# AN OVER VIEW ON CONSULTING

Networked Collaborative AI Agents

netAIsys

AI Driven Networked Company

Division of

CRMportals

Business Intelligence

# A Sample of Advanced Analytics Projects

-Members of CRMportals Inc. and Institute of Analytics(USA)™ Tea

| Industry | Data Required | Sample KPIs for Prediction |
|---|---|---|
| Financial services (B2C)<br>**Retail Banking, insurance, investment services** | See some of the case studies discussed to see how different data sets were used; structured and unstructured data | 1. Retention, acquisition, cross-sell/up-sell, innovative products and services, expected economic values, elasticity models<br>2. NBO (Next best offer) – Banks typically have lots of different products. NBO is a serious challenge for any bank.<br>3. Also, train the organization on the value of analytics |
| Travel/Entertainment<br>**(Customer Intelligence)** | Customer complaints and sentiments using unstructured data vs. structured data | In a large conglomerate of network of hotels, analysis of direct input at the front desk of their needs vs. input in text format regarding their stay experience and segmentation of priority areas ("Themes") to address the opportunity areas. We also compared this with their survey data. This led to some important measurements in controlling social media expressions and validations |
| HR/Talent Management<br>**Acquisition of new talents, retention, and expected value of the talents and networks** | Resume, application data, HRIS system available data, social data, geo-demographic, sociographic data; structured and unstructured data | 1. Lifetime value of a candidate to the organization, (2) Likelihoods of 'culture and communication coefficients' on key human capital indices, (3) likelihoods of technical superiority, (4) likelihoods of social and emotional IQ, (5) network influence measures of employees |
| Health Analytics **(Direct to patient, Direct to physician, Quality Metics, Post Phase III CT), Pharma Marketing, Outcome research, hospital analytics, populationa and sub-population comparisons, side effects, and epidemics)** | Claims data, insurance premium, coverage; medication/ instruments/facility utilization data; hospital data; admissions and outcomes; geo-demographic, sociographic data; structured and unstructured data | Predictive models for (1) hospital infections, (2) likelihoods of readmission, (3) likelihoods of patient quality service and patient satisfactions. Performance and influence measures for Partner and physician services |

# Case1

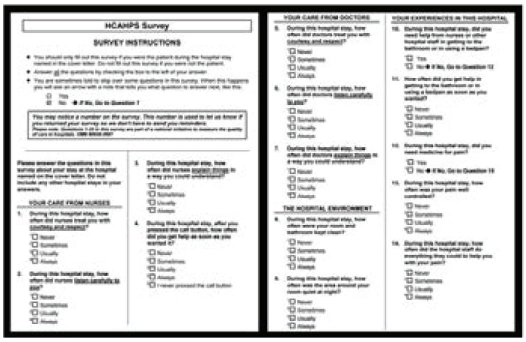
## Next Best Offer – Banking Application

Geo-demographic data


Transactions Data


Campaigns Data


Survey data


HCAHPS Survey

SURVEY INSTRUCTIONS

YOUR CARE FROM NURSES

YOUR CARE FROM DOCTORS

THE HOSPITAL ENVIRONMENT

YOUR EXPERIENCES IN THIS HOSPITAL

# Additionally, we have also executed projects that required propensity and brand models for a number of industries, combining geo-demographic data, transactions data, campaigns data, and survey data

CRMportals
Big Data Intelligence

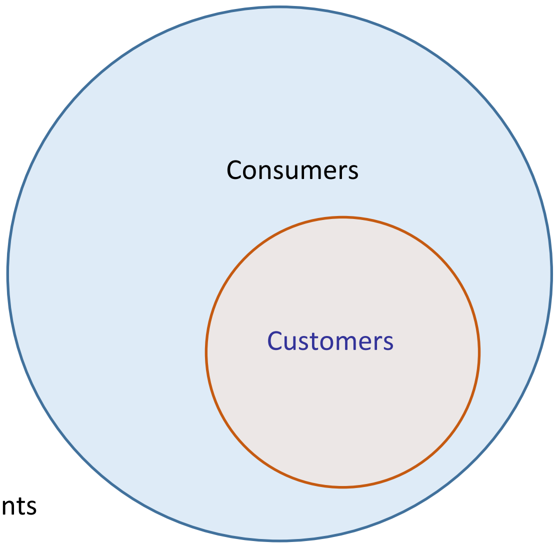
Institute of Analytics (USA)™
Big Data Intelligence Training
Nethra Sambamoorthi, PhD
Founder and Managing Director

## Usable Data for Propensity Models and Next Best Offer Models

### Customer Intelligence Applications and Consumer Applications

Common variables list that are useful for brand and product propensity models, Next Best Offer are the following. I use consumer to distinguish from customer as some one who is not the current customer but belong to the population who is likely to become a customer. Depending on acquisition model or loyalty models, the corresponding subpopulation will be scored.

**A.** Customer data internal to the franchise (A)
**B.** Customer transaction data elements (B)
**C.** Customer campaign data – promotions and responses (C)
**D.** Partner transaction data of the customers (D)
**E.** Partner campaign data – promotions and responses (E)
**F.** Customer survey data – attitudes and preferences (F)
**G.** Franchise product codes, and product category codes (G)
**H.** Consumer/customer geo-demographic-sociographic data elements (H)




To understand, in USA context, the national consumer database of geo-demographic-sociographic data, see NY Times article on a expository article. [http://www.nytimes.com/2012/06/17/technology/acxiom-the-quiet-giant-of-consumer-database-marketing.html](http://www.nytimes.com/2012/06/17/technology/acxiom-the-quiet-giant-of-consumer-database-marketing.html)

Transaction data and campaign data are internally available data in an organization or technically belongs to the franchise

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# Case 2

## Themes in Unstructured Customer Input
## – A Comparison of Direct Input vs. Social Media Input

### Unstructured Customer Input in Hotel Industry - Text analysis of social media

Customers provide input in various ways and one of the important ways that is common recently, is taking social media to express their experience about their stay. To a large extent, because of anonymity of the person, what they provide in social media have larger variation of emotional expressions with many shades.

Client also receives input at the front desk. Often the customers see the immediate benefits speaking with the front desk and their text/verbal inputs with tone and body language are very subtle. So the client wanted to compare the overall segmentation ("Themes") in the trends of the direct input vs. social media expressions

### Customer Input in Hotel Industry – Text Analysis

Client provided data on direct input vs. social media based input, collected from Twitter and Facebook.

We did segmentation analysis ("Themes") of direct input of text/tone/body language vis-à-vis social media analysis.

The trend analysis of these themes and their divergence or convergence between these two channels of input were used in understanding the customers and service at the counters as well as the customer perception of the status of the properties. Accordingly, the client was able to prioritize the work areas for faster and better ways of benefitting from customer input for corrective priorities and increased positive customer experiences.

The client mentioned that the analysis provided a deeper connection to their customers and now they have a better control of the social media channel for competitive operations

# Case 3

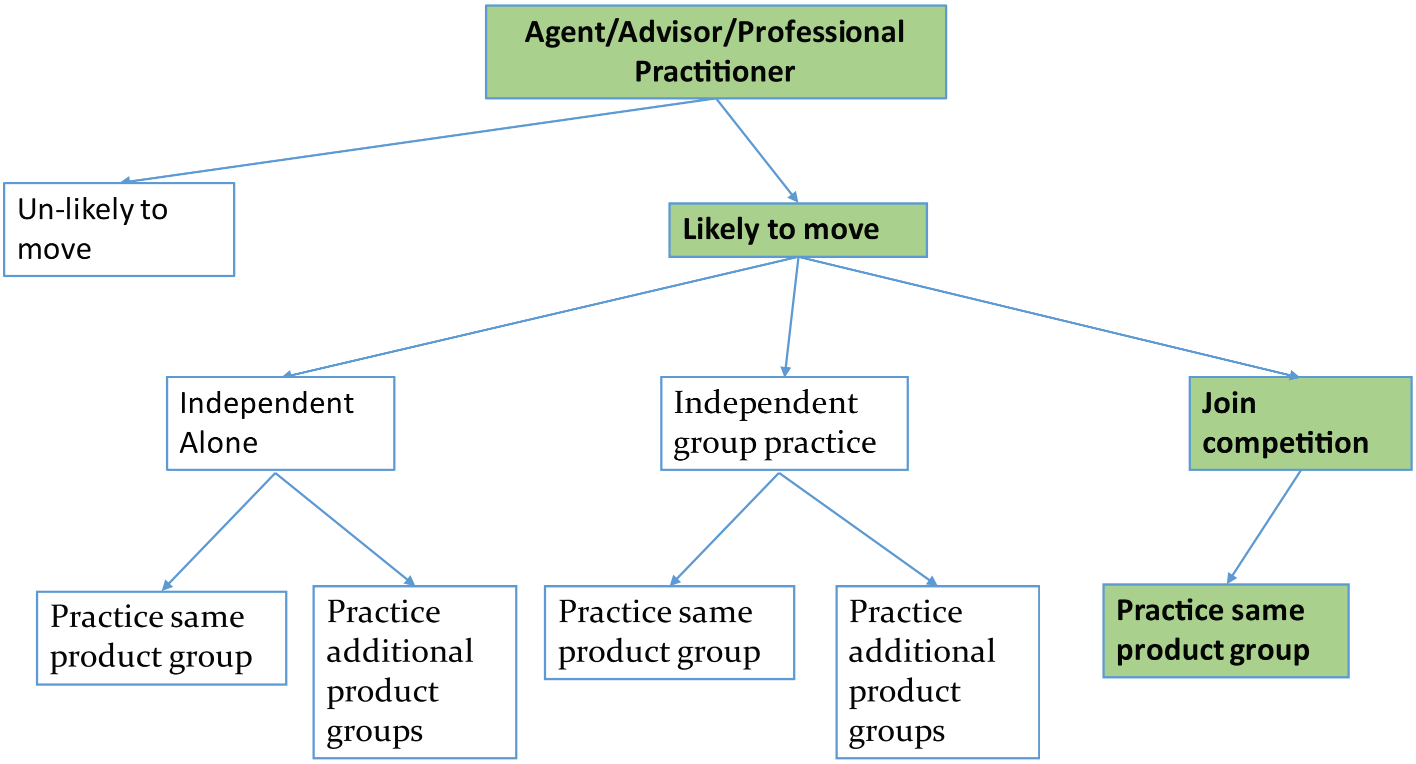
## Mover Model and Mover’s Next Action

### Sales/Advisor Mover Model and the Expected Business To Gain (to Loose)

**Which Advisor (Investment Services or Insurance or financial advisor or professional practice) is likely to move out (ideal for acquisition/retention – depending on who is acting) of franchise sales network and how much portfolio value will be lost (gained)?**

- This integrated two predictive supervised models
  - Move vs. Not-Move model and subsequent action nodes
  - AUM (Assets under management) model
- Based on this predictive model, client was able to target so well that they finished their year-long advisor’s acquisition plan in 3 months
- Additionally, the top two investment advisors brought in $500 million dollars of worth of AUM
- The client was saying that this was their best work in the last 30 years and it was a news article
- Subsequent to this, the consulting practice was able to sell 5 similar projects among investment services companies in six months

# TARGETS FOR ACQUISITION and RETENTION




# Data Sources

- Investment advisor professional data from SEC.GOV
- Investment advisor geo-demographic data from data accumulator
- Census block level data

Variations of this type of model is usable in any sales network or professional groups (insurance agents/physician practice group/financial advisors/sales professionals)

# Case 4

## Strategic Segmentation for a top Technology Company for Strategic Planning and for 1to1 CRM

- The client is a top 5 technology company interested in converting a strategic marketing segmentation scheme into a 1-1 CRM applicable classification scheme
- Marketing segmentation schemes are macro level schemes, and are not applicable at individual level for B2C applications
- Having a million plus dollars segmentation scheme, but usable only for strategic directional applications and not one to one tactical CRM applications is a common problem in marketing
- The client wanted to convert their strategic segmentation scheme for 1-1 tactical CRM applications
- Data Sources:
    - The client provided their segmentation scheme and wanted to create rules for projecting the segmentation scheme at individual consumer level
    - comScore click data (a select balanced national representative of 100,000 individual (web) surfers data was used to enhance with
    - Geo-demographic third party data (having 1000+ variables)

# Impact CRM Application - Projection of Multi-Class Strategic Segmentation Scheme

- We used multiple predictive methods such as discriminant analysis, multinomial logistic, and random forest with boosting to build this supervised projection algorithm
- In a 10 class applications, the algorithm was predicting 2.5 times better in the top three key segments compared to the random occurrence. For 290 million plus accounts, this provided opportunity to work with 121 Million higher income accounts accurately to support a one-one CRM relationship.

# Forrester Technographics® Segmentation Scheme

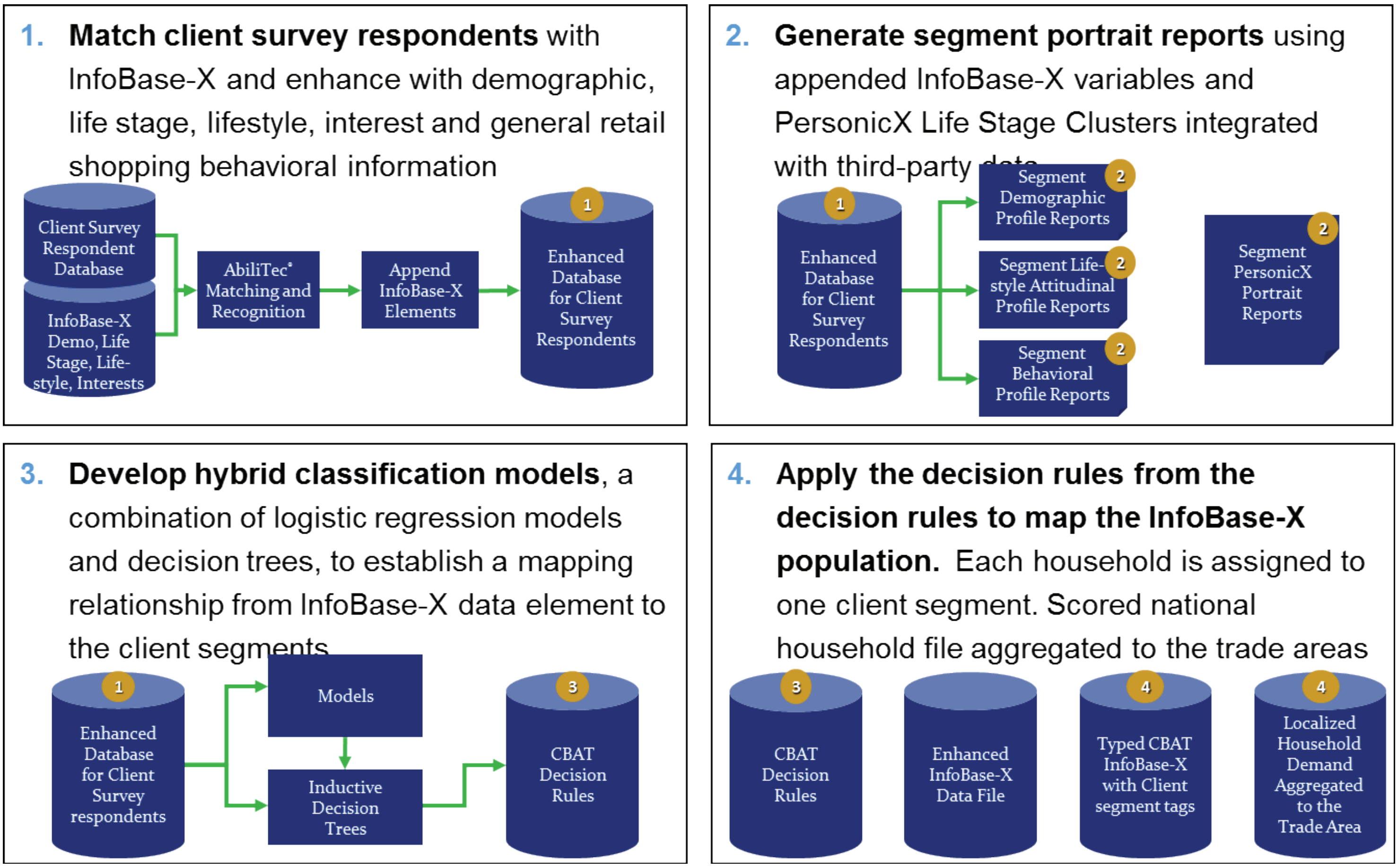
**Primary motivation**

| Technology attitude | | | **Career** (26%) 57.8 million | **Family** (25%) 55.1 million | **Entertainment** (25%) 55.8 million |
|---|---|---|---|---|---|
| Technology optimist (56%) 125.4 million | | High income | **Fast Forwards** are time-strapped, driven, and top users of technology. 14% 31 million | **New Age Nurturers** are underserved believers in technology for family and education. 9% 19.5 million | **Mouse Potatoes** are dedicated to interactive entertainment, especially on the PC. 11% 25.6 million |
| | | Low income | **Techno-Strivers** are up-and-coming believers in technology for career advancement. 6% 13.8 million | **Digital Hopefuls** are family-oriented technology lovers: a promising market for low-cost PCs. 6% 13.7 million | **Gadget Grabbers** are focused on low-cost, high-tech toys like MP3 players and portable game players. 9% 19.1 million |
| Technology pessimist (43%) 97.4 million | | High income | **Handshakers** are successful professionals with a low technology tolerance. 6% 13 million | **Traditionalists** are suspicious of technology beyond the basics. 10% 21.8 million | **Media Junkies** are visual TV lovers and interested in TV features like video on demand. 5% 11 million |
| | | Low income | **Sidelined Citizens** are technophobes and technology laggards, the least receptive audience for any technology or digital channel. 21% 47.9 million | | |

Base: 37,226 US individuals

*Percentages may not equal 100% because we did not include those who didn't respond to all included questions
Source: North American Technographics Benchmark Survey, Q2 2010 (US, Canada)

# CBAT – A National consumer database,
# Survey Research Infused Targeting Approach




In a live executives present, in-house in-presentation testing, our algorithm identified correctly, 8 out of 10 times!

# Case 5

## Auto Insurance Loyalty Program Management

- The client was loosing close to 15% every year in their auto insurance account base
- The Senior Management asked for a customer intelligence based loyalty program management to improve loyalty of the customers. The client had million plus auto insurance accounts at any point in time.
- The client premium base was close to 4 Billion dollars in today's dollars
- We selected balanced sample of current customers and the customers who left the organization in the last six months
- Hired a sample survey organization. We collected behavioral and attitudinal survey data from these accounts. We also collected data on claim experience, premium data from internal systems, customer experience data.

## Impact

- Client Improved Annually 2% in their Retention Efforts in dollar terms
- In today's dollar terms, it is $30 Million dollars in premium impact with close to 20,000 accounts, annually.

# Case 6

## Leveraging Pharmaceutical Product Marketing Addressing Privacy Concerns

### Patient Acquisition and Patient Loyalty Program

- The direct to patient communications, approved by FDA raised opportunities for pharmaceutical manufacturers to do direct marketing to patients.
- The lifestyle product manufacturer was one of the first and we had the opportunity to work on this innovative, as the first to address the market for a lifestyle product
- Privacy issues were the concerns of the client, the industry, and the government organizations
- We invented a way of getting complete personal information with out violating the confidentiality of PII in the work processes
- This facilitated the ability to figure out look-alike members of lifestyle product users, in the national database

### Patient Acquisition and Patient Loyalty Program...Continued

- Crunching 55 Million select records with 1000 plus geo-demographic, socio-graphic variables, we were able to come down to 1 Million records where we were able to net close to 330,000 actual product users.
- This resulted in the net market  yield of $45 MM in today's dollars on the acquisition side, as a one time yield.
- This one time analytics impact was accruing with an annual yield of $30 million dollars on the compliance side, until further revisions

# Case 7

## A vast collection of Regular Student Projects

## A Sample Collection of Joint Works on the Academic Side With One of The Latest Term...

Click on the embedded PDF document below, which will open the full document – The Student Project Experiences are Widely Distributed on Topics

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Spring 2016 - LIST OF CAPSTONE PROJECTS

PREDICT 498 – Instructor and Project Advisor - Nethra Sambamoorthi, Ph. D

| Number | Team Name | Topic Name | Communication/ Analytics Lead | Data/Analyst Lead1 | Data/Analyst Lead2 | Data/Analyst3 Lead |
|---|---|---|---|---|---|---|
| 1 | Georgia | Bundling Products – A New Growth Strategy Using Term Deposit and Credit Cards at the PNC Bank | Adeline Rassas | Sung Park | Joshua Peng | Travis Sari |
| 2 | California | Designing Marketing Strategies and Solutions for KaVo Kerr Group, A Global Dental Products Company | Stephen Smirl | Alex Thomas | Matt Cormett | Nagabrindha Thiru Sridhar |
| 3 | Hawaii | Health Disparity Analysis of Lead Poisoning Levels In Chicago Housing Market | Anne Seaman | Carlos Ardilla | John Nation | Bradley Price |
| 4 | Illinois | Analyzing Suitability of EMA401 as Viable Replacement for Opioid Medications | Dominick Tornabene | Paul Lee | Rita Petherbridge | Ni Ni Tint |