Disruptive Digital Technology
Cause, Impact and Opportunities for the Outdoor Industry

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European Outdoor Summit, Barcelona
29 September, 2016
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Donna is a recognised industry expert in information management with over 20 years of experience in data strategy, information management, data modeling, metadata management, and enterprise architecture. Her background is multi-faceted across consulting, product development, product management, brand strategy, marketing, and business leadership.

She is currently the Managing Director at Global Data Strategy, Ltd., an international information management consulting company that specialises in the alignment of business drivers with data-centric technology. In past roles, she has served in key brand strategy and product management roles at CA Technologies and Embarcadero Technologies for several of the leading data management products in the market.

As an active contributor to the data management community, she is a long time member of International Data Management Association (DAMA) and is the President of the DAMA Rocky Mountain chapter.

She has worked with dozens of Fortune 500 companies worldwide in the Americas, Europe, Asia, and Africa and speaks regularly at industry conferences. She has co-authored two books: *Data Modeling for the Business* and *Data Modeling Made Simple* with *ERwin Data Modeler* and is a regular contributor to industry publications such as DATAVERSITY, EM360, & TDAN.

When she’s not running up a mountain, she can be found skiing down one. She can be reached at donna.burbank@globaldatastrategy.com

Donna is based in Boulder, Colorado, USA.

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When I’m Not Doing Data Management

Swiss Alpine Marathon
Agenda

Data-Driven Digital Transformation

• How data-driven digital technology is transforming business.
  • New business models are emerging
  • Optimizing existing business models

• How disruptive technologies are entering the business landscape
  • Big Data
  • Artificial Intelligence
  • Internet of Things

• Integrating traditional technologies for maximum value
  • 360 customer & product views
  • Data Quality
  • Data Warehousing, etc.

• Real-world success stories from multiple industries that can have practical applications in the outdoor sports marketplace.
The Outdoor Recreation Economy

The Importance of Good, Relevant Data

646 billion in Outdoor Recreation Spending

- Outdoor Recreation Product Sales = 120.7 B
- Travel-related spending = 524.8 B

$120.7 billion US Outdoor Recreation Product Sales

European Outdoor Retail Market

€10.6 billion in 2015 with 1.4% growth.

What do you mean by “Outdoor Recreation Spending”

That number seems high, what was the source?

How is that relevant to me?

Thanks! This is useful!
Digital Transformation is Driven by Data

The Importance of Good, Relevant Data

• To be useful & actionable, data must be:
  • Well-defined
  • Placed in context with other data
  • Relevant to the user

• Digital Transformation is largely driven by Data
How can we Transform our Business through Data?

**Business Optimization**  
**Becoming a Data-Driven Company**

- Making the Business More Efficient
  - Better Marketing Campaigns
    - Higher quality customer data, 360 view of customer, competitive info, etc.
  - Better Products
    - Data-Driven product development, Customer usage monitoring, etc.
  - Better Customer Support
    - Linking customer data with support logs, network outages, etc.
  - Lower Costs
    - More efficient supply chain
    - Reduced redundancies & manual effort

**Business Transformation**  
**Becoming a Data Company**

- Changing the Business Model via Data – data becomes the product
  - Monetization of Information: examples across multiple industries including:
    - **Telecom**: location information, usage & search data, etc.
    - **Retail**: Click-stream data, purchasing patterns
    - **Social Media**: social & family connections, purchasing trends & recommendations, etc.
    - **Energy**: Sensor data, consumer usage patterns, smart metering, etc.

How do we do what we do better?

How do we do something different?
The Changing Customer
A 360 Degree View through Data

Stefan Krauss
Age = 31

Occupation = Ski Instructor

Address = Pontresina, Switzerland

Member of Loyalty Program since 2010

Purchased €500 in outdoor gear in 2015

Top Finisher in Engadin Ski Marathon 2010-2015

100% of purchases online

Prefers Text Message

Global Data Strategy, Ltd. 2016
The Changing Customer
A 360 Degree View through Data

Stefan Krauss
Age = 62

Address = Zurich, Switzerland

Occupation = Banker

Member of Loyalty Program since 1990

Football Fan

Prefers Physical Mail

Purchased €3,500 in outdoor gear in 2015

75% of spending is while on holiday

100% of spending in store
Customer-Centric Design

REI’s Focus on Customer Service is a Differentiator

• For REI, a popular US outdoor retailer, customer service is a key differentiator.
  • “Green Vests” are store clerks known for their expertise in products
  • How to translate this experience to the digital world?
  • Customer Journey Maps were created

23% of Total Sales come from Digital* (website or app)

75% of customers who buy in-store visited website or app beforehand

BAR codes in store linked to online info

* Source: NRF (National Retail Federation) Interview
Master Data Management
360 Degree View of Customer

**Workflow & Business Process**
- Customer Journey
- Supply Chain
- Product Development
- Etc.

**Data Quality**
- Matching Rules
  - Which Stefan Krauss?
- Cleansing Rules
  - 19 Main ST -> 19 Main ST
- Business Rules
  - Product weight between 1 -5 kg

**Data Integration**
- Customer Account Data
- Social Media Data
- Product Purchase History
- External Data (Credit History)
- Etc.

**Data Governance**
- Ownership & Responsibility
- Audit & traceability
- Security & Privacy
- Policies & Procedures
360 View of Product
Managing the Data that Runs the Business

• A fast-casual restaurant chain realized through its digital strategy that:
  • While menus are the core product that drives their business...
  • They had little control or visibility over their menu data
  • Menu data was scattered across multiple systems in the organization from supply chain to kitchen prep to marketing, restaurant operations, etc.

• Menu data was consolidated & managed in a central hub:
  • **Master Data Management** created a “single view of menu” for business efficiency & quality control
  • **Data Governance** created the workflow & policies around managing menu data
  • **Business Intelligence & Analytics** enabled business insights around menu optimization
Big Data Analytics

- Big Data is often characterized by the “3 Vs”:
  - **Volume**: Is there a high volume of data? (e.g. terabytes per day)
  - **Velocity**: Is data generated or changed at a rapid pace? (e.g. per second, sub-second)
  - **Variety**: Is data stored across multiple formats? (e.g. machine data, OSS data, log files)
- The ability to understand and manage these sources and integrate them into the larger Business Intelligence ecosystem can provide the ability to gain **valuable insights from data**.
- This ability leads to the “4th V” of Big Data – Value.
  - **Value**: Valuable insights gained from the ability to analyze and discover new patterns and trends from data.
Uses for Big Data

• Big Data is popularly used for:
  • Social Media Sentiment Analysis – e.g. What are customers saying about our products?
  • Web Browsing Analytics – Customer usage patterns
  • Internet of Things (IoT) Analysis – e.g. Sensor data, Machine log data
  • Customer Support – e.g. Call log analysis

Tell me what customers are saying about our product.

Traditional Databases

Which customer database do you want me to pull this from? We have 25.

And, by the way, the databases all store customer information in a different format. “CUST_NM” on DB2, “cust_last_nm” on Oracle, etc. It’s a mess.

Big Data

I love my new Levis jeans.

Is Levi coming to my party?

Sale #LEVIS 20% at Macys.

LOL. TTYL. Leving soon.

I’ll need to input the raw data from thousands of sources, and write a program to parse and analyze the relevant information.
Global Data Strategy, Ltd. 2016

Telecom Company – Big Data Transformation
Becoming a “Data Company”

• UK Telecom Company is transforming its business model via Big Data
  • Executive focus was less on telecommunications, which is becoming a commodity
  • ...and more on Data, which is seen as a strategic asset.

Customer Value Optimization
• Customer Experience Optimization
• Customer Sentiment Analysis
• Householding & Family Identification
• Service Center Call log monitoring

Data Monetization
• Footfall Analytics & Location
  • City Planning
  • Retail Planning & Customer Patterns
• Location-based Advertising
  • Intelligent targeting

Product Usage
• Usage patterns
• Click-stream analytics

New Business Model
Old Business Model

• Network performance monitoring
• Network usage patterns
Facebook Case Study

Balancing Big Data Analytics with Foundational Data Warehouse*

• Facebook is one of the original innovators in the Big Data space
  • Early contributor to the Hadoop ecosystem

• Big Data was great for Exploratory Analysis
  • Where are users posting from—how can we infer a location if one is not listed?

• Big Data was poor for basic Customer Reporting
  • How many users are logged in by region?
  • What is the definition of “user”?  
    - Does user include mobile devices?
    - If a user posted from Spotify, is that a user?

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* Source: Ken Rudin, director of analytics at Facebook, TDWI Chicago in May 2013—video replay available.
Artificial Intelligence
What we’re NOT talking about
Artificial Intelligence
Mainstream Usage of AI

• **What is Artificial Intelligence (AI)?** Machine “Learning” based on patterns developed by repeated observations from large amounts of data.

• Common Uses for AI:
  • **Recommendation Engines:** e.g. “Customers who purchased X also purchased Y.”
  • **Fraud Detection:** e.g. What patterns determine fraudulent customer behavior?
  • **New Store Optimization:** Where to build new physical store locations based on sales, demographics, distance from competitors, nearby events, etc.
Artificial Intelligence – The North Face

- The North Face uses IBM’s Watson Artificial Intelligence software to power its Expert Personal Shopper
  - Customized, Personalized Shopping Experience
  - Integrates data from multiple sources
Artificial Intelligence – Amazon.com’s Recommendation Engine

• Amazon.com’s Recommendation Engine uses Artificial Intelligence
  • Based on analyzing data from shopping trends
  • Is now available as an Open Source AI Platform - DSSTNE (pronounced “destiny”)
Artificial Intelligence & Data Quality

AI is only as good as the underlying data

• Artificial Intelligence is based on evaluating data sets. If those data sets are faulty or of poor quality, your AI results will be flawed.
  • Especially if the data sets are small
Content Retargeting
True Customer Centricity?

• Content Retargeting, i.e. displaying ads based on recent searches or purchases, is limited in its effectiveness
  • Digital Innovation offers the opportunity for more customized experiences
  • Combining Big Data, IoT with true Customer 360 View
  • i.e. the More you Know, the Better you can Target

$29.00 at Amazon

Estwing E3-FF4 4-Pound "Fireside Friend" Wood Splitting Axe/Maul with Shock... - $29.00
Internet of Things (IoT)
Connecting Devices through Data

• **What is the IoT?** – The Internet of Things (IoT) is a network of physical devices that are able to share data over a network.

• **Tremendous opportunities for:**
  - Automation
  - Personalization
  - Interconnected information sharing

**Personal Fitness Trackers**
Wearable technology ownership expected to double YoY in 2016*

**Smart Homes / Smart Meters**
Two-thirds of consumers intend to purchase a connected home device by 2019*

**Machine Monitoring & Diagnostics**

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IoT for Outdoor Retail
Benefits & Opportunities

- The Outdoor Retail section has numerous opportunities to benefit from the IoT.
  - Customer Experience
  - Supply Chain
  - New Revenue Streams

Personal Fitness Trackers

Augmenting Demand
- Getting more people active & outside
- Suggested products based on activity

Smart Shelves Inventory Management

Streamlining Supply Chain
- Automated Inventory Management
- Customers can track product availability

Smart Shopping Experience
- Barcode scanning linked to online product information
- Smart Store design based on consumer movement patterns

Smart Shopping
UK Consumer Energy Company
Business Transformation via IoT Data

• For the consumer energy sector *Big Data and Smart Meters are transforming the ways of doing business* and interacting with customers.
  • Moving away from traditional data use cases of metering & billing.
  • Smart meters allow customers to be in control of their energy usage.
    • Control over energy usage with connected systems
    • Custom Energy Reports & Usage
    • Smart Billing based on usage times

• As energy usage declines, *data is becoming the true business asset* for this energy company.
  • Monetization of non-personal data is a future consideration.

<table>
<thead>
<tr>
<th>Traditional Business Model</th>
<th>More Efficient Business Model</th>
<th>New Business Model</th>
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<tbody>
<tr>
<td>• Usage-based billing</td>
<td>• More efficient billing</td>
<td>• Consumer-Driven Smart Metering</td>
</tr>
<tr>
<td>• Issue-driven customer service</td>
<td>• Faster customer service response</td>
<td>• Connected Devices, IoT</td>
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<td></td>
<td>• More consumer information re: energy efficiency, etc.</td>
<td>• Proactive service monitoring</td>
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<td></td>
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<td>• Monetization of usage data</td>
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A Data Framework for Digital Transformation

A Successful Data Strategy links Business Goals with Technology Solutions

<table>
<thead>
<tr>
<th>“Top-Down” alignment with business priorities</th>
<th>Business Strategy</th>
<th>Data Strategy</th>
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<tbody>
<tr>
<td>Managing the people, process, policies &amp; culture around data</td>
<td>Data Governance</td>
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<tr>
<td>Leveraging &amp; managing data for strategic advantage</td>
<td>People</td>
<td>Process</td>
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<tr>
<td>Coordinating &amp; integrating disparate data sources</td>
<td>Master Data Management</td>
<td>Data Warehousing</td>
</tr>
<tr>
<td>“Bottom-Up” management &amp; inventory of data sources</td>
<td>Data Asset Planning &amp; Inventory</td>
<td>Data Integration</td>
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</tbody>
</table>

- Databases
- Big Data
- Unstructured Data
- Semi-Structured Data
- Document & Content Mgt.
## Mapping Business Drivers to Data Management Capabilities

### Business-Driven Prioritization

### Business Drivers

**External Drivers**
- Digital Self Service
- Increasing Regulation Pressures
- Online Community & Social Media
- Customer Demand for Instant Provision

**Internal Drivers**
- Targeted Marketing
- Brand Reputation
- 360 View of Customer
- Community Building
- Revenue Growth
- Cost Reduction

### Challenges

1. **Lack of Business Alignment**
   - Data spend not aligned to Business Plans
   - Business users not involved with data

2. **360 View of Customer Needed**
   - Aligning data from many sources
   - Geographic distribution across regions

3. **Integrating Data**
   - Siloed systems
   - Lack of combined view
   - Need for Historical data

4. **Data Quality**
   - Bad customer info causing Brand damage
   - Completeness & Accuracy Needed

5. **Cost of Data Management**
   - Manual entry increases costs
   - Data Quality rework
   - Software License duplication

6. **No Audit Trails**
   - No lineage of changes
   - Fines had been levied in past for lack of compliance

7. **New Data Sources**
   - Exploiting Unstructured Data
   - Access to External, IoT & Social Data

### Data Management Capabilities

- **Strategy**
- **Data Governance**
- **Master Data Management**
- **Data Warehousing**
- **Business Intelligence**
- **Big Data Analytics**
- **Data Quality**
- **Data Architecture & Modeling**
- **Data Asset Planning & Inventory**
- **Data Integration**
- **Metadata Mgt**

- **Show “Heat Map” of Priorities**
Balance Innovation with Foundation

For Digital Transformation Success, it’s Important to Balance Digital Innovation with Foundational Technology.

**Digital Innovation**
- Big Data
- IoT
- Artificial Intelligence

**Foundational Technology**
- Master Data Management
- Data Quality
- Architecture & Design
Summary

Leverage Digital Innovation for Retail Growth

- **Tremendous Digital Opportunities for Outdoor Retail**
  - 360 View of Customer & Personalization
  - Product Lifecycle & Purchasing Patterns
  - Big Data
  - Artificial Intelligence
  - IoT

- **Foundational Technology must be in Place in order to Effectively Leverage Innovation**
  - Master Data Management
  - Data Warehousing
  - Data Quality
  - Data Governance

- **Focus Efforts on where it Matters Most to the Business**
  - New Innovation combined with
  - Foundations & Infrastructure
  - “Bi Modal” approach – not an either or

- **Enjoy! This is an exciting time to leverage new innovation.**
Questions?
Thoughts? Ideas?
About Global Data Strategy, Ltd

Data-Driven Business Transformation

• Global Data Strategy is an international information management consulting company that specializes in the alignment of business drivers with data-centric technology.

• Our passion is data, and helping organizations enrich their business opportunities through data and information.

• Our core values center around providing solutions that are:
  • **Business-Driven:** We put the needs of your business first, before we look at any technology solution.
  • **Clear & Relevant:** We provide clear explanations using real-world examples.
  • **Customized & Right-Sized:** Our implementations are based on the unique needs of your organization’s size, corporate culture, and geography.
  • **High Quality & Technically Precise:** We pride ourselves in excellence of execution, with years of technical expertise in the industry.

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