Harvesting the Full Value of Analytics

Dave VanderVeen
Product Development Analytics
General Motors
Data and computer capability is growing exponentially enabling decisions to be based on analytics not on gut instinct.

Companies are relying more than ever on data analytics to:

- Streamline operations
- Identify target customers
- Develop and/or refine products and services
- Evaluate employees

Leading consultants, key OEMs, and top universities all point to significant, real opportunities in using analytics.

MIT Sloan Research Report
McKinsey Quarterly Report
Ford Article in Detroit News
Harvard Business School Report
GM’s Internal Experience
What have we learned from our studies?

- Significant opportunities exist:
  - Hard to find without analytics
  - Tip of the iceberg

- Successful projects
  - “Follow the Money” and, hence, cut across organizational boundaries
  - Help find opportunities and make trade-offs visible
  - Have great cross-functional teamwork

Opportunities are Found at Organizational Boundaries

New Decision Tools Must Optimize Across Organizations
The cross functional aspect of analytics makes harvesting the full value challenging.

Invent
- Project Initiation
- Develop Math Models
- Develop Prototype Tool

Deploy
- Run Pilot
- Develop Production Tool

Sustain
- Implement & Use
- Support

Typical Bottlenecks

So, what can you do to fully harvest value?
Work on the right problems and understand the underlying physics

If I had one hour to save the world, I would spend 55 minutes defining the problem and only five minutes finding the solution. –Einstein, Albert

Balance Big Data with “Big Physics”

Physics based models of key variables and their relationships

Key Drivers

Impact

Pareto Chart

- Biggest opportunities
- Align efforts
Focus on decisions and start with the end in mind

- Identify key decisions based on cost drivers
- Understand trade-offs & constraints
- Ask “What keeps you up at night”?

- What information is required to make decisions?
- Visualize results and make trade-offs and constraints transparent

- Focus on data required to run the models
- Get access to gold source data
- Assess data integrity & cleanse it
- Implement data sharing guidelines

- Don’t assume away the problem for computational and modeling ease
- Deliver value vs “True Optimal”
Establish strong partners at the top

- Opportunities are found at organizational boundaries – must partner with senior leaders
- When possible, align with “analytically oriented leaders”
- Develop a clear, shared vision and expectations
- Be a trusted confidant, communicate often and effectively
  - Learn to Pitch
  - Simple, intuitive, non-threatening, 1 on 1
- Minimize the decision maker’s risk
  - Balance math with judgment
  - Minimize investment of executive’s time and resources
  - Understand how corporate performance metrics drive behavior
- Eliminate implementation barriers
  - Use seed money to get started
  - Quick wins, phased approach, test and learn
  - Engage their best subject matter experts

Stay neutral and let the data talk
Empathize with leaders

- Listen
- Be sensitive to unspoken concerns
  - Results often run counter to existing paradigms and intuition
  - How will previous decisions be viewed
  - Traditional business levers may no longer work
  - Can a “PC tool” outperform intuition and experience refined for decades
  - I’ve heard it before and the results didn’t materialize
- Demystify “black box” models
  - It’s hard to trust what you can’t see and may not understand
  - Models don’t include everything, making human judgment essential
- Analytics provide a new lens to view the business
Build the right teams

- Analytical modeling is like singing: anyone can do it, few do it well
- Many skills are required, but finding Superman is hard
- Instead recognize many ingredients are required to build a great team
  - Broad mix of skills and backgrounds
  - Technical depth, business acumen, deeply curious people
  - Full time core team augmented by part time functional experts
  - Super users
- Set clear expectations
  - Nothing counts until it is implemented and delivering sustained performance as measured by Finance
  - Partnerships are required within teams and across functions
- Hone team skills and experience
  - Teach them to pitch
  - Grow business acumen and technical depth

Forget Superman
Make Pizza
Instead
Build internal enterprise analytics capability

Reuse logic, data, mathematical models, decision tools and network

Create Building Blocks → Integrate for Flywheel Effect → Implement → Deliver Results
Develop an engagement model to drive sustained use

<table>
<thead>
<tr>
<th>Tool Overview</th>
<th>Implementation Steps</th>
<th>Team Engagement</th>
<th>Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tool Overview</strong></td>
<td><strong>Implementation Process</strong></td>
<td><strong>How we engage with existing teams</strong></td>
<td><strong>Usage Governance</strong></td>
</tr>
<tr>
<td>- Purpose</td>
<td>- Process Insertion</td>
<td>- How we work</td>
<td>- Tool Recommendations</td>
</tr>
<tr>
<td>- Key decisions supported</td>
<td>- Key decision makers</td>
<td>- Status updates</td>
<td>- Program Team Base line</td>
</tr>
<tr>
<td>- Approach</td>
<td>- Milestones</td>
<td>- Documentation</td>
<td>- Implemented results</td>
</tr>
<tr>
<td><strong>Input data</strong></td>
<td><strong>Implementation Process</strong></td>
<td><strong>Prioritizing projects</strong></td>
<td><strong>Integrate</strong></td>
</tr>
<tr>
<td>- Description</td>
<td>- Steps</td>
<td>- Bang/buck</td>
<td>- Linkages with other tools/initiatives</td>
</tr>
<tr>
<td>- Units of measure</td>
<td>- Timing</td>
<td>- Allocate limited resources</td>
<td>- Performance Metrics</td>
</tr>
<tr>
<td>- Source</td>
<td>- Partnerships</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output Reports</strong></td>
<td><strong>Resource needs</strong></td>
<td><strong>Integrated</strong></td>
<td></td>
</tr>
<tr>
<td>- Example output reports</td>
<td>- Analytics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Deep customer knowledge</td>
<td>- Partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Profit insights</td>
<td>- Funding</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Build sustained momentum

- Building sustained support for analytics is critical for on-going growth and impact
- Yet, it is surprisingly difficult to do
  - Results were “obvious”
  - “We were planning to do this anyway”
- Approach
  - Celebrate and recognize cross-functional contributions and partnerships
  - Let cross-functional leaders present results
  - Ask partners to help you
    - Build your brand
    - Tell stories and measure results
    - Get testimonials and win awards

Manpower Required

Idea & Modeling

Implementation
Thank you

- Analytics and Big Data are providing exciting opportunities
- Harvesting results is challenging, but achievable
- I’ve worn many hats in this space
  - Inventor
  - Technical leader
  - Functional leader
  - Startup Leader
  - Implementation leader
- While the road isn’t always easy, I hope my message helps you enjoy the journey