Colin Shearer

Worldwide Industry Solutions Leader

IBM

The Predictive Agenda
Leveraging data to drive better outcomes and maximise ROI

Business Analytics software

Agenda

- 9:30 - 10:00   Welcome and Predictive Analytics overview - *Colin Shearer*

- 10:00 - 10:45   The business value of Predictive Analytics
  Alys Woodward, Program Manager,
  European Business Analytics and Social Platforms, IDC

10:45 - 11:15   Coffee Break

- 11:15 - 12:15   Driving optimal outcomes with Predictive Analytics - Colin Shearer

- 12:15 - 12:45   Panel Q&A - *Colin Shearer, Alys Woodward*

12:45 - 13:45   Lunch

- 13:00 - 16:00   See the technology in action, have a discussion with a Predictive
  Analytics expert or spend some time with an IDC analyst - 1:1s available.

Imagine if you could…

… track disease outbreaks across country borders in real time?

## An International Health Agency

Insight
- Near-real-time access to local and international disease data leads to better forecasts of health risks

Implications
- Hospitals and countries have more time to prepare for potentially disastrous disease outbreaks
- Comply with national privacy and security requirements

Imagine if you could…

…catch money laundering before it happens?
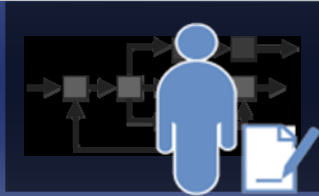
Major Korean Bank

Insight

- Patterns or linkages across accounts, products or channels can predict illegal activity

Implications

- Detect money laundering before it happens by running over 100 scenario-based algorithms employing 300 variables

Imagine if you could…

… apply social relationships of customers to prevent churn?
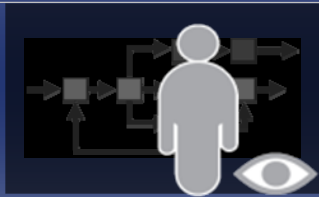

Major Telco

Insight
• Social networks and calling patterns can reveal the full value of a customer

Implications
• More effective customer retention programs
• More attractive and useful subscriber plans
• Identification of new target markets

Imagine if you could…

…identify at-risk students before they drop out of school?

Mobile County Public School System

Insight

- There are early indicators when a student begins to have problems

Implications

- Proactive intervention when students cross at-risk thresholds
- Accountability information transformed into a strategic asset
- Better identify which programs are likely to work for each student

Our world is becoming smarter

Instrumented

Interconnected

Intelligent

enabling organizations to make
faster, better-informed decisions

With this change comes an explosion in information …

Volume of Digital Data

Variety of Information

Velocity of Decision Making

… Yet organizations are operating with blind spots

Lack of Insight
1 in 3 managers frequently make critical decisions without the information they need
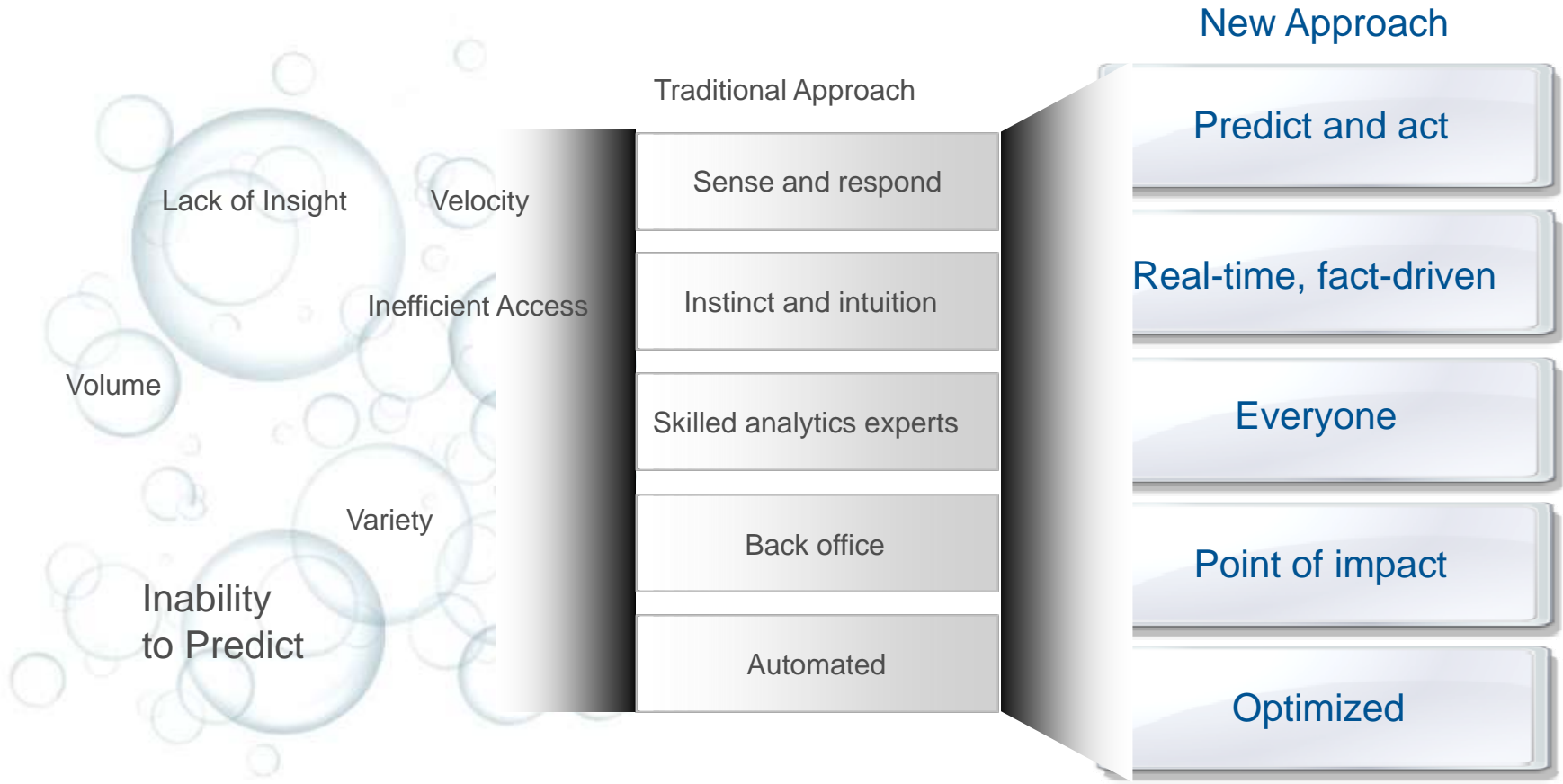
Inefficient Access
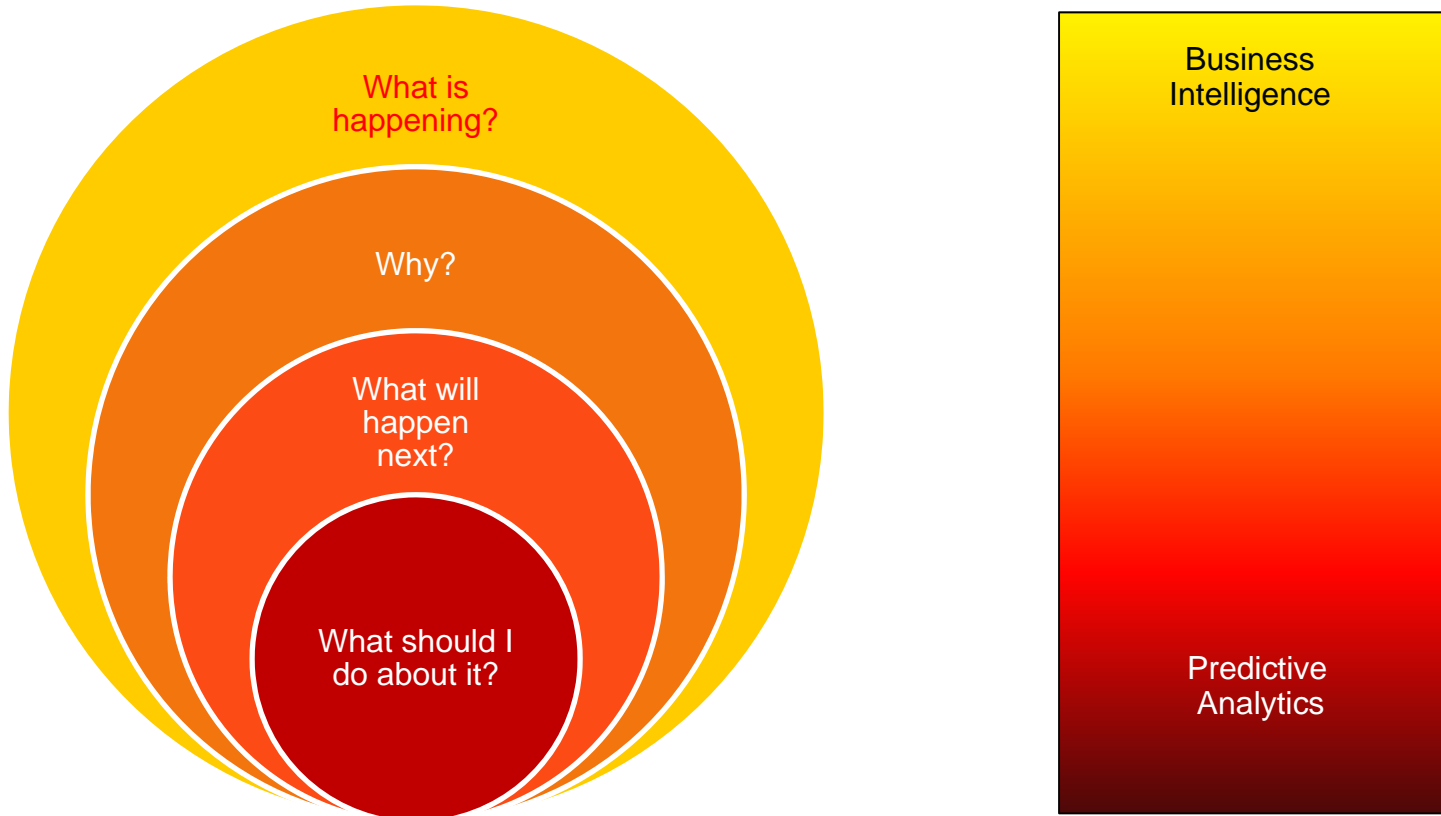1 in 2 don't have access to the information across their organization needed to do their jobs

Inability to Predict
3 in 4 business leaders say more predictive information would drive better decisions
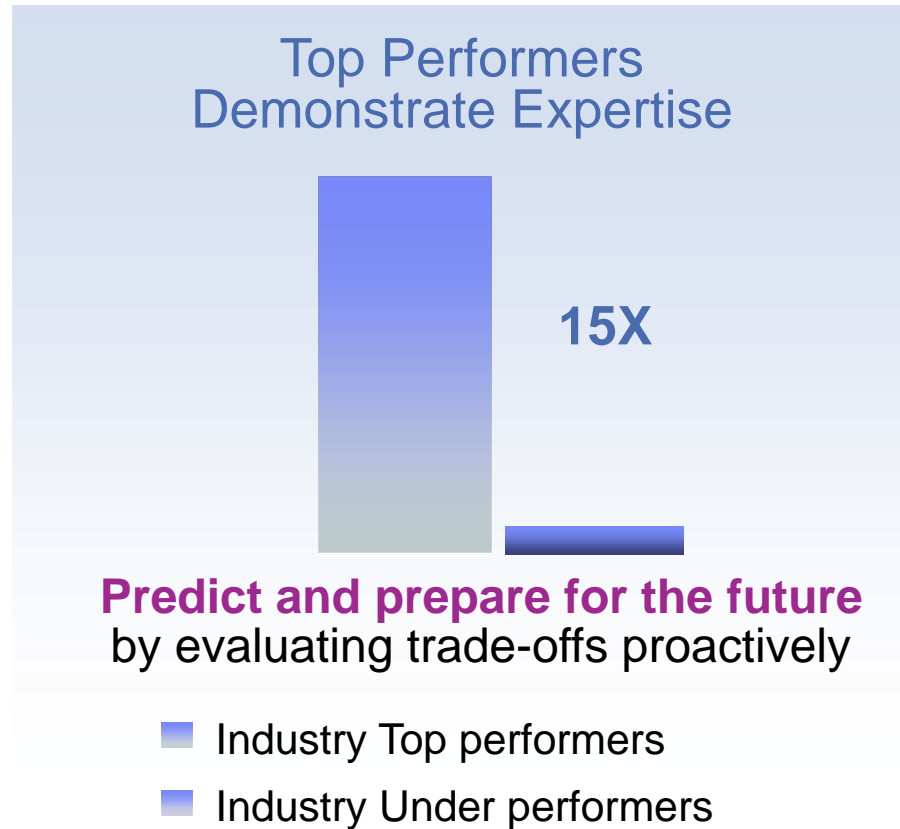
On a Smarter Planet, new business challenges and conditions have placed a renewed urgency on business analytics and optimization

New Approach

Lack of Insight

Velocity

Inefficient Access

Volume

Variety

Inability
to Predict

Traditional Approach

Traditional Approach	New Approach
Sense and respond	Predict and act
Instinct and intuition	Real-time, fact-driven
Skilled analytics experts	Everyone
Back office	Point of impact
Automated	Optimized

The Business Analytics Continuum

What is happening?

Why?

What will happen next?

What should I do about it?

Business Intelligence

Predictive Analytics

Going beyond Insight to *Foresight*

Top Performers
Demonstrate Expertise

15X

Predict and prepare for the future
by evaluating trade-offs proactively

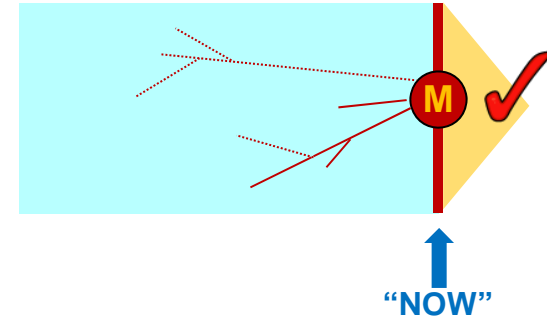Industry Top performers

Industry Under performers

Source: IBM: Break Away with Business Analytics
and Optimization Study
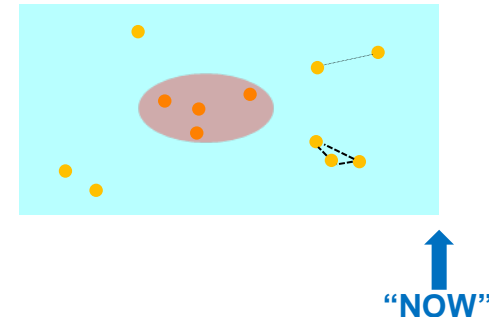
The Predictive Advantage

Predictive Models
- Leverage current and historical data
- Make robust predictions on current and future cases
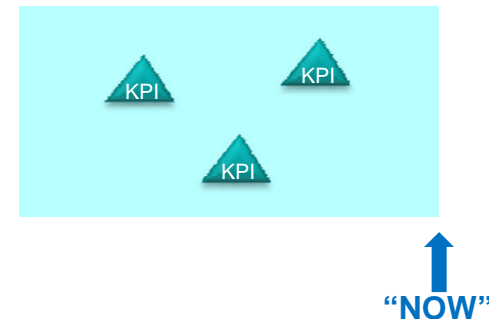- Provide "actionable insight" to drive better decisions

"NOW"

Predictive Analytics:
- Algorithms automatically discover significant patterns
- "Learn" from historical data – create *predictive models*

"NOW"

Traditional BI and Conventional Analysis:
- Insight, metrics, etc. up to this point in time
- User initiative to explore data

"NOW"

IBM SPSS: Industry Leader in Predictive Analytics

- 40+ year heritage, with a single aim:
  - *to drive the widespread use of data in decision making*

- Drove the creation of the Predictive Analytics market

- Acquired by IBM October 2009

Enables organizations to predict future events and proactively act upon that insight to drive better business outcomes

How Decision-Making is Changing

Quality and value of decisions

Decisions from "Intuition"
- "Instinct"
- "Hunches"
- Based on experience

Automated Decision-Making
- Knowledge, policies and practices embodied in business rules
- Decisions made efficiently and consistently
- Objective

Predictive Decision-Making
- Accurate predictions based on historic patterns
- Leverage all available data
- Flexible, evidence-based decisions
- Robust in volatile environments – models re-generated from latest data to reflects changing fashions, trends, etc.

Leveraging the Predictive Advantage

"Hertz, after analyzing terabytes of sales data, knows a lot more than you do about how much gas you're likely to leave in the tank if you prepay for the gas. Cingular knows the probability that you will go beyond your "anytime minutes" or leave some unused. Best Buy knows the probability that you will make a claim on an extended warranty. Blockbuster knows the probability that you will return the rental late."

Ian Ayres, author of "Super Crunchers"

Leveraging a 360⁰ customer view

Data at the heart of Predictive Analytics

High-value, dynamic
- source of competitive differentiation

Interaction data
- E-Mail / chat transcripts
- Call center notes
- Web Click-streams
- In person dialogues

Attitudinal data
- Opinions
- Preferences
- Needs & Desires

360 degree Customer View

Descriptive data
- Attributes
- Characteristics
- Self-declared info
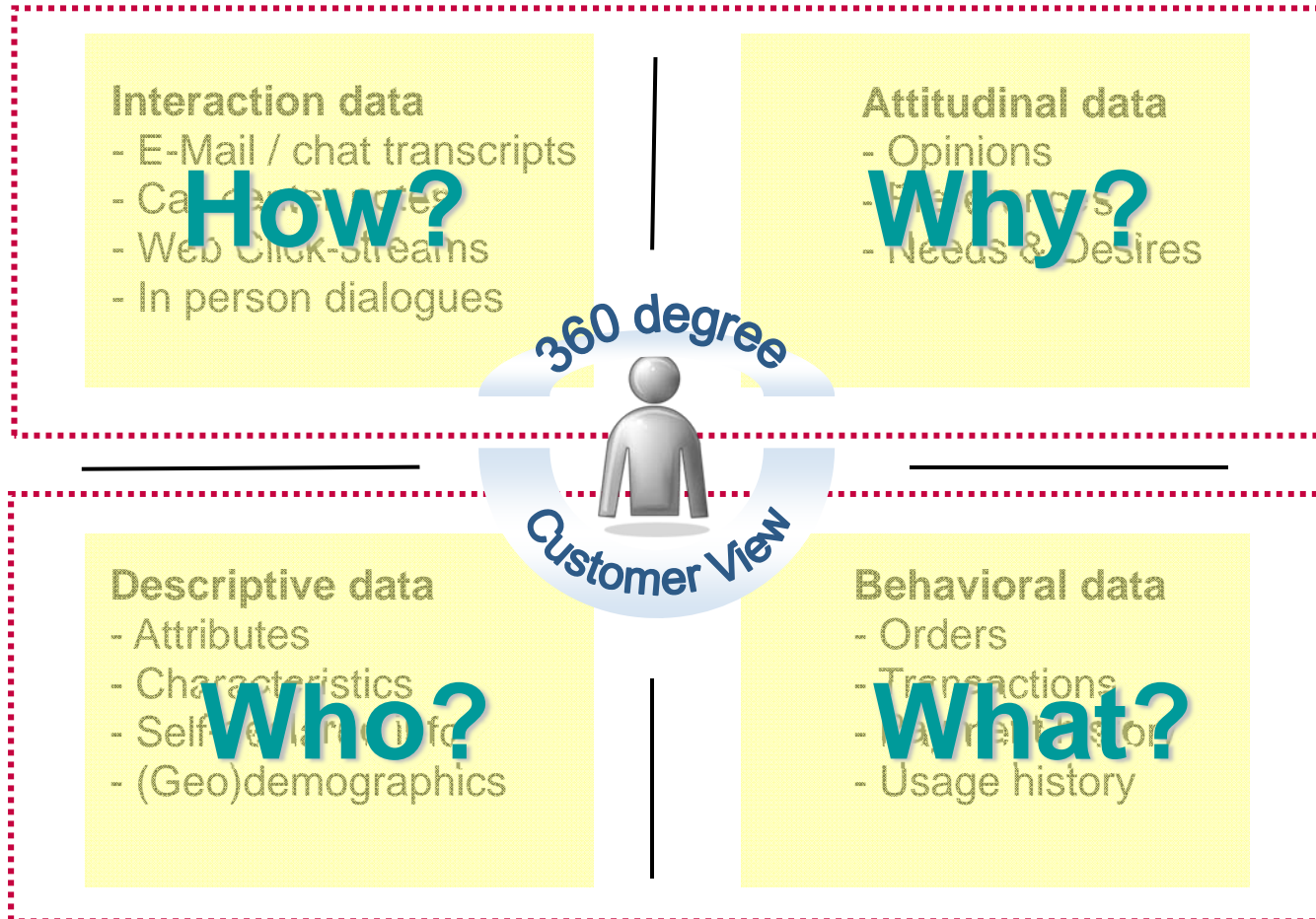- (Geo)demographics

Behavioral data
- Orders
- Transactions
- Payment history
- Usage history

"Traditional"

Data at the heart of Predictive Analytics

High-value, dynamic
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Interaction data
- E-Mail / chat transcripts
- Call center notes
- Web Click-streams
- In person dialogues

How?

Attitudinal data
- Opinions
- Preferences
- Needs & Desires

Why?

360 degree
Customer View

Descriptive data
- Attributes
- Characteristics
- Self declared info
- (Geo)demographics

Who?

Behavioral data
- Orders
- Transactions
- Payment history
- Usage history

What?

"Traditional"

Pragmatic approach:
Go for quick wins with easily available data

Interaction data

- E-Mail / chat transcripts
- Call center notes
- Web Click-streams
- In person dialogues

Attitudinal data

- Opinions
- Preferences
- Needs & Desires

360 degree
Customer View

Descriptive data

- Attributes
- Characteristics
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Behavioral data

- Orders
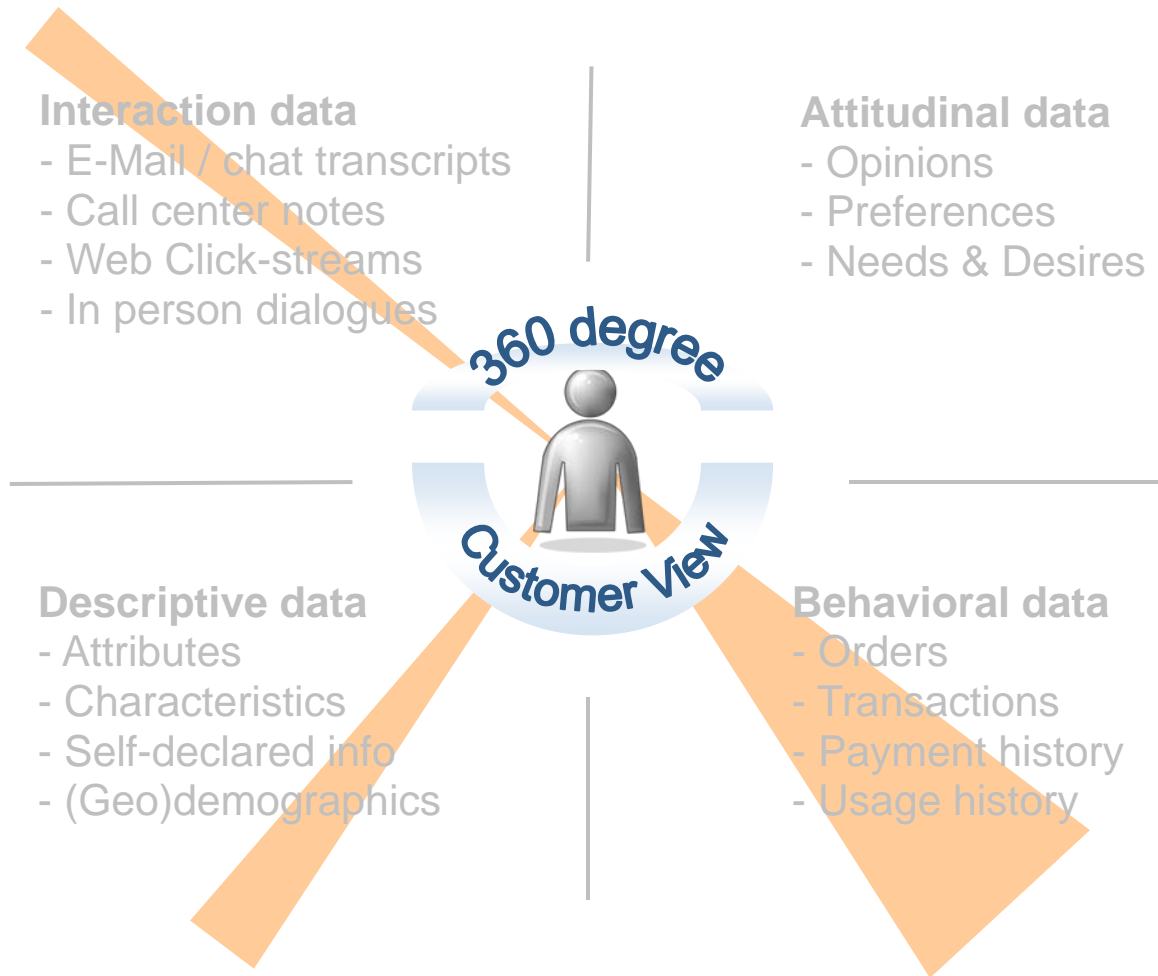- Transactions
- Payment history
- Usage history

Pragmatic approach:
Go for quick wins with easily available data

Interaction data

- E-Mail / chat transcripts
- Call center notes
- Web Click-streams
- In person dialogues

Attitudinal data

- Opinions
- Preferences
- Needs & Desires

360 degree Customer View

Descriptive data

- Attributes
- Characteristics
- Self-declared info
- (Geo)demographics

Behavioral data

- Orders
- Transactions
- Payment history
- Usage history

Adding data sources: Impact on model accuracy

Data type	Increase in model accuracy
Demographic Data	2-3%
Text Data (call centre notes)	5-10%
Web/Click stream	10-12 %

Source: Major US wireless telco, accuracy data on churn models

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                              Analytics expert or spend some time with an IDC analyst - 1:1s available.

"The return on investment (ROI) of business analytics solutions that incorporate predictive analytics is about 250%, significantly higher than the 89% ROI of projects focused only on information access and internal productivity gains."

IDC: "The Business Value of Predictive Analytics"
June 2011

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The Predictive Agenda
Leveraging data to drive better outcomes and maximise ROI

Business Analytics software

Predictive Analytics delivers value **across** the organization:
The Predictive Enterprise

**Predictive
Customer Analytics**
Maximise the value of customer relationships

**Predictive
Operations Management**
Improve and optimise operations and processes

**Predictive
Risk & Threat Management**
Mitigate losses from risk, fraud and abuse

Predictive Customer Analytics

Market Factors Have Created Smarter Consumers

Instrumented

- **Always connected**

- **Instantly informed**

- **Using multiple technologies**

Interconnected

- **To other consumers**

- **To trusted information**

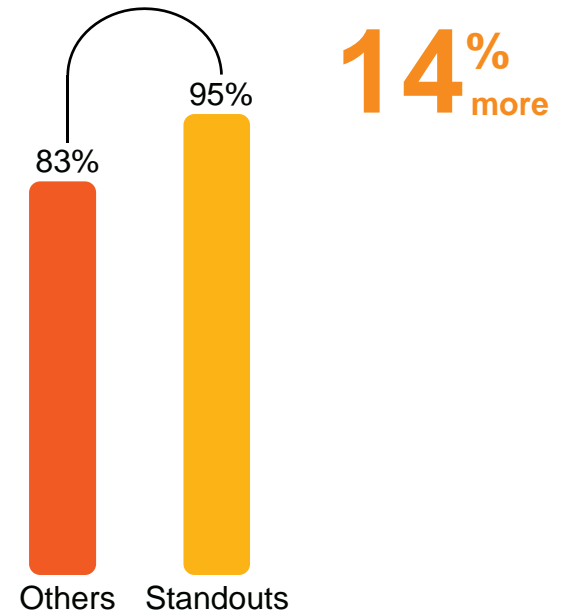- **Want to connect with you**

- **Freely sharing opinions**

Intelligent
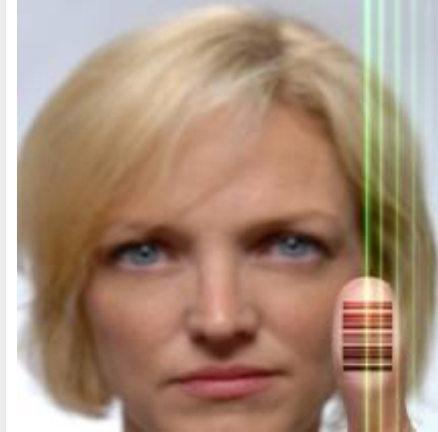
- **Know products better than you do**

- **Know (and shape) your reputation**

- **Clearly defined expectations for customer experience**

IBM

"Getting closer to the customer" is THE top priority for Standouts

**Dimensions to focus on over the next 5 years**

Getting closer to customers

Getting closer to customer — 88%

People skills — 81%

Insight and intelligence — 76%

Enterprise model changes — 57%

Risk management — 55%

Industry model changes — 54%

Revenue model changes — 51%

95%

83%

14% more
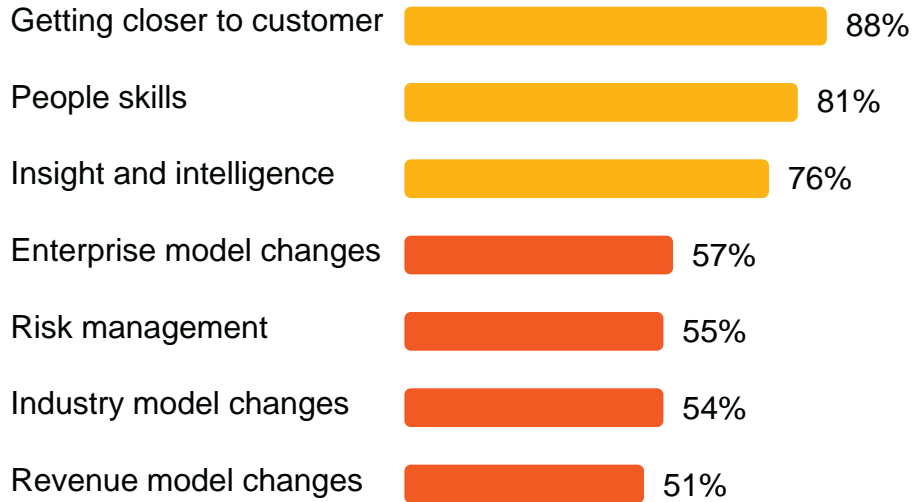
Others   Standouts

Source: Q13 Which of the following dimensions will you focus on more to realize your strategy in the new economic environment over the next 5 years? n=1,523, n=303

28 Source: IBM's 2010 Global CEO Study – Capitalizing on Complexity (1,541 CEOs, 60 nations, 33 industries)

Predictive Customer Analytics:
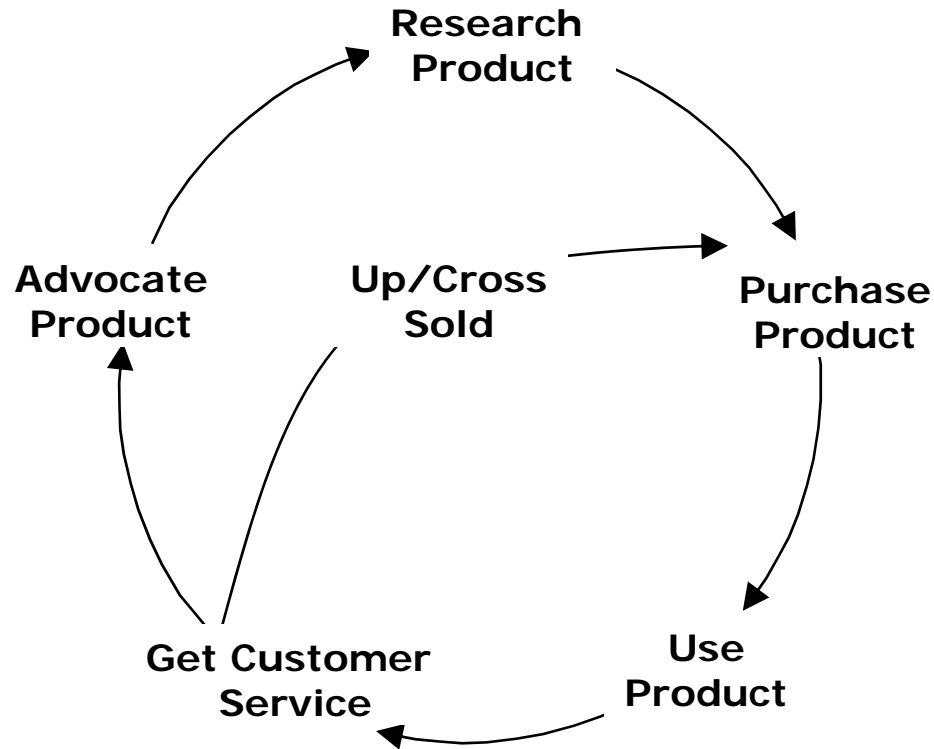## Reshaping how companies go to market
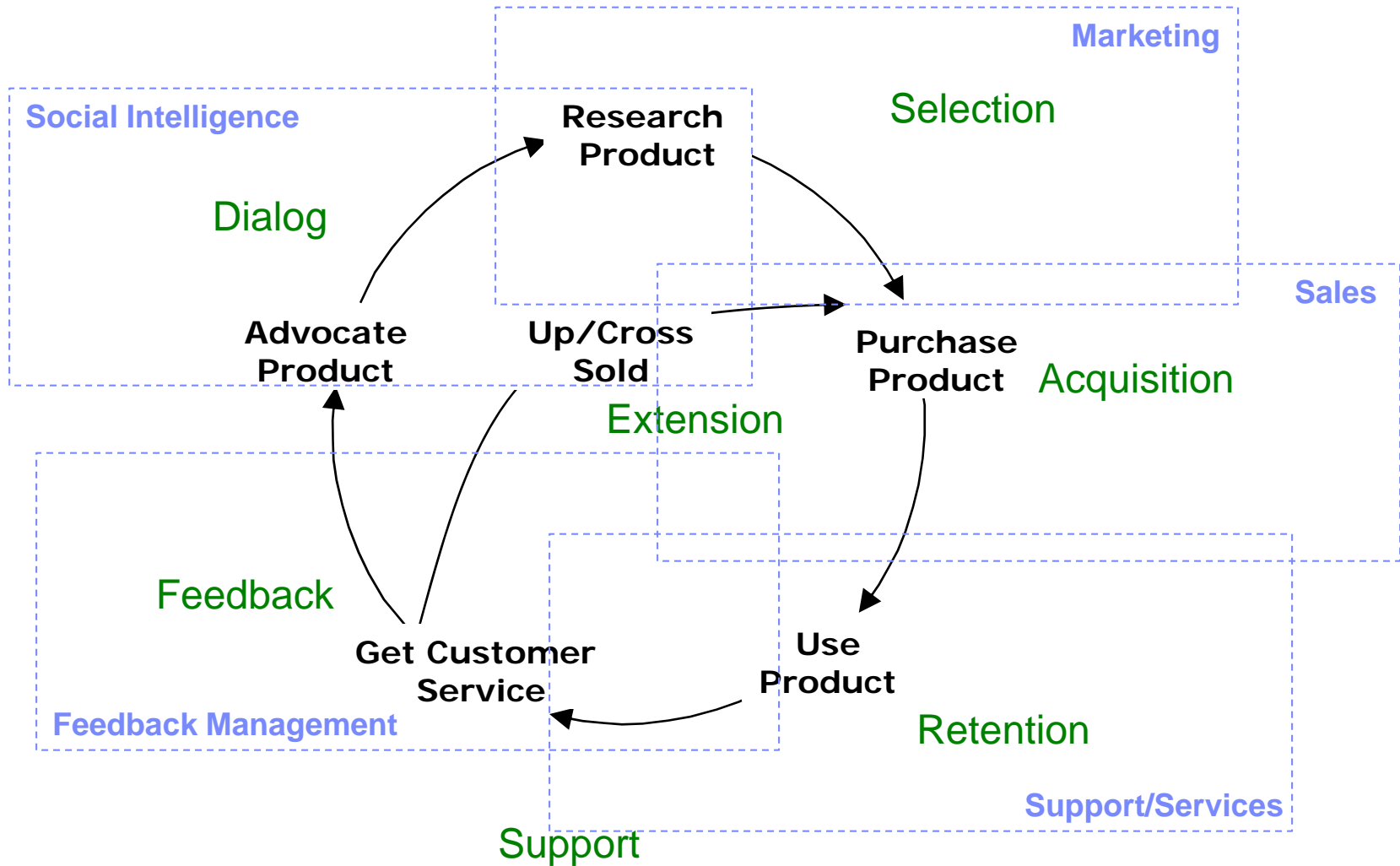
One to One
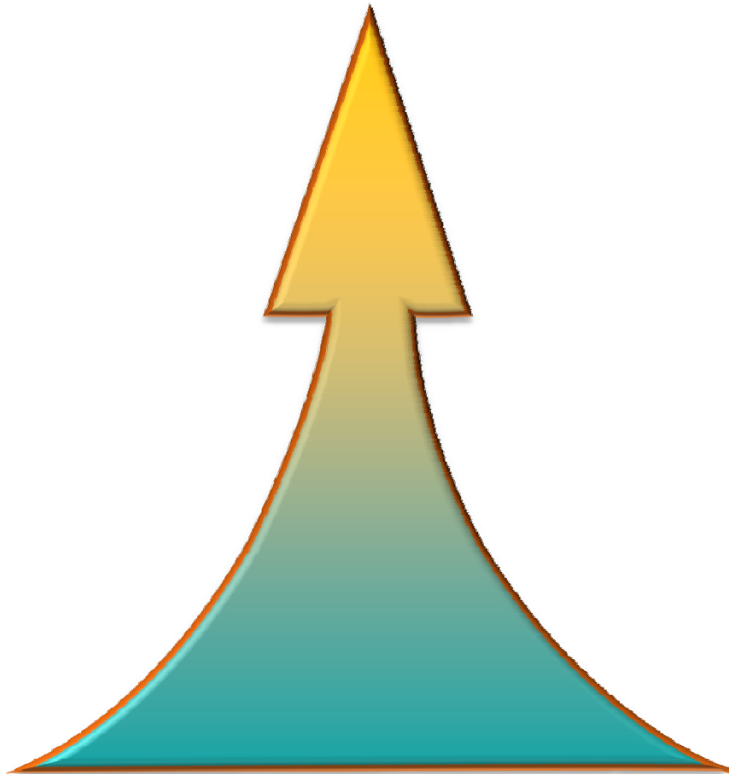
"Our customers want personalization of services and products. It is all about the market of one."

Tony Tyler
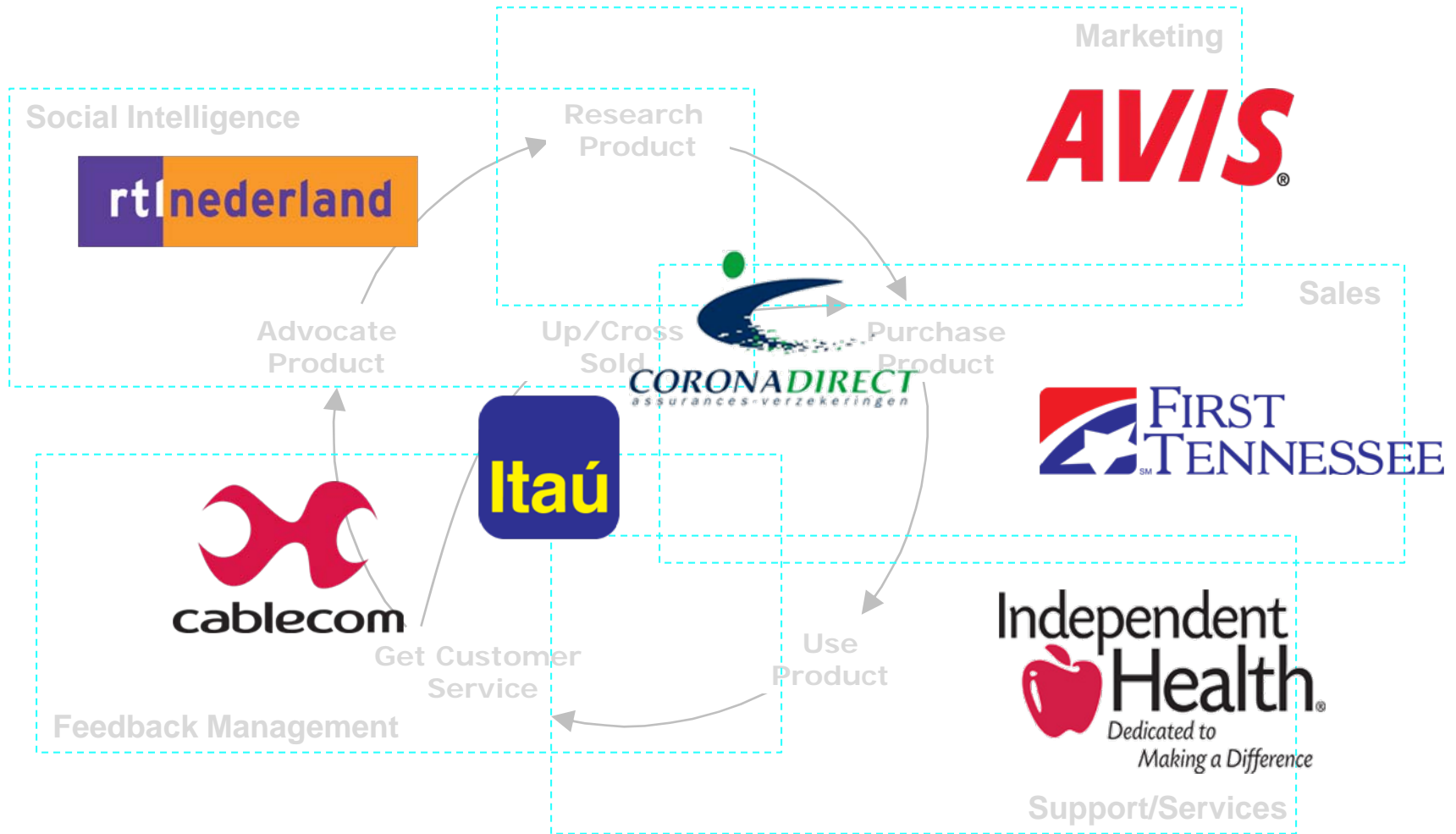**CEO, Cathay Pacific Airways, Hong Kong**

The Broad Brush

The Customer Life Cycle

Research
Product

Purchase
Product

Use
Product

Get Customer
Service

Advocate
Product

Up/Cross
Sold

Each part of the organization plays a critical role of the Customer Life Cycle

Marketing

Social Intelligence

Selection

Dialog

Research Product

Advocate Product

Up/Cross Sold

Purchase Product

Acquisition

Sales

Extension

Feedback

Get Customer Service

Use Product

Feedback Management

Retention

Support

Support/Services

Customer Life Cycle – Case Studies

Marketing

Social Intelligence

rtl nederland

AVIS

Research Product

Sales

Advocate Product

Up/Cross Sold

Purchase Product

CORONADIRECT
assurances-verzekeringen

Itaú

FIRST TENNESSEE

cablecom

Get Customer Service

Use Product

Independent Health
Dedicated to Making a Difference

Feedback Management

Support/Services

IBM

Cognos Consumer Insight:
Listen to Your Customers

What are people saying about us on social forums?

Where are they posting? What words and topics are they using?

How are their sentiments changing over time?

Are they speaking about us in a positive, negative, or neutral way about these topics?
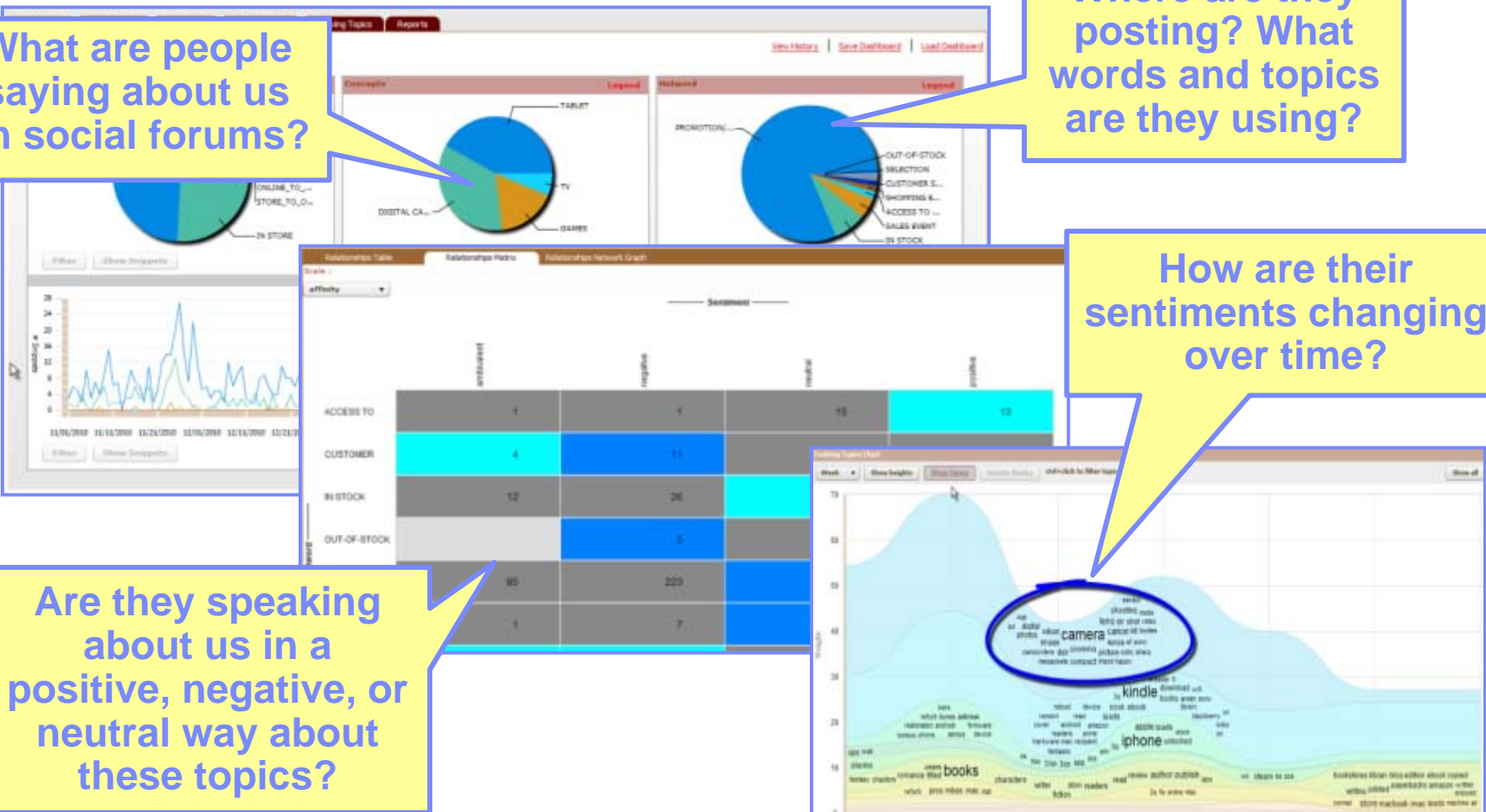
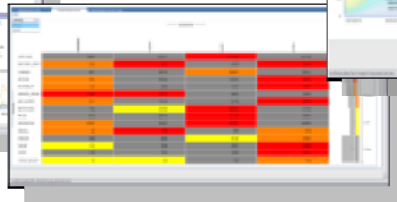# Cognos Consumer Insight:
Listen to Your Customers

Defend your brand

Grow your business

Enhance your reputation

Improve your customer care
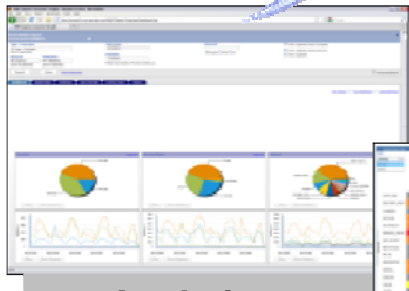
Emerging Topics

Integration

Analytics

Affinity
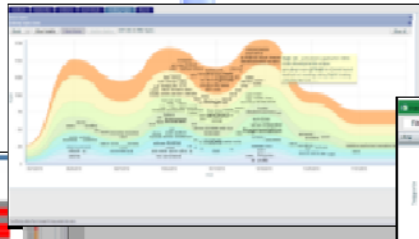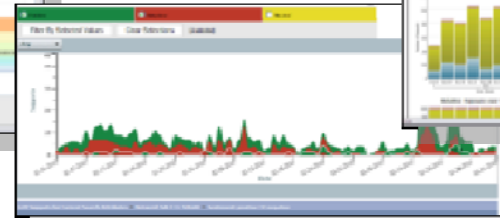
Sentiment
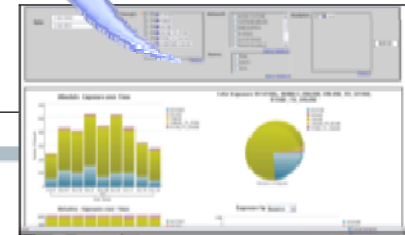
IBM has Proven Solution for each stage of the Customer Life Cycle

Attract

Brand monitoring

Customer segmentation

Marketing

Social feedback analysis

Optimal trigger marketing

Social Intelligence

Research Product

Channel optimization

Influencers program management

Assortment planning

Customer insight analysis

Sales

Lead management

Competitive value assessment

Advocate Product

Up/Cross Sold

Purchase Product

Prospect assessment

Incentive optimization

Loyalty value assessment

Value pricing optimization

Value perception communication

Buying process optimization

Customer dialog management

Get Customer Service

Use Product

Proactive activation service

Warrantee analysis

Grow

Prescription/recommendation services

Retain

Support channels monitoring

Employee empowerment

Support/Services

Retention risk management

Customer Satisfaction

Boiling it Down

Retain profitable customers

Attract New Customers

Grow Customer Value

Predictive Analytics for CRM

Attract

Grow

Retain

Revenue

Profit

Time

Predictive Analytics for CRM

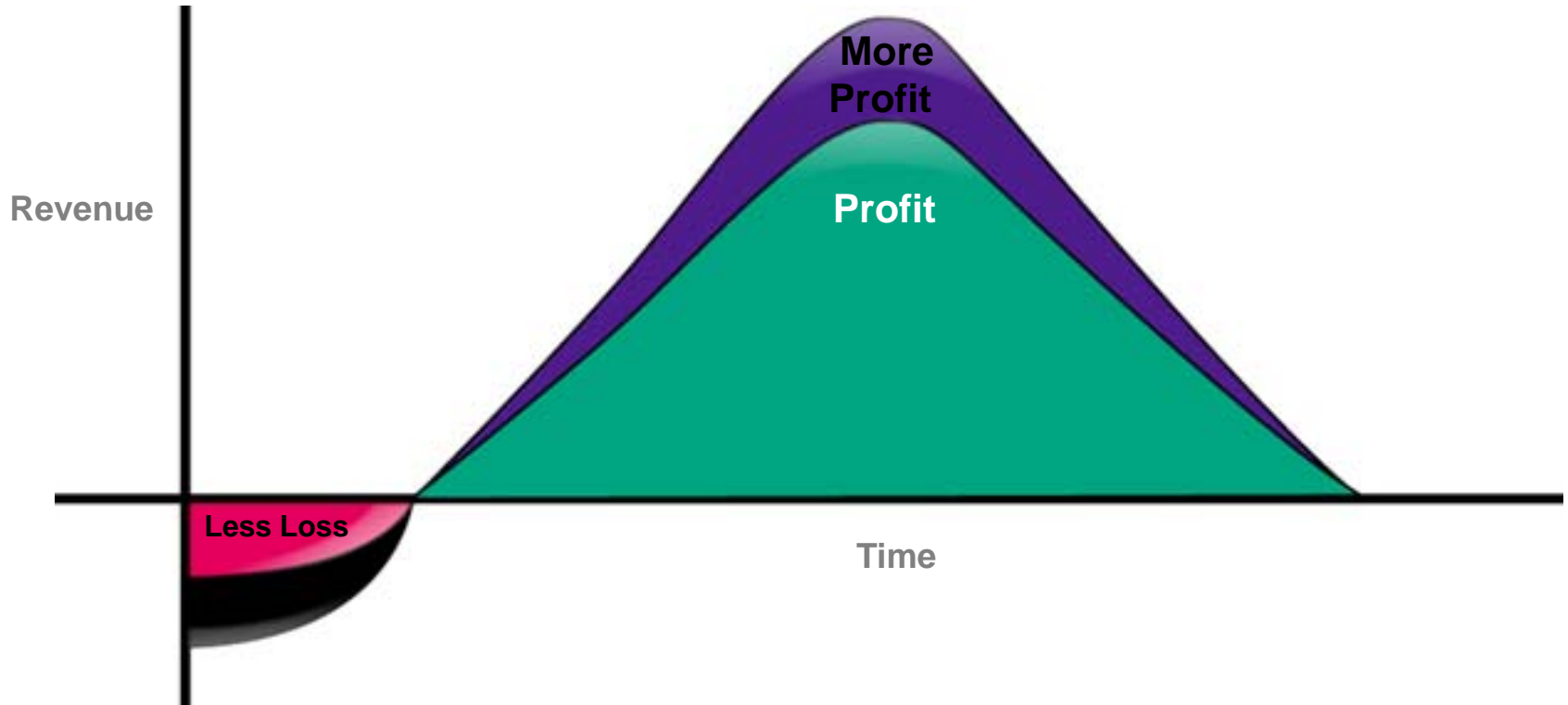| More Efficient Acquisition	More Frequent Up/Cross Sell	Longer Lasting Relationship

Revenue

Profit

Less Loss

Time

Predictive Analytics for CRM

More Efficient Acquisition

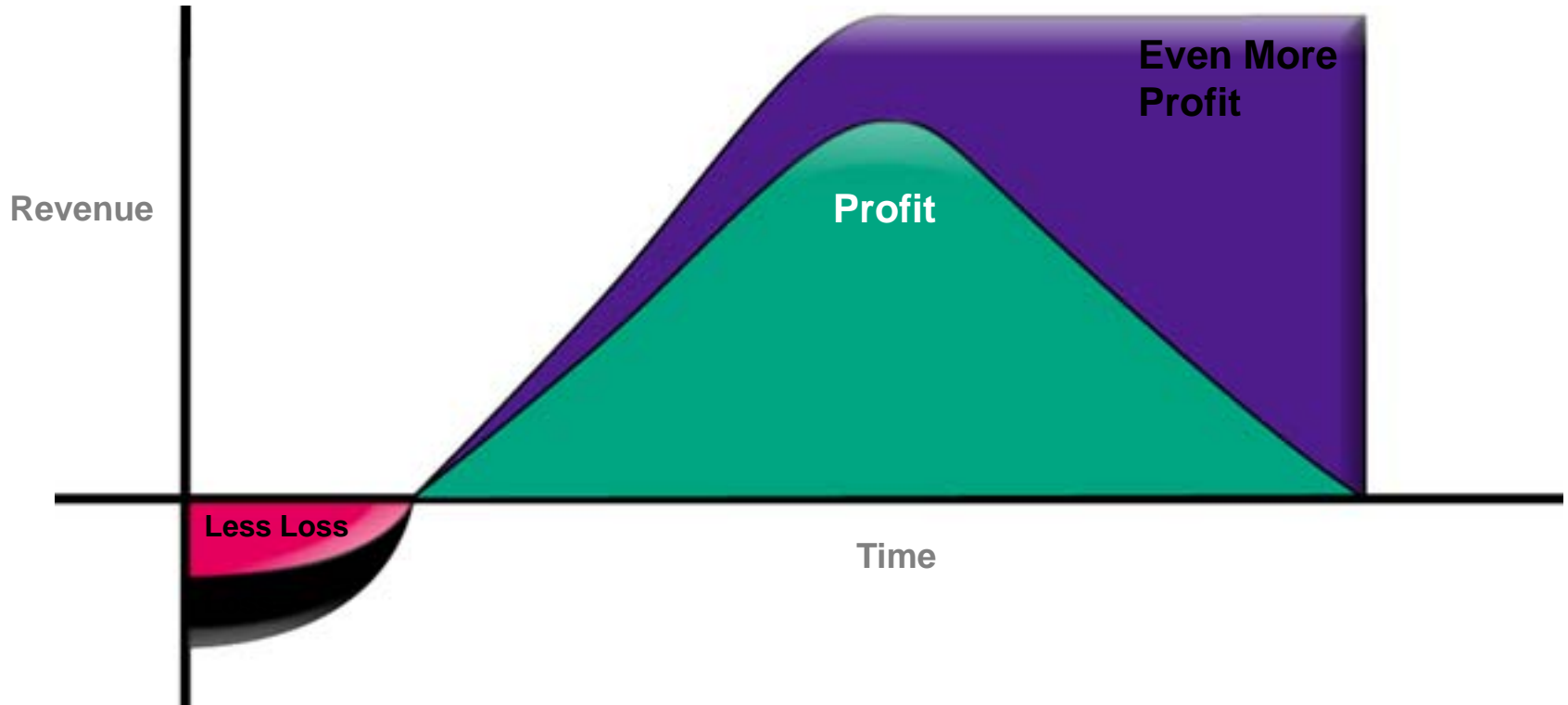**More Frequent Up/Cross Sell**

Longer Lasting Relationship

Revenue

More Profit

Profit

Less Loss

Time

Predictive Analytics for CRM

**More Efficient
Acquisition**

**More Frequent
Up/Cross Sell**

**Longer Lasting
Relationship**

**Even More
Profit**

Revenue

Profit

Less Loss

Time

Case Study: Cablecom

- Based in Switzerland

- Core business: cable TV

- Diversified into:
  - Broadband internet access
  - Digital phone
  - Pre-paid mobile

- Business issue: retention of broadband customers
  - High cancellation rate at end of initial contract

Identified crucial point in lifecycle

- Created customer satisfaction survey, run at month 7 of initial contract

- Ten "0-10" questions, one free text

- Converted to single "satisfaction score", 0-100
  - 100 = perfectly satisfied
  - 0 = totally dissatisfied

Predictive approach

- Combined satisfaction scores with other data assets:
  - Demographics
  - Product ownership and usage behavior

- Built models to predict satisfaction score for <u>all</u> customers

- Used predictive satisfaction score to drive retention marketing

- **Result: churn reduced from 19% to 2% in treated group**

Cablecom example 2:
NPS plus text mining

- Net Promoter Score (NPS)

> *"On a scale of 0-10 how likely is it that you would recommend Cablecom to a friend or colleague?"*

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Combine NPS (KPI) with
Customer Feedback (key to actions) and Text Mining

**Supplementary open ended question:**

- **Promoters**

   "what is the single most important thing that makes you _likely_ to recommend us?"

- **Passives**

   " what is the single most important thing we could do to make you _more likely_ to recommend us?"

- **Detractors**

   " what is the single most important thing that currently makes you _unlikely_ to recommend us?"

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Fix these things   Do more of these things
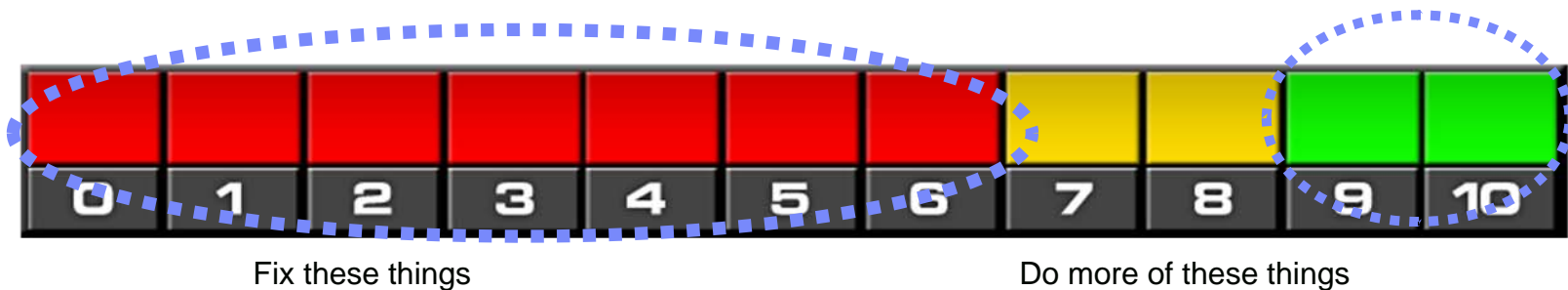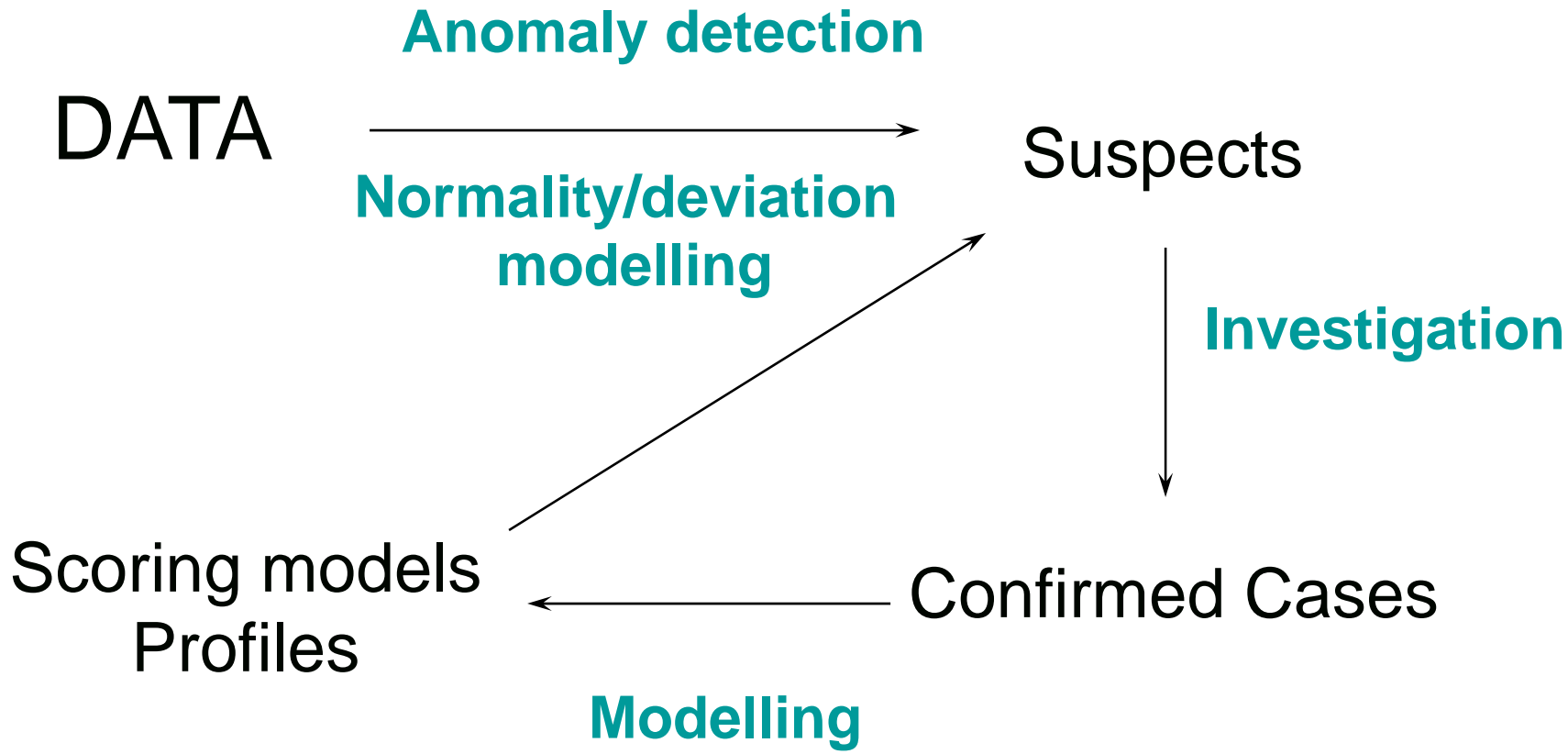
Results

- Macro level:
  - Information from supplementary question, categorised, reveals areas for improvement (product owners, market managers, operations managers)

- Micro level:
  - Customer issues drive 1:1 interactions and resolutions

- In 3 months:
  - **Satisfaction improved in > 50% of cases**
  - **23% of detractors converted to promoters**

Predictive Analytics for Threat and Risk

Predictive Analytics for Fraud

Anomaly detection

DATA → Suspects

Normality/deviation modelling

Investigation

Scoring models Profiles ← Confirmed Cases

Modelling

IBM

Effect in Healthcare Fraud

Zorg en Zekerheid
dichtbij werkt beter.

"While previously the full investigation process might have taken weeks, we are now able to track down fraud cases within days. We typically express the added value of our department in terms of financial results. By using IBM SPSS Modeler, these results have doubled each year since 2007. We are obviously very satisfied with this score."
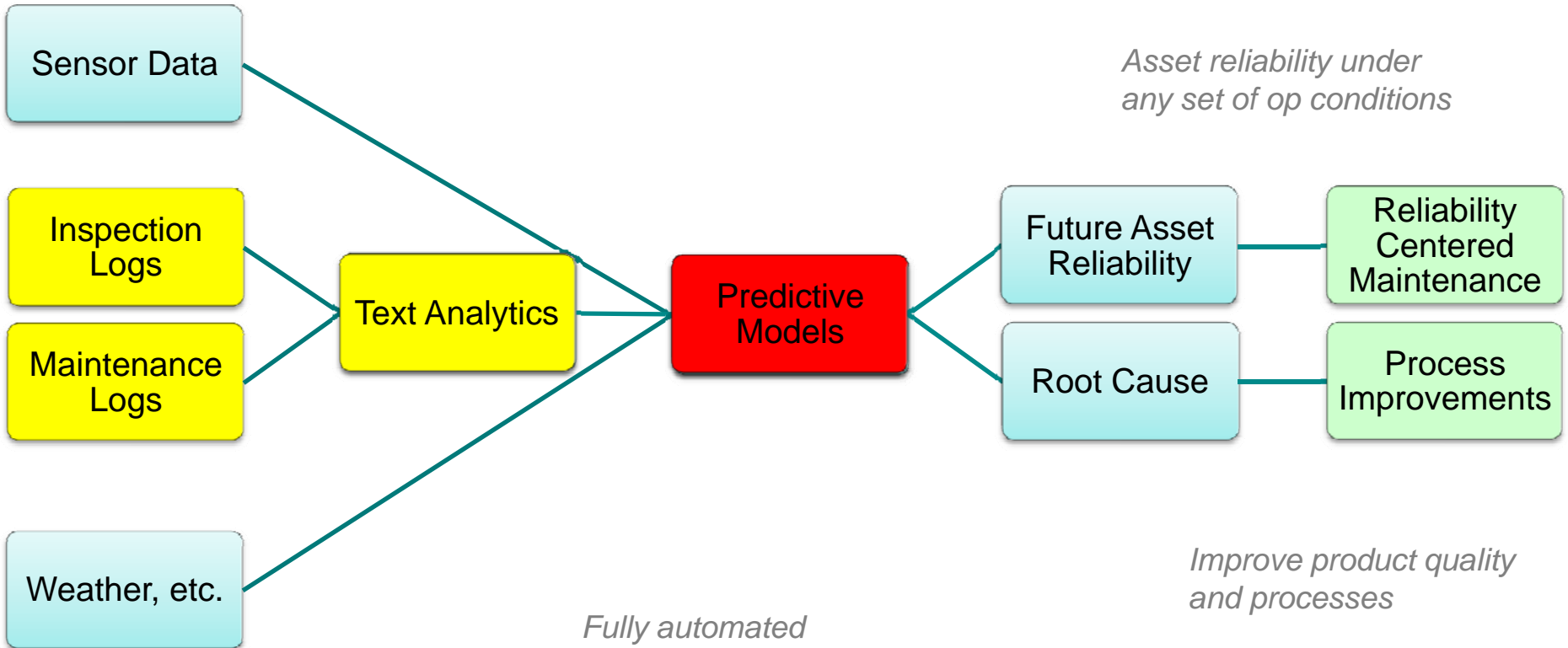
Predictive Analytics for Operational Excellence

Assortment Planning

- **Stock the correct mix of SKUs in every store**

- **Increase sales, reduce over stocking**

- **Reduce handing costs by delivering the appropriate mix of SKUs to the correct point in the supply chain**

Maintenance & Asset Management
Prediction and Insights Drive Smarter Processes

Leverage all available (even unstructured)

Asset reliability under any set of op conditions

Sensor Data

Inspection Logs

Maintenance Logs

Text Analytics

Predictive Models

Future Asset Reliability

Reliability Centered Maintenance

Root Cause

Process Improvements

Weather, etc.

Fully automated

Improve product quality and processes

Predictive Maintenance in Action

Major helicopter manufacturer

- Individualized maintenance plans for each helicopter based on history and operations
- Enables "just in time" inventory management

Manufacturer of mining equipment

- Proactively identified problems and the best action before failure
- Saved $1 million in repair costs in under 2 weeks
- 12-14x ROI (return on investment) in just 4 months

UK water companies

- Reduce internal flooding incidents by predicting asset failure risk
- Predict risk of pollution events and take pre-emptive action

*From analysis to **action***

Capture

Predict

Act

Capture

Predict

"Interesting"

Impact!

Act

Delivering ROI through improved decision making

- Inserting "intelligence" at key decision points in business processes to improve outcomes – and automate decisions
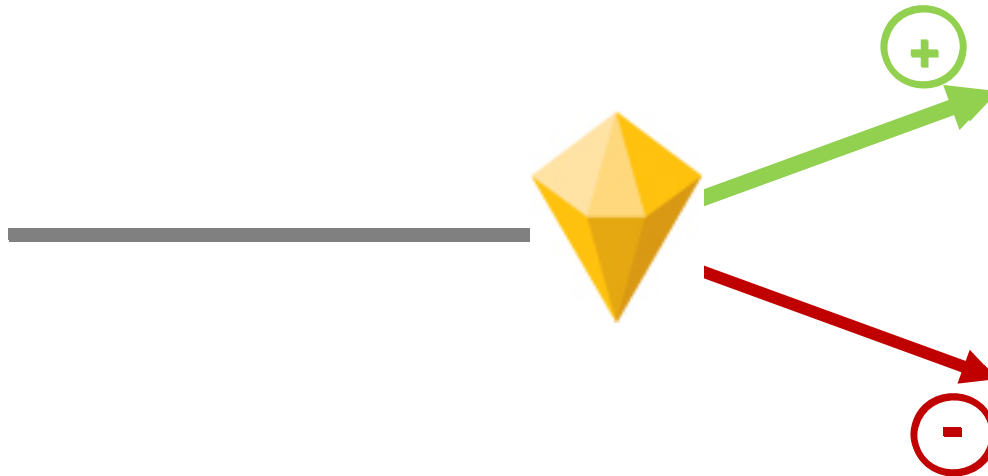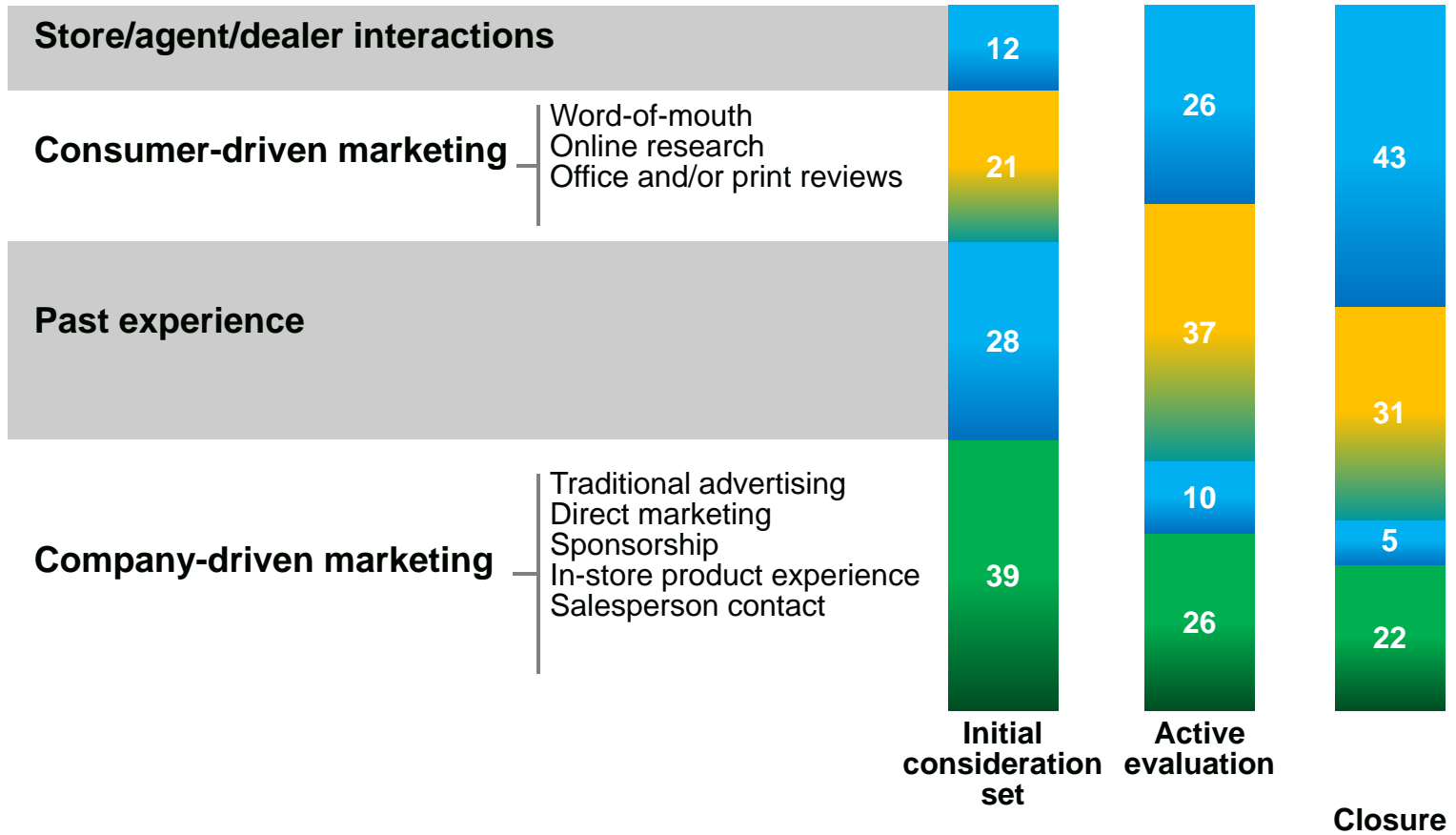
Acting On Analysis

- Combine analytical results with business knowledge
  - Rules, Policies, Exclusions/Inclusions, Constraints…

- Integrate with the operational systems that support key customer-related processes

Leveraging unstructured data at the Point of Contact

1. CSR enters live customer comments

2. When saved, comments are analyzed using Predictive Text Analytics

3. Customer churn score is generated and displayed in real-time

4. CSR script responds dynamically

Predictive Analytics: Unlocking CRM ROI

- Operational CRM systems ensure interactions...
  - Happen efficiently and consistently
  - Are recorded

- But don't ensure these are the *right* interactions

- Predictive analytics...
  - Does not replace existing CRM systems
  - Adds *smarter decisions*...
  - ...driving *better outcomes*...
  - ...and *delivering greater value*

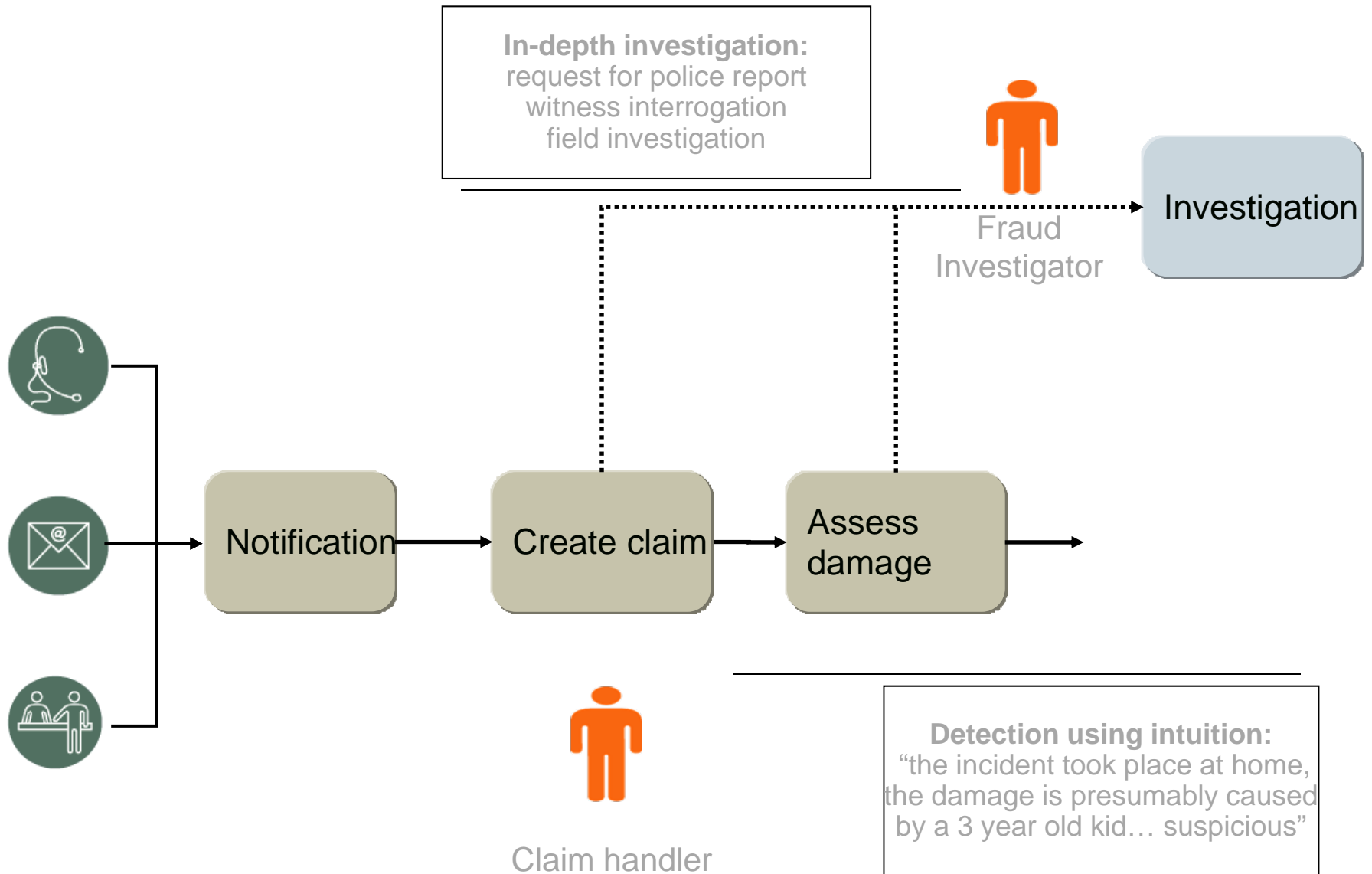 - **Unlocks** **ROI from existing CRM investments**
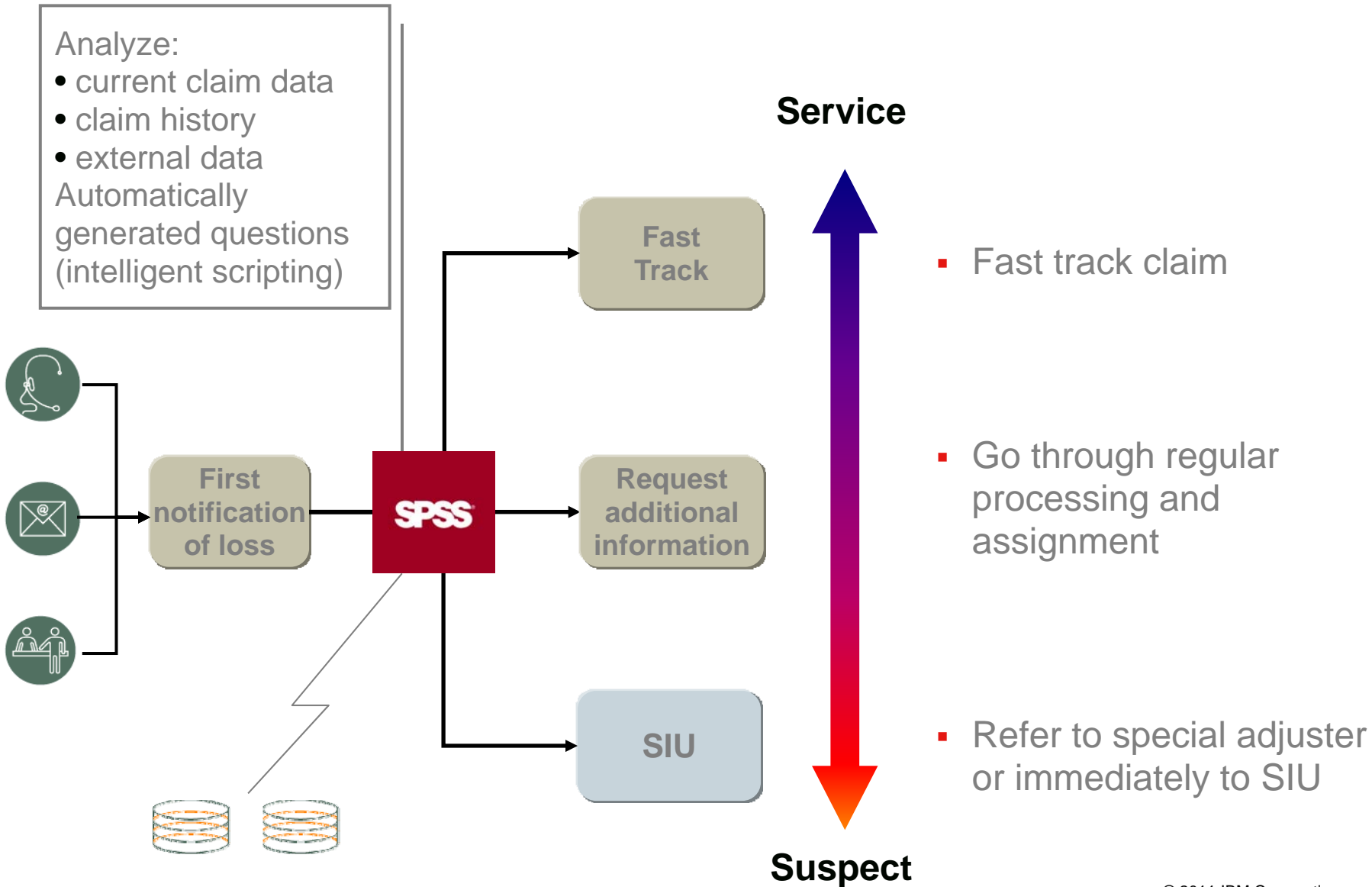
DIGITAL+

Digital+ used Real-time Predictive Analytics to leverage in-bound customer interactions to drive loyalty and life time value

- *Shorter, more relevant calls led to increased satisfaction for customers and agents*

- *20% higher retention in first 2 months*

- *Substantial cross-selling through the inbound service channel*

Insurance Claims Handling: Current process

In-depth investigation:
request for police report
witness interrogation
field investigation

Fraud
Investigator

Investigation

Notification → Create claim → Assess damage →

Claim handler

Detection using intuition:
"the incident took place at home,
the damage is presumably caused
by a 3 year old kid… suspicious"

PredictiveClaims: Improving the Claim Handling Process

Analyze:
- current claim data
- claim history
- external data

Automatically generated questions (intelligent scripting)

First notification of loss

SPSS

Fast Track

Request additional information

SIU

Service

Suspect

- Fast track claim

- Go through regular processing and assignment

- Refer to special adjuster or immediately to SIU

Predictive Claims:
Ongoing Risk Assessment
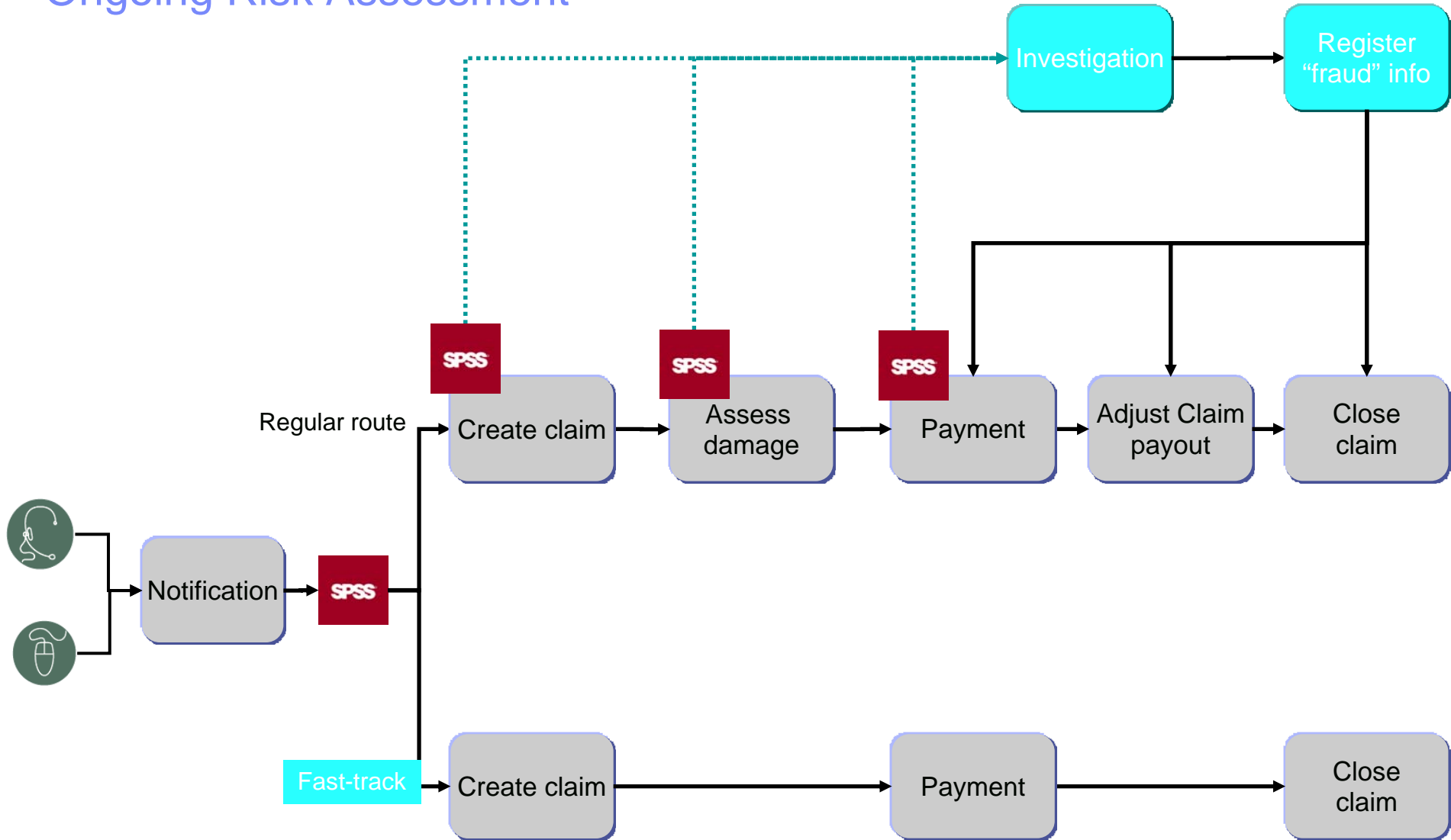
INFINITY
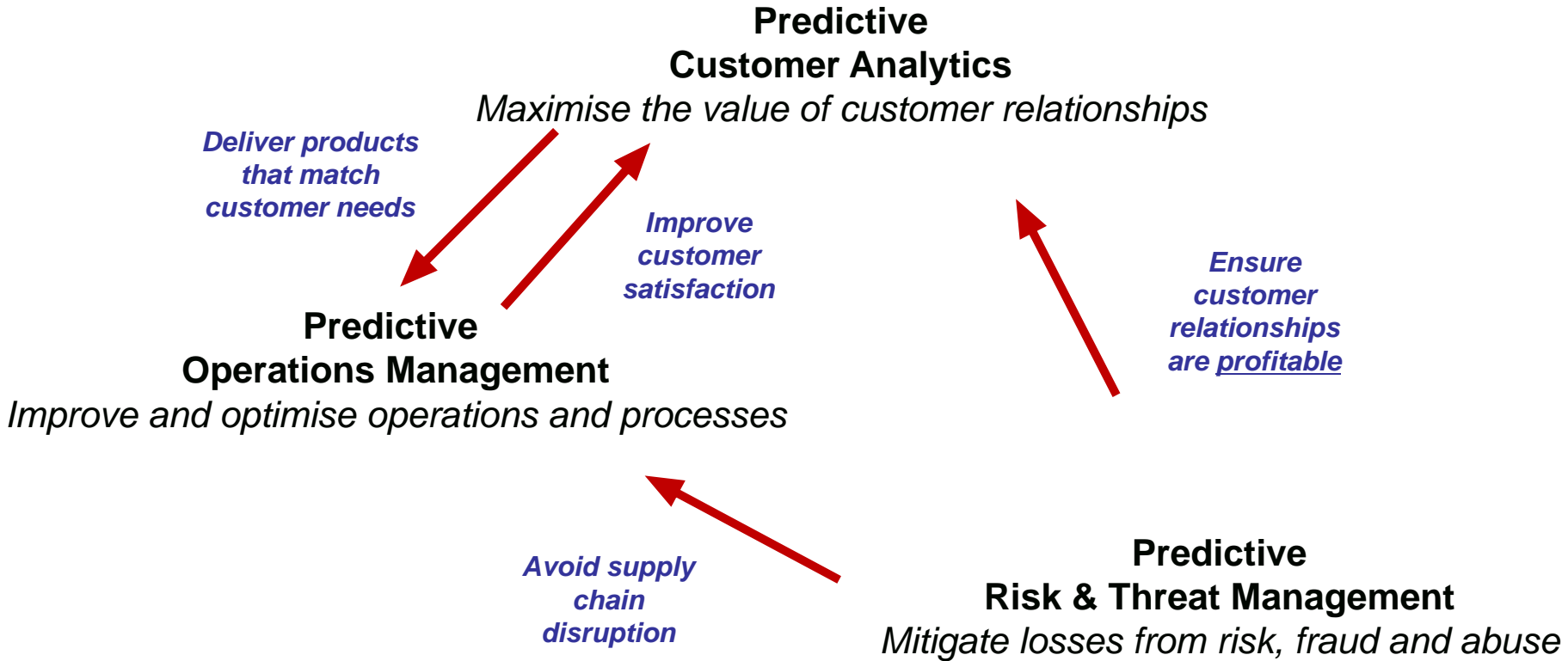
Embedded predictive models in claims process to assess claims risk and identify subrogation opportunities

- *Improved detection of fraudulent claims*

- *Time to refer suspicious claims for investigation reduced from 14 days to under 24 hours*

- *Time to identify subrogation opportunities reduced from 26 days to 10 days*

- *Subrogation rate increased substantially*

Predictive Analytics delivers value **across** the organization:
The Predictive Enterprise

**Predictive
Customer Analytics**
Maximise the value of customer relationships

*Deliver products
that match
customer needs*

*Improve
customer
satisfaction*

*Ensure
customer
relationships
are profitable*

**Predictive
Operations Management**
Improve and optimise operations and processes

*Avoid supply
chain
disruption*

**Predictive
Risk & Threat Management**
Mitigate losses from risk, fraud and abuse

The Predictive Agenda
Leveraging data to drive better outcomes and maximise ROI

Thank You!

Business Analytics software