Ranalytics.vn

VPBank
Ngân Hàng Việt Nam Thịnh Vượng

Introduction to Business Analytics

Anh Hoang Duc
Email: hoangducanh89@gmail.com

Advanced Analytics team leader – VPBank
Cofounder of Ranalytics.vn

Oct, 2018

About me

- Data analysis instructor certified by Rstudio in Vietnam
- Head of Advanced Analytics Department, BICC, VPBank
- Founder of Ranalytics.vn
- Bsc & Ms. of Quantitative Methods in Economics, Warsaw School of Economics, Poland
- Personal website: anhhoangduc.com

CONTENTS

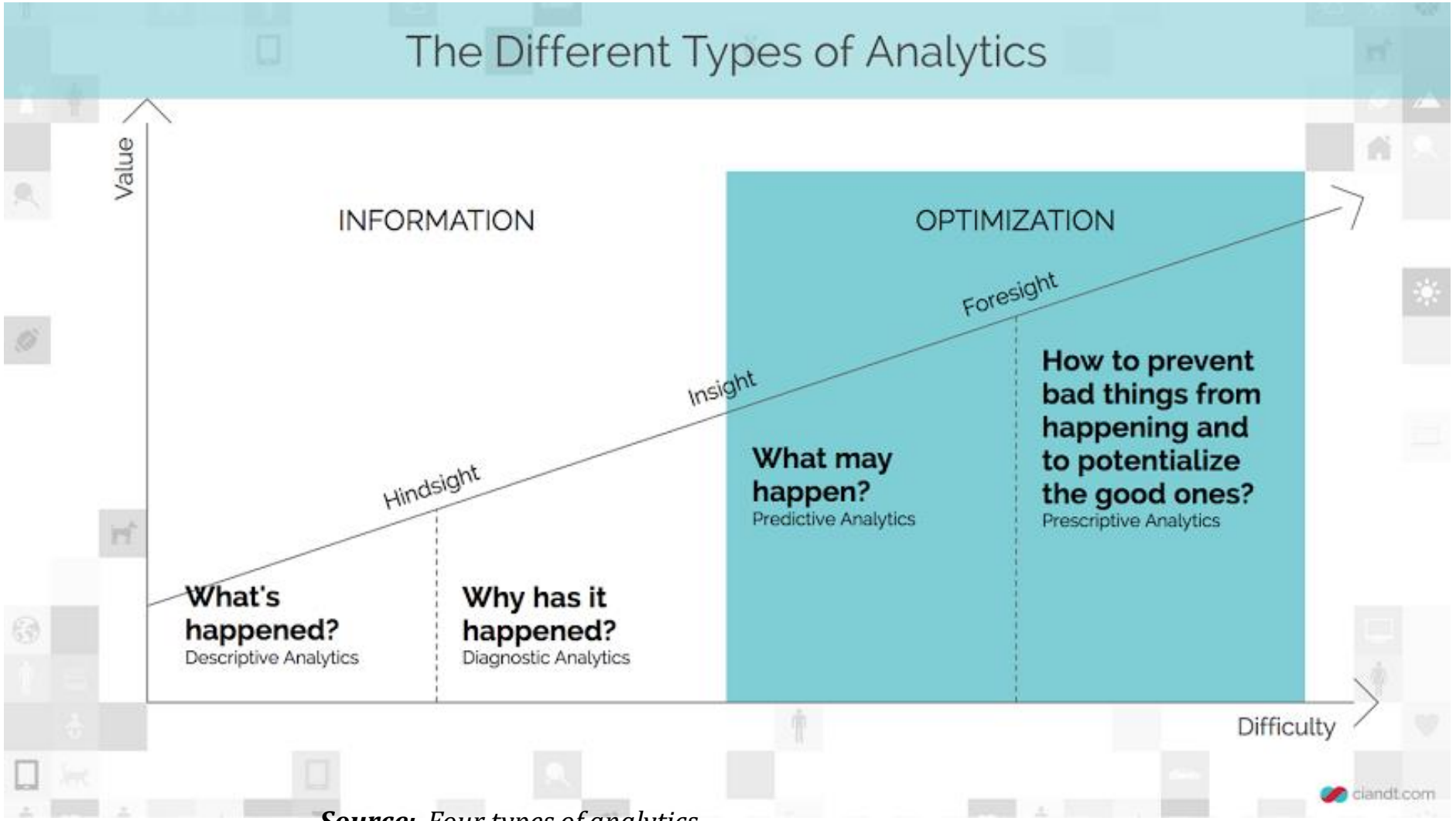
1 Introduction to Business Analytics

2 Case Studies in banking sector

3 Building analytics team

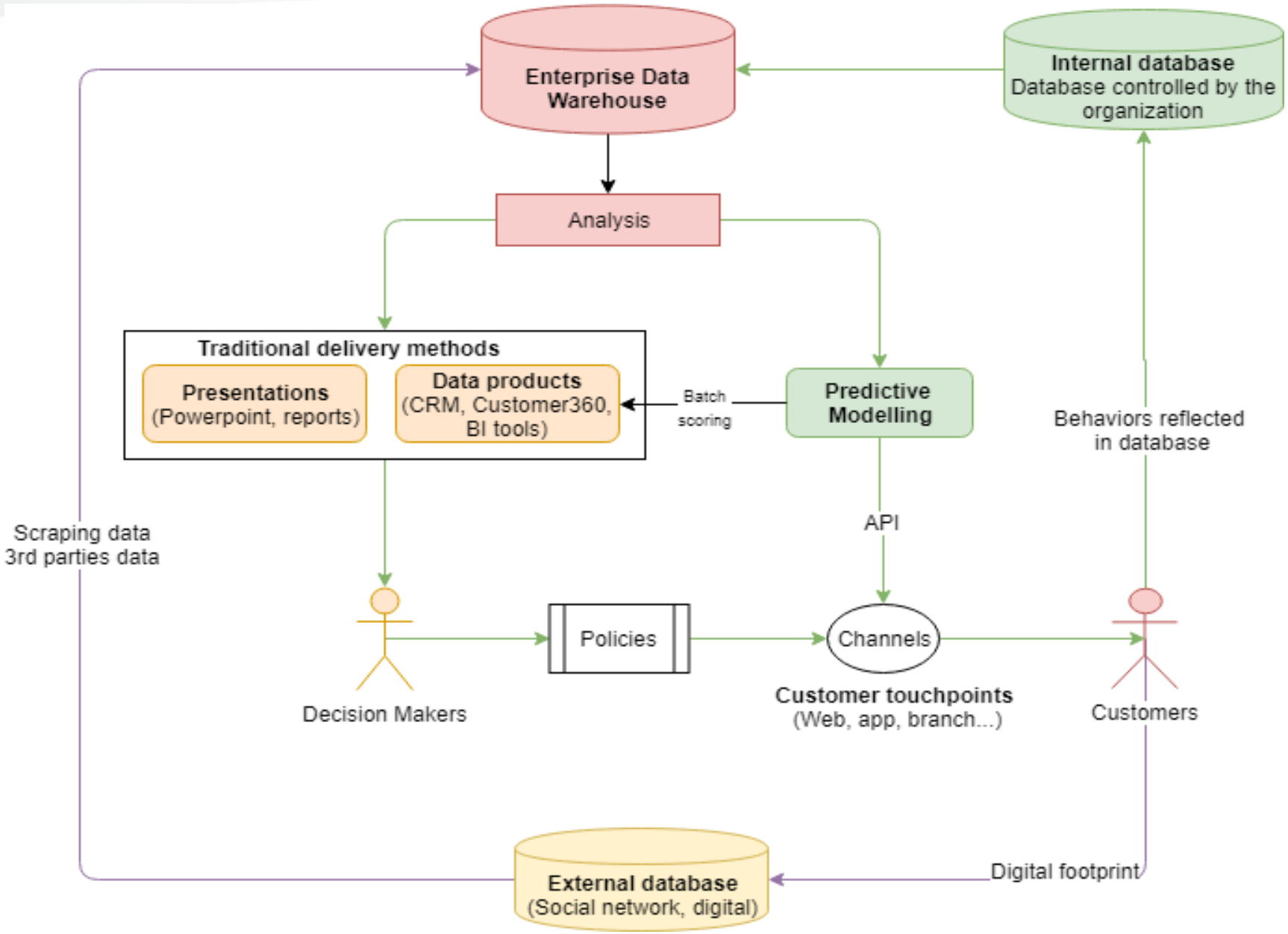
4 types of Analytics

Four Types of Analytics



Source: *Four types of analytics*
http://www.ciandt.com/card/four-types-of-analytics-and-cognition

Data Science Life Cycle



1. Introduction to Business Analytics

Business Intelligence vs. Business Analytics (sometimes: Advanced Analytics)

Data Analysis

Business Intelligence	Business Analytics
Business Intelligence is needed to run the business	*Business Analytics is needed to change the business.*
BI is focused on creating operational efficiency through access to real time data enabling individuals to most effectively perform their job functions. BI also includes analysis of historical data from multiple sources enabling informed decision making as well as problem identification and resolution.	*Business Analytics relates to the exploration of historical data from many source systems through statistical analysis, quantitative analysis, data mining, predictive modeling and other technologies and techniques to identify trends and understand the information that can drive business change and support sustained successful business practices.*

Source: *Pat Roche - Vice President of Engineering, Noetix Products - Magnitude Software*
https://www.betterbuys.com/bi/business-intelligence-vs-business-analytics/

1. Introduction to Business Analytics

Business Intelligence vs. Advanced Analytics (Business Analytics)

	Business Intelligence	Advanced Analytics
Orientation	Rearview	Future
Types of questions	What happened When, who, how many	What will happen? What will happen if we change this one thing? What's next?
Methods	Reporting (KPIs, metrics) Automated Monitoring/Alerting (thresholds) Dashboards Scorecards OLAP (Cubes, Slice & Dice, Drilling) Ad hoc query	Predictive Modeling Data Mining Text Mining Multimedia Mining Descriptive Modeling Statistical / Quantitative Analysis Simulation & Optimization
Big Data	Yes	Yes
Data types	Structured, some unstructured	Structured and Unstructured
Knowledge Generation	Manual	Automatic
Users	Business Users	Data scientists, Business analysts, IT, Business Users
Business Initiatives	Reactive	Proactive

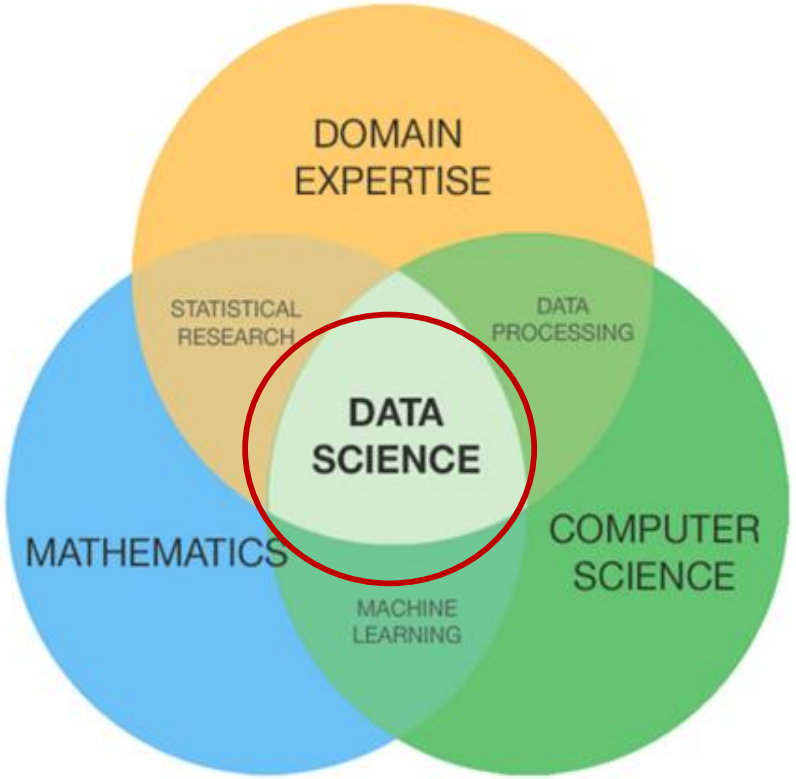
Source: *Rapid Miner – summarizing difference between BI & BA*
https://rapidminer.com/summarizing-differences-business-intelligence-advanced-analytics/

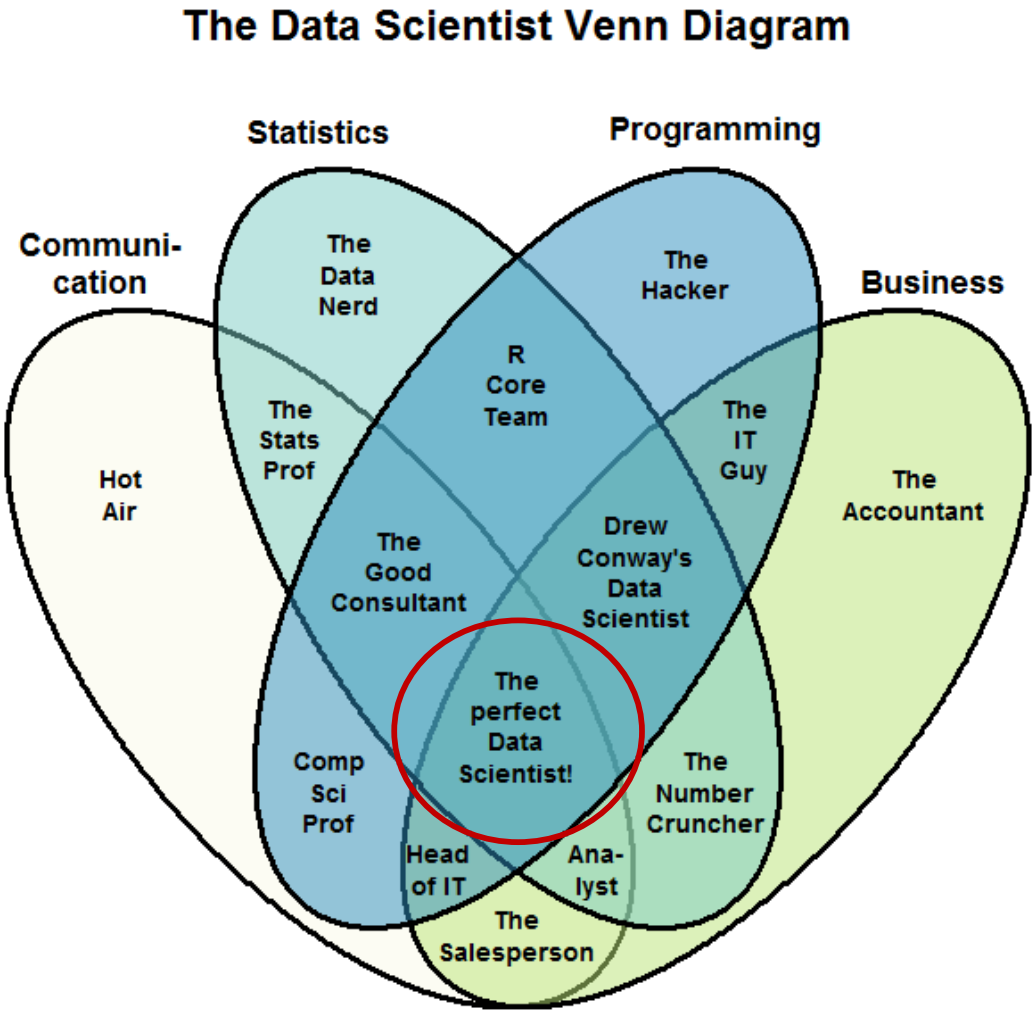
1. Introduction to Business Analytics

Attributes	Data Management Data Governance	Business Intelligence			Predictive Modelling
		Data provider	Information provider & basic insights provider	Advanced insights provider	
Function	Manage & govern data across organization	Provide data on requests from clients in the forms of reports	- Provide insights based on knowledge of Business & Data reporting Ex: *- Top 10% customers contributing to 80% TOI* *- Male are more sentive to interest than women* *- Sales in region 1 perform better than other regions because of more effective promotion campaigns*	- Provide deep insights of customer behaviors/ business performance using statistical techniques, sometimes requires advanced techniques Ex: *- Customers having at least 3 transactions with 2 months since opening internet banking are more likely to stay with the bank 20% more* *- Customers having average balance more than 2 mln. in 3 consecutive months are more likely to open a credit cards*	Predict customers behaviors, cluster customers into different segments for better personalization Ex: *- What is the chance that a customer might close credit card in the next 3 months* *- How can we segmentize credit card customers into different segments based on their behaviors?*
Techniques & tools	ETL & database administration tools	- Excel - SQL	- Mainly pivot table - Simple statistics, empowering with business knowledge - Excel - SQL - Statistical tools (R/SPSS/Stata)	- Data exploratory - Multivariate analysis - SQL for data extraction - R/Python for data exploration & analysis	- Machine learning - AI - SQL - R/Python/H2O/Spark

1. Introduction to Business Analytics

Data Science & Data Scientist





Source: http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram

CONTENTS

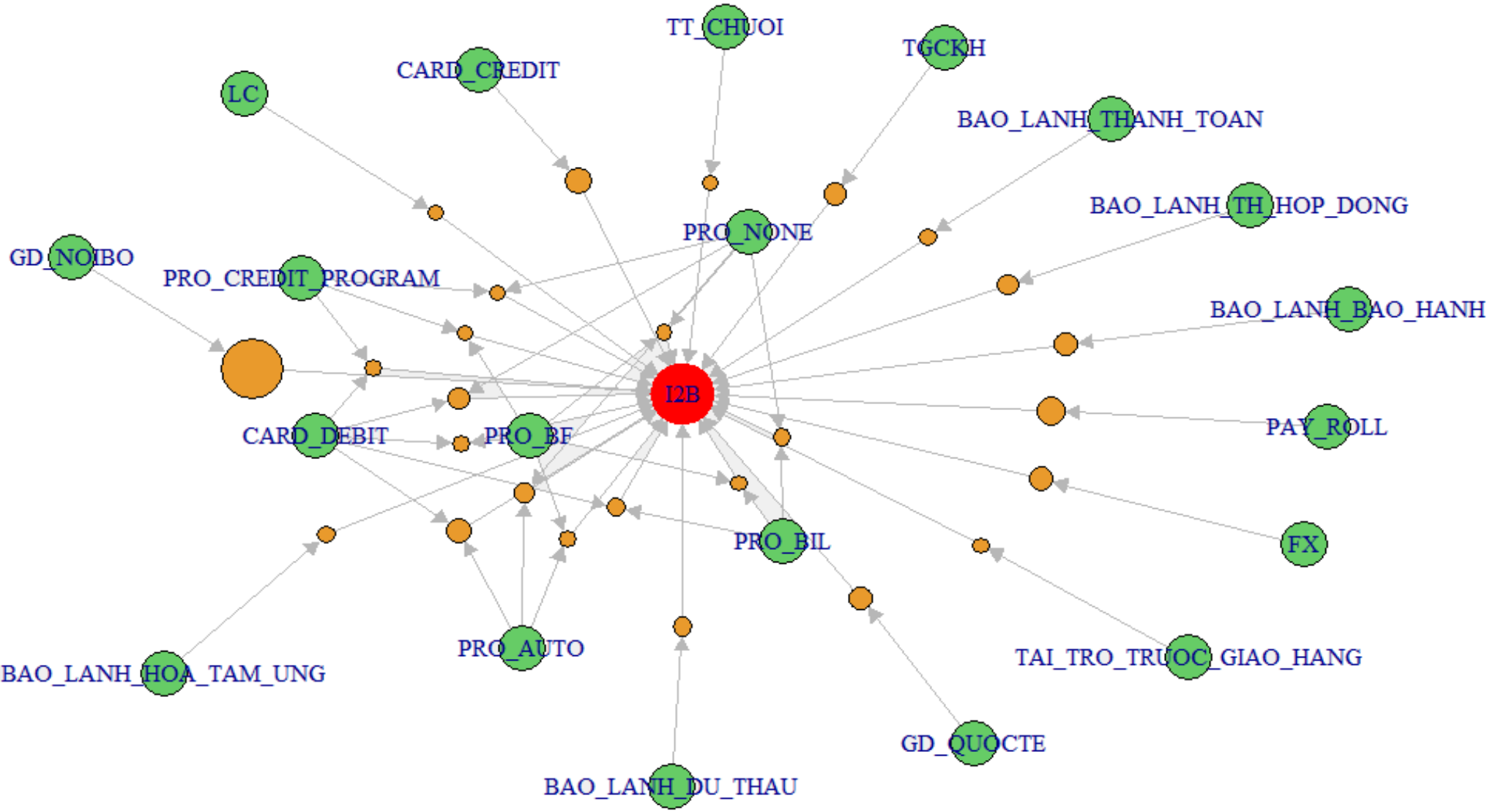
1 Introduction to Business Analytics

2 Case Studies in banking sector

3 Building analytics team

2.1 Case Study 1

Basket Analysis for Internet Banking



2.1 Case Study 1

VP Bank: Basket Analysis for I2B SMEs customers

No	Rules	Confidence	Support
1	{TT_CHUOI} => {I2B}	92.105%	0.087%
2	{TAI_TRO_TRUOC_GIAO_HANG} => {I2B}	74.359%	0.144%
3	{LC} => {I2B}	71.429%	0.112%
4	{CARD_DEBIT,PRO_NONE} => {I2B}	70.792%	0.709%
5	{GD_QUOCTE} => {I2B}	67.956%	0.915%

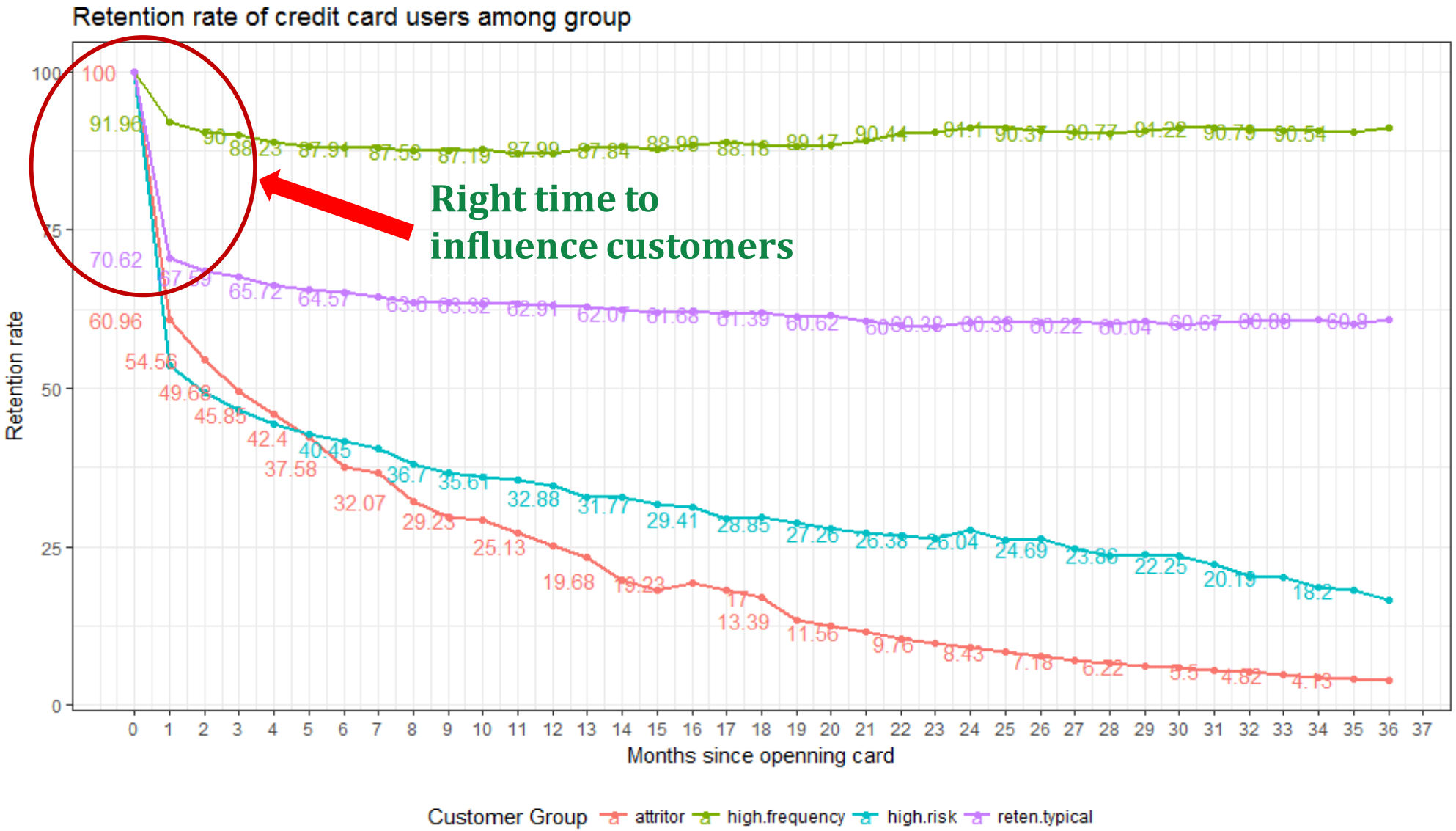
Explanation- Rule 1: {TT_CHUOI} => {I2B}

- There are **40,399** customers (or *"transactions"*)
- **Support 0.087%** means that 0.087% of all customers use **both** TT_CHUOI & I2B (40399 x 0.087% = 35 customers)
- **Confidence 92.105%** means that **92% customers using TT_CHUOI** are using **I2B** as well
- **Conclusion**: Customers using TT_CHUOI are very likely to use I2B

Results for cross selling: increase 300% in Conversion Rate of marketing campagin

2.2. Case Study 2

Evaluating Credit Card usage retention by customer segmentation



CONTENTS

1 Introduction Business Analytics

2 Case Studies in banking sector

3 Building analytics team

Thank you!