AI Driven Marketing:
What does the future look like?

Colin Shearer

Decisions from Data

Evolution Of AI & Advanced Analytics

1980

Academic research in AI

Machine learning

1990

Emergence of data mining

2000

Gartner and others categorise predictive analytics

2010

Resurgence of AI

"Big Data" and "Cognitive"

Visionaries, early adopters

Departmental/point adoption

Enterprise adoption by thought leaders

+ Upsurge in interest
+ Acceptance of value by senior decision makers
- Reality vs. expectations
- Confusion over how to obtain potential value

Studied Artificial Intelligence, specialising in Machine Learning

Developing AI tools & technologies

1989: co-founded Integral Solutions Ltd

Created Clementine, now IBM SPSS Modeler

Jointly led international initiative to create industry standard analytics methodology (CRISP-DM)

1998: SPSS acquires ISL

Advised key clients, across industries, on advanced analytics strategies, roadmaps, application areas, ...

Drove development of SPSS predictive analytics business worldwide

Launched first enterprise platform for predictive analytics

Created first IBM cloud-based analytics services

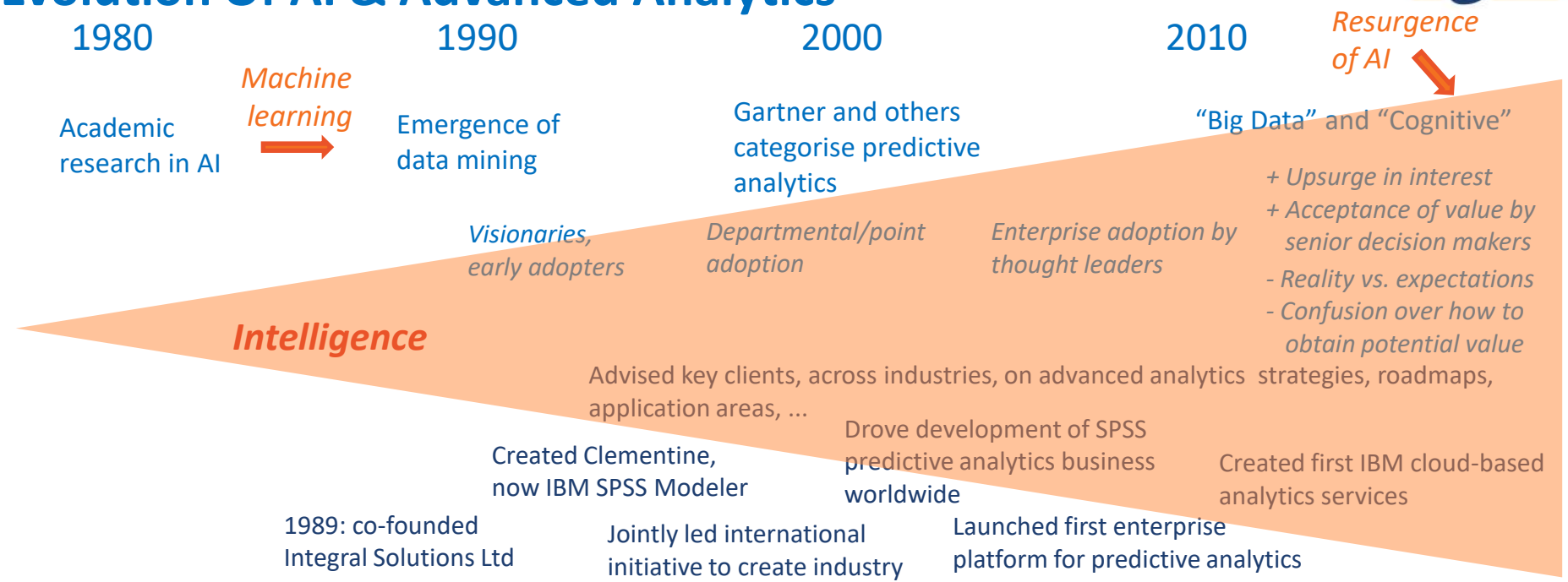
Helped create analytical solutions for NBA and Predictive Maintenance

2010: IBM Acquires SPSS

Colin Shearer: career in AI & Advanced Analytics

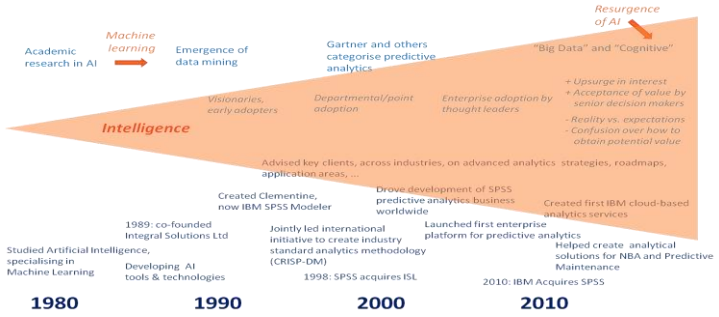
Adding "intelligence" to business operations & systems

Evolution Of AI & Advanced Analytics



Colin Shearer: career in AI & Advanced Analytics

Decision Making in business



Companies knew their customers/businesses/ markets

Perpetuation of less-than-best practice

Reliance on intuition, hunches, "belief"

Recognition of shortcomings

Evolution towards evidence-based decision making

Striving for optimal decision making

Business scale and complexity

A sea-change in business decision making

"We are in a historic moment of horse-versus-locomotive competition, where intuitive and experiential expertise is losing out time and time again to number crunching."

Ian Ayres, author of "Super Crunchers"

Why evidence-based decision making?

Need for:

- Confidence

  "Do we think, or do we know?"

  Gary Loveman, CEO of Harrah's

- Accountability

  "The Sarbanes-Oxley Act of 2002..requires executives, auditors and other users of corporate data to demonstrate that their decisions are based on trustworthy, meaningful and accurate data"

  Tom Davenport, author of "Competing on Analytics"

- Quality

  "…the judgments of professional managers were 'meager at best'. The [model] outperformed even above-average managers."

  Ian Ayres, on a project to test predictive models against professional corporate buyers.

  "Human judges are not merely worse than optimal regression equations; they are worse than almost any regression equation"

  Richard Nisbett & Lee Ross

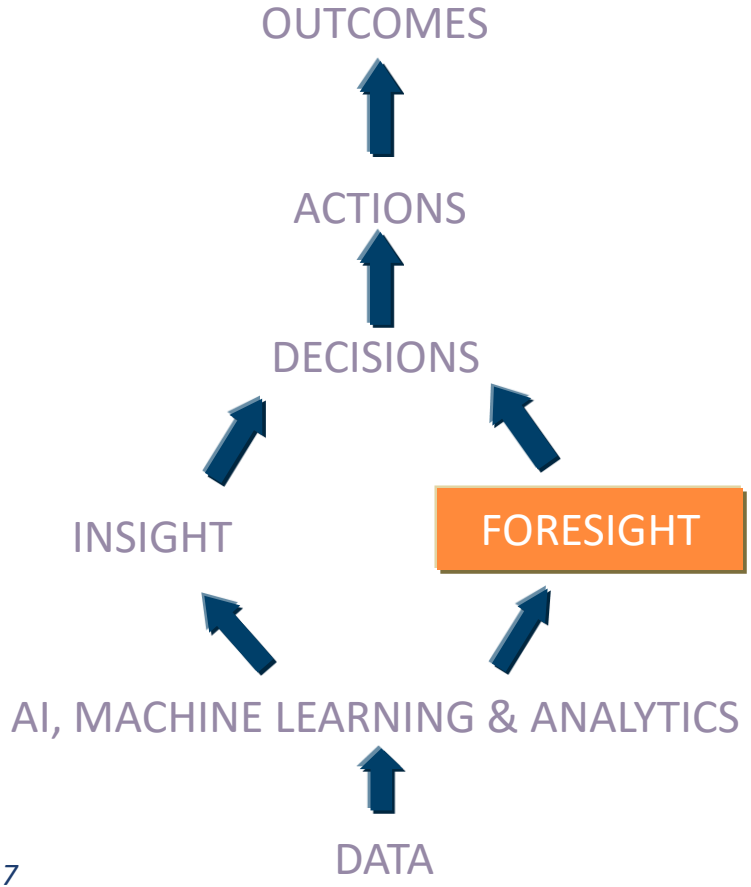
- Adaptability
  - Human knowledge degrades as circumstances change

In the world of Marketing...

- Shift from “art” to “science”
- Focus on ROMI
- The individual vs. the masses
- Resilience in handling unprecedented change

- Increasingly rich data on consumers/customers ✓
- Many more opportunities to inject evidence-based “intelligence into interactions ✓

It's all about outcomes



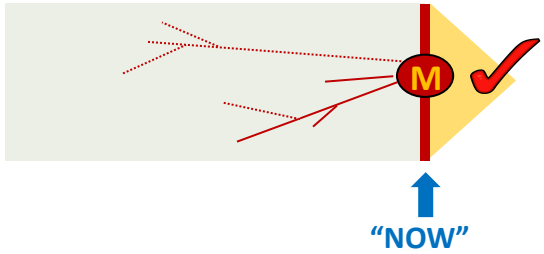
Be More Right, More Often

The Predictive Advantage

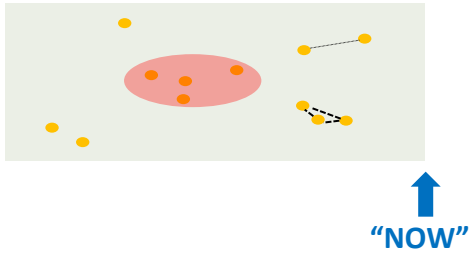
Predict & Act

Sense & Respond

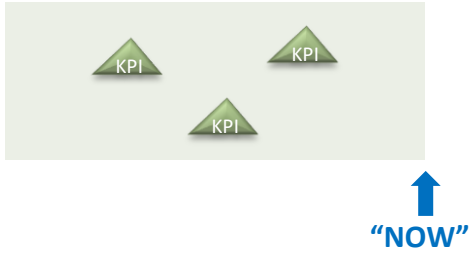
Deploying Predictive Models
- Leverage current and historical data
- Make robust predictions on current and future cases
- Embed in business processes to transform decision making and drive better outcomes



Predictive Analytics:
- Machine Learning algorithms automatically discover significant patterns
- Deliver deep insights to improve strategic and operational decision making
- "Learn" from historical data – create *predictive models*



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



IDC - Independent Financial Impact Studies

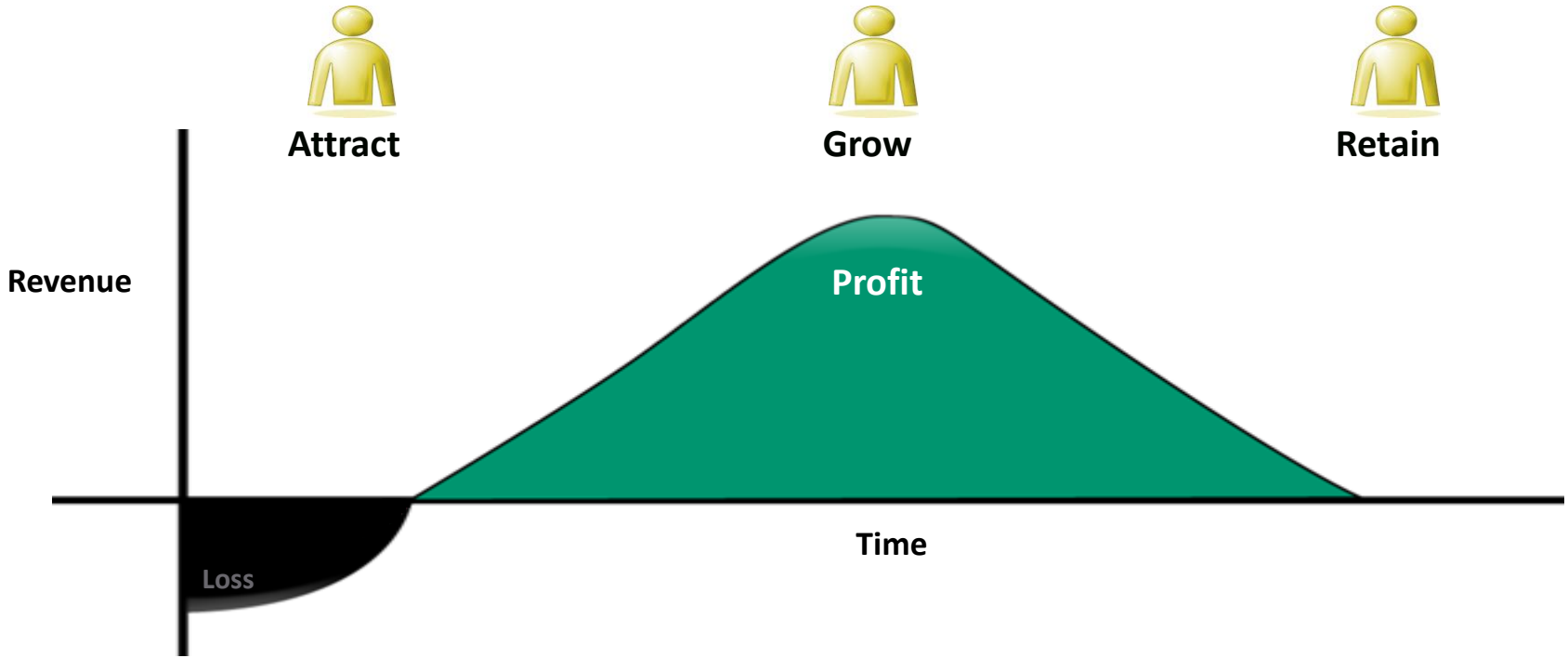
"The median ROI for the projects that incorporated predictive technologies was 145%, compared with a median ROI of 89% for those projects that did not."

Source: IDC, "Predictive Analytics and ROI: Lessons from IDC's Financial Impact Study"

Update:

Follow-on study showed ROI for predictive analytics at 250%

Predictive Analytics for Marketing

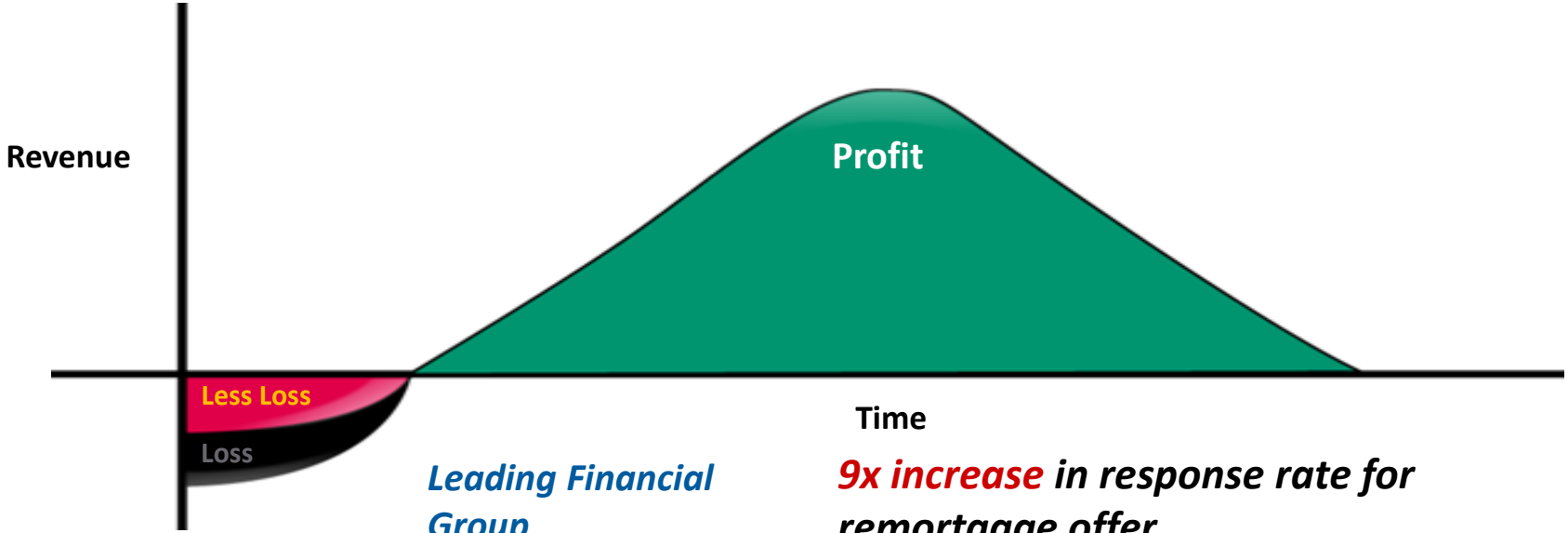


Predictive Analytics for Marketing

More Efficient Acquisition

More Frequent Up/Cross Sell

Longer Lasting Relationship



Leading Financial Group

***9x increase** in response rate for remortgage offer*

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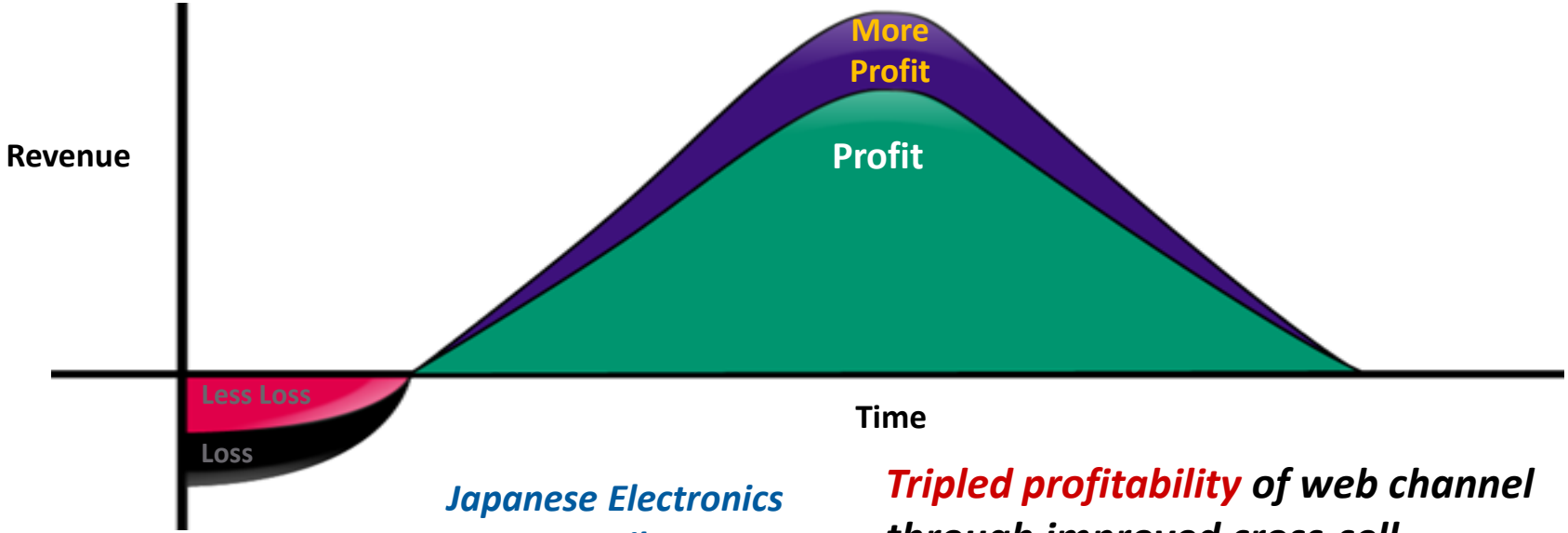

Japanese Electronics Retailer

***Tripled profitability** of web channel through improved cross-sell recommendations*

Predictive Analytics for Marketing

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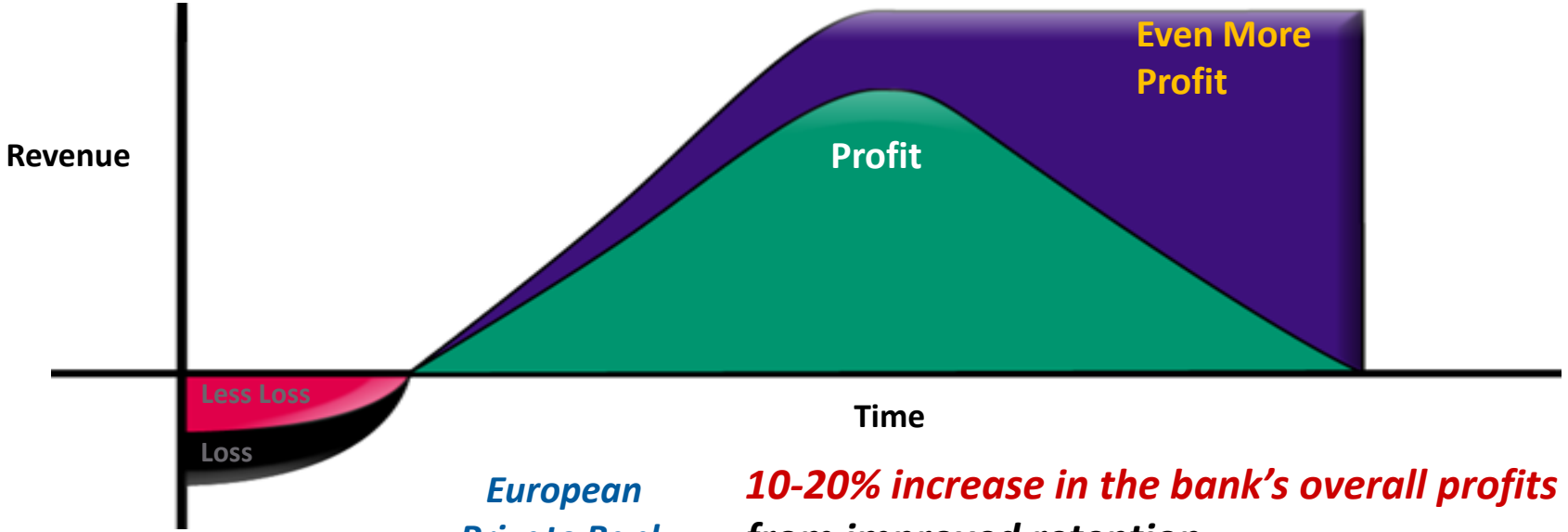


European Private Bank

10-20% increase in the bank's overall profits from improved retention

Data at the heart of Predictive Analytics

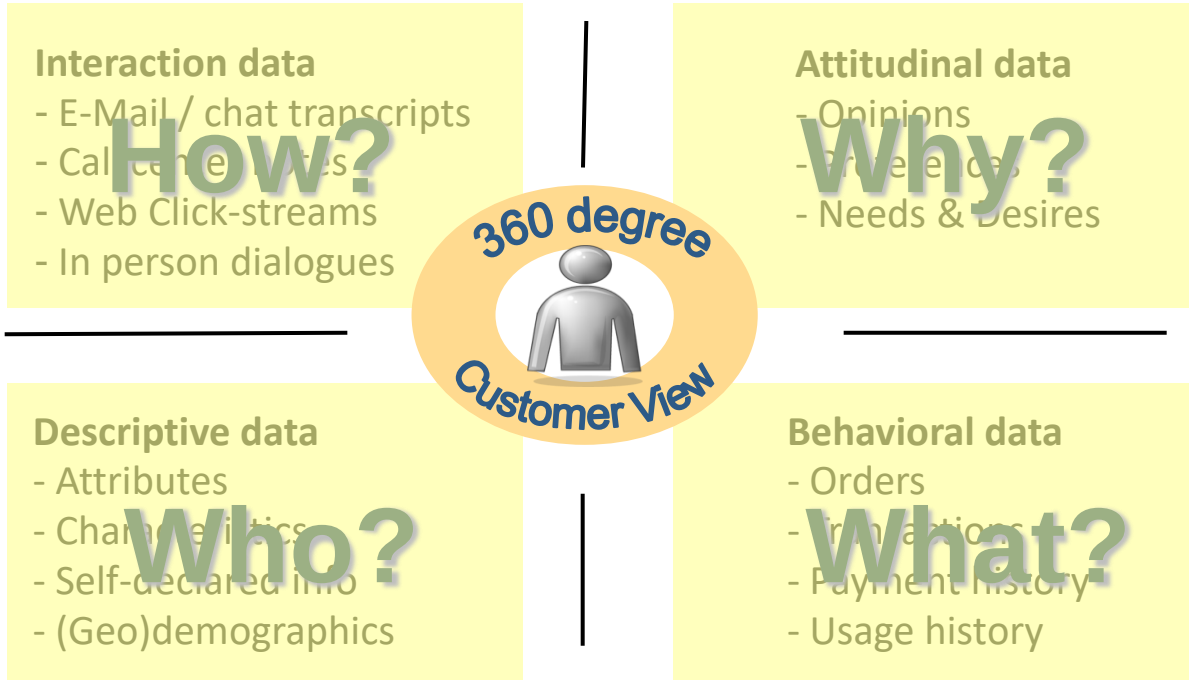
Interaction data
- E-Mail / chat transcripts
- Call center notes
- Web Click-streams
- In person dialogues

Attitudinal data
- Opinions
- Preferences
- Needs & Desires

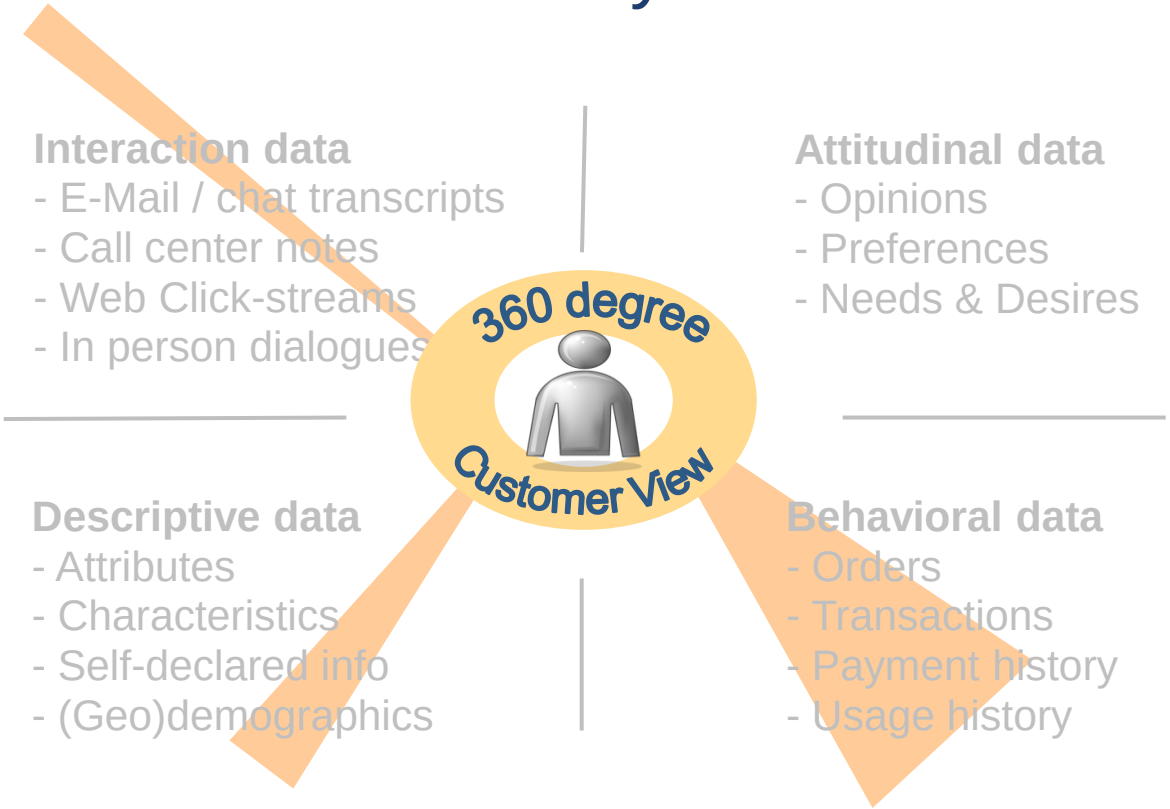
Descriptive data
- Attributes
- Characteristics
- Self-declared info
- (Geo)demographics

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

Data at the heart of Predictive Analytics



Pragmatic approach:
Go for quick wins with easily available data



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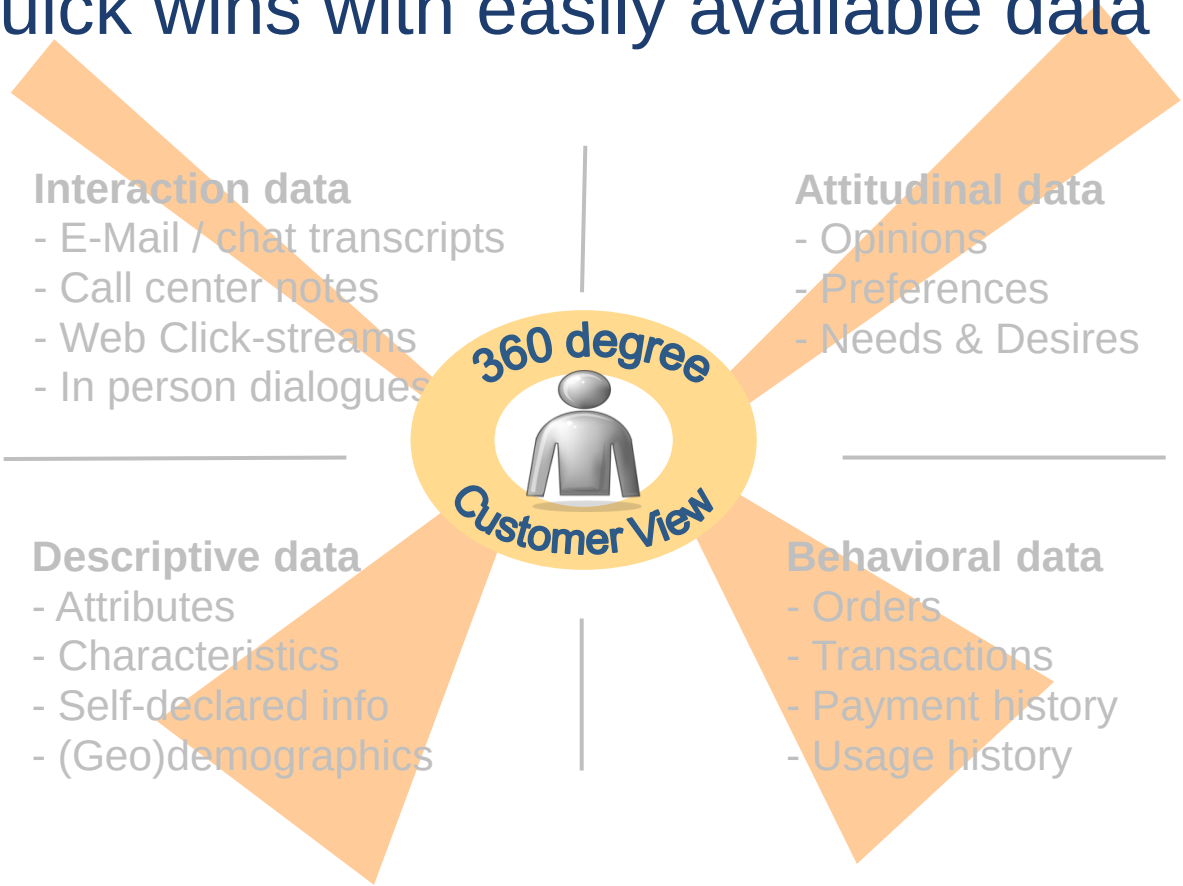
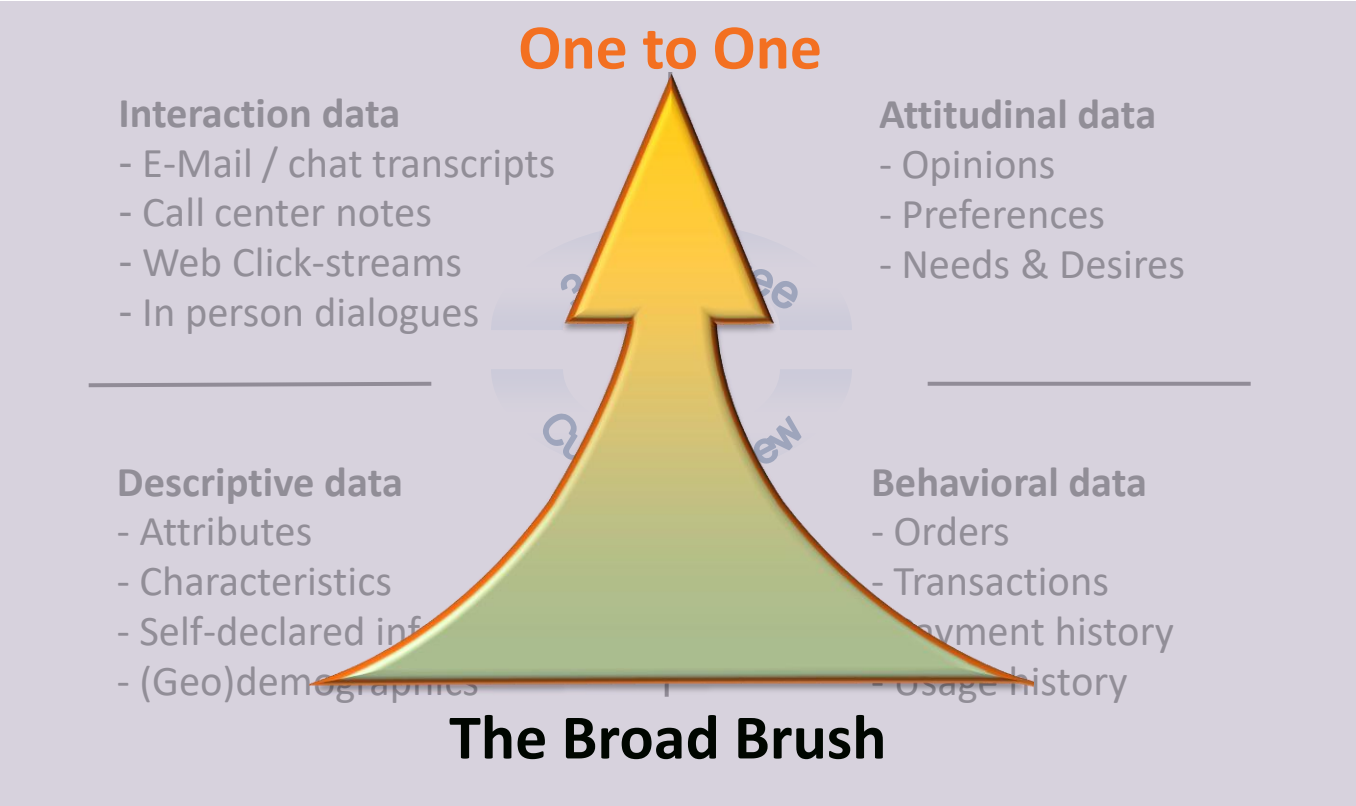


Adding data sources: Impact on model accuracy

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

Holistic customer data, plus **predicted propensities**, are the keys to true personalization



Capture

Predict

Act

HOUSTON ANALYTICS

Capture

Predict

"Interesting"

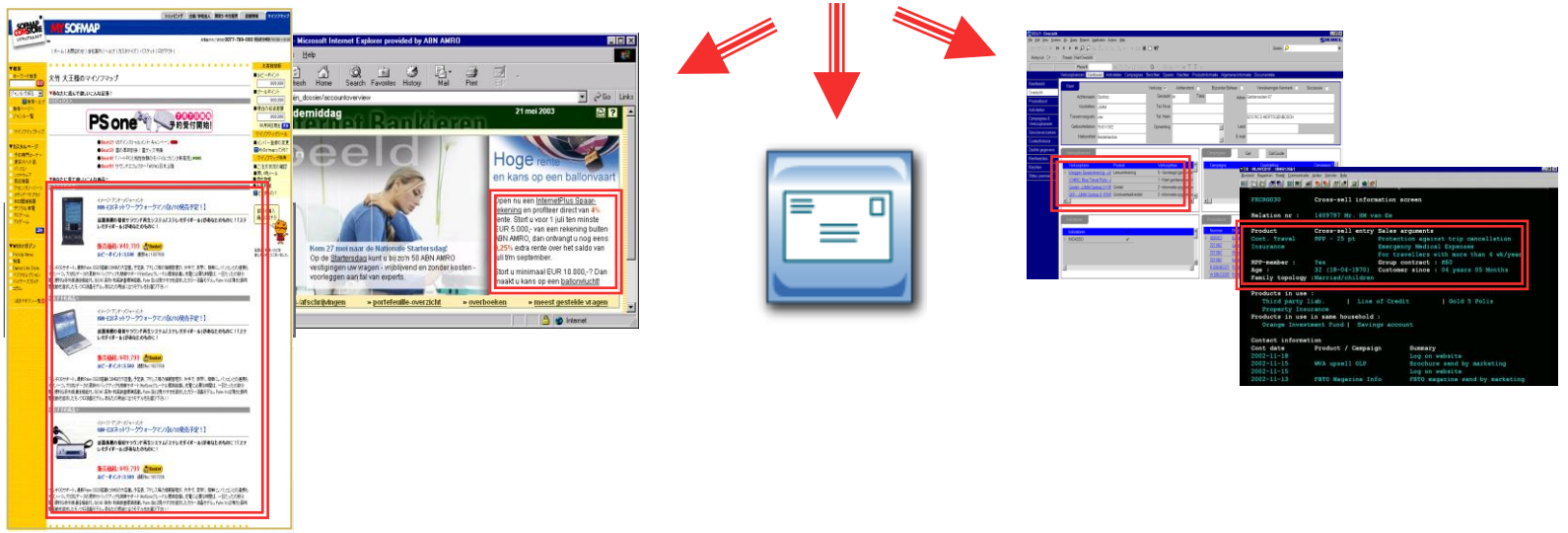
Impact!

Act

HOUSTON ANALYTICS

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



Optimisation

- Making the set of best decisions

- Making the best set of decisions

The decision to **extend an offer** for our new credit card as well as the **specific offer to make**, depends on the combination of a number of factors

Customer 77.64.34.56

Credit card offer = YES
Conditions:
- No fees in the first year
- 0.5% interest discount
- 60 day payment terms

Customer 74.83.84.85

Credit card offer = YES
Conditions:
- 2 year contract term, 50% off fee
- 0.5% interest discount
- 60 day payment term

Customer 72.75.12.68

Credit card offer = YES
Conditions:
- No fees in the first year
- No interest discount
- 30 day payment term

Customer 77.39.72.45

Credit card offer = NO

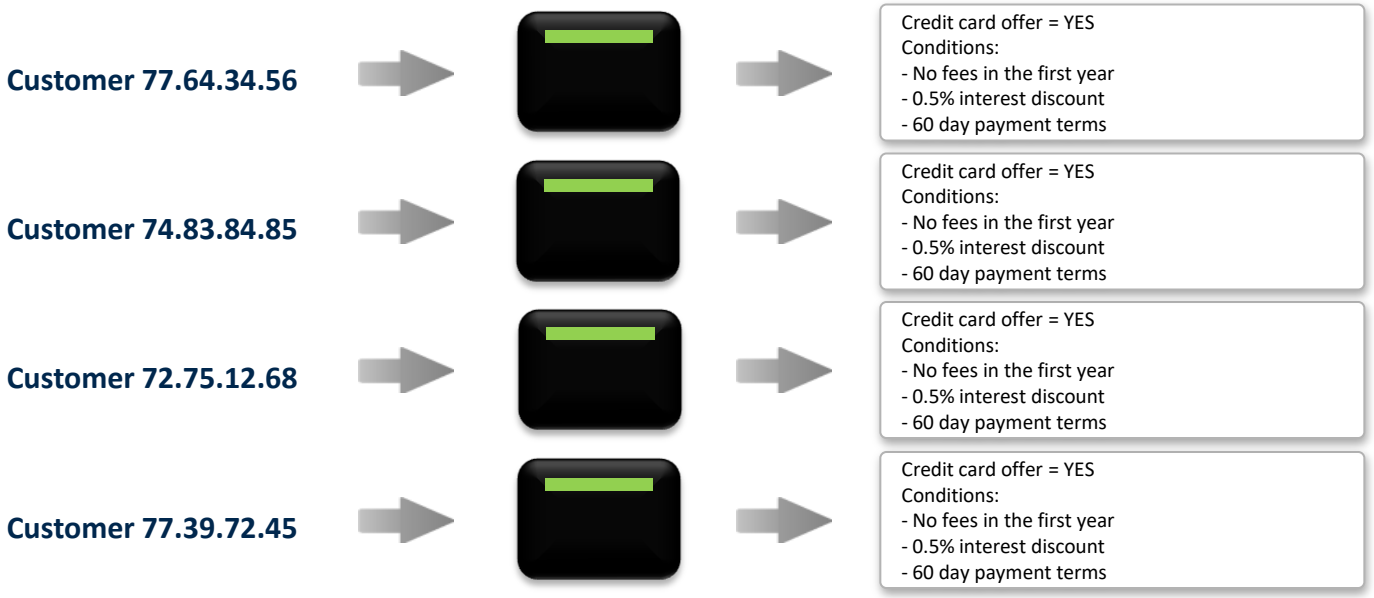
“Journey”

Before predictive analytics:
“Offer of the month” available to all customers, offer extended as decided by call center agents

Customer 77.64.34.56	Credit card offer = NO
Customer 74.83.84.85	Credit card offer = YES Conditions: - No fees in the first year - 0.5% interest discount - 60 day payment terms
Customer 72.75.12.68	Credit card offer = NO
Customer 77.39.72.45	Credit card offer = YES Conditions: - No fees in the first year - 0.5% interest discount - 60 day payment terms

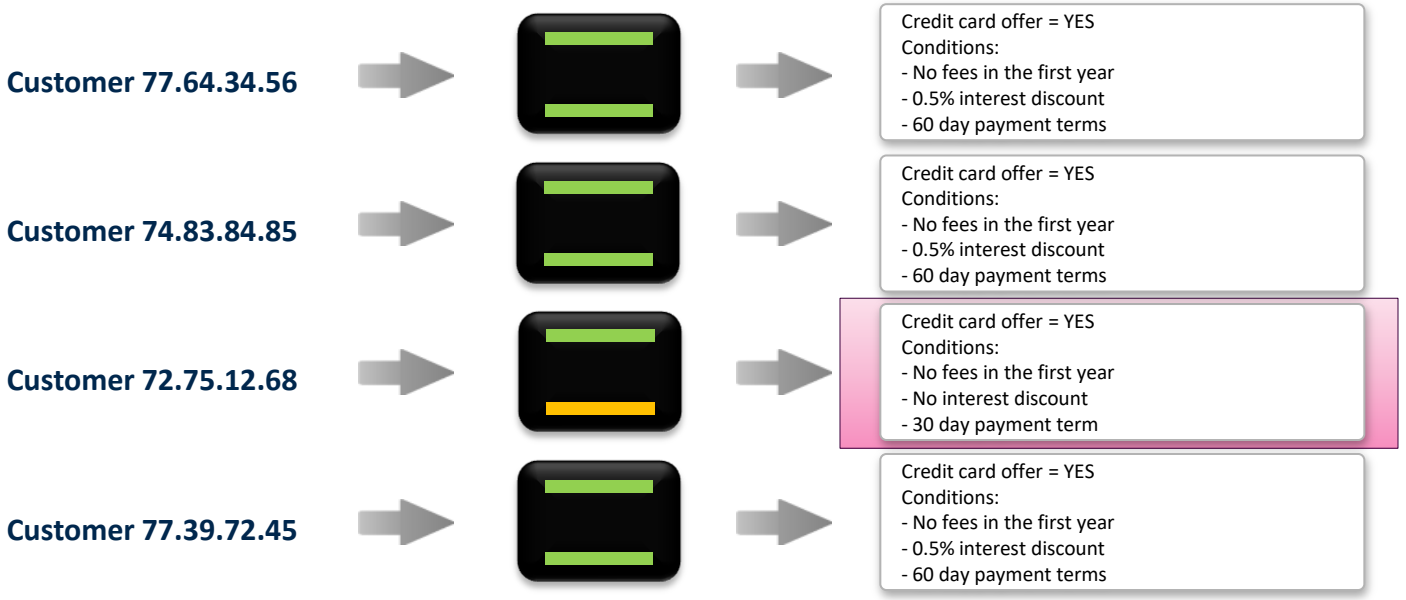
“Journey”

Step 1:
“Offer of the month” extended only to customers likely to accept



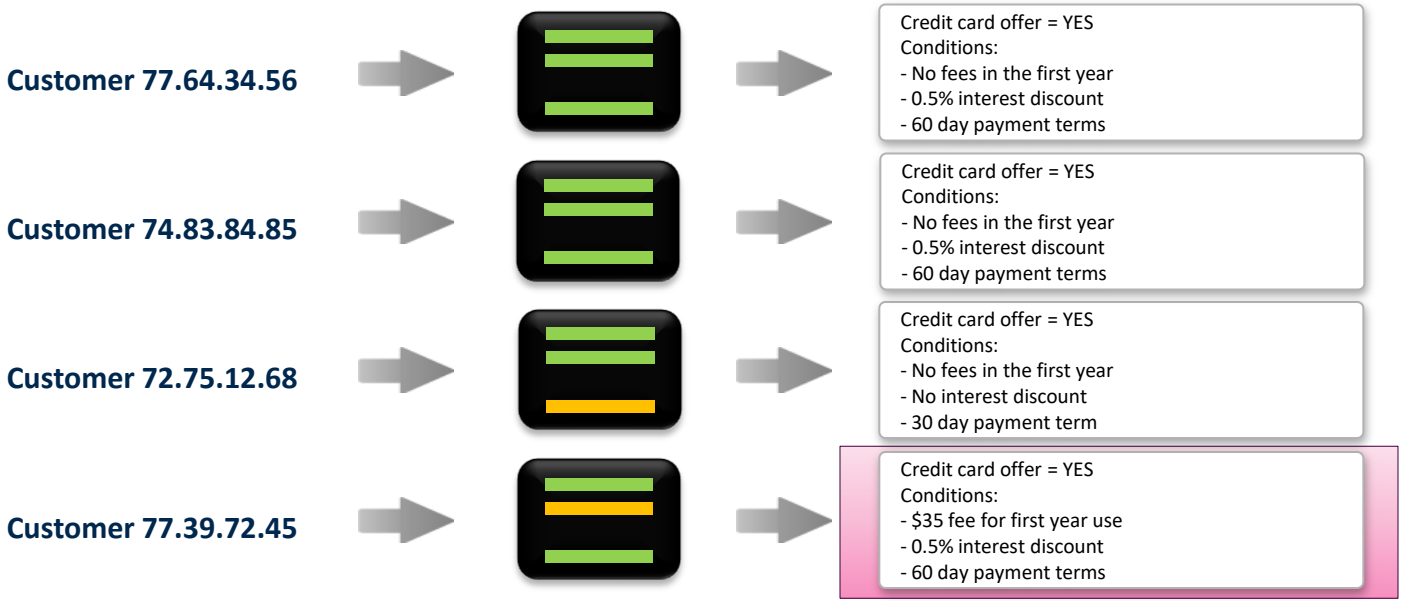
“Journey”

Step 2:
Offer differentiation based on likelihood to default



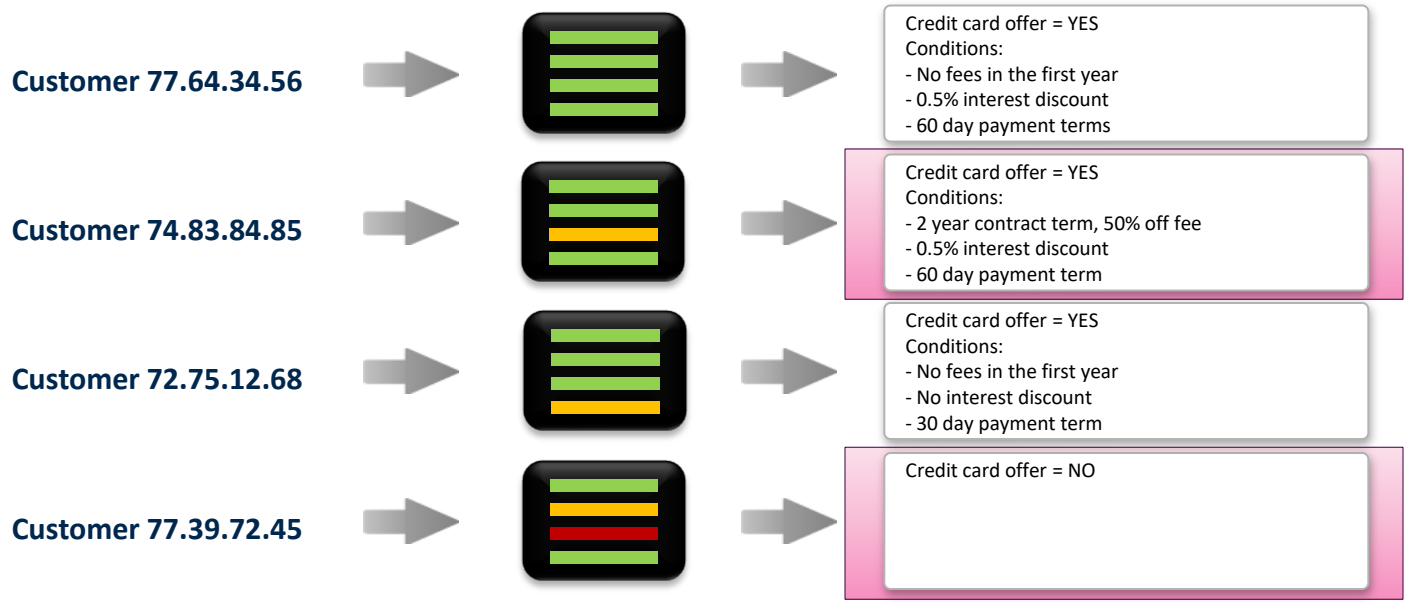
“Journey”

Step 3:
Extending decision to also include likelihood to use regularly



“Journey”

Step 4:
Extending decision to also include likelihood to renew after a year



Optimisation

- Making the set of best decisions

- Making the best set of decisions

Combines predictive models with constraints and objectives, applies mathematical optimisation across the entire data set e.g. Marketing campaign: database of customers, two channels, multiple offer variations

Models:
- Propensity for each customer to buy
- Affinity to each channel / offer variation
- Prediction of value of purchase

Cost factors:
- Cost of outbound mail
- Cost of outbound call

Constraints:
- Capacity of outbound call centre
- Overall campaign budget

Objective:
- Maximise generated revenue

Output:
- List of customers, with selected offer variation, assigned to each channel

Moving from best individual interactions to the set of individual interactions that make the best campaign

How to Succeed with AI & Advanced Analytics

Data Scientist:

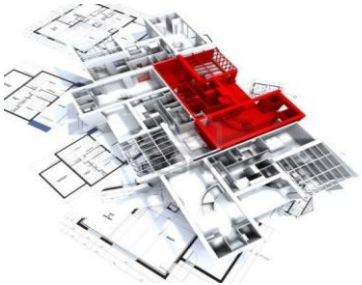
"The Sexiest Job of the 21st Century"!

Let's suppose….

….you want to commission an opera house for your city

We want an aesthetically stunning building that makes a bold statement. It needs acoustics fit for its purpose. It should be constructed, and operate, in an environmentally sound manner

It needs to stay up



Let's suppose….

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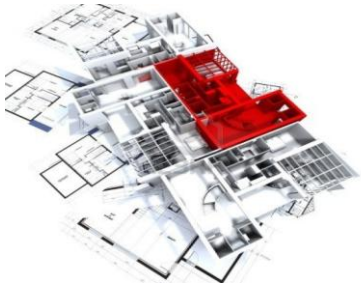


It's not a case of just "hiring a geek"!

Challenges

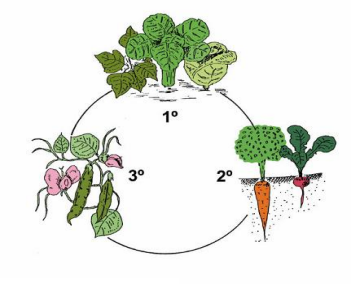
- Avoid bottlenecking on scarce resources
- Combine technology with business knowledge
- Integrate with data assets
- Deploy to operational systems for execution
- Scale: deliver individual recommendations in high-volume environment

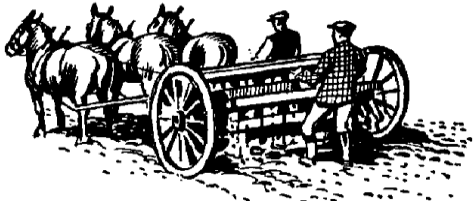
Which revolutions had the most profound effect on history?

“Spirit of ’76”?

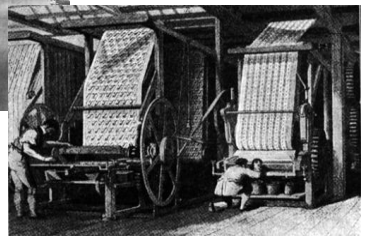
“Liberté, Egalité et Fraternité”?

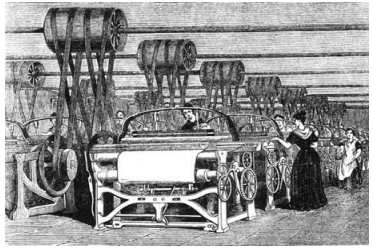
The Agricultural Revolution: from ~1700

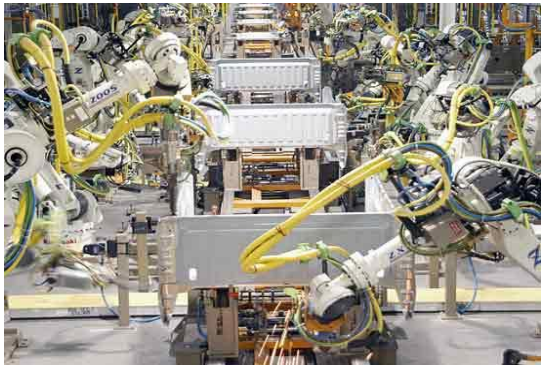




The Industrial Revolution: from ~1780







What revolutions do for the world…

Agricultural Revolution

Industrial Revolution

Scale the effects…
…multiply the benefit…
…by orders of magnitude…
…and make a far broader range of consumers able to benefit.

Analytical Revolution

What revolutions do for the world…

Agricultural Revolution

Industrial Re…

Sc…

…nt…

…magnitude…

…roader range of consumers able to benefit.

Analytical Revolution

Enabled by smart approaches to integration, deployment, and automation

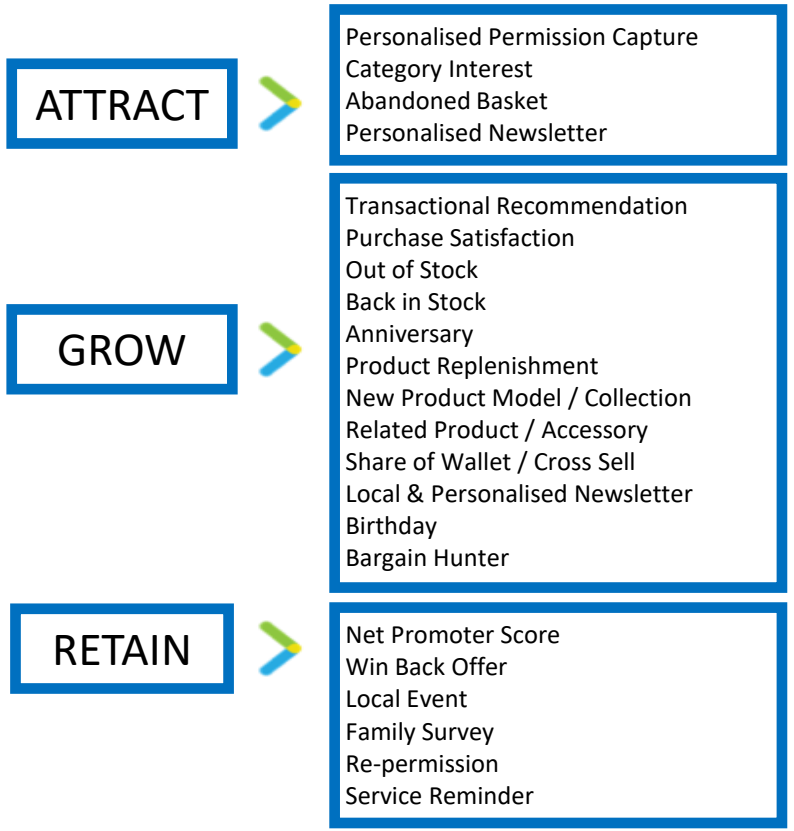
So... Suppose you want a “smart” omnichannel marketing capability...

1. Audit existing data assets
2. Unify data infrastructure
3. Recruit data scientist(s) ***time, cost, risk***
4. Train them in your business
5. Assign marketers to work with them
6. Define initial target application/campaign
7. Prototype and test predictive models
8. Plan results deployment
9. IT integration with multiple channels
10. Repeat from Step 5

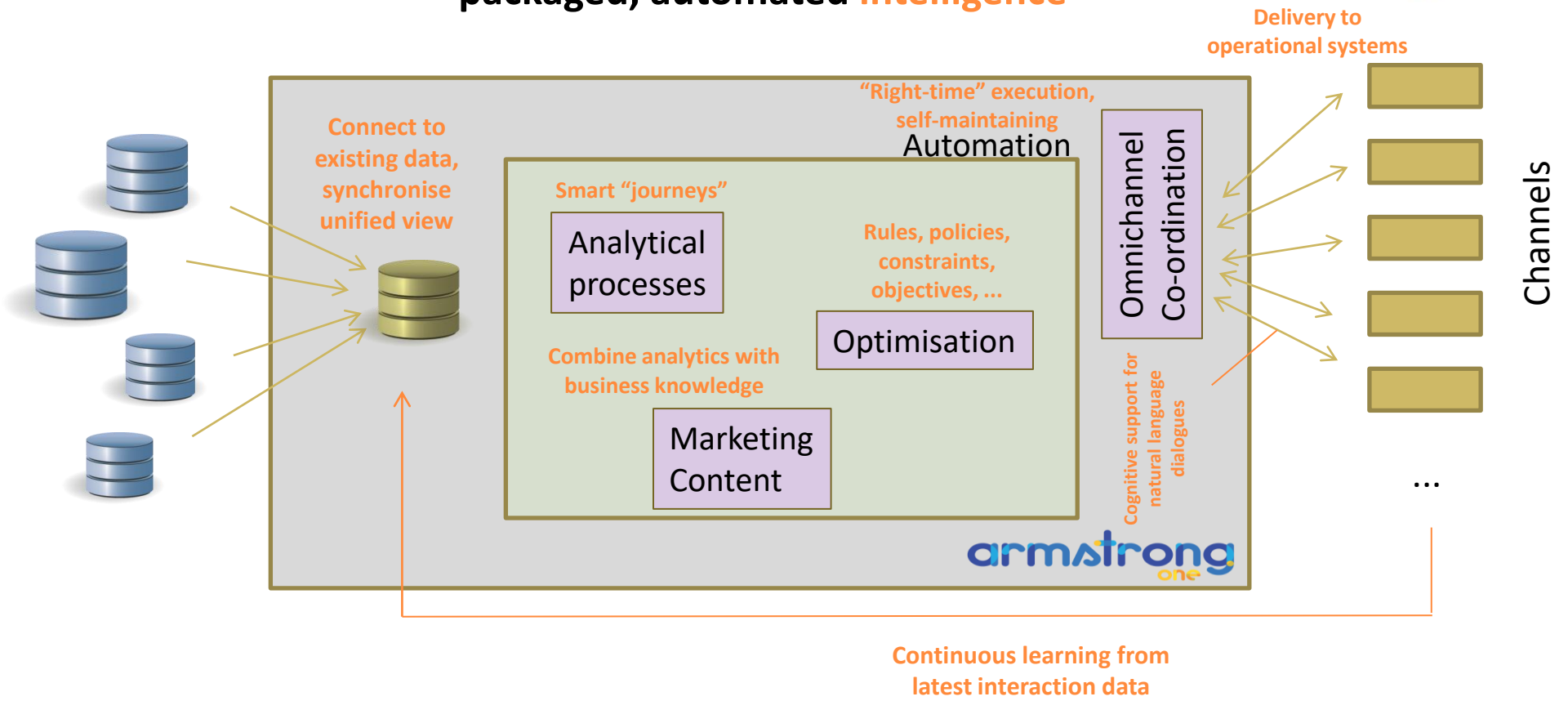
Add resource to monitor and maintain every model built

A “small step” to smart omnichannel marketing

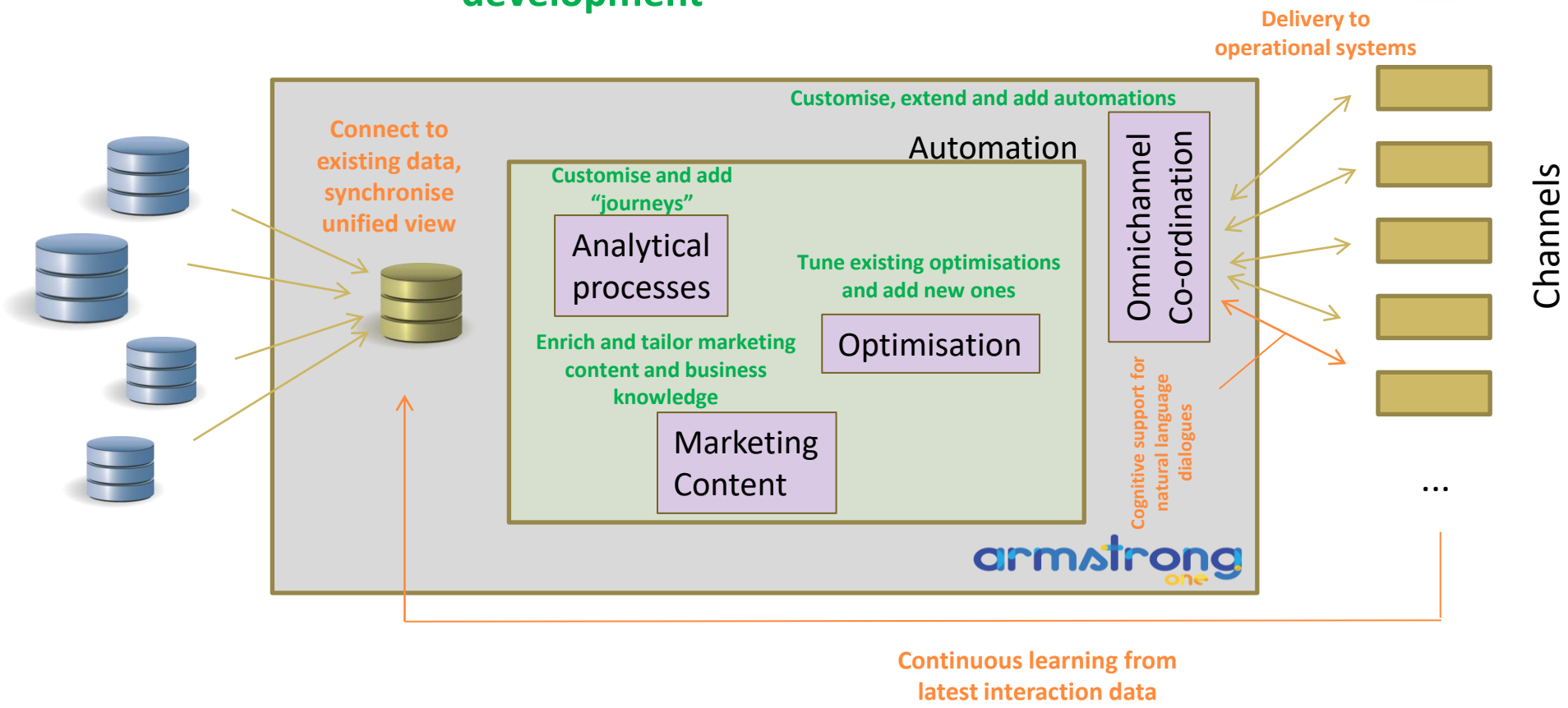
- Based on pre-defined, packaged analytical “journeys” that inject intelligence at key points in the customer lifecycle
- Quick and easy connections to data sources and to channels
- Cloud-hosted, automated, self learning
- Rapid time to value



Omnichannel marketing with packaged, automated intelligence



Open platform for extension and development



Succeeding with AI in Marketing: Key points to remember

- Don't fall for the "geek trap"
  - You won't get where you need to be just by throwing smart people and open source technology at your data
- Projects must be business driven
  - Address compelling pains
  - Never "let's see what we can find in our data"
- Emphasis on measuring and confirming value
  - Predictive technologies lend themselves to PoCs, "predicting the past" to give a good indication of value before deploying operationally
- Time to value is critical
  - Think big in terms of overall vision and potential... but start with quick wins to justify investment and fund expansion
- Select use cases where you can be confident of success
  - Target application areas with proven ROI

AI Driven Marketing:
What does the future look like?

Thank you!

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