SmarterBanking

Paul Davis, Global Banking Leader IBM Software Group

Market Forces & ROE Challenges – Banking Industry

Tougher Banking Environment
- Increasing regulation & control
- Mature markets continue to deleverage
- Declining profitability
- Compounded by trust & reputation Issues

Tremendous Growth Potential
- Banking the unbanked
- Leverage the SME opportunity
- Drive new revenue growth through customer centricity
- Continue to exploit cost efficiencies

Smarter & More Demanding Customers
- Technology explosion
- More demanding, less loyal customers
- New entrants will exploit gaps

Bankers who remove the friction will win

Businesses which have seized the opportunity to leverage the digital age to reduce resistance

Apple — Simplify accessing entertainment.

amazon — shopping online convenient.

Google — finding stuff easier.

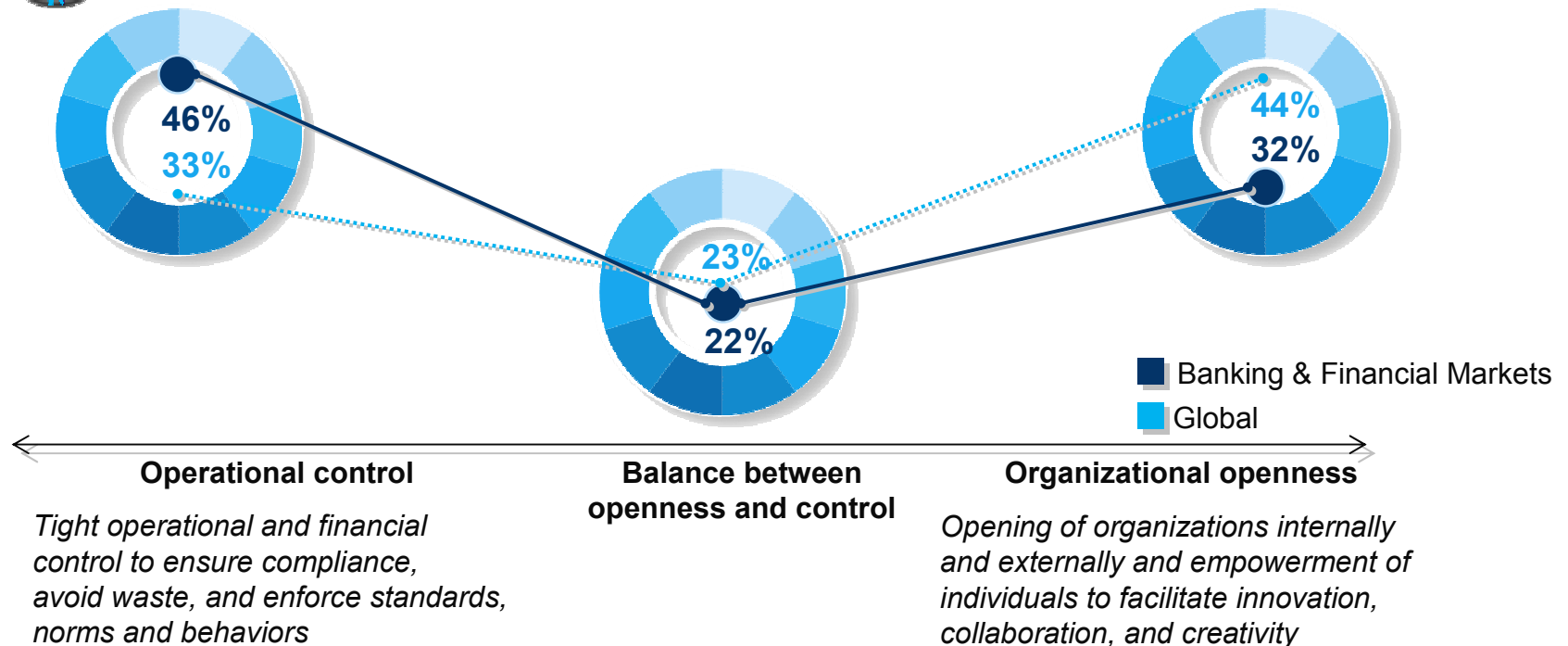facebook — Socialising.

PayPal — Web payments simplified.

What does this mean for your bank?

Many Financial Services CEOs opt for organizational control over organizational openness

Organizational impact from competing influences

46%
33%

23%
22%

44%
32%

■ Banking & Financial Markets
■ Global

Operational control

Tight operational and financial control to ensure compliance, avoid waste, and enforce standards, norms and behaviors

Balance between openness and control

Organizational openness

Opening of organizations internally and externally and empowerment of individuals to facilitate innovation, collaboration, and creativity
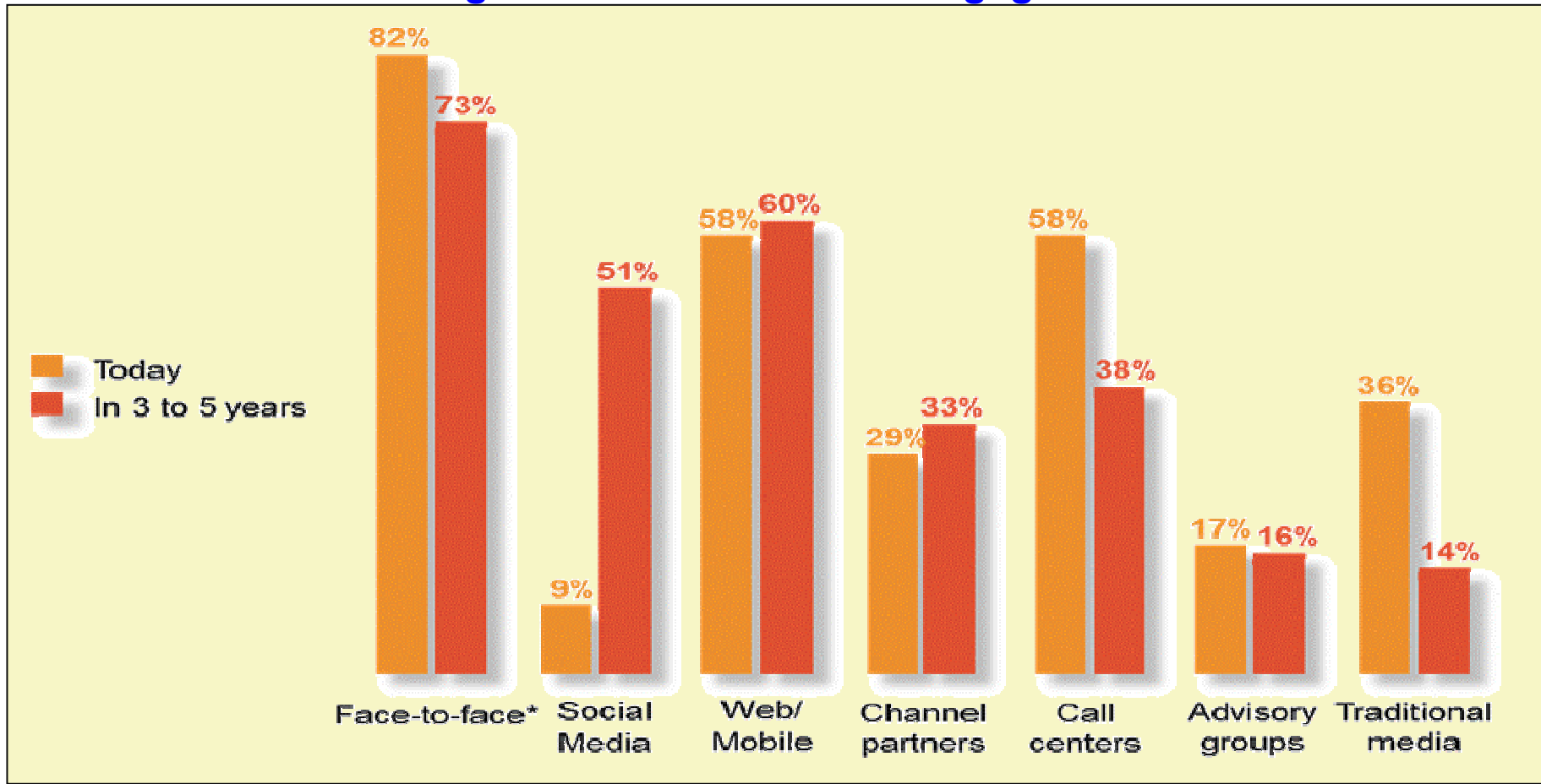
Source: Q4 "To what extent will the following competing influences impact your organization?" (Global n=1695) (Banking & FM n=219)
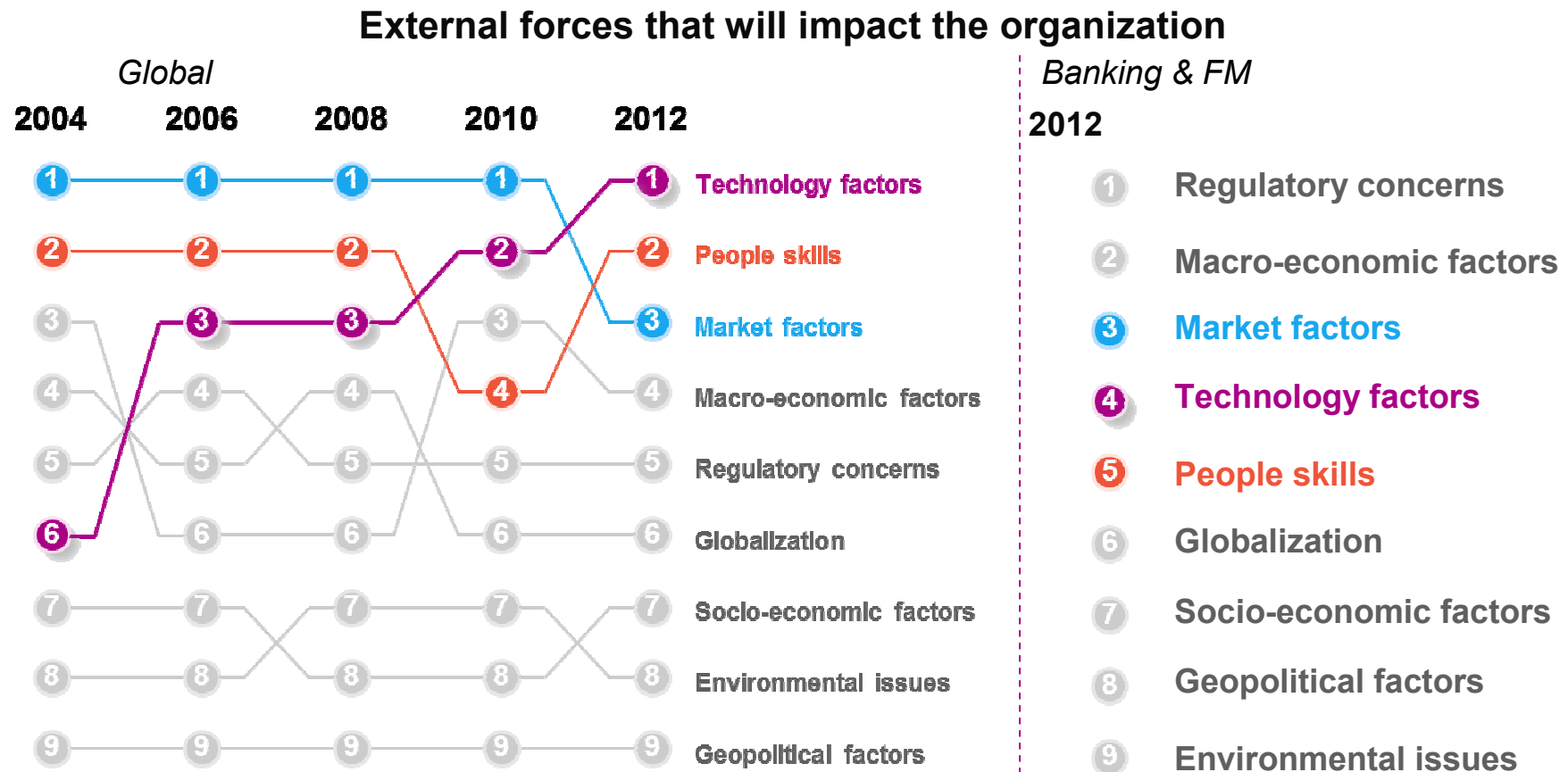Notes: FS: Financial Services (FS) includes Banking and Financial Markets

To connect individually, bank CEOs plan to change how they engage customers

**Banking & FM Mechanisms to engage customers**

Legend:
- Today
- In 3 to 5 years

Data:
- Face-to-face*: Today 82%, In 3 to 5 years 73%
- Social Media: Today 9%, In 3 to 5 years 51%
- Web/Mobile: Today 58%, In 3 to 5 years 60%
- Channel partners: Today 29%, In 3 to 5 years 33%
- Call centers: Today 58%, In 3 to 5 years 38%
- Advisory groups: Today 17%, In 3 to 5 years 16%
- Traditional media: Today 36%, In 3 to 5 years 14%

At the company level, we found that banking CEOs are concerned about regulatory and macro economic issues

External forces that will impact the organization

Global

Banking & FM

2004	2006	2008	2010	2012		2012	
①	①	①	①	①	Technology factors	①	Regulatory concerns
②	②	②	②	②	People skills	②	Macro-economic factors
③	③	③	③	③	Market factors	③	Market factors
④	④	④	④	④	Macro-economic factors	④	Technology factors
⑤	⑤	⑤	⑤	⑤	Regulatory concerns	⑤	People skills
⑥	⑥	⑥	⑥	⑥	Globalization	⑥	Globalization
⑦	⑦	⑦	⑦	⑦	Socio-economic factors	⑦	Socio-economic factors
⑧	⑧	⑧	⑧	⑧	Environmental issues	⑧	Geopolitical factors
⑨	⑨	⑨	⑨	⑨	Geopolitical factors	⑨	Environmental issues

Source: Q1 "What are the most important external forces that will impact your organization over the next 3 to 5 years?"
(Global n=1709) (Banking & FM n=214); Notes: FS: Financial Services (FS) includes Banking and Financial Markets

…And Banks Still have Tremendous Complexity
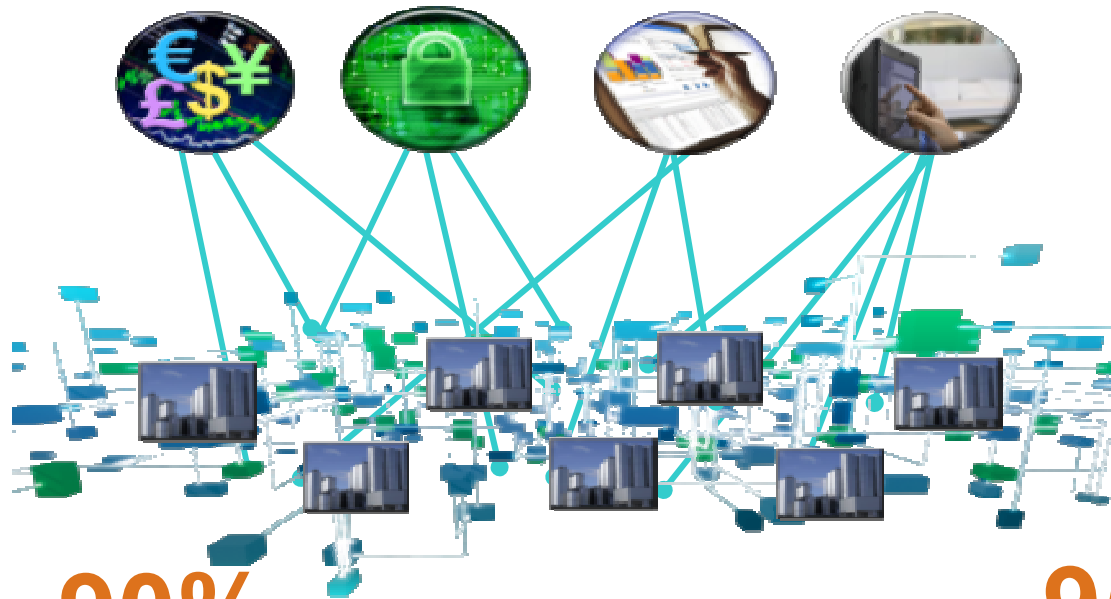
- *Highly customized*

- Processes are *hard-wired*

- Some systems *do not support a "product" or "arrangement"* concept across different LOBs

- *Business logic* is factored into user interface components and backend applications

- Master data is embedded within each application

90%
Of banks say **inflexible core systems are the biggest deterrent** to being innovative in the marketplace.

95%
Of the banks have **product-centric core systems** inhibiting customer centricity

93%
Of banks **admit to using more than one application** for even basic banking processes

70%+
Of bank IT costs are spent on maintenance while less than 30% is spent on innovation.

Payments Transaction Volume Expected to Double by 2020

Volume (Billions)

2010
- Vol : 116.7 — 38% (North America)
- Vol : 89.9 — 29% (Europe)
- Vol : 12% — Vol : 34.2 (Rest of the World)
- 21% — Vol : 65.4 (Asia Pacific)

2020
- Vol : 206.7 — 27%
- Vol : 155.6 — 21%
- 23% — Vol : 175.0
- 29% — Vol : 212.5

Value (USD Billions)

2010
- Val : 95,595.1 — 29%
- Val : 117,386.1 — 35%
- 8% — Val : 27,479.4
- 28% — Val : 90,913.1

2020
- Val : 137,480.6 — 18%
- Val : 207,689.4 — 27%
- 17% — Val : 135,688.5
- 38% — Val : 301,147.2

Legend: North America | Europe | Asia Pacific | Rest of the World

Sources: BCG Global Payments database, 2010

Banking on the Future

Financial services firms are capitalizing on global opportunities by pursuing information-led transformation

Customer	Complexity	Cost	Risk
Create a *customer-focused* enterprise	**Increase *flexibility* & *streamline* operations**	**Drive *innovation* while *managing cost***	**Optimize enterprise *risk management***
Optimize data and leverage analytics to adapt to new behaviors, cultivate trust, and drive profitable growth	Improve operating leverage with variable cost structures that increase flexibility and reduce risk	Deliver new services quickly that decrease cost per transaction and drive competitive differentiation	Maximize return on equity, combat fraud and mitigate operational risk while achieving compliance objectives

IBM's Banking Solutions

	Front Office (Customer)	Back Office (Cost & Complexity)		Risk
Solution Area	Customer Care and Insight	Core Banking Transformation	Payments & Transaction Services	Integrated Risk Management
Solutions	• Customer Insight • Sales and Marketing Effectiveness • Integrated Multi-Channel Experience • Operational Efficiency	• Strategy and Roadmap • Architecture Transformation • Banking Process Agility • Legacy Modernization	• Consumer Payments • Commercial Payments • Compliance and Risk • Payment Transaction Platform	• Financial Risk • Financial Crimes • Operational Risk and Compliance • IT Risk
Assets	Worklight, tealeaf, Kenexa, Unica, VARICENT	urban{code}, GREENHAT, CAST IRON	Financial Transaction Manager, Sterling Commerce, Emptoris, Palisades Technology Partners, Wilshire	CLARITY systems, Algorithms, OPENPAGES, StoredIQ, BIGFIX, QLabs, i2, PSS
Analytics	COGNOS, ILOG, solid., SPSS	Guardium, Datacap	Information FrameWork, STAR ANALYTICS	Ascential, Master Data Management
Cloud	IBMSmartCloud Foundation	IBMSmartCloud Services	IBMSmartCloud Solutions	SOFTLAYER

IBM's Banking Solutions

	Front Office (Customer)	Back Office (Cost & Complexity)		Risk
Solution Area	Customer Care and Insight	Core Banking Transformation	Payments & Transaction Services	Integrated Risk Management
Solutions	• Customer Insight • Sales and Marketing Effectiveness • Integrated Multi-Channel Experience • Operational Efficiency	• Strategy and Roadmap • Architecture Transformation • Banking Process Agility • Legacy Modernization	• Consumer Payments • Commercial Payments • Compliance and Risk • Payment Transaction Platform	• Financial Risk • Financial Crimes • Operational Risk and Compliance • IT Risk
Assets	Worklight, tealeaf, Kenexa, Unica, VARICENT	urban{code}, GREENHAT, CAST IRON SYSTEMS	Financial Transaction Manager, Sterling Commerce, Emptoris, Palisades Technology Partners, Wilshire	CLARITY systems, Algorithmics, A², OPENPAGES, i2, StoredIQ, BIGFIX, Labs, PSS
Analytics	COGNOS, ILOG, SPSS	solid., Guardium, Datacap	Information FrameWork, STAR ANALYTICS	Ascential, Master Data Management
Cloud	IBM SmartCloud Foundation	IBM SmartCloud Services	IBM SmartCloud Solutions	SOFTLAYER

Transformation: What does a customer-focused enterprise look like?

Customer Care & Insight
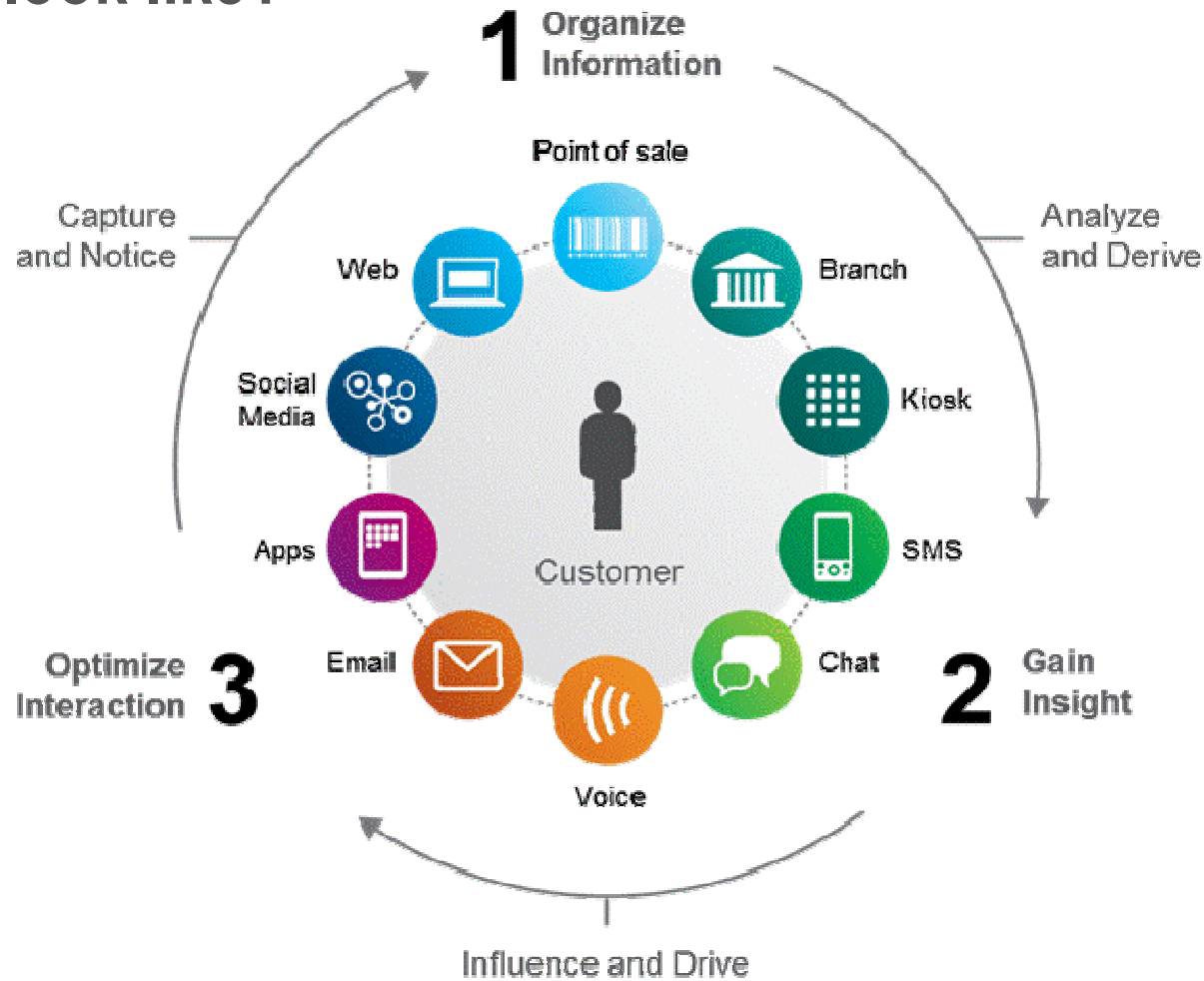
Business Case – Key Drivers for Revenue Generation

Customer Care & Insight

Drivers	KPIs		Improvements Impacts		Typical Projects
1 Sales Effectiveness	Sales Success Ratio	▲	20-40 % Increase	- Asset Portfolio Growth	CRM/ Customer Analytics
	Customer Churn	▼	20 - 35% Reduction		Core Systems Enablement
	Asset per Branch	▲	20 - 40% Increase		Channels Enablement
2 Better Cross Selling	# of Products per Customer	▲	From 1.75 to 2.5-3	- Asset Portfolio Growth -Net Profit	CRM/ Customer Analytics
	# of Products per Customer – High Income	▼	From 2.95 to 4.5-5		Core Systems Enablement
	Profit per Customer	▲	10 - 35% Increase		
	Profit per Customer – Low Income	▲	From <0 to >0		Channels Enablement
3 Productivity Gains	Time Dedicated to Sales vs Non Sales	▲	30 - 50% Increase	- Asset Portfolio Growth - Net Profit	Shared Services/ Process Reengin.
	Transactions % Distribution by Channel	▼	Up to 50% increase in Direct Channels Usage Ratio		Channels Enablement
	Cost/ Time of Opening Products	▼	20 to 60%		Core Systems Enablement
4 Time/ Quality to Products	Commissions per Acc.	▲	20-35% Increase	- Fee Income - Prices on Credit Products	Channels Enablement
	Time to Market – New Product	▼	20 to 60% Reduction		Core Systems Enablement
					IT Support Services

Customer Care & Insight High Level Architecture
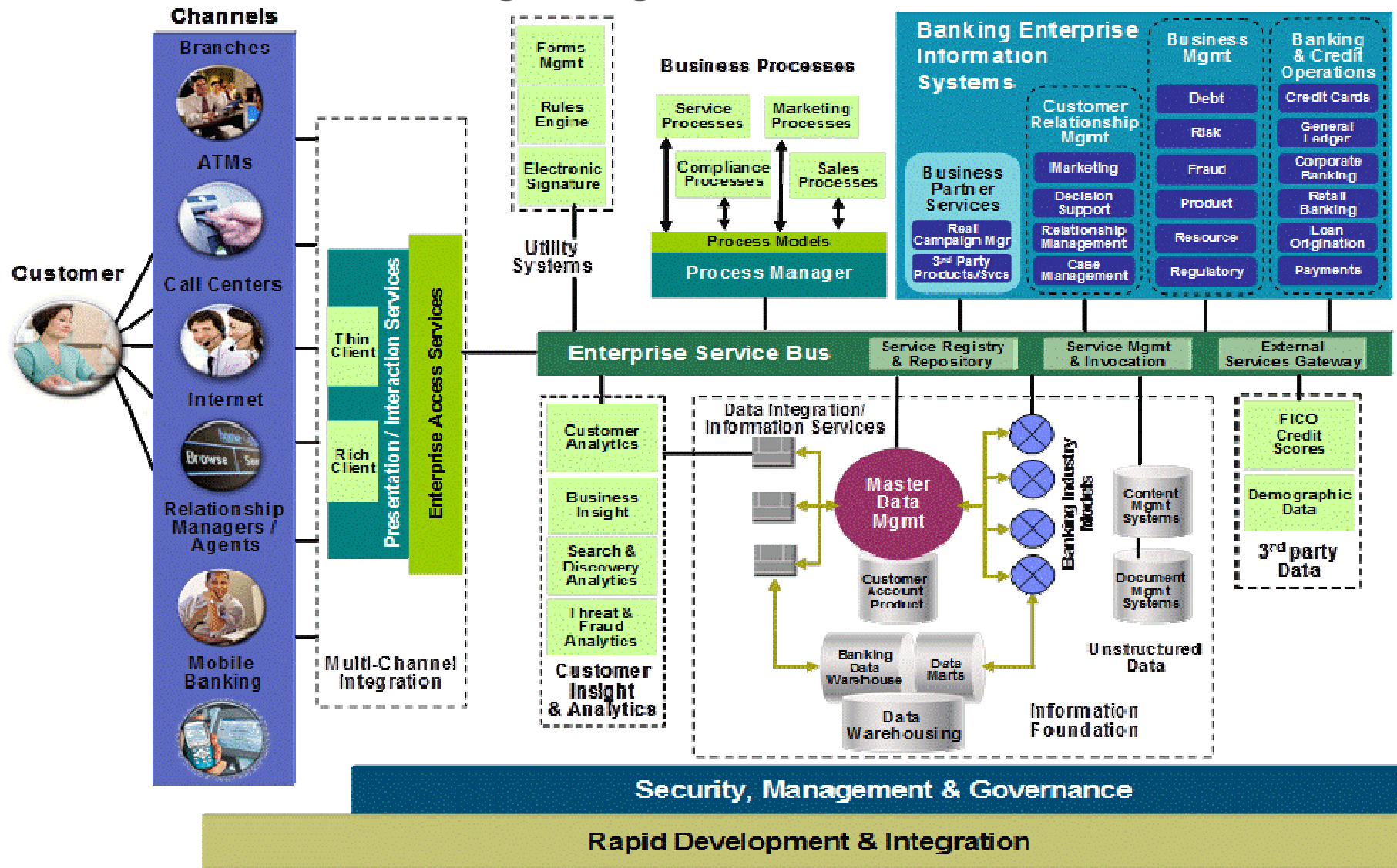
Information Foundation

Customer Insight

Harnessing the Power of Data
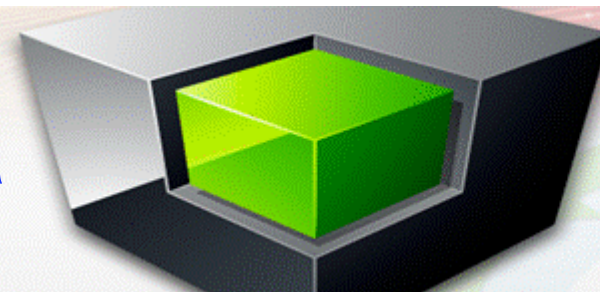
- Big Data doesn't operate in a silo.

- Builds on traditional BI, providing the ability to aggregate and analyze much more data.

- Cost effectively – based on open source.

- IBM builds on open source with enterprise-grade capabilities, integration and security.

- Accelerators: extensive text analytics and machine learning IP on both data-in-motion and data-at-rest. Annotated Query Language..

Analytic Applications

| BI / Reporting | Exploration / Visualization | Functional App | Industry App | Predictive Analytics | Content Analytics |

IBM Big Data Platform

Visualization & Discovery | Application Development | Systems Management

Accelerators

Hadoop System | Stream Computing | Data Warehouse

Information Integration & Governance
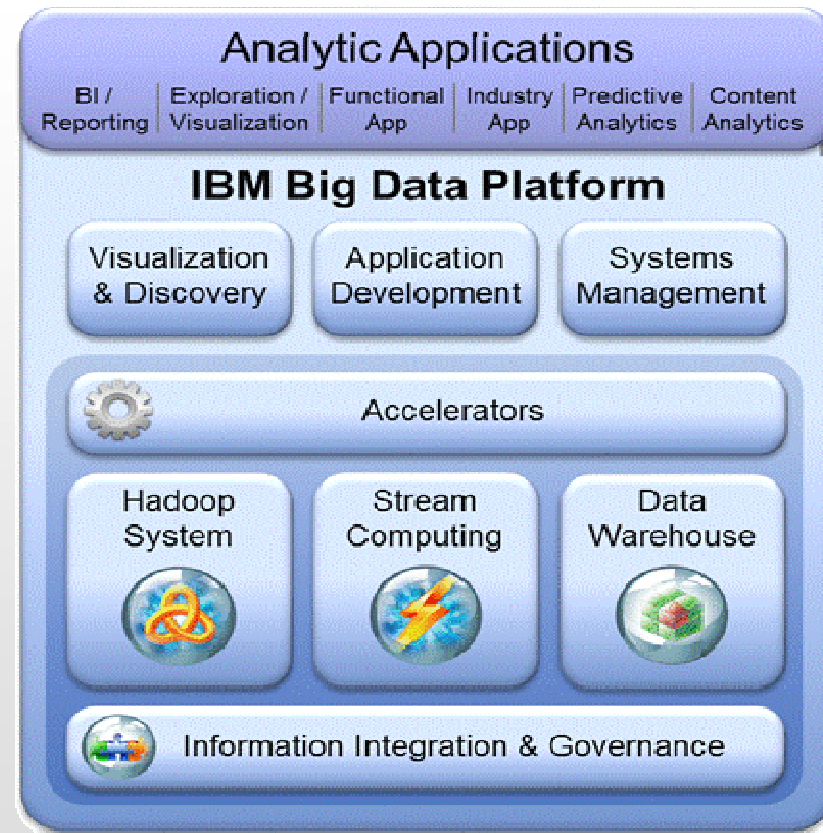
Visa provides first-of-a-kind, location based, real-time campaign management for retailers.

Customer Insight

Leigh Amaro
Head of Media and Advertising Solutions
Visa Inc.

0:33 / 3:21

VISA
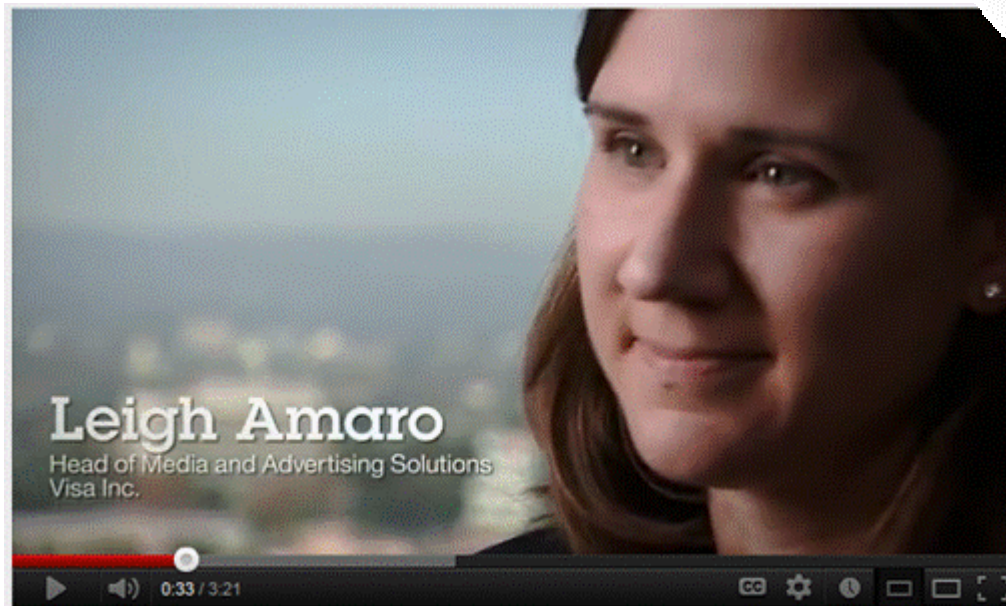
Processing
10k+
transactions/
second

Single View of the Person

Customer Insight

Establishing effective master data management is at the heart of customer centric transformation

Key Requirements:

- Single view of customer product holdings

- Customer profile data, including preferences

- Cross-channel contact and case history

- Consolidated view of products and services

Customer Insight
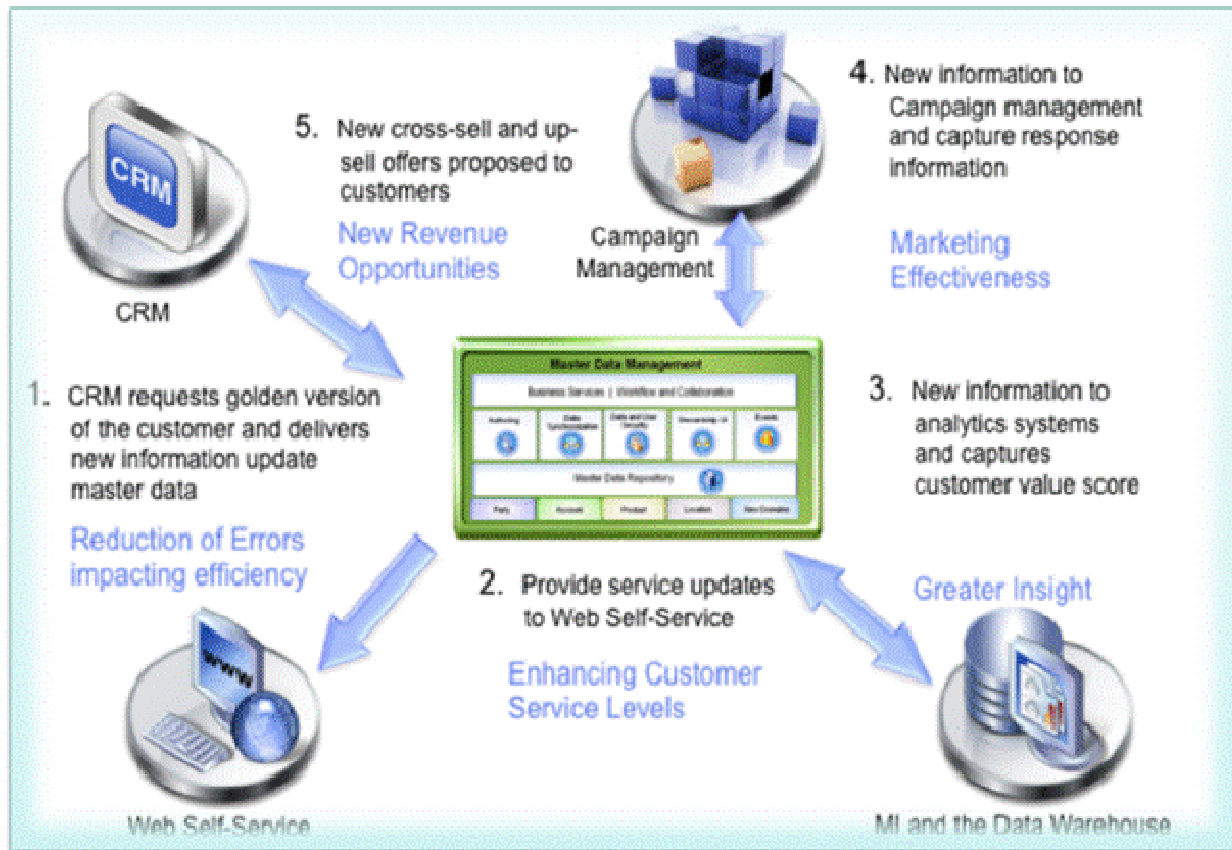
A large bank achieves superior results by servicing each of its 100 million online customers with a personal touch.

100 million customers,

100 million different ways to bank

A large bank builds highly personalizable digital channels on IBM multi-channel technology to provide excellent customer experience for its vast customer base

Business problem: Accelerate development and deployment of new applications and services across all of its channels, while containing development costs, simplifying skills requirements and increasing reusability.

Solution: A multichannel integration framework that provides reusable services and components for continually enhancing online, branch and mobile banking channels. Also, a development process built around reusable components to lower development costs and reduce skill requirements.

Smarter Analytics - Banking Analytics Accelerators

Customer Insight

- **Customer profitability analytics**
  - Increased profitable growth of customer base by 15%- 20% by measuring and identifying customer profitability

- **Campaign insight and optimization**
  - Reduce costs and increase effectiveness of lead generation activities

- **Relationship Pricing for Commercial Banking**
  - Pricing solution to support daily credit and noncredit pricing decisions to large and small business banking customers

- **Client Servicing Blueprint**
  - Provides customer facing portal and self-service statement reporting. Includes internal wealth and asset management dashboards

- **Channel Performance (Branch, Web, etc.)**
  - Establishes corporate targets and develops integrated top down/ bottom up functional and operational plans.

- **Investment Banking Blueprint**
  - Performance analysis
  - Customer & product profitability

- **Next Best Action**

Smarter Analytics @ FIRST HORIZON®
All Things Financial®

Customer Insight

analyze
each customer's transactions & behavior

analyze
2 years of ROI and response data

```
1 1 0 0 0 0 1 0 1 0
1 0 0 0 0 1 0 1 0 1
1 1 1 0 1 0 0 0 1 0
1 0 1 1 0 1 0 0 0 1
1 1 0 1 0 0 0 0 1 1
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600%
ROI

-20%
mailing costs

Smarter Marketing - IBM's Enterprise Marketing and Analytics Solutions Power this Integrated Portfolio

Sales & Marketing Effectiveness

Awareness

Web & Digital Analytics

Event Detection

Predictive Analytics

Visual Exploration

Decisions

Segmentation

Offer Management

Interaction History

Real-time, Behavioral Targeting

Contact Optimization

Execution

Email

Inbound Integration

Lead Routing & Monitoring

Distributed Marketing

Search/ Display Ad Management

Operations

| Plans & Budgets | People & Processes | Data & Assets | Measurement & Performance |

Delivering personalized offers across channels in real ti

Sales & Marketing Effectiveness

ING *turns inbound interactions into profitable communications*

Inbound contacts

Outbound response
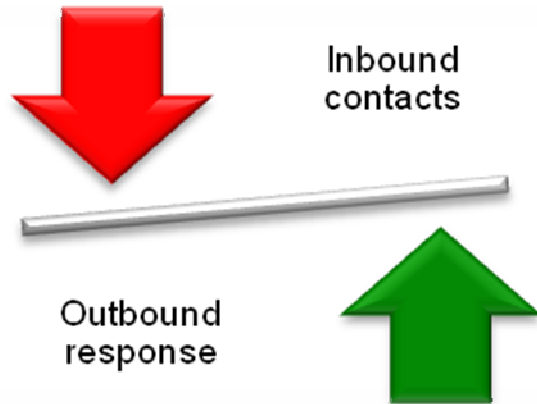
Business Need
- Outbound campaigns were ineffective – not taking advantage of customer initiated interactions
- Needed to create a single, cross-channel, relationship with each customer
- Disparate teams managed customer dialogs
- Needed to reduce marketing costs

Real Results
- Relevant, real-time campaigns drive higher response rates
- 85M targeted offers served each day across 5 channels – direct mail, email, web, call center, and branches
- €20M increase in earnings expected
- Lowered direct marketing cost 35%
- Faster campaign cycle times: from 26 weeks per campaign to just 4 weeks

Smarter Workforce for Banking

A POWERFUL NEW APPROACH TO WORKFORCE EFFECTIVENESS

Smarter Workforce for Banking – Sales Effectiveness & Business Performance (Operational Efficiency)

•IBM Acquires Kenexa - a leading provider of recruiting and talent management solutions which runs in the cloud. I consists of modules for: Recruiting, Compensation, Learning, Surveys, Assessments, Performance Management and Onboarding.

•As well as Varicent – a Sales Performance Management solution as a key component of Corporate Performance Management. Focus is on using analytic processes, which enable businesses to define strategic goals and then measure and manage performance against those goals.

Smarter Workforce for Banking

Sales & Marketing Effectiveness

Smarter Workforce

Branch Performance
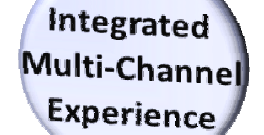
•Consider what is happening to the branch.

•Relatively straightforward to increase branch channel efficiency and effectiveness without a large capital investment.

•NatWest is using Kenexa to improve the caliber of branch managers/personnel.

NatWest

Attract	• Expertise Locator identifies potential candidates for roles from within associated communities • Identification is not only skills related but addresses cultural fit and is aware of resources current availability • Jobs are filled through outreach to and through the community • Recruiting services enable new ways of finding resources with less investment
Enable	• Enhanced employee experience which drives to faster time to value • Learning becomes about capturing and sharing collective intelligence • Learning is real time, driven through sharing of insight and expertise • Learning is available whenever, where ever and however it is needed
Perform	• Transition from performance management to performance enablement • Feedback is realtime and multi-sourced • Real time coaching and mentoring is a natural part of the process

The Industry's Most Comprehensive Mobile Portfolio

IBM MobileFirst
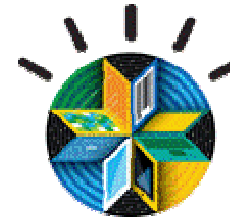
1	2	3
The Broadest Portfolio of Mobile Solutions	**The Deepest Set of Services Expertise**	**New Industry Partnerships and Resources for Developers**

Discover what's working and what isn't – and WHY

Tealeaf CX Mobile

Integrated Multi-Channel Experience
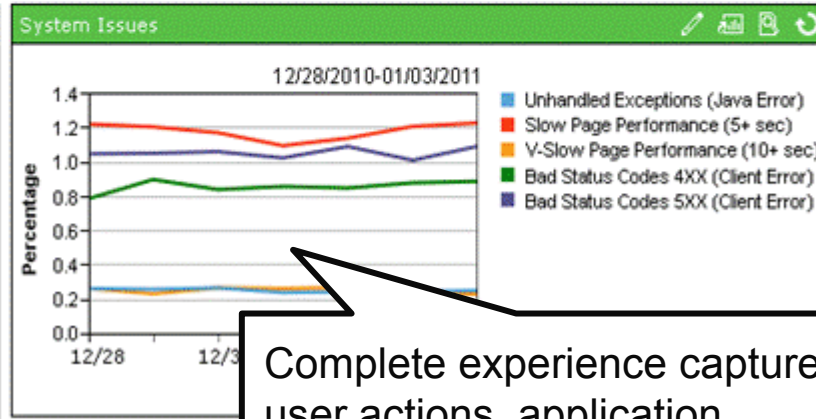
Automatic detection of mobile customer struggle
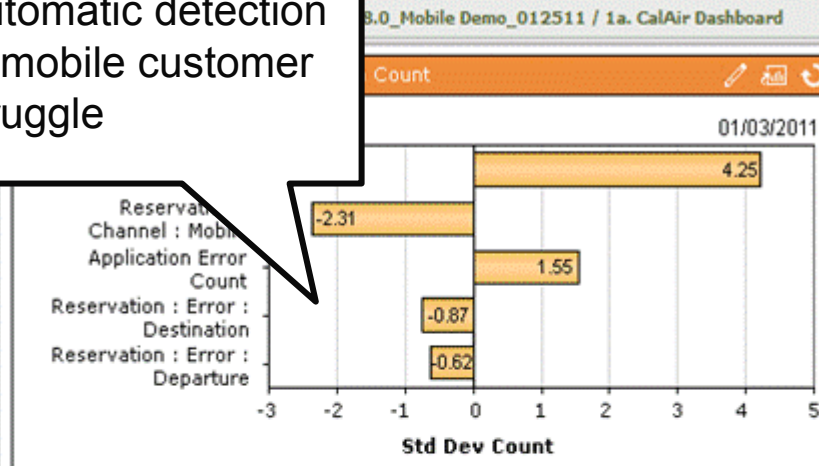
Cross channel analytics: web, app, mobile site
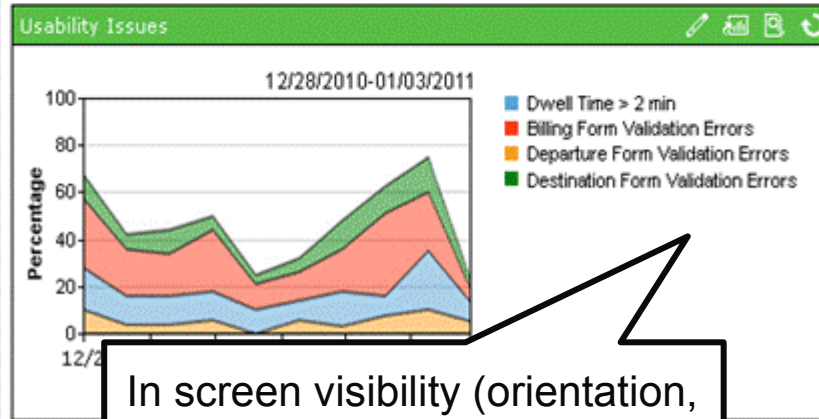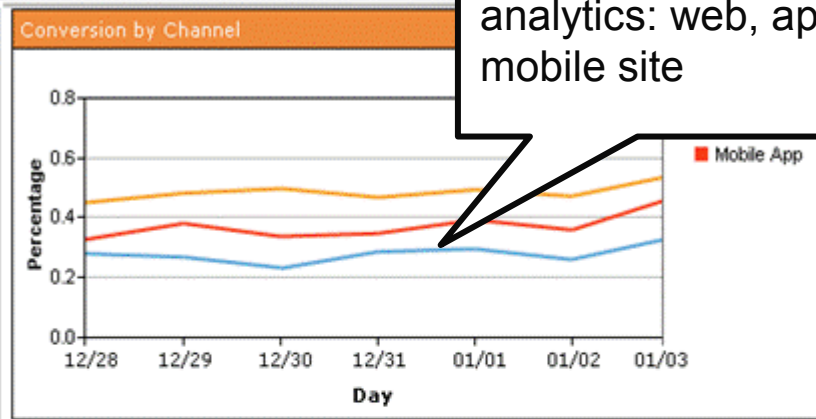
In screen visibility (orientation, swipe, form entry, clicks) to track usability issues

Complete experience capture: user actions, application, environmental and network data

Customer Story: Capital One 360

Integrated Multi-Channel Experience

Leading US banking institution implements a flexible client-side architecture to reuse mobile website content

The Need:
- Highly unsatisfied with legacy mobile vendor, because of lack of flexibility and feeling they are not being listened to
- Strategically intent to bring mobile development in-house
- Increasing demand for diversifying mobile offering and drive more business through the mobile channel (specifically critical as an online-only bank)

The Solution:
- IBM Worklight enabled CapitalOne to develop the app with an internal team of 10 developers for both client- and server-side development
- Hybrid HTML5 apps, using Sencha Touch UI library, to seamlessly mobilize mobile web site functionality

The Benefit:
- Ability to provide access to device features and unique mobile capabilities, such as camera-based, remote check deposit
- Use Worklight's application management features to manage apps that were published and installed on customer devices
- Implement future plans for additional consumer apps

Merging both online and mobile channels through efficient cross-platform development capabilities using HTML, CSS and JavaScript
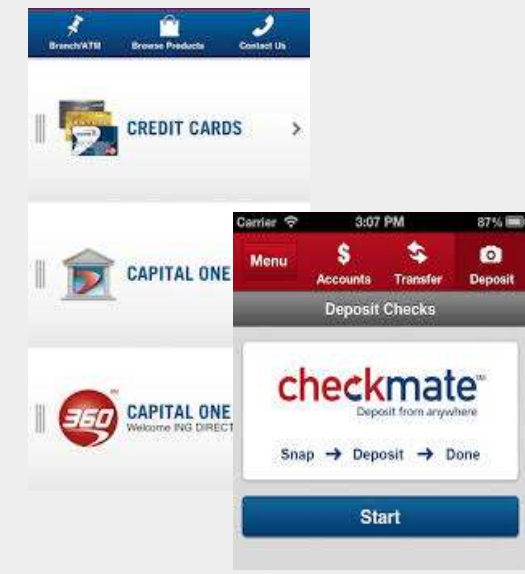
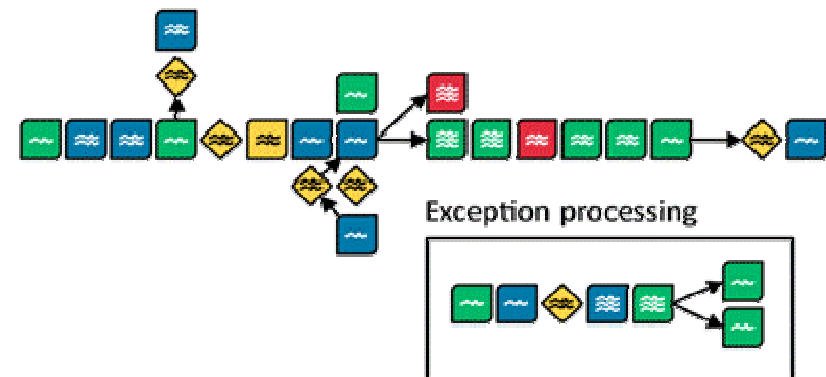# Process Management – Removing Friction, Reducing Paper, Streamlining Processes, Shortening Cycle Time

Operational Efficiency

Before: Long, multistep process without BPM

Exception processing
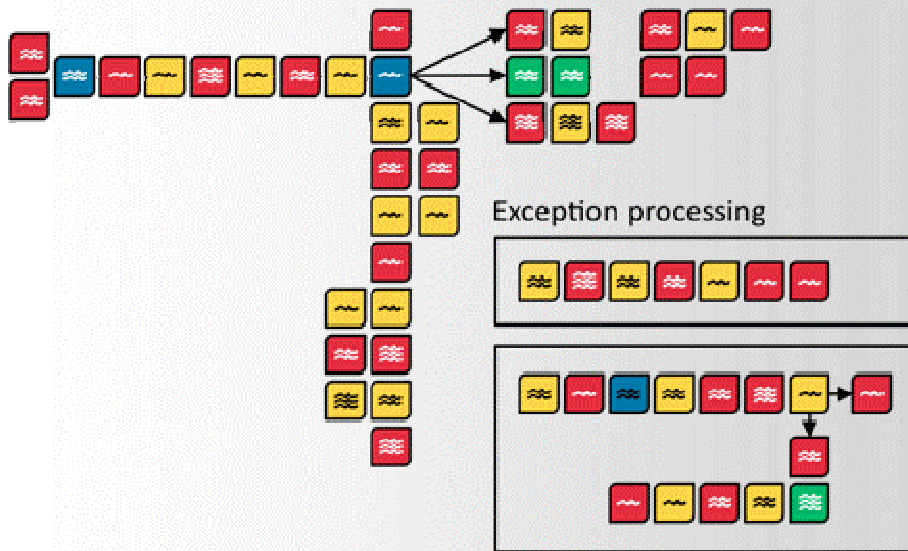
After: Streamlined and efficient process with BPM

Exception processing

Inefficient processes:

Paper-based processes requiring human intervention

Wait time

Efficient processes:

Semiautomated activity

Fully automated electronic activity

Account Opening – Common Problems

Operational Efficiency
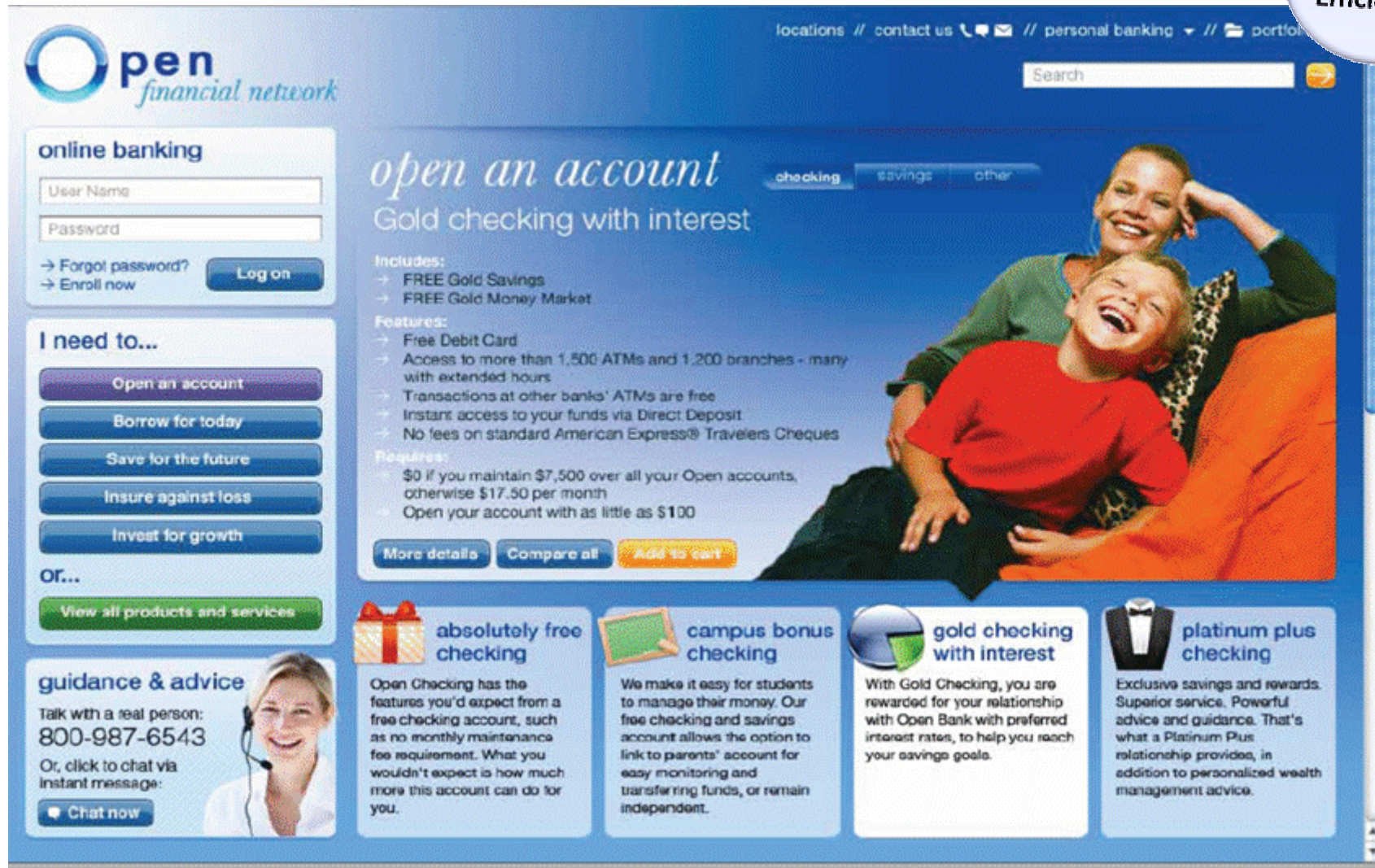
Lack of integration between the channels results in:
- Inconsistent customer experience
- Increased customer abandonment
- Inability to leverage customer data from other channels
- Difficulty in transferring cases and applications
- Increased work effort for introduction of new products

Lack of automation results in:
- Administratively intense processes limits cross-sell and up-sell.
- 90% of applications require manual intervention, increasing both cost and time to fund the account.

New Account Opening Costs
- Each year the average regional bank incurs the following costs because of there New Account Opening system:

  $2.4 million in increased costs due to manual and duplicate process steps

  $11.4 million in lost cross-sell and up-sell revenue due to barriers caused by long and inefficient processes

  $4.5 million in lost revenue due to client abandonment

  Account Opening costs are 20% of global banks operating costs

Cost Breakdown of a Bank's Activity

Product Dev & Mgmt 4%
Other 8%
Account Maintenance 22%
Clearing 4%
Statements 5%
Payments 5%
Decisioning & Authorization 5%
Securities Processing & Mgmt 6%
Card Processing 10%
Mortgage & Other Loan Processing 11%
Account Opening 20%
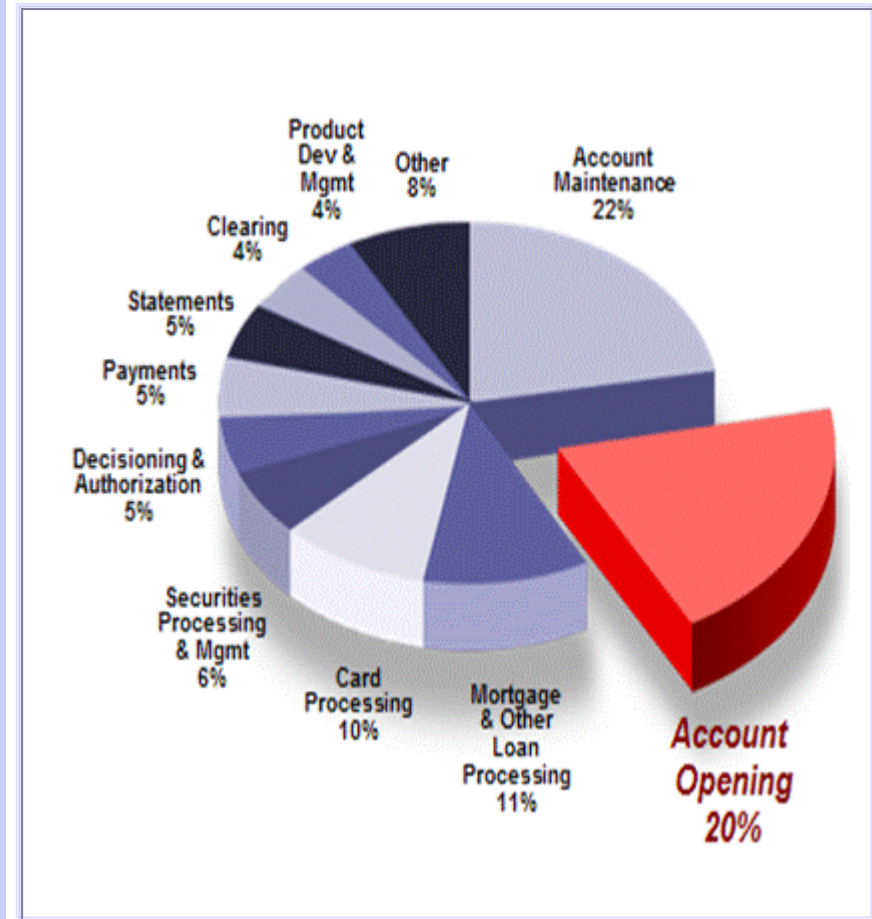
Smarter Account Opening *New Generation Banking Solution*

Check Out – Identify Yourself

Operational Efficiency

Check Out – Configure

Operational Efficiency

Check Out – eSignature

IBM

Performance management professionals know "business as usual" is no longer an option

Operational Efficiency

Strategy management
Ensure strategic plan & measurement system aligns capital with opportunity

Value Chain
Better sustain profit, growth in value chain

Customer retention
Demanding customers, commoditized products and crowded competitive marketplace

Product innovation
Rapidly develop competitive products & offerings to attract and retain customers

Sales productivity
Increased breadth of channels, emphasis on cross-sell / up-sell opportunities and sales agility

Regulatory & Compliance Demands
Meet increasingly demanding requirements' on risk, controls, and variable compensation

Operational coordination
Speed synchronization of activity plans to ensure coordination and throughput

Performance Management – CFO is strategic business advisor to improve sales, efficiency, risk management

Operational Efficiency

THINK Finance: The CFO+CIO Leadership Exchange

IBM hosted its first THINK Finance: The CFO+CIO Leadership Exchange, gathering more than 170 chief financial officers and chief information officers from 20 industries. The event took place in New York, and convened a primarily North American audience.

Three imperatives for the CFO

1. Drive enterprise agility through enterprise integration
Common data sets, metrics and reporting mechanisms that provide "a single version of the truth" across all functions and operations
Shared services, for greater efficiency
Integrated processes, enterprise-wide
An operating model that is truly global in where it locates and sources work

2. Help the business make better decisions by anticipating the future
CFOs have always had responsibility for helping the company make decisions regarding resource allocation, cash and capital. In the past, these decisions have been guided by forecasting, research, market testing, historical patterns — and often, experience and gut instinct.
But the advent of Big Data and analytics is changing the basis on which decisions are made – increasingly, we will be modeling the future based on predictive analytics.

3. Lead business model innovation
An increasing number of CFOs are assuming broader strategic roles which includes leading innovation in business models. They are instilling not just a discipline of reporting, but a new discipline of modeling, forecasting and performance.

Ginni Rometty, BNY Mellon Chairman and Chief Executive Officer: Gerald Hassell, and Fortune Senior Editor-at-Large: Geoff Colvin

IBM Finance Forum 2013
Smarter Analytics. Smarter Outcomes.

Financial Performance Management
Smarter Analytics. Smarter Outcomes.

Operational Efficiency

Planning Analysis & Forecasting	Profitability Modeling & Optimization	Scorecarding & Strategy Management	Management & Performance Reporting

CFO performance insight

IBM. Smarter **Analytics** Signature Solution

CFO performance insight

Ginni Rometty, BNY Mellon Chairman and Chief Executive Officer; Gerald Hassell, and Fortune Senior Editor-at-Large: Geoff Colvin

IBM Finance Forum 2013
Smarter Analytics. Smarter Outcomes.

http://www.youtube.com/watch?v=KXfCLKHIUIE

A strong framework of actuals, targets and forecasts he[l]p anticipate performance gaps

Operational Efficiency

Company Logo

Company Logo

Executive Dashboard

Actual vs Budget vs Forecast

Traffic light indicators

Link to ERP Web Interface

ERP/source web   ? _ □
[Lin]k to ERP/source web interface

Portal   ? _ □

Portal

Name ⬦
Finance Scorecard Metrics

Report List

Dashboard Reports   ? _ □

Dashboard Reports

Name ⬦
Financial Management
Operational Revenue Management
Operational Expense Management
Capital Management

Financial reports

Finance Reports   ? _ □

[Fin]ance Reports

Name ⬦
Balance Sheet
Income Statement

"What if" analysis

[Wha]t-If Analysis   ? _ □

Name
What-If Analysis
Setup

Measuring Period: [y ▼]   Measuring Currency: [[Rep]ort Currency ▼]

Metric trending

Financial Management

	2011 – YTD		2011 – Full Year			Trending
	Actual	Target	Budget	Forecast	Variance	
EBITDA ⚠	↗ $1,885,076	$1,767,815	$10,789,549	$9,775,752	-9% 🟥	More
Net Income	↗ $1,507,032	$1,458,293	$8,907,214	$7,574,591	-15% 🟥	More
ROIC	↗ 36%	40%	55%	63%	8% 🟢	More
Operating Profit ⚠ (% of sales)	↗ 52%	51%	51%	49%	-2% 🔶	More

Operational Revenue Management

	2011 – YTD		2011 – Full Year			Trending
	Actual	Target	Budget	Forecast	Variance	
Gross Sales	↘ $3,535,224	$3,337,824	$20,253,145	$19,238,694	-5% 🟥	More
Avg. Sales Value/Unit	↘ $5,292	$4,274	$4,302	$5,007	16% 🟢	More
Market/Selling Price Realization	↘ 86%	74%	75%	76%	1% 🟢	More

Operational Expense Management

	2011 – YTD		2011 – Full Year			Trending
	Actual	Target	Budget	Forecast	Variance	
SG&A%	↗ 11%	10%	10%	14%	3% 🔶	More
Gross Margin%	↗ 71%	71%	71%	72%	1% 🟢	More
Material Cost%	↗ 15%	15%	15%	13%	-2% 🟢	More
Distribution Cost%	↗ 3%	4%	4%	3%	-1% 🟢	More

Capital Management

	2011 – YTD		2011 – Full Year			Trending
	Actual	Target	Budget	Forecast	Variance	
Capital Efficiency	↘ $42	$35	$32	$32	3% 🟢	More
Cashflow	↘ $2,173,232	$1,428,736	$10,194,165	$9,260,314	-9% 🟥	More
Days Sales Outstanding	↗ 52.2	41.4	37.8	43.4	15% 🟥	More
Days Payable	↗ 10.0	5.4	9.8	11.5	18% 🟢	More
Days in Inventory	↗ 12.1	12.3	12.0	10.4	-13% 🟥	More

IBM's Banking Solutions

	Front Office (Customer)	Back Office (Cost & Complexity)		Risk
Solution Area	Customer Care and Insight	Core Banking Transformation	Payments & Transaction Services	Integrated Risk Management
Solutions	• Customer Insight • Sales and Marketing Effectiveness • Integrated Multi-Channel Experience • Operational Efficiency	• Strategy and Roadmap • Architecture Transformation • Banking Process Agility • Legacy Modernization	• Consumer Payments • Commercial Payments • Compliance and Risk • Payment Transaction Platform	• Financial Risk • Financial Crimes • Operational Risk and Compliance • IT Risk
Assets	Worklight, tealeaf, Kenexa, Unica, VARICENT	urban{code}, GREENHAT, CAST IRON SYSTEMS	Financial Transaction Manager, Sterling Commerce, Emptoris, Palisades Technology Partners, Wilshire	CLARITY systems, Algorithmics, A², OPENPAGES, StoredIQ, BIGFIX, i2, Labs, PSS
Analytics	COGNOS, ILOG, solid., SPSS	Guardium, Datacap	Information FrameWork, STAR ANALYTICS, Master Data Management	Ascential
Cloud	IBM SmartCloud Foundation	IBM SmartCloud Services	IBM SmartCloud Solutions	SOFTLAYER®

How to sell - helping clients succeed in transforming risk management with a comprehensive horizontal and vertical integration strategy

Integrated Risk Management

CRO/CCO/CFO/CIO

Market Risk	Credit & Collateral Risk	ALM & Liquidity Risk	Actuarial Risk	Operational Risk	IT Risk	Policy & Compliance	Financial Controls & Internal Audit

Vertical

Front Office

Middle Office

Back Office

Trusted Information Infrastructure
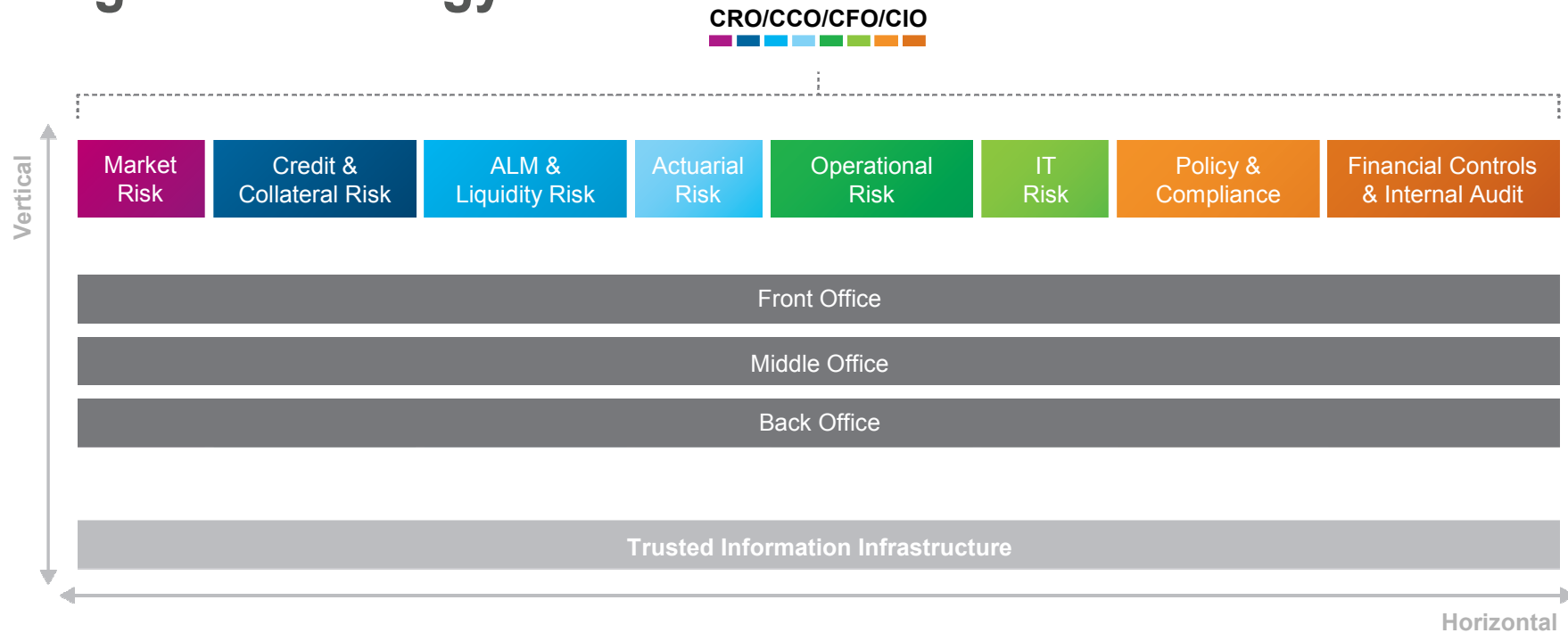
Horizontal

Horizontal integration to eliminate "silos" and enable a comprehensive view of risks across firms

**Vertical integration** linking risk management to business processes

Business Case – Drivers for Risk & Compliance

Integrated Risk Management

Drivers	KPIs	Improvements	Impacts	Typical Projects

1 Risk & Compliance Process Complexity

KPIs	Improvements
% Automated vs. Manual Processes	▲ From current +10% to 60-80% Automation of GRC Processes
# of systems / processes consolidated	

Impacts: OpEx / CapEx, Compliance and Audit Costs

Typical Projects:
- Enterprise Risk Data Healthcheck (BAO)
- Consolidate IT Risk and GRC processes and tools
- Integrate Operational Risk, Compliance, Audit, Functions

2 Financial Risk Analytics & Reporting

KPIs	Improvements
RAROC, Risk-Adjusted Pricing	▲ X% (Improvement)
Liquidity Coverage Ratio	▼ 50% Reduction
Improved Economic Capital Ratio	▲ X% (Pending)

Impacts: Economic Capital, Financial Reporting cycle times

Typical Projects:
- Integrated Financial Risk Analytics and Reporting
- Asset & Liability, CVA, Liquidity
- Risk/Finance Data Transformation

3 IT Risk & Security

KPIs	Improvements
# of high-risk systems, data and applications	▲ Not Measured Today Potential for over 50% reduction
# Open Audit / Compliance Issues	▼ 20- 30% Reduction
# of open RBAC / IAM Entitlement Reviews	▼ 40-50% Reduction

Impacts: Prevent costly Data Breaches and Reputational, Legal Risk exposures

Typical Projects:
- IT Risk Program Assessment
- Security Intelligence / Cont. Controls Monitoring
- Identity & Access Management Process / Tools Improvement

4 Financial Crimes (AML/Fraud)

KPIs	Improvements
% / $ Amt. of AML/Fraud Reduce # False Positives	= Increase in recovery Decrease in losses
External Fraud Amount (Actual vs Target)	= 0.01-.05% Fraud Average by Txs

Impacts: Financial Losses / Regulatory, Legal Fines

Typical Projects:
- Investigative Case Management Analytics /Process Transformation
- AML / Fraud Program and Architecture Review

IBM

CEO/CRO/CFO/CIO/CCO

Operational Risk & Compliance

Appetite and Tolerance
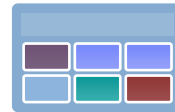
Policy Setting

Governance

| Risk (Chief Risk Officer)		Compliance (Chief Compliance Officer)	
Finance & Audit	**Operations**	**IT**	**Legal**
• Market risk • Credit risk • Liquidity risk • Financial reporting risk	• Operational risk • EH&S • Billing integrity	• Information Security • Business Continuity • Privacy • IT Risk	• Industry compliance • eDiscovery • Policy Management • Regulatory compliance

Sample Client Wins – GRC

Operational Risk & Compliance

- Enterprise Operational Risk and Compliance Management to identify, manage, monitor and report on operational risks across the enterprise
  - Basel II AMA
  - Board Risk Management Reporting
  - Business Line decision-making for risk/controls
- Fully integrated Operational Risk capabilities
  - Risk Control Self Assessments (RCSA)
  - Scenario Analysis (with IBM Research)
  - Key Risk Indicators (KRIs)
  - Operational Loss Event database - Internal & External (via ORX client/partner)
    www.orx.org
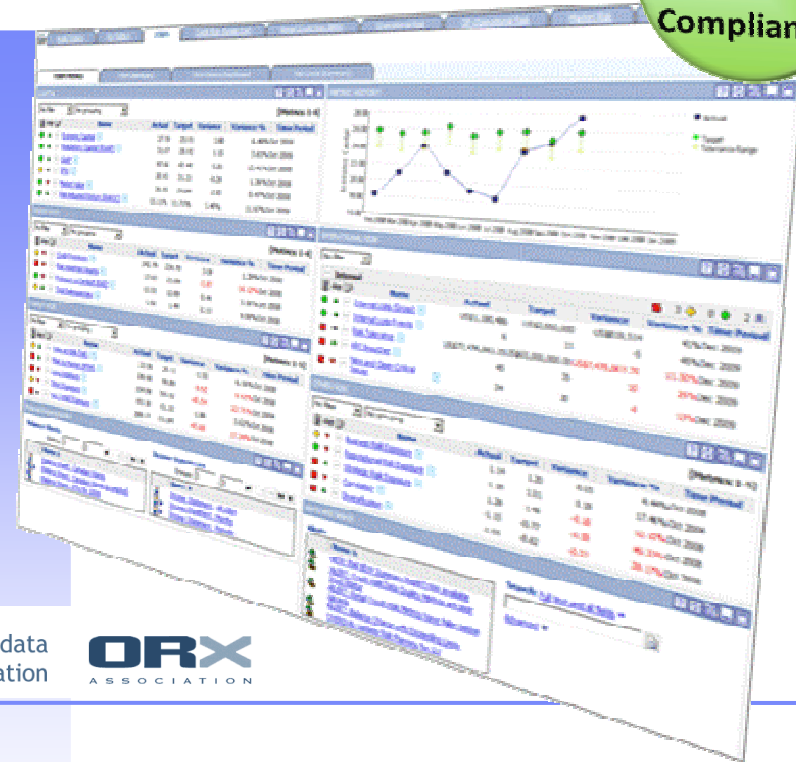
The Operational Riskdata eXchange Association

ORX ASSOCIATION

Business Benefits

- Meet Regulatory Requirements (Basel II AMA, FFIEC/FRB/OCC, FSA, etc.)

- Improve Operational Risk processes by integrating key risk data (e.g. loss events with RCSA and KRIs)

- Standardize risk and control reporting across the enterprise

CapitalOne

Client ROI example:
Consolidated 25 separate risk systems to under 7 with OpenPages Platform resulting in hard savings of $3-5M per year and over $20M in cost take-out

AMERICAN EXPRESS BARCLAYS ING

Bank of America

Fidelity INVESTMENTS

STATE STREET UnionBank

FATCA - High Level Overview of Solution

Operational Risk & Compliance

KYC/KYB/ Customer Acceptance

VERIFY and DOCUMENT

FATCA Reporting

| Periodic | Ad-hoc |

REPORT

Master Data / Single Customer View

| Customer/Org | Account | Location | Product |

Operational Data Store

Transaction History

IDENTIFY

Cache

Non-Compliant Accounts List

Gateways	Deposits	Markets	Wealth	Insurance
International	Current Accounts	Investments	Private Banking	Pensions
Domestic Clearing	Savings Accounts	Trading		

Processing/routing

Rules

WITHHOLD TAX Using FATCA decision logic

...nts Hub

FATCA enhancements

Defensible Disposal – Information Lifecycle Governance

Operational Risk & Compliance
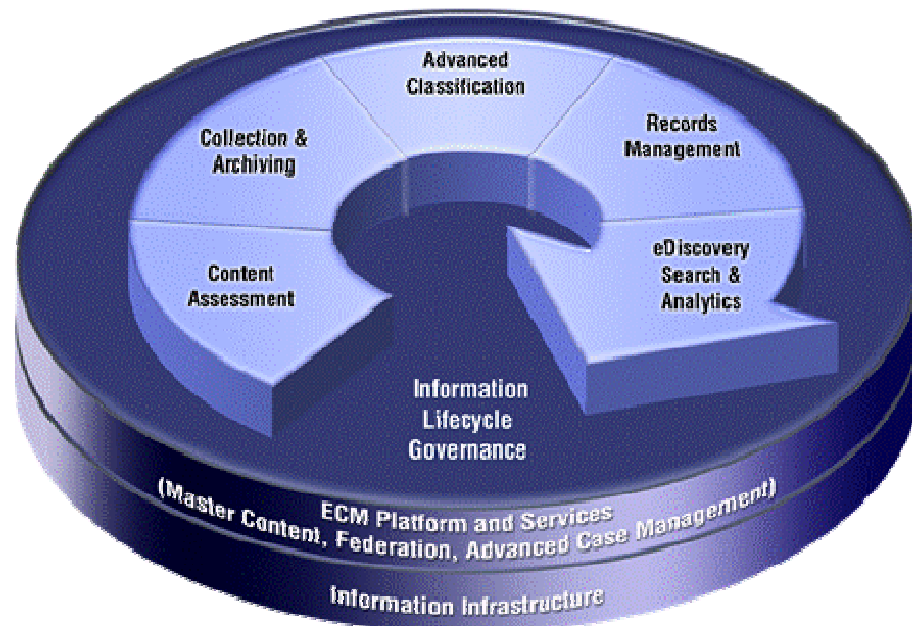
- **IBM Content Analytics**
- **IBM Content Collector**

  For Email, Files, SharePoint, SAP and more including support for Optim

- **IBM Classification Module**
- **IBM Enterprise Records**
- **IBM eDiscovery Manager**
- **IBM eDiscovery Analyzer**
- **Stored IQ**

  For Active Management of Data

- **Start with one, some, or all on-ramps … in any order or any combination**
- **Add other on-ramps in flexible yet modular fashion**
- **Starter Packs available for commonly combined on-ramps**
- **Part of IBM Smart Archive strategy including Information Archive**

Recognized need to align risk and performance, strategic and operational decisions to maximize capital efficiency

Financial Risk

Maximizing profitability FOR A GIVEN LEVEL OF RISK

Maximizing survival and earnings stability FOR A GIVEN LEVEL OF TARGET PERFORMANCE

Optimizing resource allocation to maximize performance

Containing risk levels within limits consistent with prudential objectives

Strategic | **Operational**

Finance | **Risk**

Value Based Management | **Risk Appetite Management**

Business Decisions

Resource & Performance Management | **Risk Exposure Control**

Finance Information | **Risk Information**

Single source of information – aggregated across the bank

IBM Smarter Analytics Signature Solution
Credit Lifecycle Management

Financial Risk

Identify, price, measure and manage credit risk exposures across the enterprise

Solution overview

An enterprise view of credit information, centralized credit management and monitoring to meet the organizations need to know, price, control, monitor and ultimately support optimal use and allocation of credit.

Solution benefits

• Improve operational efficiency, accuracy, and control
• Automate the credit application, renewal, activation and monitoring process for commercial lending, treasury capital markets
• Make better decisions around credit risk
•Regulatory compliance

Business outcomes

• A financial services company is now able to accurately identify, measure, monitor and report on counterparty credit risk.
•A European bank improved accuracy of risk assessments by 84 percent, accelerated time to market with new financial products by 66 percent, and boosted customer satisfaction.

Risk-Adjusted Profitability Blueprint

Financial Risk

- Integrated risk-adjusted planning and forecasting within a commercial segment (ie, industry) at the product type and region level

  For instance, RMs, LOB execs forecast sales & net income for a specific industry segment, within a region, either across products or for a single product type

  Changes in risk factors e.g. PD & EL drive adjustments to loan loss provisions, and ultimately to net income

  Final result is profit and loss statement

- Multi-dimensional risk management and profitability reporting and analysis

- Initiative planning allows comparison of multiple scenarios

- Incorporation of activity-based management / costing
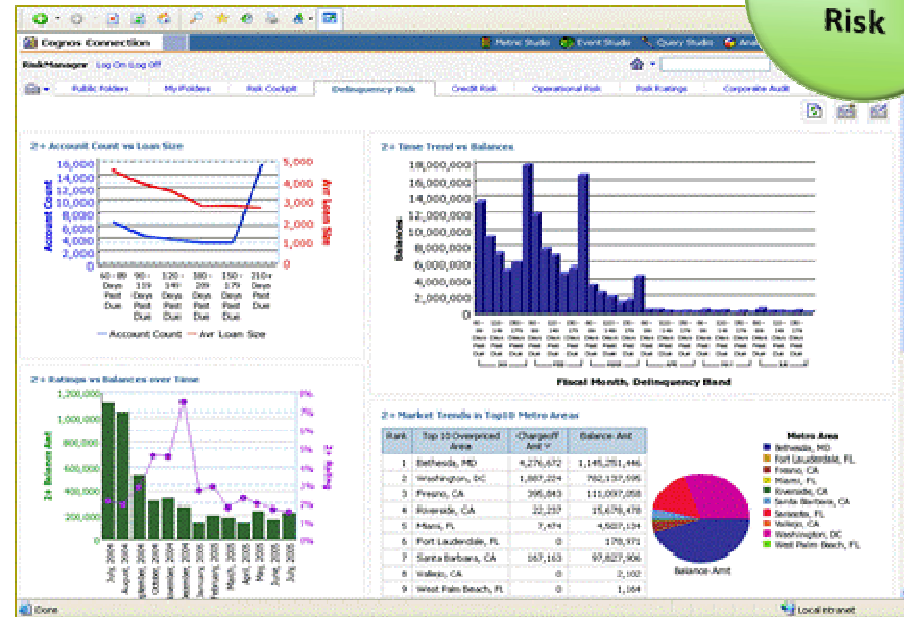
	Total	Natural Gas	Electronics
Total Target Credit Portfolio	1,200,000,000	1,200,000,000	1,200,000,000
Target Concentration Limit	100%	45%	55%
Target Exposure	1,200,000,000	540,000,000	660,000,000
Hurdle Rate (Required Return on Capital)	15%	15%	15%
PD	0.03	0.04	0.03
LGD	0.60	0.60	0.60
EAD	100%	100%	100%
EL %	0.0191	0.0240	0.0150
Risk Based Capital Ratio	0.08	0.08	0.08
Economic Capital %	0.20	0.20	0.20

Enterprise Risk Program

Financial Risk

Strategic Objectives

- Provides **enhanced management over risk**, driving increased usability and information on risk exposure
- More **effective capital management** by ensuring the optimal allocation and investment of capital
- Better **management of the business and product mix** by making informed decisions on risk adjusted profitability
- **Enables future growth of the bank** (mergers) by achieving Basel II compliance
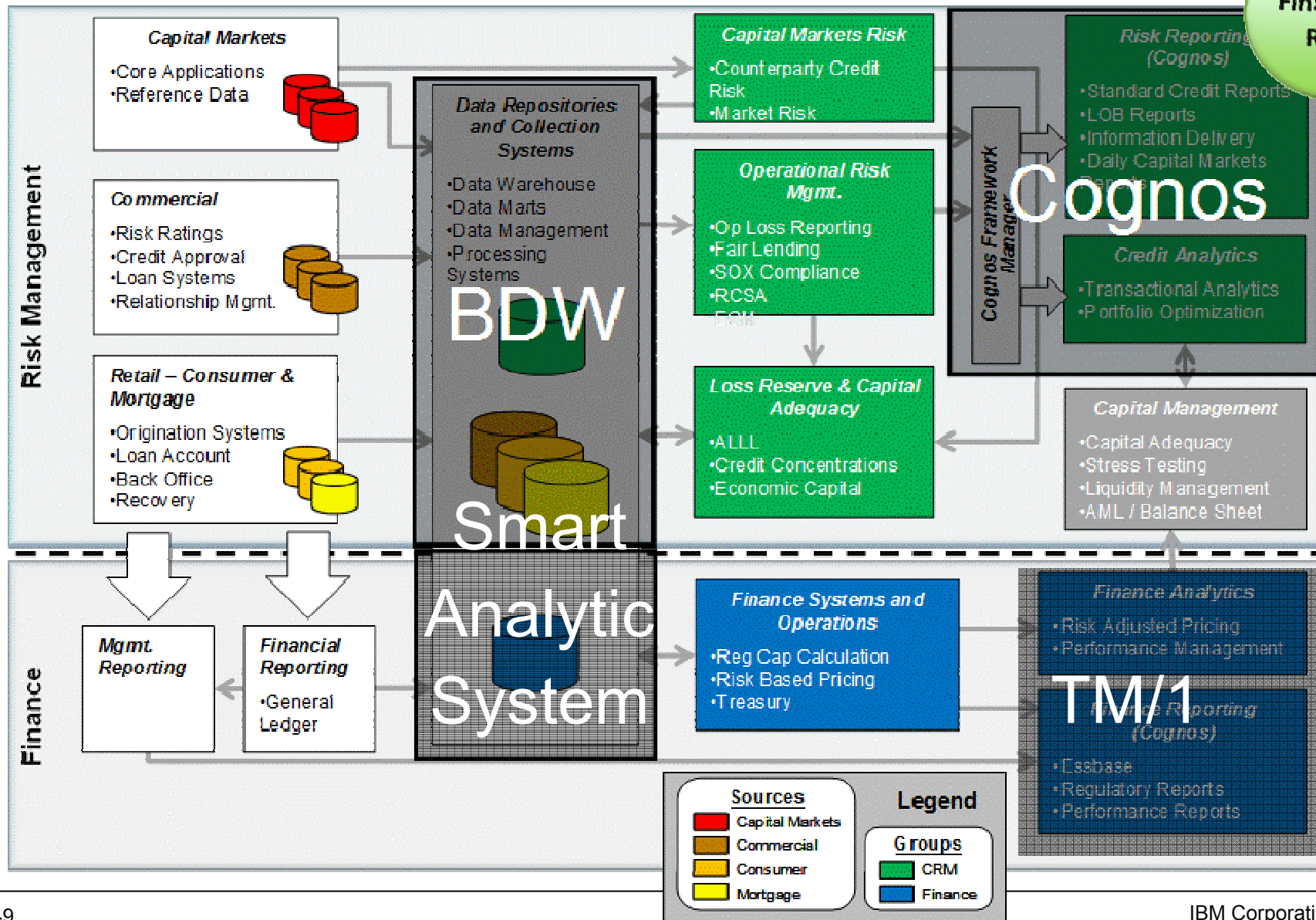
Strategic

| **Regulatory** | **Operational** |

Business Objectives
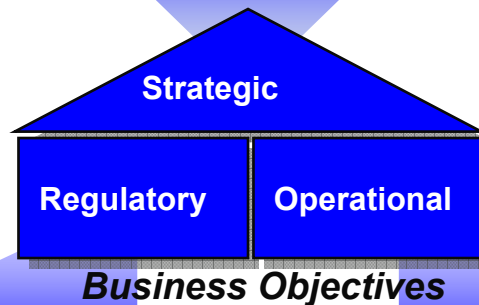
Regulatory Mandates

- Regulatory **approval for Advanced Basel II Compliance**, SR99-18, SR98-25, AML, Enterprise Compliance Management, SOX.
- Differentiates bank to the market and regulators as one of the **leaders in risk management**
- **Optimizes management of risk exposure**

Operational Objectives

- **Potential to deliver $200-$400M to the bottom line** annually through:
  - Improved **pricing commensurate with risk**
  - Improved **operational efficiency**
  - **Loss mitigation**
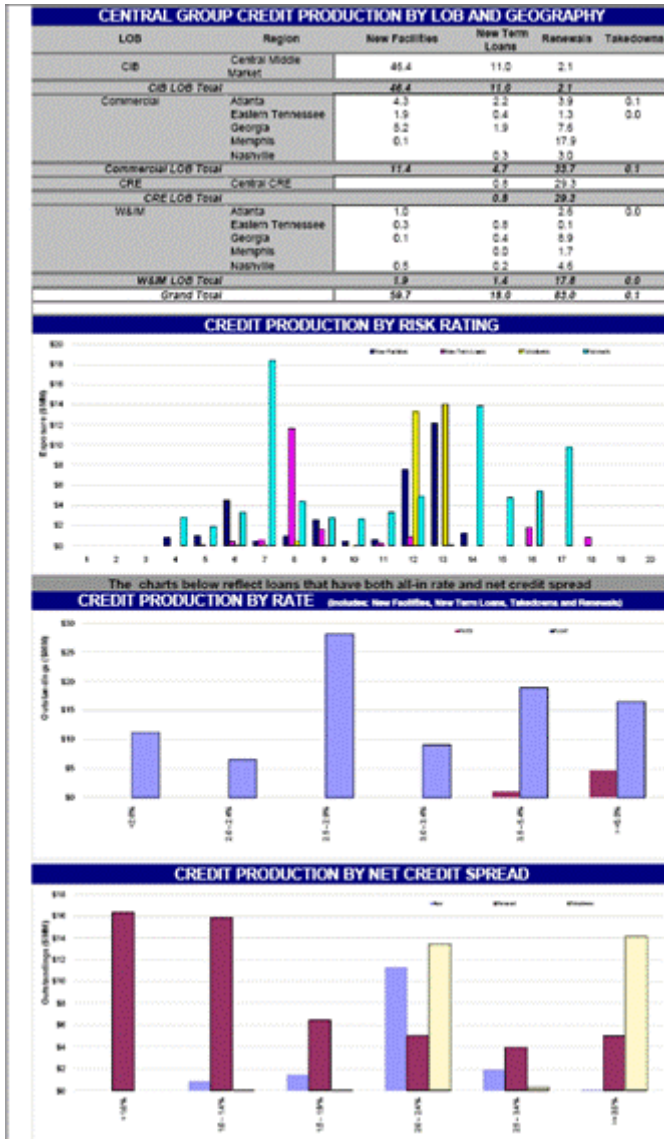 - **Improved information**, accuracy, relativity, and depth

Risk Technology Solution Architecture

Financial Risk

Risk Management

Capital Markets
- Core Applications
- Reference Data

Commercial
- Risk Ratings
- Credit Approval
- Loan Systems
- Relationship Mgmt.

Retail – Consumer & Mortgage
- Origination Systems
- Loan Account
- Back Office
- Recovery

Data Repositories and Collection Systems
- Data Warehouse
- Data Marts
- Data Management
- Processing Systems

BDW

Smart Analytic System

Capital Markets Risk
- Counterparty Credit Risk
- Market Risk

Operational Risk Mgmt.
- Op Loss Reporting
- Fair Lending
- SOX Compliance
- RCSA

Loss Reserve & Capital Adequacy
- ALLL
- Credit Concentrations
- Economic Capital

Cognos Framework Manager

Risk Reporting (Cognos)
- Standard Credit Reports
- LOB Reports
- Information Delivery
- Daily Capital Markets

Cognos

Credit Analytics
- Transactional Analytics
- Portfolio Optimization

Capital Management
- Capital Adequacy
- Stress Testing
- Liquidity Management
- AML / Balance Sheet

Finance

Mgmt. Reporting

Financial Reporting
- General Ledger

Finance Systems and Operations
- Reg Cap Calculation
- Risk Based Pricing
- Treasury

Finance Analytics
- Risk Adjusted Pricing
- Performance Management

TM/1

Finance Reporting (Cognos)
- Essbase
- Regulatory Reports
- Performance Reports

Sources
Color	Source
Red	Capital Markets
Brown	Commercial
Orange	Consumer
Yellow	Mortgage

Legend

Groups
Color	Group
Green	CRM
Blue	Finance

49

IBM Corporation 2013

Focus on Risk Based Pricing

Financial Risk

- Turning risk analytics from defensive to offensive

- The same methodology used to quantify expected loss and measure reserve adequacy is now being used for risk based pricing

- Leveraging same data and capability used to quantify loss content is now being delivered to the businesses providing valuable feedback on pricing discipline
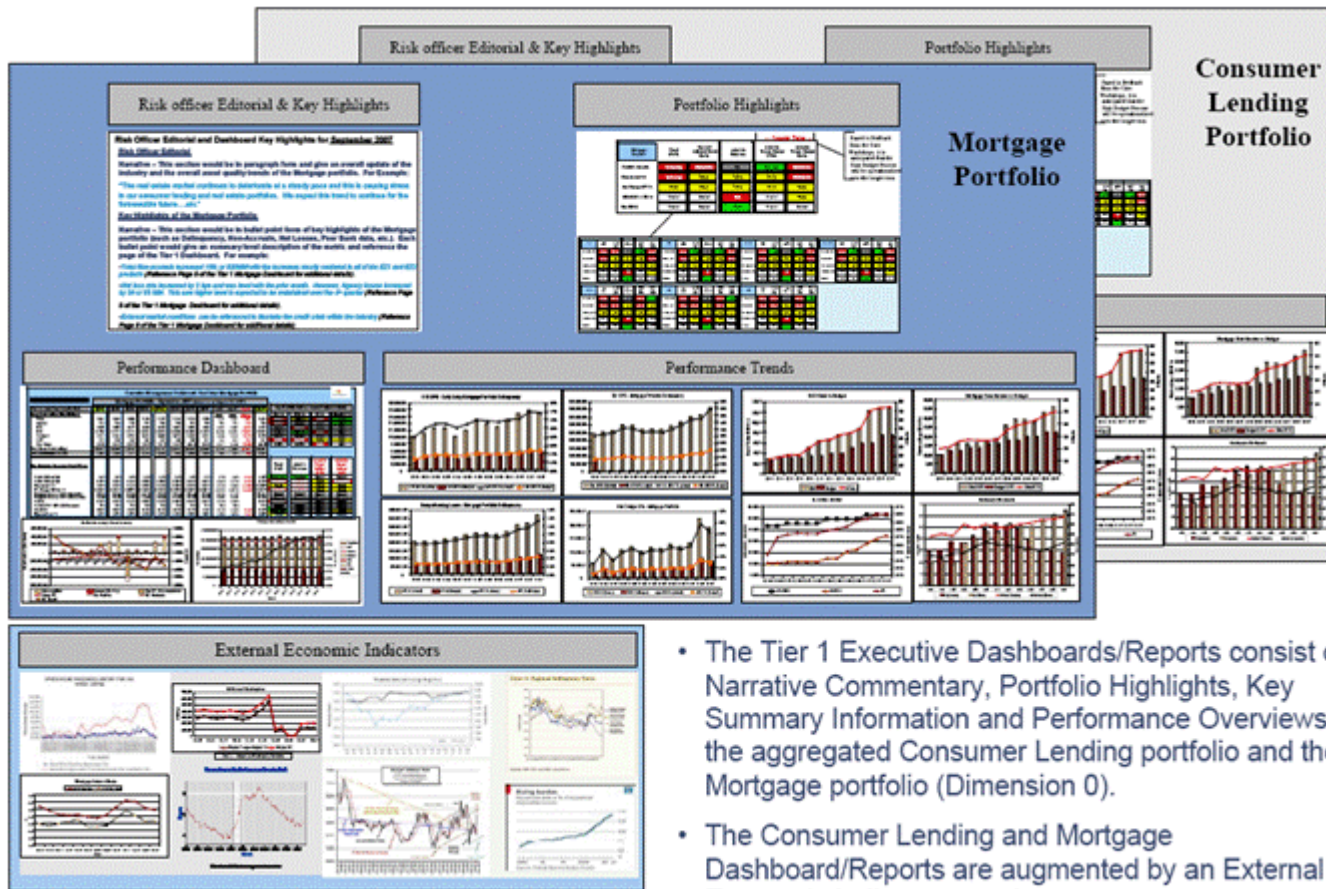
Standard Consumer Credit Reports

Financial Risk

•line of business and consumer credit we designed a comprehensive, management level, credit risk and performance dashboard and reporting framework for household lending

• These became the basis of business requirements, including reporting inventory, data requirements, and dashboard functionality, for phase 2 of warehouse implementation

The reporting framework was based on:

• Existing inventory of reports and relevant credit policies and procedures

• Interviews with various risk management, business and finance representatives

• User workshop sessions with risk management, business and

• Discussions with industry experts on best practices in consumer credit management

• The Tier 1 Executive Dashboards/Reports consist of Narrative Commentary, Portfolio Highlights, Key Summary Information and Performance Overviews for the aggregated Consumer Lending portfolio and the Mortgage portfolio (Dimension 0).

• The Consumer Lending and Mortgage Dashboard/Reports are augmented by an External Economic Indicators section

What does an Optimized Financial Crime Prevention System look like?

Financial Crimes

- **Real-Time**: senses anomalies allowing you to automate responses.

- **Scalable**: as volume and velocity increase, so does the solution.

- **Trained**: to dramatically reduce false positives and mirror your business.

- **Visual**: for deep understanding and forensics.
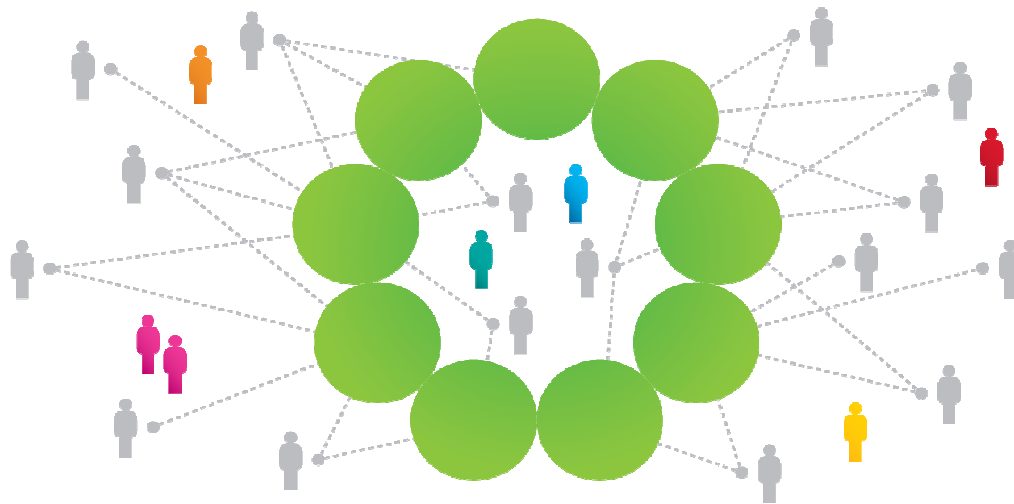
- Online Transactions
- ACH and wire
- Front office
- Back office
- Exchanges
- OTC
- Credit and debit cards
- ATM and check
- Employees and insiders

Legitimate customers

Rogue traders
Disgruntled employees
Money launderers
Terrorist financiers
Organized crime
Identity thieves

Financial Crimes:
A Fraud Prevention & Anti-Money Laundering Soluti

Financial Crimes

Comprehensive solution which has intelligence based fraud detection with minimal false-positive rates offering much lower operational costs while improving customer satisfaction. It incorporates business capabilities for Online Fraud, Employee Fraud, Transaction Monitoring and Suspicious Behavior Detection , List Screening and Know Your Customer Scoring including the following technical capabilities:

- Analytic Development, Training, Learning and Modeling Environment
- Real-Time Scoring, Detection and Prevention of Fraudulent and Suspicious Activity System
- Big Data & Content Analytics
- One Billion+ Name Database and Analytics
- Intelligent Investigation - Deep Visualization, Investigation & Forensics Readiness

Integrating the IBM products: SPSS, ACM, i2, Identity Insight, Global Name Recognition, Content Analytics, Tealeaf, Netezza and ILOG and including assets from GBS and IBM research machine learning IP around fraud detection models and a real time scoring mechanism leveraging the aura of Watson extending our brand permission.

Financial Crimes High Level Process

Financial
Crimes

Watch lists
Known Frauds

Daily Transactions

Customers

Detection Engine

Business
Rules

Predictive
AML/Fraud
Model

Optimize
AML/Fraud
Decisions

Entity
Score

Anomaly
Detection

Entity Resolution

Resolution, Relationships
And Watch List Identification

Advanced Case Management

| Case Application Design | Case Templates | | Case Tasks | Case Analytics |
| Case Runtime Framework | Case Infrastructure | 360° View of Case | Case Context | Case Lifecycle Management |

Content · Events · Workflow · Rules · Collaboration · Social Software · Monitoring & Analytics

**Intelligent
Investigations**

- Visual Intelligence
- Exposes Unknown Organized Crime Rings
- Intelligence Sharing & Collaboration
- Alert created for High Risk Claims

**Intelligent Fraud
Dashboards**

Fraud Intelligent Briefing & Reporting

IBM Financial Crimes Reference Architecture

Financial Crimes

Risk Assessment	Policy Management	Procedures	Training	Con...

Data Integration & Framework Technologies

Internal / External Lists

Internal / External Scores

Transaction Channels

Customers and Accounts

Account Applications

Credit/Risk Systems

Operational Risk Systems

Branch / Field Referrals

Customer Authentication

Channels (ATM, POS, Branch, Online, Mobile, etc)	Security Policy Management	Identity Management	Compromise Surveillance
	Authentication	Device Profiling	Federation

Anti-Money Laundering and Terrorist Finance

AML Transaction Monitoring	Large Cash Reporting	Market Surveillance

Risk-Based KYC, CDD, and EDD

Initial Customer Scoring	Lifecycle Customer Scoring	EDD Processes
Suitability	Watch Lists (Sanctions)	High Risk Monitoring

Fraud Profiling, Prevention and Detection

Products (card, deposit, mortgage, etc)	Application	Identity / Online	Investment
	Claims	Merchant / Device	Internal

Events

Cross Enterprise Analytics

- Alert Rollup
- Cross Channel/ Product Analytics
- Mass Compromise
- Entity Resolution
- Auto-Disposition

Integrated Alert & Case Management Platform

- Prioritization
- Workflow
- Link Analysis / Data Visualization
- Metrics, Reporting, Dashboards
- Audit

Remediation / Recovery Process

Corporate Security / Audit Process

Product System Process

Compliance Processes

Op. Risk Process

SmarterBanking

IBM

South American Bank - Transaction Monitoring

Financial Crimes

Challenge

Although current AML solutions did adapt over time to changes they were not responsive enough as the "launderers" are always looking for new alternatives causing existing approaches to quickly atrophy.

Objectives

To replace traditional warning systems based on parameters and rules with data mining modeling techniques through transactional behavior analysis as a key risk factor to detect unusual or suspicious transactions so they could act accordingly.

Results

They were able to improve efficiency by 60% generating dramatic ROI savings and slashing the administrative costs for AML. Focus was on reducing the number of suspicious operations that required auditing by more than 90%. Increased the accuracy in identifying positive cases of money laundering for generating SARs (suspicious activity reports): reported cases from 25% to 60%.

Warning Area

Key Take Aways

They preformed the reverse analytics of modeling customers known historical usage patterns to score against   current usage generating key indicators and triggering customer anomalies.
They redefining customer segmentation based on usage patterns around dollar amounts, volume of transactions and type of transactions using advance algorithms, scatter plots, clusters, exploratory, seasonal analysis and demographics
Allows Organizations to have a business discussion regarding what action to take (NOT JUST FOR RISK & FINANCIAL CRIMES, BUT ALSO FOR REVENUE AND PROFIT ACTIVITIES)

Financial Crimes
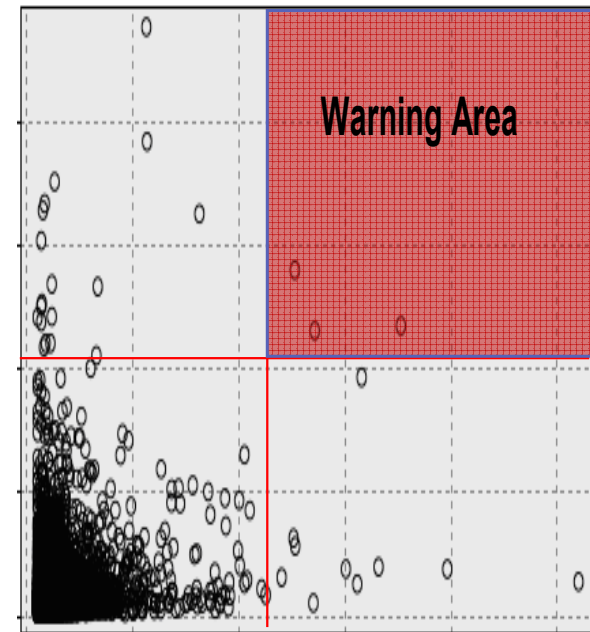
Customer -- Responding to New Challenges

A Major Canadian Financial Institution
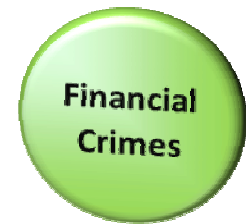
> ***BUSINESS DRIVERS***
>
> •*Compliance - Dramatically lower costs from false positives and false negatives*
>
> •*Adhere to Canadian Government mandated PEP list screening requirements*
>
> •*Avoid hiring and training dozens of new fraud analysts required to keep pace*

Solution Value Proposition:

- IBM Global Name Recognition software and GBS Services to:
    - Increase accuracy in real-time watch lists checking
    - Decrease false positives and false negatives in real-time PEP list checking
    - Avoid need to hire and train additional fraud analysts as watch list volumes grow

Solution Results:

- Reduced false positives and false negatives from 75% - 95% before Global Name Recognition to almost 0%
- Avoided need to recruit, hire and train up to 24 new fraud analysts
- Dramatically improved speed and accuracy of watch list checking
- Improve regulatory compliance in AML and Anti-Terrorist Funding

Identity Insight Case Study

Enhancing Compliance and Fighting Consumer Fraud

MoneyGram International

Financial Crimes

Challenge

With 230,000 locations in 196 countries MoneyGram International faced pressure to keep up with fraud and compliance regulations affecting the international business landscape.

Solution

- IBM® InfoSphere® Identity Insight solutions
- IBM InfoSphere Information Server
- IBM InfoSphere DataStage®
- IBM Business Partner: Alpine Consulting, Inc.

Result

- Stopped more than US$125 million in fraud to date
- Increased ability to identify and interrupt potentially fraudulent transactions by 40%
- Prevented thousands of customers from losing funds to fraud
- Realized a 72% reduction in consumer fraud complaints in one year

Business Benefits

Understanding who its clients are is helping MoneyGram International identify and stop fraudulent, unauthorized money transfers, thereby addressing a common problem for financial institutions worldwide. Using a powerful, algorithms-based software platform, MoneyGram International has new insight into "who's who?" "who knows whom?" and "who does what?" as it analyzes transactions to identify known and unknown people attempting to move money. With the solution, MoneyGram International can quickly identify questionable patterns, proactively enact processing rules, and quickly become compliant with new regulations, preventing thousands of customers from losing funds to fraud.

"We are able to detect and respond to fraud far faster than before to protect our consumers as well as our global network of agents. We must remain ever vigilant in the face of more sophisticated financial fraudsters."

—Ted Bridenstine, Systems Development Manager, MoneyGram International

Case Study: Insider Threat

Canadian Financial Institution

Financial Crimes
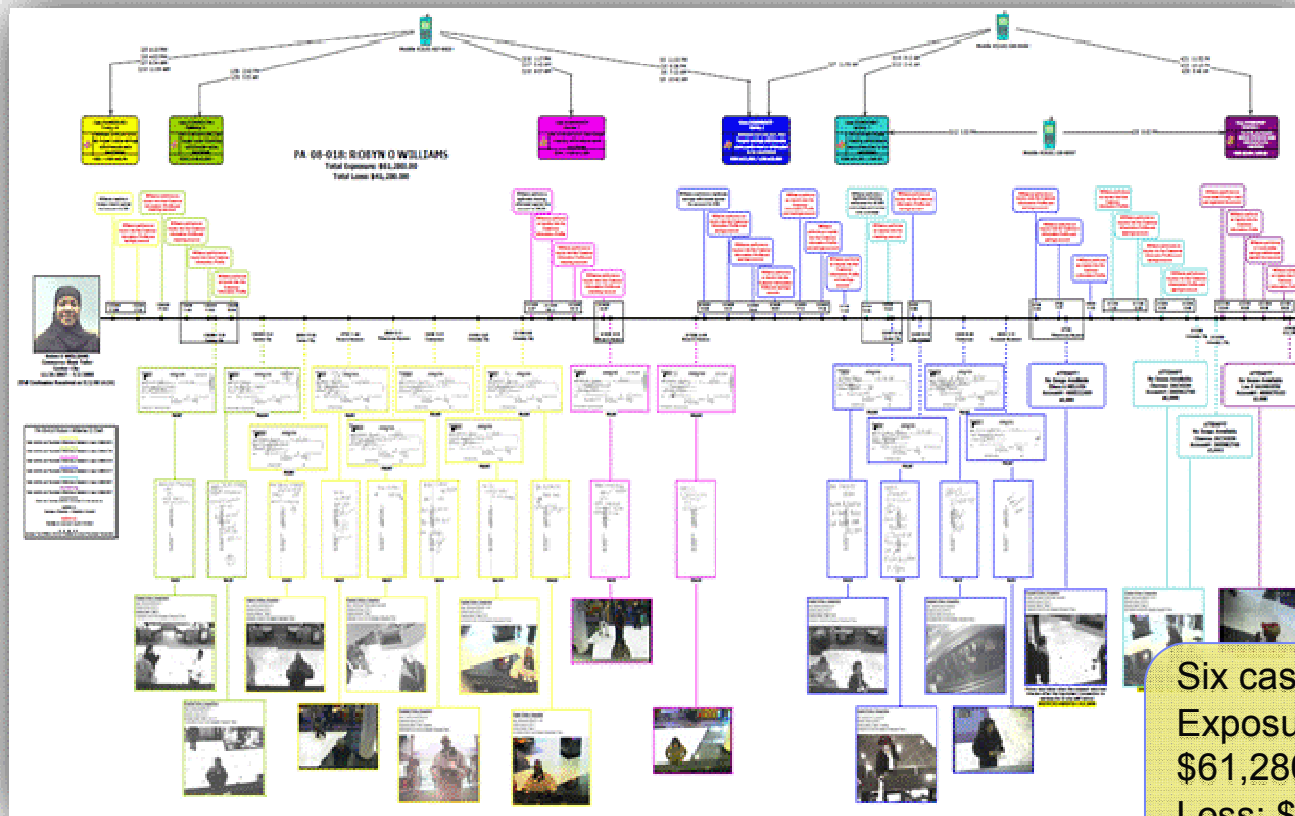
Six cases
Exposure:
$61,280
Loss: $41,280

Case Study: Tealeaf for Fraud Forensics

Financial Crimes

Large North American Bank

- Collecting information with Tealeaf to rigorously screen applications for identify theft-related fraud.

- Hundreds of development hours were saved by using Tealeaf to collect data rather than pulling it from our back-end systems.

- Tealeaf helps us identify sessions containing suspicious behavior that, without Tealeaf, we would be unable to detect through any other means.

IT Risk & Security

Well-organized attackers and malicious insiders are successfully bypassing security defenses

Infiltrating a trusted partner and then loading malware onto the target's network

Creating designer malware tailored to only infect the target organization, preventing identification by security vendors

Using social networking and social engineering to perform reconnaissance on spear-phishing targets, leading to compromised hosts and accounts

Exploiting zero-day vulnerabilities to gain access to data, applications, systems, and endpoints

Communicating over accepted channels such as port 80 to exfiltrate data from the organization

Escalating Motives and Sophistication
- Organized Crime
- Espionage and Hacktivists
- Nation-state Actors

Designer Malware

Backdoors

Spear Phishing

Persistence

IBM

Customers have a growing need to identify and protect against threats by building insights from broader data sets

IT Risk & Security

Traditional Security Operations and Technology

Logs

Events   Alerts

Configuration information

System audit trails

Identity context

Network flows and anomalies

External threat intelligence feeds

Full packet and DNS captures

Web page text

Business process data

E-mail and social activity

Customer transactions

Big Data Analytics

New Considerations

Collection, Storage and Processing

- Collection and integration
- Size and speed
- Enrichment and correlation

Analytics and Workflow

- Visualization
- Unstructured analysis
- Learning and prediction
- Customization
- Sharing and export

IBM's IT Security Framework

IT Risk & Security

Enterprise Governance, Risk and Compliance Management

GRC Platform (OpenPages)	Risk Analytics (Algorithmics)	Investigation Management (i2)

IBM Security Portfolio

Security Intelligence, Analytics and GRC

QRadar SIEM	QRadar Log Manager	QRadar Risk Manager	IBM Privacy, Audit and Compliance Assessment Services

IT Infrastructure – Operational Security Domains

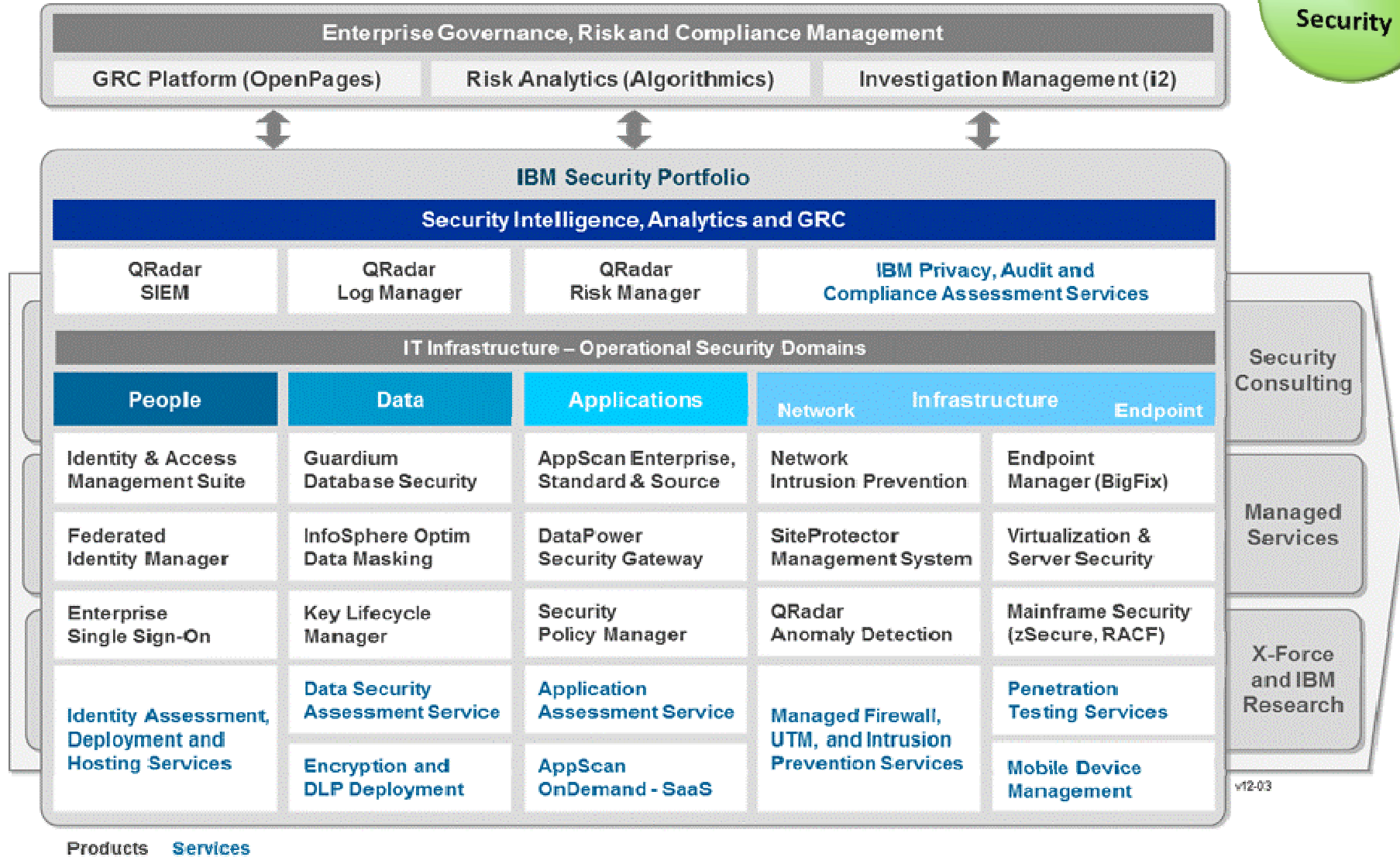| People	Data	Applications	Infrastructure	
			Network	Endpoint
Identity & Access Management Suite	Guardium Database Security	AppScan Enterprise, Standard & Source	Network Intrusion Prevention	Endpoint Manager (BigFix)
Federated Identity Manager	InfoSphere Optim Data Masking	DataPower Security Gateway	SiteProtector Management System	Virtualization & Server Security
Enterprise Single Sign-On	Key Lifecycle Manager	Security Policy Manager	QRadar Anomaly Detection	Mainframe Security (zSecure, RACF)
Identity Assessment, Deployment and Hosting Services	Data Security Assessment Service	Application Assessment Service	Managed Firewall, UTM, and Intrusion Prevention Services	Penetration Testing Services
	Encryption and DLP Deployment	AppScan OnDemand - SaaS		Mobile Device Management

Security Consulting

Managed Services

X-Force and IBM Research

v12-03

Products   Services

IBM's Security Intelligence for Big Data solution

IT Risk & Security

Security Intelligence Platform

Big Data Platform

IBM Security QRadar

- Data collection and enrichment
- Event correlation
- Real-time analytics
- Offense prioritization

QRadar

Real-time streaming

Insights

IBM InfoSphere BigInsights

- Hadoop-based
- Enterprise-grade
- Any data / volume
- Data mining
- Ad hoc analytics

Advanced Threat Detection

Custom Analytics

Traditional data sources

Non-traditional

IBM Corporation 2013

What's your vision for a Smarter Bank?

A Pragmatic Approach to Making Innovation Actionable

Deep Engage – schedule IBM facilitated client sponsored innovation sessions:

- IBM subject matter expertise
- Client key stake holders

Innovation Roadmap – collaboratively developed output to:

- Make the case
- Chart the path - including logical steps and appropriate depth

Let's talk.....

IBM Corporation 2013