

Welcome!

An Introduction to Analytics

7th February, IIT Kanpur

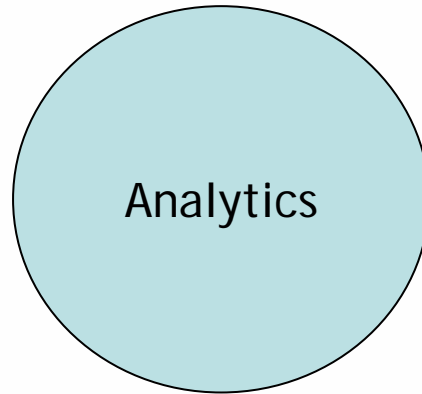
Who am I?

- Encore Capital Group
Assistant Vice President
May 2008 - Current
- Prudential Plc.
Management Trainee → Analyst → Assistant Manager
Oct 2005 - May 2008
- Corporate Executive Board
Research Associate
Jul 2005 - Oct 2005!
- B.Tech (MME), Class of 2005, IIT Kanpur

What is Analytics?

"The science of analysis"

Helps an entity (i.e. business) to arrive at an optimal or realistic decision based on existing data



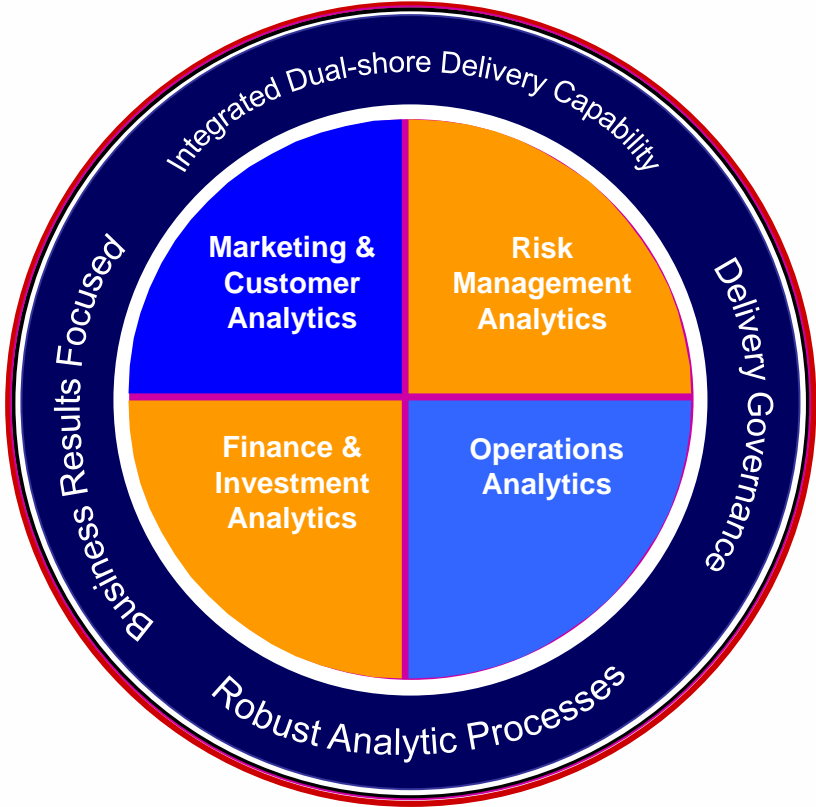
Business rules/logic

Study of business data using statistical analysis in order to discover and understand historical patterns with an eye to predicting and improving business performance

Analytics In India

- One of the highest value added off-shore services
- Rapid growth in India in the recent past
- Several companies have set up captive analytics centers
- Many third party companies have aggressive plans for growth
- The industry is expected to grow rapidly over the next few years
- You have the opportunity to get a head start on the next big thing!

Pan-Industry Application



Healthcare

Marketing

Banking

Insurance

Operations

Credit Cards

Retail

Investments

Human Resources

Diversified financial services

Firms in the industry

- Internal Analytics team

American Express	Citibank	HSBC	Standard Chartered		
Hewitt	HP	Fidelity	Amazon	Dell	RCI
Meritus	Prudential	ZS Associates	Barclays		

- Full-fledged Analytics firms

Inductis	Fractal Analytics	Fair Issac	Modelytics
Marketics	dunnhumby	Evalueserve	Kairoleaf
Cequity	AbsolutData	Mu-sigma	Symphony
Genpact			

Typical Tools and Techniques Used

- Techniques
 - Data Mining
 - Predictive Modeling
 - Time Series
 - Text Mining
- BI Tools/ Platforms
 - SAS, SPSS, ILog-Ciplex, MATLAB
 - VBA, Access, Excel, SQL, SYBASE
 - Classification and Regression Trees (CART), MARS

Case Study 1 : Credit Card Application Fraud Solution

developed a capability to effectively detect and manage application fraud for a top five consumer credit card issuer faced with growing application fraud losses

Background

Situation

- Top 5 consumer card issuer facing significant and increasing losses due to application fraud

Fraud Losses in New Accounts

Objectives

- Develop a fraud detection capability to identify high risk accounts effectively i.e. within the first few transactions

Approach

Our approach focuses on developing spend patterns using information in the first three transactions; like spend type, amount, time / location and scoring patterns based on fraud propensity

Pattern Fraud Score

Transaction	Attributes	Pattern Coding	Illustrative	
			Constructing Patterns (1 st 3 Transactions)	Scoring (Based on Fraud Rate)
Type	• Merchant e.g. Wal-Mart	• Merchant 60	A1C1E	900
	• SIC e.g. Gas Station	• SIC (2) 86	E1E4A	890
	• Anonymity e.g. Signed vs. Unsigned	• Digit 80	A1E4A	860
			A1A3A	780
Amount	• Size e.g. < \$10, 10-100	• \$1 A	E1A4E	700
	• Unique e.g., \$1, \$20, \$40, \$101.5	• \$10, 20 B	B1B1B	680
		• <\$10 C	D1D4E	669
		• \$10-\$500 D	E1010	678
		• > 509 E	D4B1D	567
Time	• Activation time	• < 1 min 1	D4D1D	564
	• Time between transactions	• 1-5 min 2	D1D10	340
		• 5-60 min 3		
		• 60 min+ 4		
Location	• Proximity to account address	• < 10 miles X		
	• Proximity of spend locations	• 10-50 miles Y		
		• 50+ miles Z		

Impact

Lorenz Curves

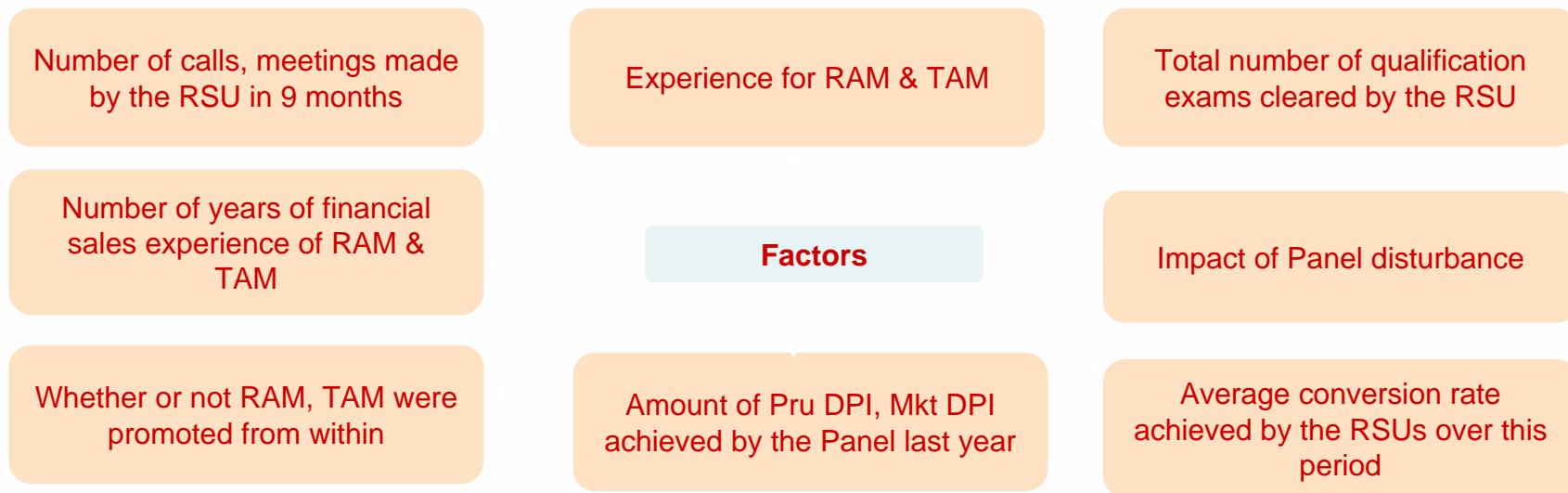
Pattern Fraud Score yields improved lift of over 300% over Falcon Score in identifying Application Fraud within the first three transactions

Lift Comparison At 1%

300% Improvement

Case Study 2: Top UK Insurer facing fluctuation in sales

Regional Sales units (RSUs) of a top insurer showed wide variation in sales achieved. We needed to unearth reasons why some RSUs are more successful than others.



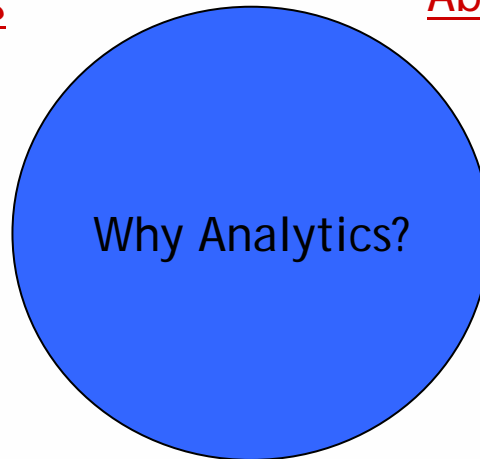
Factors	Avg. for Top 10 RSU	Avg. for Bottom 10 RSU	Correlation Coefficient (Pearson) Vs % Against Target	Correlation Coefficient (Kendall) Vs % Against Target
Conversion Rate	7.1%	2.6%	0.56	0.40
Total Qualification level	13	7.7	0.47	0.33
RAM's Experience	7.4	2.3	0.45	0.30
Meetings made	401	283	0.50	0.36

Why Analytics?

Business understanding

Ability to move to different industries

Extension of your logical skills



MS/MBA?

High remuneration

Travel internationally

Young, high energy industry

Hierarchy/Career Progression



VP, SVP, Director, Executive Director, Managing Director, CEO and so on!!!

Interested?

- Aptitude questions
- Puzzles
- Guesstimation case studies
- General consulting case studies
- Know the firm. Know the job.

Q&A