We help our clients deliver Intelligent Experiences powered by Human-Centered Design at scale
Creating insights and value from data

January 2019
Gwellyn Daandels
Assistant VP Cognizant Digital Business
Let’s talk about…

Steps to create value
Ways of creating value
Examples of creating value
Data driven organization
Steps to create value… No rocket science here

1. Get the data
2. Is the data any good
3. Be in-control of your data
4. Analytics create insights
5. Unlock the insights to create value
Steps to create value… No rocket science here… or is there?

1. Get the data
2. Is the data any good
3. Be in control of your data
4. Analytics create insights
5. Unlock the insights to create value

• Do we have all the data we need?
• When working end to end what does that mean for data quality?
• GDPR enforces a broader perspective on data governance
• Speed of analytics/latency of decision making has become a competitive factor, what are the implications?
• Delivering value means serving all of us, not only the knowledge workers, how do we do that?
Let’s talk about…

Steps to create value

Ways of creating value

Examples of creating value

Data driven organization
Ways to create value

Optimize

Transform

Disrupt

Time to value
Let’s talk about…

Steps to create value
Ways of creating value
Examples of creating value
Data driven organization
Optimize

Optimize current operations; grow existing business; reduce cost
Automated structure design reducing overall engineering hours and material cost for a leading civil engineering specialist

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>Automated Jacket design through an AI driven platform for inspired engineering designs, supporting enhanced delivery from the expert engineers</td>
<td>Implement a hybrid AI algorithm – utilising parallelised Azure environments with automated communication with 3rd party CAD and structural analysis packages</td>
<td>Projected 30-50% reduction in engineering hours and around 2% reduction in cost of materials. 3-6 months reduction in EPC schedule, greatly improving competitiveness</td>
</tr>
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</table>
Preventive maintenance with drone analytics

Manually analyzing thousands of images from drones to proactively monitor the health of grids and power lines and reduce transmission and distribution losses

Platform based solution leveraging BigDecisions AI for rapid time to value: training models on images and accurately identifying faulty power cables/insulators

Reduced 30% manual efforts and operations cost with automatic detection of faults and raising of tickets/alerts.
Transform

Transform to serve the (digital) customer better; move into new channels, regions, and adjacent customer needs
Leading UK Based Bank improved collections efficiency through actionable analytics insights

**Challenge**
- Customers perceive collections and recovery agents as irritants (generally), and insensitive (in extreme situations) as they continuously call to follow up on payment delays

**Solution**
- Outreach channels (Dialer, IVM, SMS, Email) were analysed for prior two years
- Predictive models generated an optimized next best action for customers currently in collections and provided key characteristics and segmentation analysis

**Benefits**
- Improved collections & recovery effectiveness by optimizing channels for customer out reach
- Reduction in outbound dialer volume £2m; Reduction in IVM £290k

Company saw huge reduction in ineffective communications, improvement in collections efficiency and minimization of negative customer experience.
## Big Decisions 4.0 - Cognizant’s AI platform

### Leveraging Cognitive
Making the platform support itself – totally hands-off

### Insights for All
Enabling analytical democracy across the organization. For business users, analysts and data scientists.

### Leverage Universal Data
From structured data to complex, fast digital data. Robust Information Architecture to support all analytics needs.

### Scalability & Flexibility
Harness the power of Cloud. Or deploy on premise.

### AI Capabilities
- **Computer Vision**
- **Speech & Audio Processing**
- **Natural Language Processing & Generation**
  - Named Entity Recognition
  - Topic Modeling
  - Information Extraction
- **Knowledge Graphs | Inference Engine**
- **Analytical Pipeline Using ML Framework**

### AI Engines
- **Deep Learning Framework**
  - Tensorflow
  - Keras
  - Theano
  - DL4J
  - Caffe
  - CNTK
  - Darknet
  - Torch
- **Deep Learning Studio & Interactive Analytics Workbench**
  - Sandbox
  - Statistical Algorithms
  - Machine Learning & AI
- **Data Discovery and Exploration Workbench**
  - Self-service
  - Unified View
  - Search
  - Ad hoc

### Information Architecture
- **Smart Connectors**
  - Industry Specific
  - Cross-Industry
  - Custom
- **Data Integration Workbench**
- **Data Storage**
- **Knowledge Graph Data Models**
  - Alert & Monitoring
  - System Telematics
  - Metadata Workbench

### Analytics Infrastructure
- **Infrastructure Provisioning (AIOPS\DEVOPS)**
  - Provision
  - Deploy
  - Schedule
  - Monitor
- **Public Cloud**
- **Multi-tenant Hosted**
- **On Premise**
Delivering relevant and personal customer interactions

You should know me by now!
Consumers expect brands to recognize them and provide a personalized experience.

Ready or not, here I come!
Consumers want to engage brands whenever and wherever the need arises.

My Magic Wand
1,500 times/week: average user picks up their phone 140 Tasks completed per day by smartphone owners

I’m bored, entertain me!
Brands are competing for consumer attention. Digital differentiation is key.
Pre-Purchase Case
Google home conversational interface for Transavia.com

Transavia is constantly looking for new ways to connect with their customers and offer relevant experiences throughout the whole journey. Voice interfaces are shaping the way we experience brands and use their services. Mirabeau helped identify new service opportunities and created an intuitive voice experience that helps people kick start their travel plans.

Our research showed that people don’t have a set destination or travel period in mind. By talking to Transavia’s Voice Assistant, you can easily explore destinations based on budget, or destination type, and book your ticket.

Watch the demo: https://youtu.be/kP0NYQu0OEQ

Technology used: Home (hardware), Dialogflow, Transavia API, Azure bot services / Cognitive services, Google’s cognitive services
Disrupt

Drive disruption; develop new business models; target new types of customer and needs (not strongly linked to existing business and may disrupt it)
Marrying Thick and Big Data represents a new paradigm for analytics
Using human science to create new insights and data science improved algorithms

<table>
<thead>
<tr>
<th>Human Science</th>
<th>Data Science</th>
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</thead>
<tbody>
<tr>
<td><strong>Thick Data</strong></td>
<td><strong>Big Data</strong></td>
</tr>
<tr>
<td>Meaning and Context</td>
<td>Events and Actions</td>
</tr>
<tr>
<td>Source</td>
<td>Source</td>
</tr>
<tr>
<td>Generated by people adept at observing human behavior and its underlying motivations</td>
<td>Generated by the millions of touch points companies have with customers</td>
</tr>
<tr>
<td>Strength</td>
<td>Strength</td>
</tr>
<tr>
<td>Establishes hypotheses about why people behave as they do</td>
<td>Can easily be operationalized and used in real time</td>
</tr>
<tr>
<td>Limit</td>
<td>Limit</td>
</tr>
<tr>
<td>Cannot drive automated processes—relies on people for interpretation</td>
<td>Can't explain why we do what we do</td>
</tr>
<tr>
<td>Key characteristics</td>
<td>Key characteristics</td>
</tr>
<tr>
<td>Rich, Revealing, Relational, Real</td>
<td>Volume, Variety, Velocity, Validity</td>
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Understanding fraudulent behavior by spending time with credit card criminals in The Bronx, NYC

Case: A new angle on understanding consumer credit card fraud

- Rather than look for non-normal cardholder behavior, we wanted to see what would happen if we configured the analytics to scan for normal fraudster behavior.

- We went deep—spending two weeks with twelve fraud operations and a handful of fraud victims and experts—to understand what the world looks like from the fraudsters’ point of view.
Seeing the world anew reveals what’s actually going on
Starting with Thick Data uncovers opportunities for new solutions…

<table>
<thead>
<tr>
<th>Findings</th>
<th>Insights</th>
<th>Opportunities</th>
<th>Potential Solutions</th>
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<tbody>
<tr>
<td><strong>Acquiring cards</strong>: Buying and testing new cards is time consuming and tiresome</td>
<td><strong>Fraud is too easy</strong>&lt;br&gt;Exacerbating fraud’s key pain points could make it a grind that deters potential fraudsters</td>
<td><strong>Disrupting the fraud business model</strong></td>
<td>Make the value of stolen credit card info more uncertain</td>
</tr>
<tr>
<td><strong>Buying goods</strong>: Validating identity through history and behavior is difficult</td>
<td></td>
<td></td>
<td>Create more behavior and history based security mechanisms</td>
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<tr>
<td><strong>Selling goods</strong>: Picking up goods is the riskiest and least adaptable part of the process</td>
<td></td>
<td></td>
<td>Scrutinize and verify shipping addresses used at online vendors</td>
</tr>
<tr>
<td><strong>Speed of execution</strong>: Stolen info is a rapidly depreciating asset that must be used quickly</td>
<td><strong>Fraud is a predictable business</strong>&lt;br&gt;The need for speed and liquidity creates patterns in fraudsters behavior</td>
<td><strong>Predicting fraudulent purchasing behavior</strong></td>
<td>Identify fraudulent transactions based on its speed and rhythm</td>
</tr>
<tr>
<td><strong>Large scale</strong>: Fraudsters must purchase goods that become inventory ideal for resale</td>
<td></td>
<td></td>
<td>Create purchase indicators based on liquidity, volume, and value</td>
</tr>
<tr>
<td><strong>Other signs</strong>: There are other several good indicators of fraudulent behaviour</td>
<td></td>
<td></td>
<td>Create purchase indicators based other behavioural characteristics</td>
</tr>
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Opportunities

- Make the value of stolen credit card info more uncertain
- Create more behavior and history based security mechanisms
- Scrutinize and verify shipping addresses used at online vendors

Potential Solutions
Resulting in big data models and algorithms based on contextual analytics
...delivering insights and algorithms with greater clarity, reliability and actionability

Case: A new angle on understanding consumer credit card fraud

**Opportunity**

Disrupting the fraud business model by scrutinizing and verify shipping addresses used at online vendors

Picking up physical goods is the riskiest and least adaptable part of the process.

**Data Requirements**

<table>
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<th>Data Source</th>
<th>Owner</th>
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<tbody>
<tr>
<td>Cardholders historical and real-time online transactions</td>
<td>CC Issuer, Retailer (subset)</td>
</tr>
<tr>
<td>Shipping Company data</td>
<td>UPS, Fedex, DHL, etc.</td>
</tr>
<tr>
<td>Real Estate data (mortgage and consumer data)</td>
<td>CoreLogic, Zillow, Trulia, etc.</td>
</tr>
<tr>
<td>Online data</td>
<td>Craigslist, Backpage, etc.</td>
</tr>
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**Potential Machine Learning Techniques**

- Bayesian Reasoning
- Classification
- Anomaly Detection
- Pattern Mining
- Others

**Primary Customer**

Credit Card Issuer

Online Retailer
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Data driven organization
What it means to be a data driven organization

- Discover Value and Prioritize
  - Discover / Think big
  - Ideate and Prototype
  - Pilot & Scale
- Hypothesis Generation
- Artificial Intelligence as Part of the Product
- Innovation Accounting
- Bsn. Performance
Thank you

Gwellyn Daandels
gwellyn.daandels@cognizant.com