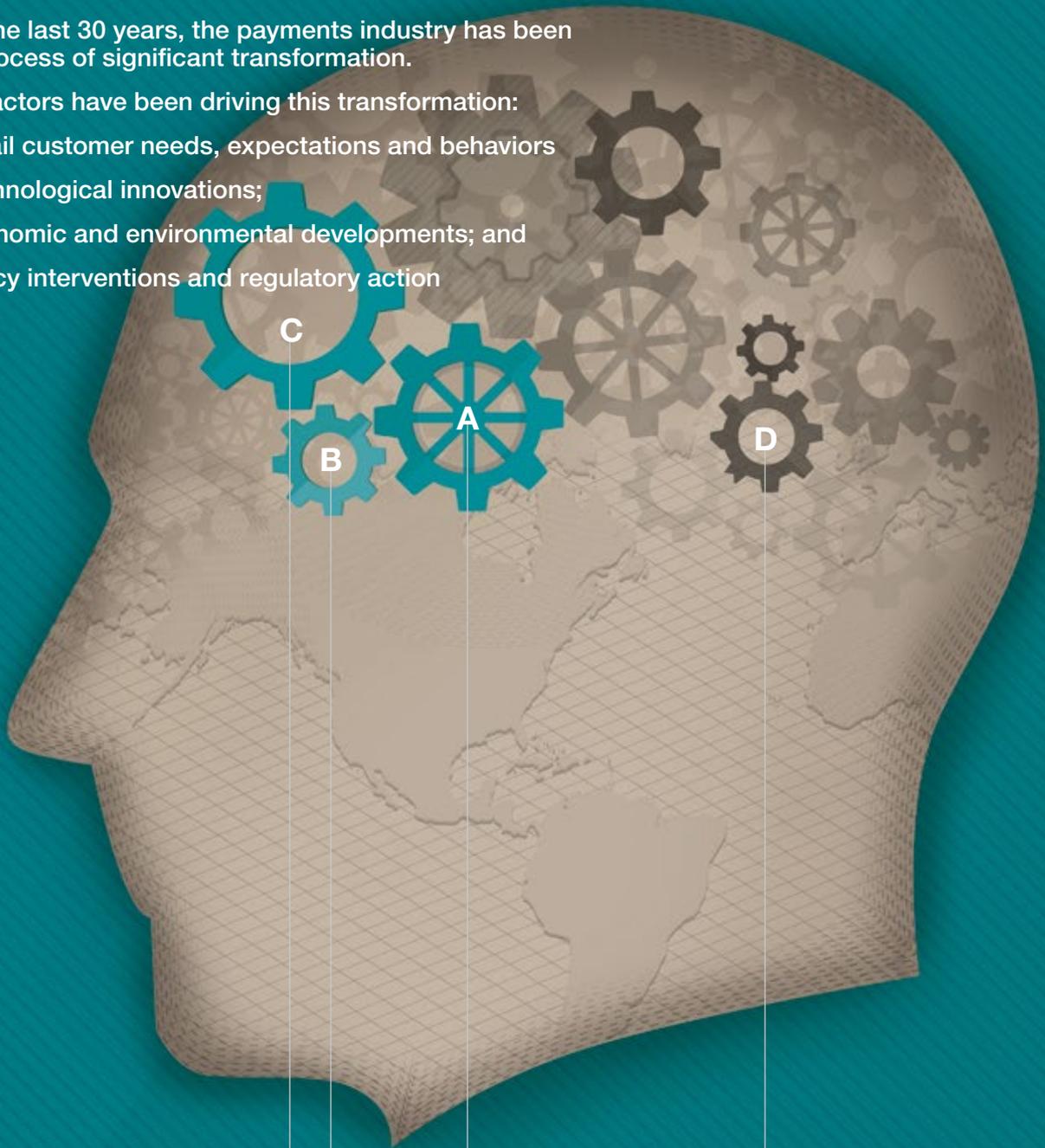# CONTEXT.
THE PAYMENTS LANDSCAPE

INTRODUCTION

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

Four factors have been driving this transformation:

1. Retail customer needs, expectations and behaviors

2. Technological innovations;

3. Economic and environmental developments; and

4. Policy interventions and regulatory action

SECTIONS

A. THE VALUE OF PAYMENTS

IN 2009, THE FEDERAL RESERVE SYSTEM REPORTED THAT ELECTRONIC PAYMENTS MADE UP OVER 75% OF ALL NONCASH PAYMENTS BY NUMBER AND MORE THAN 50% BY VALUE.[1] MOREOVER, PAYMENTS ARE INCREASINGLY ENABLING CROSS BORDER TRANSACTIONS THAT WERE NEVER BEFORE POSSIBLE.

In 2013, cross border online shopping was estimated to be worth more than $105bn with 93.7 million people shopping from overseas websites in 2013; these transactions are almost exclusively enabled by electronic payments.[2]

The effect of payments goes far beyond the common perception of everyday consumer purchases. Markets would cease to function, production would halt and government would be unable to operate without payments. 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 labor and to convert their propositions and products into cash.

- From a government perspective, payments allow taxes to be collected, benefits to be paid and 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.

[1] http://www.frbservices.org/files/communications/pdf/press/2010_payments_study.pdf

[2] PayPal, Modern Spice Routes (July 2013)
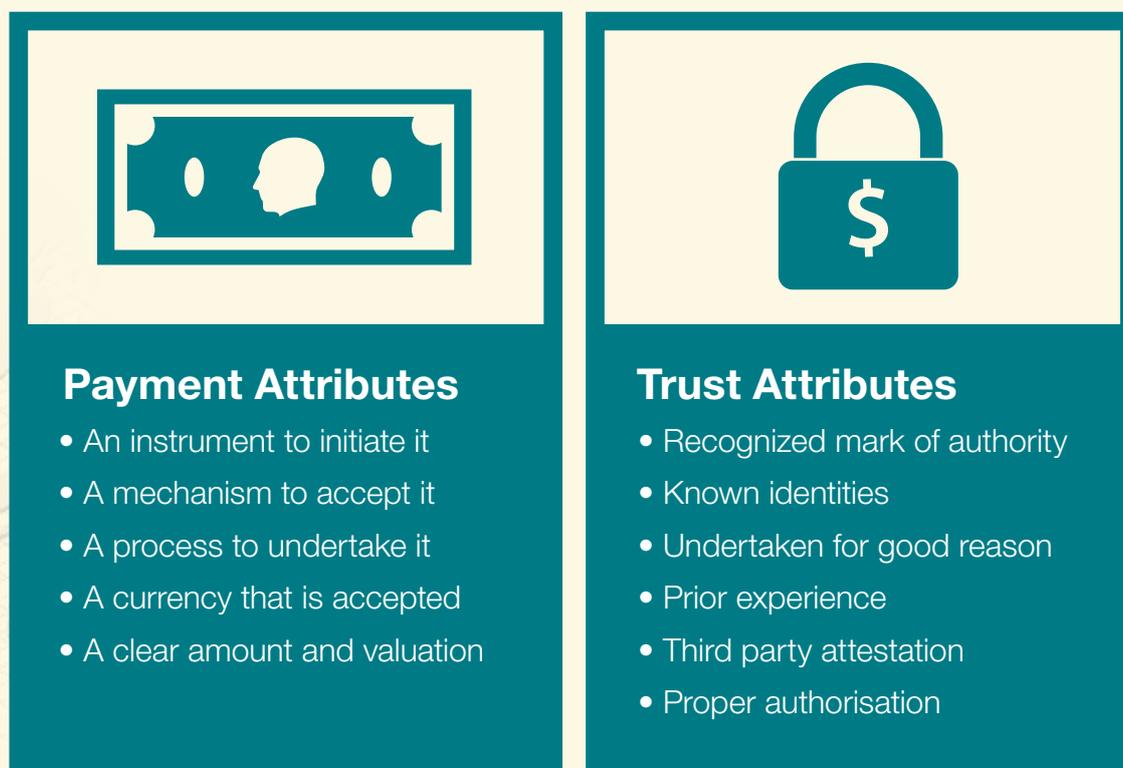
B. PAYMENTS ATTRIBUTES

THE CONCEPT OF A PAYMENT HAS BEEN IN EXISTENCE SINCE 9000BC[3] 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.

"The Best Payment System Is The One You Don't Even Notice."[4] 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.

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

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

[3] Davies and Davies, 1999, A comparative chronology of money

[4] http://www.itechpost.com/articles/9407/20130518/best-payment-system-one-don-t-even-notice-paypal-speaks.htm

C. PAYMENT RISK

A PERSISTENT FEATURE IN ANY PAYMENT TRANSACTION IS THE CONCEPT OF PAYMENT RISK.

Although several 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 risks 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 regulatory intervention to reduce the level of threat, to detect and prevent risk from being accepted into the system, and to minimize the impact on other system participants.

Care is required to understand how risk changes in different contexts and to assess new opportunities for control; simply analogizing to classical contexts when addressing new circumstances since risk may be managed in a different manner.

Where a payment mechanism is confined to a single organization, 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).

FIGURE 2
MARKET RISK TRANSMISSION MECHANISM

Markets	Scenarios	Participants	Mechanisms	Implications
Financial Sector	Market Credit Operational	Financial Institutions (FIs) Non-Bank FIs	Financial Market Infrastructure Payment Systems	Economic Political Societal Financial
Broader Sectors		Government Businesses Consumers Citizens	Assets Markets Behaviors	

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 summarized in Figure 3. This summary provides the context to understand the opportunities and the threats to the payments regulatory framework.

FIGURE 3
THE PAYMENTS LANDSCAPE

Historically, payments were 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, policymakers 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 right.[5]

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.

[5] 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'

FIGURE 5
THE PAYMENTS TIMELINE

PRE 1960s
Cash and barter

1960s
The credit card, the ATM and automated payments ACH

1970s
The mag stripe, cross-border payment messages, barcodes, and deregulation

1980s
Frequent flier rewards, telephone banking, digital TV, online payments, RTGS, and connected POS devices

1990s
The Internet, PayPal, pre-paid transit systems, online banking

2000s
iTunes, FaceBook, Chip and Pin, price comparison, iPhone, contactless payments, Bitcoin

2010s
Mobile wallets, Pingit, FaceBook Credits, switching services

Source: Gen Y. Brownson/KPMG Analysis

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[6] to enter the market like never before.

Historically, the payments business was a very manual process centred on the bank branch, which has been increasingly automated as technology has developed. Two innovations of the second half of the 20th century – the ATM and the card payment instrument – stand out. More recently, online banking is evolving to meet the new transactional needs of the modern marketplace. (Figure 5. The Payments Timeline).
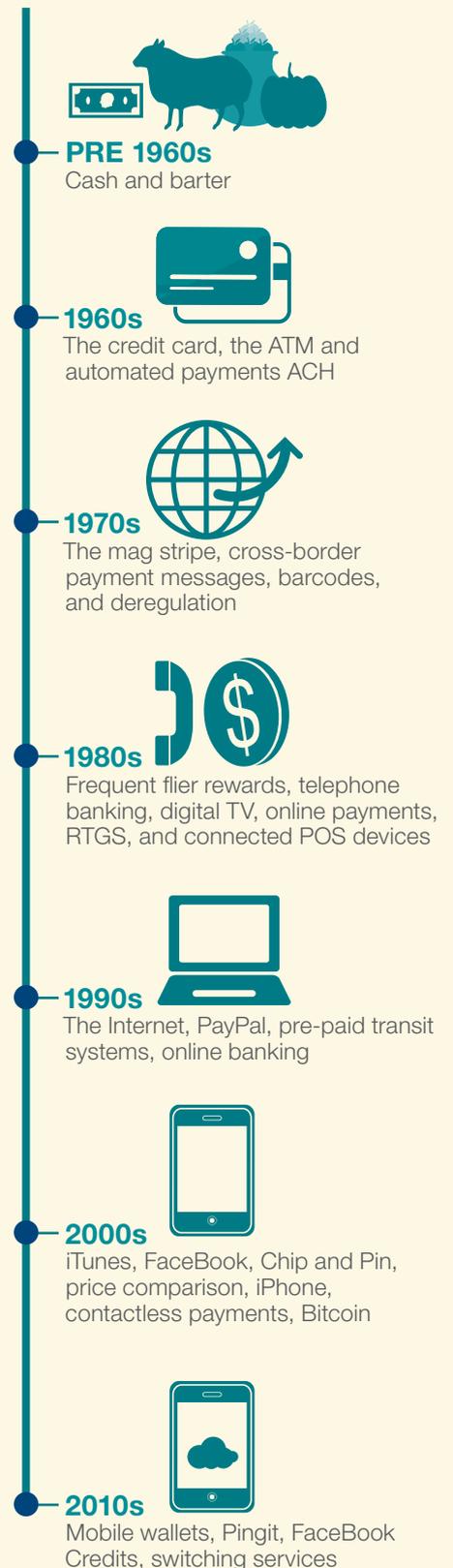
Companies from a variety of sectors are now launching payments-related products and services with a desire to make the payments process more efficient for consumers. Figure 6 describes just a few of the players and innovations that currently exist in the payments sector.

Today the technology landscape is evolving at a dizzying pace, with component technologies seeing exponential growth in their performance at 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.

[6] e.g. telephony companies, merchants, money transmission companies, technology companies

FIGURE 6 EXAMPLE PAYMENT INNOVATIONS

⚙ Industry Sector

💡 Innovative Product(s) & Functionality

EBAY INC

⚙ Internet

💡 PayPal stores payments information in secure wallet in the cloud for both online and point of sale

ebay inc ™

SAFARICOM

⚙ Telecom

💡 M-PESA enables bill payment and banking through a network of partner businesses

Safaricom

DISCOVER®

DISCOVER

⚙ Payments

💡 Cashback rewards provides consumers with cash rewards for payments

SQUARE

⚙ Startup Internet

💡 Allows small businesses to accept payments using a dongle that attaches to a mobile device

■ **Square**

MCX — MERCHANT CUSTOMER EXCHANGE

MCX

⚙ Retail

💡 Merchant Consumer Exchange (MCX) currently developing and testing a mobile payments platform

CAPITAL ONE BANK

⚙ Bank

💡 Sparkpay enables payments acceptance through an encrypted card

CapitalOne Bank

APPLE

⚙ Technology

💡 Stores credit cards for app store purchases. Passbook App stores rewards

WESTERN UNION

⚙ Payments

💡 Enables online payments service for businesses making cross border bank-to-bank payments

WESTERN UNION WU ™
moving money for better

stripe

STRIPE

⚙ Startup Internet

💡 Developer-focused method for accepting payments online

BARCLAYS / ORANGE

⚙ Bank + Telecom

💡 Quick Tap allows UK customers to utilize their mobile phones for contactless payments

🦅 **BARCLAYS**

orange ™

GOOGLE

Google

⚙ Internet

💡 Google 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

intuit ®

ISIS

ISIS

⚙ Telecom

💡 ISIS stores payments credentials on smartphone; Near-Field Communication used for payments

BANK OF AMERICA

Bank of America

⚙ Bank

💡 Mobile Pay on Demand allows small businesses to accept payments using a smartphone dongle

VISA

VISA

⚙ Payments

💡 V.me is a digital wallet designed for secure online payments

AMAZON

amazon.com

⚙ Internet Retail

💡 Amazon Payments allows merchants to accept payments using Amazon account information

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 drive change in the payments business and create significant opportunity.

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 offline to online payments, the displacement of cash by mobile instruments, and the growth in payments for digital content purchases.

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 behaviors that have been shaped by their experiences, values and characteristics.

Generation Y, people born between 1978 and 2005, make up a substantial proportion of the national demographic and have grown up with digital technologies at their fingertips. (Figure 7. UK / US Generation Y Profiles).

Connected, online and living their lives through their social networks they are large consumers of online content. They 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 so.[7]

Understanding the differences between these generations, and in particular the 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 the US has been limited and narrow. The business of payments was regarded as a bank issue, as these were the entities classically involved in payments, 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 check and the card.

Today, the business of payments is a major public policy issue and new players are involved in the process. Payments is recognized as a part of critical national infrastructure and the threats posed to it by financial crime and geopolitical terrorism are high on the agenda.
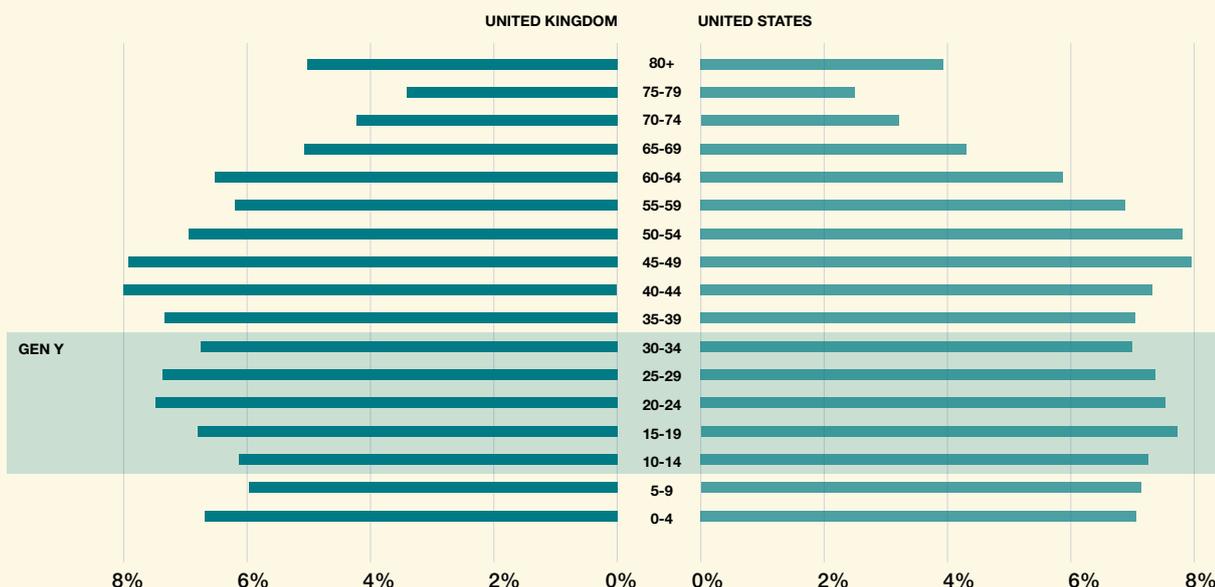
Economic, terrorist and operational incidents have all stimulated substantial policy intervention. The Patriot Act extended financial institution collection requirements to combat terrorist financing and anti-money laundering, and was passed in the wake of the 9/11 attacks. The Dodd–Frank Wall Street Reform and Consumer Protection Act was passed in response financial crisis of the late 2000s and included increased regulation of financial markets and new consumer protection standards.

These developments have resulted in new:

- Supervisory institutions (ie. Consumer Financial Protection Bureau);

- Prudential requirements being established (ie. Suspicious Activity Reports); and

- Definitions of business conduct and processes (ie. Customer Identification Programs).

Regulators have acted to ensure stability in the financial system. It is important that the volume and nature of regulation, though, does not constrain innovation.

FIGURE 7
UK/US GENERATION Y PROFILES

Source: UN Demographic Yearbook (2011) /KPMG Analysis

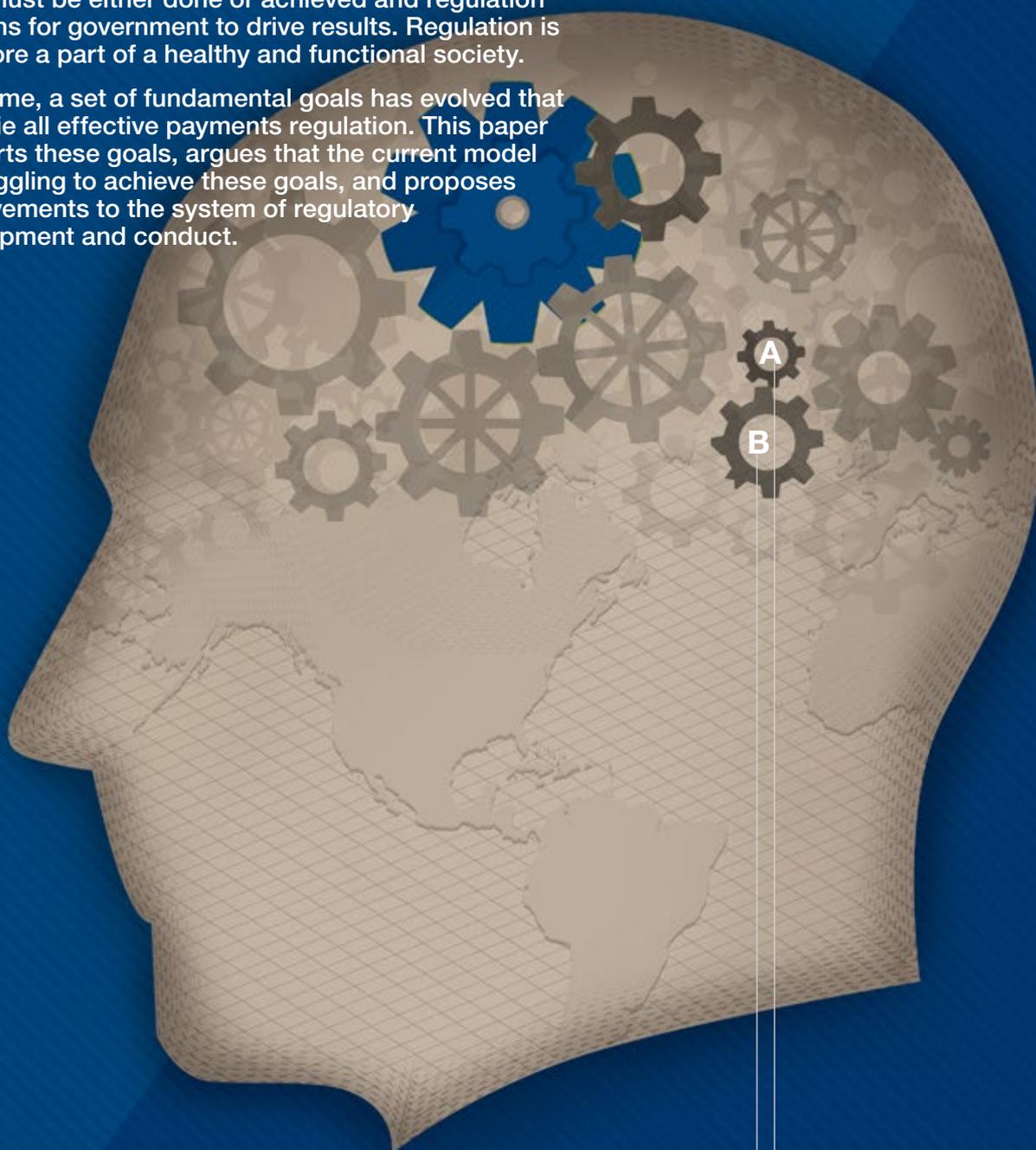[7] Visa, Connecting with Millennials (2012) http://www.visa-asia.com/millennials/Visa_Gen_Y_Report_2012_HR.pdf.

PART 2
PROBLEM. PAYMENTS REGULATION TODAY

INTRODUCTION

Policy is the expression of a society's choices about what must be either done or achieved and regulation a means for government to drive results. Regulation is therefore a part of a healthy and functional society.

Over time, a set of fundamental goals has evolved that underlie all effective payments regulation. This paper supports these goals, argues that the current model is struggling to achieve these goals, and proposes improvements to the system of regulatory development and conduct.

A

B

SECTIONS

A. TIMELESS GOALS BEHIND PAYMENTS REGULATION

THERE IS A GENERAL CONSENSUS AMONG PAYMENTS STAKEHOLDERS ON THE KEY POLICY GOALS THAT SHOULD UNDERLIE PAYMENT REGULATION AROUND THE WORLD. NATIONAL CENTRAL BANKS, CONDUCT AUTHORITIES, PRUDENTIAL AUTHORITIES AND COMPETITION AUTHORITIES ARE DEFINED AS KEY PAYMENTS STAKEHOLDERS.

The risks associated with payments demonstrate the need to have some form of regulation in place to protect against market failures. The goals should underpin the effective regulation of any world-class payment system in the market that the system serves. Some of the goals of a sound regulatory system include:

- Consumer Protection Against Fraud – fraud harms consumers, financial services, and the larger economy

- Efficient Capital Allocation/Economic Liquidity – consumers should have access to the funds they have entrusted to their financial services

- Proper Macro-Economic Functioning – proper micro-economic governance of financial services can improve macro-economics

- Combat Money Laundering – illegal capital flows destabilize the market

- Stable Financial Services – individual consumers should have consistent access to and service from their financial services

- Balance Interests of Market Participants – regulation that discriminates against a particular market participant is harmful to the ecosystem

- Foster Competitiveness – a functional market economy requires the ability for nascent businesses to be able to offer competing services

- Encourage Innovation – consumers benefit from innovation; the Bureau of Economic Analysis recently announced that it will adjust Gross Domestic Product estimates to better account for innovation

B. THE PAYMENTS REGULATORY APPROACH IS FALLING SHORT

"THERE IS GREAT UNANIMITY IN THE FEELING THAT REGULATION AND SUPERVISION NEED TO BE REVISED…"[8]

Paul Volcker, Chairman of the Board of Trustees for the Group of 30 (G30) and Former Federal Reserve Board Chairman captures the prevailing opinion on existing regulation

UNDERSTANDING THE LANDSCAPE

Electronic payments are subject to a multitude of regulatory requirements. The Electronic Financial Transactions Act protects consumers against losses accrued as a result of an unauthorized transaction. Section 5 of the Federal Trade Commission Act (FTC Act) (15 USC 45) prohibits "unfair or deceptive acts or practices in or affecting commerce." The Bank Secrecy Act, as amended by the US Patriot Act, requires the collection of identity information to combat money laundering.

These three examples represent a small fraction of the regulations that electronic payments providers must account for. These examples are illustrative not only because they are all administrated by different agencies, but also, more importantly, because the implementation of these regulations has relied upon outdated process-based methods and has often resulted in the creation of rigid design standards. Though amendments to the Electronic Financial Transaction Act have been studied, the legislation, does not account for the new players and business methods that are enabling electronic payments.[9] Since the Bank Secrecy Act's passage in 1970, when most consumers utilized checks and the Internet had not yet been invented, several other laws have enhanced and amended the legislation to combat money laundering, yet by and large the legislation's regulatory framework remains untouched. When the FTC conducts an investigation for a possible violation of Section 5 it utilizes the same notice-and-comment process that it did forty years ago. The Bank Secrecy Act utilizes design standards that impose specific business method requirements upon regulated entities.

Innovation is creating new challenges that were unanticipated and that regulation can struggle to deal with. Moreover, financial services regulation rarely recognizes the unique aspects and importance of payments, as payments actors are often covered under regulations that were designed to cover banks. The Federal Reserve Bank admitted as much when it stated in its 2013 Payment System Improvement - Public Consultation Paper:

"The current vision focuses on the end-to-end payment process, whereas past Federal Reserve Bank payment strategies focused on interbank issues."[10]

The rate and pace of change are compromising the effectiveness of existing regulation, and the regulatory process. The increasing number of policy and regulatory stakeholders focusing on payments can create uncertainty in the market and delay required change. Finally, new opportunities for regulatory intervention are overlooked because of a lack of insight into emerging business models.

The regulatory landscape is frozen in an outmoded model for decision-making that is decades behind the times. New ideas and fresh thinking are required to thaw the ice.

[8] Mark Pengelly, G30: regulation struggling to keep pace with modern finance, Risk Magazine, Oct. 7, 2008 available at: http://www.risk.net/risk-magazine/news/1505856/g30-regulation-struggling-pace-modern-finance

[9] Ronald Mann, Regulating Internet Payment Intermediaries 82 Texas Law Review (2004)

[10] Payment System Improvement - Public Consultation Paper (September 10, 2013)

A BETTER APPROACH TO REGULATORY INNOVATION IS NEEDED

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 users, whereas the introduction of the ATM took 14 years to reach the same milestone.[11]

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. 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. As technology is challenging existing notions of identity, it is also offering new opportunities for regulatory decision-making; a key idea that we elaborate on in Parts 3 and 4.

Recognizing the existence of this data and understanding how it interrelates to other data allows these technology opportunities to transform both the 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:

- A bank branch teller views a utility bill in person; or

- A technological system can view three years of utility bill records?

The answer to this question will depend upon on how well the information correlates and how open the method of acquisition is to abuse.

It is vital that change is carried out in the regulatory framework with a detailed awareness and understanding of new developments, in a way that creates both real and sustainable value. It is also vital that changes are part of a coherent vision,strategy and plan.

MORE DATA BASED EMPIRICAL ANALYSIS WILL IMPROVE REGULATION

The first annual report of the Office of Financial Research describes the financial crisis of the late 2000's, stating:

"The crisis revealed significant deficiencies in the data available to monitor the financial system. Financial data collected were too aggregated, too limited in scope, too out of date, or otherwise incomplete. The crisis demonstrated the need to reform the data collection and validation process and to strengthen data standards, to improve the utility of data both for regulators and for market participants."[12]

It is not merely that more data is needed, though, but also that **data analytics techniques** be utilized by regulators to derive fresh insights from the data to help improve the decision-making process.

To address the shortcomings of the current landscape, regulators and policymakers need to emulate the best practices of the markets that they regulate. In the modern digital age, this means creating regulation that is collaborative and iterative; regulation that is outcome-focused and is not attached to any one technology, business model or operating model; and regulation that utilizes data analytics techniques to make regulatory decisions that keep pace with the rate that the market is developing.

"We are at a unique time when new technologies make it possible to reduce the amount of regulation while actually increasing the amount of oversight and production of desirable outcomes."[13]

– Tim O'Reilly Founder and CEO O'Reilly Media Inc

[11] Brett King, Bank 3.0: Why Banking is no Longer Somewhere you go, but Something you do (2012

[12] http://www.treasury.gov/initiatives/wsr/ofr/Documents/OFR_Annual_Report_071912_Final.pdf

[13] http://beyondtransparency.org/chapters/part-5/open-data-and-algorithmic-regulation/
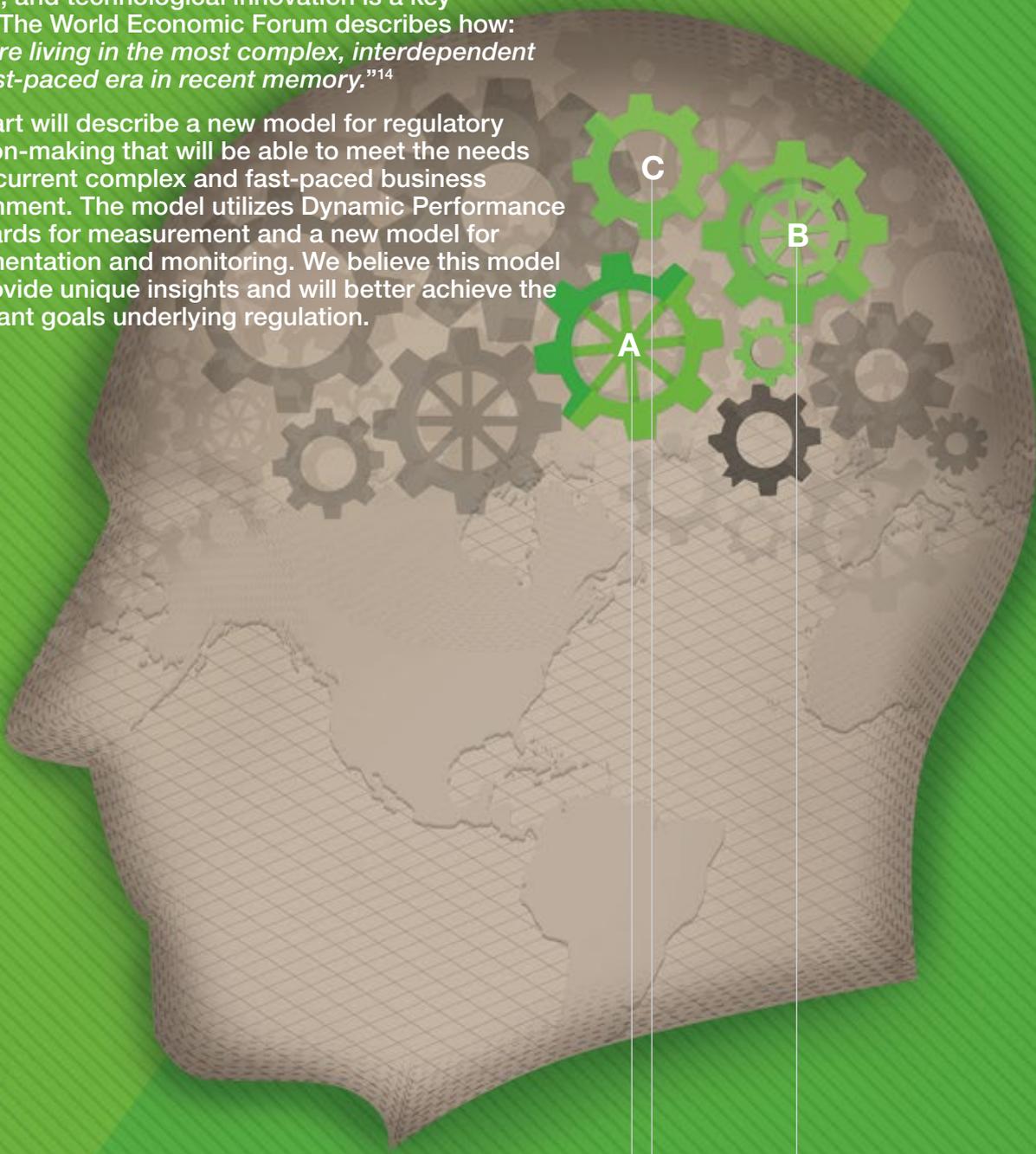
PART 3
SOLUTION.
A SMART NEW MODEL

INTRODUCTION

Dramatic changes are taking place in the payments market, and technological innovation is a key driver. The World Economic Forum describes how: *"[w]e are living in the most complex, interdependent and fast-paced era in recent memory."*[14]

This part will describe a new model for regulatory decision-making that will be able to meet the needs of the current complex and fast-paced business environment. The model utilizes Dynamic Performance Standards for measurement and a new model for implementation and monitoring. We believe this model will provide unique insights and will better achieve the important goals underlying regulation.

C

B

A

SECTIONS

[14] See Executive Summary:
http://www3.weforum.org/docs/AM12/WEF_AM12_ExecutiveSummary.pdf

A new model for regulatory decision-making will require a change in:

- **Understanding** – different business models and technologies;

- **Involvement** – of new and more relevant stakeholders;

- **Monitoring** – of market mechanisms, practices, and innovations;

- **Tools** – particularly new data management and algorithmic solutions; and

- **Culture** – encouraging the measuring of results.

A. DYNAMIC PERFORMANCE STANDARDS

"A RULE OR ORDER PRESCRIBED FOR MANAGEMENT OR GOVERNMENT."

-Definition of Regulation, Black's Law Dictionary (Sixth Edition)

The regulatory decision-making process requires fresh concepts to overcome the shortcomings described in Part 2. (Figure 8. Fresh Concepts). The process for regulation has traditionally been sedimentary, building upon existing processes. Traditional US regulation utilizes a static process whereby limited inputs are sought before regulation is created, specific requirements are mandated by regulation, and regulation is unable to adapt to changing market dynamics. The use of rigid design standards inhibits government's ability to achieve the goals behind regulation. It also limits the ability of industry to innovate, hampers entirely new business models, and limits the ability of regulation to adjust to changes in industry.

This section describes the standards that will enable a new regulatory decision-making model. There are **four elements** to new type of standard.

1. PERFORMANCE STANDARDS: A FRAMEWORK BASED UPON PERFORMANCE RATHER THAN DESIGN

A classical argument exists among regulatory scholars and practitioners between performance standards and design standards. Performance standards specify an outcome, but leave the specific measures to achieve the outcome to the discretion of the regulated entity. Design standards specify exactly how a regulated entity should achieve compliance.[15] Both frameworks have positive and negative aspects. (Figure 9. Comparing Design and Performance Standards).

FIGURE 9
COMPARING DESIGN AND PERFORMANCE STANDARDS

DESIGN STANDARDS		PERFORMANCE STANDARDS	
Pros	Cons	Pros	Cons
Simplistic input Requirements	Requirements can be disconnected from regulatory goal.	Directly address regulatory goal.	Regulator faces complexity in determining inputs
Specifies how to achieve compliance.	Unable to adapt to changes in the environment	Flexibility allows for relative endurance despite changes in environment	Traditionally difficult to collect data on performance
Easy to enforce[16]	Firms are disincentivized from innovating	Enables innovation by allowing for discretion in implementation	Traditionally difficult to analyse data on performance
Difficult to circumvent.	Favor incumbent firms with implementation procedures in place	Cost effective[17]	Traditionally easier to circumvent.

[15] CARY COGLIANESE*, JENNIFER NASH**, & TODD OLMSTEAD, PERFORMANCE-BASED REGULATION: PROSPECTS AND LIMITATIONS IN HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION, 55 ADMIN. L. REV. 705, 709 (2003).

[16] S. BREYER, REGULATION AND ITS REFORM 105 (1982)

[17] David Bensanko, Performance Versus Design Standards in the Regulation of Pollution, Journal of Public Economics 19, 32 (1987) (citing to Congressional Budget Office advocating for performance standards over design standards in air pollution because of cost efficiency)

In 1982, Supreme Court Justice Stephen Breyer published the seminal book, "Regulation and its Reform" in which he highlights the many benefits of performance standards including their permission of flexibility and the fact that they directly address the problem to be solved.[18] But, Justice Breyer also noted that performance standards are difficult to enforce because it is difficult to test how a goal is being met. Regulators have often struggled with how to monitor the compliance of entities subject to performance standards. The informational gap that occurred between industry and regulators was a major shortcoming of classical performance standards. Another shortcoming of traditional performance standards was that they were unable to iterate, and thus they would become de facto design standards because they would lock in a particular practice among industry. Finally, regulators attempting to implement classical performance standards lacked the technical knowledge to be able to measure, monitor, and iterate the standard.[19] For these reasons, performance standards did not become the dominant paradigm for regulation, and design standards continue to pervade the landscape.

The concept of Dynamic Performance Standards mitigates many of the traditional shortcomings of performance standards because of the three developments discussed below.

In the world of pervasive rapid development, performance standards have a clear edge over design standards, which may explain why modern businesses all utilize some form of performance standards. (Figure 10. Performance Standards in Industry). Performance standards are able to better account for changes in the practices of regulated entities, empower innovation in compliance methods, and incentivize the developments that are occurring in industry while ensuring that the regulatory goal is achieved.

2. DATA ANALYTICS: AT THE HEART OF MODERN INNOVATION

Technology and big data underpin the distinction between Dynamic Performance Standards and traditional performance standards.

Big data has been used by the technology sector for decades to improve processes and rapidly innovate. In the last five years, it has transformed the way traditional industry conducts business. (Figure 11. Defining Big Data). Big data has also recently 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.

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. Policymakers 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.

Introducing the data analytics element to regulation will greatly enhance the ability to measure and analyze performance standards. Creating a system where the regulated entities are subject to real-time measurement and algorithms that adapt to better achieve regulatory goals will ensure that the classical problems that performance standards had with monitoring and measurement are overcome. This concept will be discussed below in the context of the Smart Governance model.

3. ITERATION: A NEW TOOL FOR REGULATORY DECISION-MAKING – THE BOYD LOOP

Mark Fell, Managing Director Carré & Strauss, describes a new model for decision-making in his "Manifesto for Smarter Intervention in Complex Systems". The model that he proposes builds upon the discipline of systems dynamics and rests on three tenets: mindset, mechanism and principle.

Creating a public policy process for a society characterized by fast-paced transformation requires a particular mindset. Mark Fell 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 favorable system behaviors."[20]

Adding the element of data analytics, Viktor Mayer-Schönberger, Professor of Internet Governance and Regulation at Oxford, and Kenneth Cukier, Data Editor of The Economist, describe a "big data mindset" in their book "Big Data: A Revolution That Will Transform How We Live, Work and Think" (2013). 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…"[21]

FIGURE 10
PERFORMANCE STANDARDS IN INDUSTRY

Net Promoter Score (NPS) is a concept used by almost all modern businesses. The Net Promoter Score of a business is often determined by a single question of the business's customers: "How likely is it that you would recommend [your company] to a friend or colleague?" This measure clearly measures performance and businesses are constantly working to improve their NPS.

[18] Id.

[19] Richard B. Stewart, Regulation, Innovation, and Administrative Law: A Conceptual Framework 69 Cal. L. Rev. 1256, 1301 (1981) (describing how the National Highway Traffic Safety Administration was, "frustrated for years in promulgating standards for tire safety by a lack of technical know-how, which it finally overcame by hiring an individual who had spent most of his career as an executive of a tire manufacturing company).

[20] Mark Fell, "Manifesto for Smarter Intervention in Complex Systems"

[21] Viktor Mayer-Schönberger and Kenneth Cukier, Big Data: A Revolution That Will Transform How We Live, Work, and Think, Houghton Mifflin Harcourt 48 (2013)

FIGURE11
DEFINING BIG DATA

"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"

GARTNER 2012

FIGURE 12
THE BOYD LOOP

We propose utilizing this iterative big data mindset. This is not the traditional approach of policymakers. But, the real world examples from across modern industry are that this data model delivers better results.

The Fell Paper advocates adoption of the **OODA** Loop – also called the Boyd Loop – in policymaking. The Boyd Loop is a decision-making model, first developed for fighter pilots and now increasingly applied in sports, business and technology contexts. (Figure 12. The Boyd Loop).

The Boyd Loop consists of four stages in a cycle:

1. Gather inputs from the environment (**O**bserve);

2. Make sense of this data by creating a model of the situational reality (**O**rient);

3. Use this new knowledge as the basis for decisions (**D**ecide); and

4. Translate this into action (**A**ct).

The Boyd Loop is one of the dominant ideas that Ben Hammersely lists in his book "64 Things you Need to Know Now for Then – How to Face the Digital Future."[22]

Hammersely 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.

We recognize 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 policymakers should avoid experimenting and testing, 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.

The creation of safe harbors will ensure that regulated entities have confidence in the pilots and simulations.

The problem of stasis has plagued both design standards and classical performance standards. Dynamic Performance Standards are able to overcome this shortcoming by continuously tweaking the methodology to meet the needs of the ever changing environment.
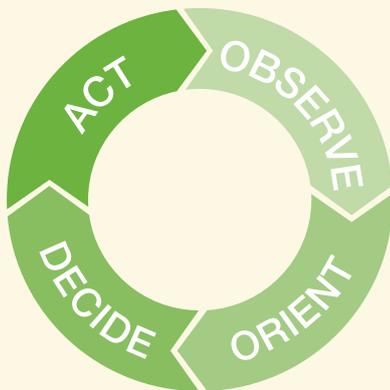
4. COLLABORATION: CONSCIOUSLY INVOLVE THE RIGHT INTERVENTION AGENTS

This new approach recognizes the essential importance of 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

• Recognized experts.

[22] 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

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).

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. Michael Mauboussin, managing director and head of Global Financial Strategies at Credit Suisse, clarifies this point:

"[C]omputers and collectives remain underutilized 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."[23]

Good innovation in public policymaking 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.

Collaboration can help to overcome regulators' lack of technical knowledge, a problem that plagued traditional performance standards. This paper advocates for the creation of a group of technical and policy experts from **government, industry, academia, non-governmental, and consumer groups**. By collaborating with outside experts in the early stages of regulatory decision-making, and throughout the process, regulators ensure that they are not left behind from technical developments in industry.

The efficacy of performance standards will be enhanced further by the introduction of data analytics, iteration, and collaboration. The addition of these three elements is what creates the **Dynamic Performance Standards** that drive the new model for regulatory decision-making.

Dynamic Performance Standards are able to avoid many of the traditional pitfalls associated with performance standard. The inclusion of data analytics ensures that performance is easier to measure and analyze. The iterative nature of the standards makes them more difficult to circumvent as regulators are innovating at the same pace as industry. Finally, collaboration eases some of the burdens on regulators to create effective standards from scratch.

When Dynamic Performance Standards are combined with the SMART Governance model described below they create a more effective form of regulation for policymakers, regulators, regulated entities, and consumers.

B. THE SMART GOVERNANCE CYCLE

THIS SECTION LAYS OUT AN INNOVATIVE MODEL FOR OPERATING THE REGULATORY DECISION-MAKING PROCESS THAT DISRUPTS THE CLASSICAL MODEL AND PROPOSES A REVOLUTION RATHER THAN AN EVOLUTION.

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**.

THE MODERN PROCESS

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

Collecting relevant data about performance from the actors that are going to be subject to regulation in a centralised system 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, which again are focused on design rather than performance. This process could be made far more efficient through digitization, calling upon regulated actors to submit data through an Application Programming Interface (API) that regulated entities can directly plug into in order to submit relevant data.

The process of securing data must also be created with a "level playing field" mindset. Legislators must look to the specific pieces of performance data that all actors in a regulated environment would have. By harmonizing 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 harmonized. 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. (Figure 13). The expert group supports regulators with the right combination of "knowledge and initiative" from the financial, regulatory, and data science communities.

[23] Michael J. Mauboussin, Think Twice: Harnessing the Power of Counterintuition 43 Harvard Business Press (2009)

FIGURE 13
A 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

FIGURE 14
DYNAMIC REPETITION
AND ADJUSTMENT

STEP 2 Machines organize the data into centralized and interlinked databases – Orient.

Collecting an amalgam of data is not helpful if the data is not organized in a fashion that can be understandable. Currently, regulators are collecting large swaths of data, but it is oftentimes not organized in an understandable manner. Properly collecting and organizing 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 organization 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."[24]

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.[25]

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

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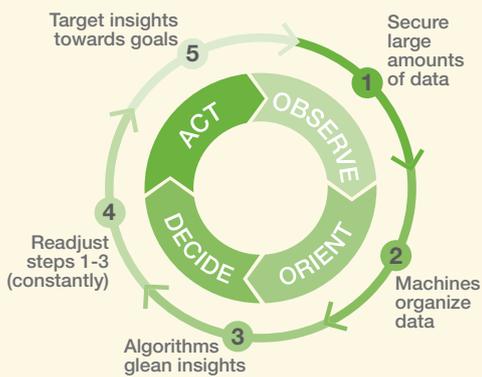
An example should help to further clarify. If there is a government health database containing information on blood types. If we wanted to know what the most common blood type is in the country, an algorithm that merely adds up all of the different blood types and then ranks them could be created to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

It is important to recognize what big data can tell us and what it can't. Big data lets 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 organization, and the algorithms (Constantly) – Feedback.

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 14. Dynamic Repetition 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. This new regulatory model requires timely, plentiful and compelling feedback loops.

[24] Australian Government, Big Data Strategy Issues Paper (March 2013)

[25] Notes from talk "Organic Design for Command and Control", John Boyd, 1987.

Feedback loops will also adjust the mechanics of the 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 support would improve the efficiency and effectiveness of the feedback loops.

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

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 policymaking.

SMART GOVERNANCE IS DYNAMIC

Each step of the Smart Governance model relies on 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 utilize the SMART Governance model to design public policies including regulation;

- Regulators should utilize this model to improve the implementation of policy and regulation; and

- Legislators and regulators should utilize this model to work together when updating legislation.

IMPLEMENTATION METHODS

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

This paper puts forward three methodologies for consideration:

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 dynamic performance 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.

2. **The Regulatory Auditor Method** – The regulator sets out a series of dynamic performance metrics 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 analyze

FIGURE 15
SMART GOVERNANCE IMPLEMENTATION METHODS

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.

3. **The Regulatory Oversight Method** – The regulator sets out a series of performance based goals for regulated entities to meet. 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 analyze the data. The regulated entities determine how they can best achieve those goals. The regulated entities must create an internal independent auditor,[26] 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 utilize the controls set out by the regulator.

FIGURE 16
EXAMPLES OF SMART GOVERNANCE APPLICATION

There are several examples of governments around the world utilizing 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.[27]

- 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.[28]

- 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.[29]

C. A PARADIGM SHIFT

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 WITH WE NEED TO LEAVE THE COMFORT ZONE OF "FALSE CLARITY" AND STRIVE TO EVOLVE SOLUTIONS, NOT DETERMINE THEM.

This involves combining Dynamic Performance Standards with the SMART Governance model; enabling the policymaking process to reap the huge benefits of data analytics and better achieving public policy goals.

The SMART Governance model moves us beyond the non-question of more or less regulation to **instead focus on better regulation**. Mark Fell puts forward an "intervention principle" which could serve as a starting point:

"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."[30]

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. Viktor Mayer-Schönberger and Kenneth Cukier argue:

"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."[31]

Finally, it is essential that the concept of data analytics is actually implemented in the regulatory structures of US agencies. Elizabeth Warren, former Special Adviser to the President for the Consumer Financial Protection Bureau (CFPB) and now a U.S. senator representing Massachusetts, proposed that:

"A 21st-century agency should use 21st-century tools."[32]

Dynamic Performance Standards and the SMART Governance model are tools of the 21st century. These concepts should be used to revolutionize the regulatory decision-making process.

---

[27] http://www.wired.com/insights/2013/03/democratizing-big-data-to-bring-government-ahead-of-the-curve/

[28] http://www.eesc.europa.eu/resources/docs/dutch_approach_2011_def_5_09082011.pdf

[29] 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

[30] Mark Fell, "Manifesto for Smarter Intervention in Complex Systems

[31] Viktor Mayer-Schönberger and Kenneth Cukier, Big Data: A Revolution That Will Transform How We Live, Work, and Think, Houghton Mifflin Harcourt 195 (2013)

[32] Rebecca Sausner, Warren's CFPB Embraces Big Data, American Banker Bank Technology News (Dec. 1, 2010)

---

[26] 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.

PART 4
ACTION. PUTTING SMART INTO PRACTICE

INTRODUCTION

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.

A

D

B

C

SECTIONS

A. CASE STUDY – KNOW YOUR CUSTOMER

B. THE IDENTIFICATION AND VERIFICATION PROCESS

C. PUTTING SMARTER PAYMENTS REGULATION INTO PRACTICE

D. CONCLUSION

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 among 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.[33]

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 and the 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);

- Identifying any linked transactions (e.g. is the transaction one of related series); and

- Reporting suspicious transactions.

The specific identification requirements will vary depending on whether the customer is a legal or natural person.[34] The level of diligence required is to be determined by the level of risk involved.[35] 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 organizations that are operating regionally or globally since local specificities have to be monitored and delivered.

For natural persons in the US, there are a few basic pieces of data that are typically collected to meet Know Your Customer requirements:

- Name

- Date of Birth

- Address; and

- Identification Number (ie. Tax ID Number)[36]

Identification is commonly verified by means of a supporting document. In the case of a natural person this means a copy of a driver's license 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.

But, US regulation also allows for verification through "non-documentary methods" including contacting the customer or comparing information from the customer to a financial statement.[37]

---

[33] UK HM Revenue and Customs AML guidance for money service businesses

[34] See 31 CFR 103.121(b)(2)(i) (A)- Customer Identification Programs for banks, savings associations, credit unions, and certain non-Federally regulated banks.

[35] Id. at (b)(2)

[36] Id. at (b)(2)(i) (A)

[37] Id. at (b)(2)(ii) (B)

THE CURRENT KNOW YOUR CUSTOMER PROCESS

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. 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.[38]

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

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 behavior' 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. 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.

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.

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 organization, and the algorithms that analyze the data. Yet, the design standards established in Know Your Customer regulation force these innovative businesses to dedicate resources to the collection of data points that may not be relevant to the goals behind the regulation.

KNOW YOUR CUSTOMER 2.0

We propose using Dynamic Performance Standards and the SMART Governance model to challenge the entrenched notion that name, date of birth, address, and identification number are akin to identity. We hope to expand beyond this notion to improve our ability of achieving the results of protecting consumers and reducing financial crime.

The Payment Systems Market Expert Group we have proposed above would be tasked with creating a Dynamic Performance Standard – or multiple standards – to measure all of the actors in the payments ecosystem in their ability to protect consumers and reduce financial crime. This process would involve determining a performance data point that all of today's payment service providers could produce, and which is closely tied to the goals of protecting consumers and reducing financial crime.

---

[38] This may be evidence held by commercial databases such as credit reference bureaus, or public databases such as national census

Such a system would enable actors in the regulated ecosystem to adopt innovative methodologies to achieve the regulatory goals. For example, an actor might experiment with capturing mobile telephone numbers or customer email addresses as identity proxies rather than name and address. Another actor might look into:

- Personal tax return filing performance;

- Participation in national census taking; and

- Participation in customer surveys.

The Expert Group would focus its energies on tweaking the Dynamic Performance Standard to better measure how the regulated entities are meeting the regulatory goals. The concept of SMART Governance would be used to efficiently secure data from the regulated entities, organize that data into a database, analyze the results and tweak the inputs. Implementing this method would better support the goals of detecting financial crime and protecting consumers.

In addition, by adopting the Regulatory Oversight Method described above, payments institutions 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 businesses approach problems: they are focused on performance rather than design: 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

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 Dynamic Performance Standards and the SMART Governance model to several ongoing initiatives in the US.

US policymakers should implement the following four recommendations:

LAUNCH A PILOT PROJECT TO CREATE A PAYMENT SYSTEMS MARKET EXPERT GROUP TO TEST DYNAMIC PERFORMANCE STANDARDS AND THE MODEL OF SMART GOVERNANCE TO PAYMENTS

Dynamic Performance Standards and SMART Governance are concepts that ought to be tested. The payments market could serve as an initial test case for the applications of these concepts. Payments is a field that is rapidly evolving, payments entities are all different in form and function, and payments players collect a host of data elements.

The Expert Group would need to be made up individuals from across the spectrum. (Figure 17). A representative from the regulatory agency (or agencies) of jurisdiction would be essential since any potential implementation of the Expert Group's recommendations would need to have the sign off of the regulatory agency. Regulated entities from industry must also be in the room so that they can present on how they conduct business and what requirements would be feasible to take on. Policy experts, from academia and non-governmental organizations, should be included in the discussion to provide an outside perspective. Consumer experts should be involved so that consumer goals are maintained at the forefront of the discussion. Technical experts from regulatory bodies, industry, academia, or consumer groups should also be a part of the discussion so that policy remains grounded in the realm of technical feasibility.

Machines and algorithms will not replace decision-makers, they will empower them. The Expert Group will bring together leaders from across the spectrum to create Dynamic Performance Standards that every actor in the payments ecosystem can measure themselves by.

REVIEW DESIGN STANDARDS THAT FAIL TO ACCOUNT FOR INNOVATIVE PAYMENTS MODELS

Section 1073 of the Dodd Frank Wall Street Reform and Consumer Protection Act is known as the Remittance Transfer Rule and it focuses on cross border electronic payments originated by US consumers that are above $15.[39] The Remittance Transfer Rule is designed to protect consumers when they are engaging in cross border payments.[40] The Rule discusses what a financial service provider's rights are when a consumer provides incorrect account information related to a particular cross border transaction.[41] Yet, the implementation regulation limits account information to "account numbers."[42] Many innovative financial service providers do not use account numbers, but rather utilize other information for identification. Notably, Consumer Financial Protection Bureau, which is an agency that is working on innovative regulation through its Project Catalyst program, is working to adjust the rule to account for innovative payments businesses. But, this is another example of regulation putting a design standard in place that fails to account for developments that have occurred among the regulated entities.

[39] PMPG, The Clearing House White paper on Dodd Frank Section 1073 – Cross-border Remittance Transfers (Version 2.0, October 2012)

[40] Id.

[41] H.R. 4173 Dodd-Frank Wall Street Reform and Consumer Protection Act Sec. 1073 (d) (1)

[42] BUREAU OF CONSUMER FINANCIAL PROTECTION 12 CFR Part 10 05 Docket No. CFPB – 2012 – 0050 RIN 3170 - AA33 Electronic Fund Transfers (Regulation E)

Part 4. Action. Putting SMART into practice

FIGURE 17
PAYMENTS SYSTEMS
MARKET EXPERT GROUP
POTENTIAL MEMBERS

Regulators
(ie. CFPB)

Regulated Entities
(ie. Payments company)

Policy Experts
(ie. Professor of Payments Law)

Consumer Experts
(ie. Consumer Group)

Technical Experts
(ie. Detailee from National Institute
of Science and Technologies,
Professor of Data Science, Industry
Data Scientists)

Regulation should focus on objectives, outcomes, and performance rather than impose a specific business methodology, through a design standard, and by implication preference one set of providers over another. Any regulatory requirement has to be implemented at the firm level and the firm should decide the most appropriate methodology for meeting the requirement.

Moreover, 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.

REMOVE REPETITIVE BURDENS, PARTICULARLY IN THE CASE OF CROSS BORDER TRANSACTIONS

The Office of Foreign Asset Control (OFAC) has created requirements for financial institutions to screen cross border transactions for possible national security concerns. The screening requirements place burdens on both the originating depository financial institution (ODFI) and the receiving depository financial institution (RDFI). Some consumers using International Automated Clearinghouse (IAT) transactions to purchase products from overseas are seeing very high fees, particularly from smaller financial institutions, because of the screening requirements.

Currently, if an international transaction is completed using a credit card, then the RDFI is not subject to a duplicative screen requirement. Yet, a similar transaction completed through IAT is subject to the duplicative requirements. OFAC should utilize the SMART Governance model to test if these duplicative screening requirements are enhancing national security. Data should be collected about the incidences of money laundering and fraud that are reported under the current duplicative screening requirements and should be compared with similar data captured if only the ODFI is subject to screening requirements.

EXPAND AND GENERALIZE THE USE OF A RISK-BASED APPROACH

We recommend that legislators and regulators generally take a risk-based approach to regulation. That means two things:

1. The legislator and regulator should focus on those areas that present the greatest risk to its regulatory objectives.

2. The legislator and regulator should abandon its traditional "one size fits all approach".

The risk-based approach is most effective when is applied through the lens of Dynamic Performance Standards and the SMART Governance model. Policymakers and regulators must utilize 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 Payment Systems Market Expert Group could be helpful in evolving the risk-based approach in payments regulation. This group would be tasked with determining specific data points that are related to the anti-fraud, anti-money laundering, and consumer protection and analyze their correlation to specific risks. Regulators would use the findings of this committee to adjust regulatory requirements to correspond with the risks posed by specific activities.

D. CONCLUSION

THIS PAPER HAS OUTLINED A NEW MODEL FOR THE REGULATORY PROCESS. IT ENCOURAGES MOVING AWAY FROM THE TRADITIONAL ONE-SIZE-FITS-ALL DESIGN STANDARDS THAT HAVE BEEN THE BASIS OF TRADITIONAL REGULATION.

Dynamic Performance Standards and the SMART Governance model introduce to the regulatory processes the same data analysis techniques and approaches to problem solving that are revolutionizing industry. These techniques can be utilized by policymakers 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 policymakers and regulators should adopt Dynamic Performance Standards and the SMART Governance model in order to better achieve the timeless goals underlying payments regulation.