Debrief Case:
“Data Science at Target”

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TODAY'S DISCUSSION

- Challenges and opportunities to integrating analytics and data science
- Explore some of the ways in which data teams do / don't work well with business teams
- Look at organizational challenges and trade-offs related to "going deep" with data

QUESTIONS

1. What were the key steps in deciding that a large-scale analytics investment at Target was a good idea?
2. What were the costs / risks associated with a large scale analytics investment?
3. What is the tension (if any) between a “test and learn” philosophy with the goals of 1) providing relevant and curated content to customers and 2) needing to show analytics success to get managerial buy-in? How can you reconcile those tensions?

12 minutes

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Identifying a problem or opportunity: Here, store sales were flat, while digital was growing at 30% = opportunity to enhance digital experiences

Potential strategic choices to be made

- e-commerce opportunities to be realized
- create better customer experience across all channels
- create new products for newly discovered segments
- ensure “right product” at “right time”

Identifying what new intelligence might exist

- consumer preferences / trends / behavior
- context / circumstances surrounding (non-)purchase
- reasons for purchase
- effectiveness of sales drivers (print ads, mailers, digital, TV)

Tying intelligence to strategic choices / operational benefits

- More effective promotions for specific products and customer segments
- Real-time pricing decisions
- Better assortment planning
- Enhanced inventory management / demand forecasting / supply chain
- Better knowledge of sales = enhanced ability to negotiate with suppliers

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Resources
- Hardware, software, talent

Effectiveness
- Would resultant analysis actually help decision-making?
- Would it be accepted by managerial decision-makers?

Technical
- Could infrastructure be built in reasonable time frame?
- Could high-quality / relevant data be made available in timely fashion?
- Could privacy and security be adequately addressed?

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- Test and Learn may forego immediate benefit for longer-term learning
- Rigorous testing necessarily means you learn what works by also learning what doesn’t. If goal = “relevant and curated content to customers,” test and learn requires regular failure.

Succeeding in a test and learn environment while delivering value requires buy-in along multiple dimensions

Philosophical	**Operational**	**Investment**
Learning is worth the cost of failure Implicates qualities of learning, humility, adaptability	Business team sees that learnings can be implemented quickly	Evidence of success to demonstrate quick wins for ongoing support and investment

QUESTIONS

12 minutes

4. Was it a good idea to set up EDABI as an equal partnership between data engineers and data scientists? What challenges might make this sort of partnership difficult?
5. In testing the effectiveness of a personalized digital experience, the EDABI team defined success as whether a customer searched for and purchased a product in a given online “session.” What are the pros and cons of such a narrow definition of success?
6. Why did Desai feel compelled to demonstrate the value of analytics to the business teams? How did he go about it? Do you think it was effective?
7. Should EDABI be centralized or decentralized within various product departments (such as Apparel, Electronics, etc.)?

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- Goal = generate relevant / curated personalized content
- Requires frequent and reliable access to data for analysis that can be deployed "in milliseconds."

Engineer Data Scientist Engineer

Benefits of shared decision-making:

- Team culture + morale / feeling valued
- If decision-making affects both groups, give both groups input
- If both groups are required for success, ensures robust perspective

Detriments

- Slows decision-making

Challenges

- Shared decision-making risks personal and political clashes
- Who wins in a disagreement?
- Engineers provide infrastructure for analysis. Shouldn't analysis (determined by business need) dictate infrastructure and not vice versa?
- Culture of shared decision-making is hard to create and sustain, needs strong leadership and alignment of incentives.

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Pros

- Given sheer magnitude of customer behavior on site, better to have a narrow, well-defined, metric than a broader metric that is hard to interpret. All parties know and can assess the limitations of the metric.
- Clear success metric allows for reliable benchmarking for site interventions; e.g., a baseline for A/B testing

Cons

- Probably under-reports success
- Online shopping behaviors can be complex
- Multiple sessions might not indicate failure, but rather be an integral part of customer decision-making process.

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Desai “reached out to the business units… in search of questions”

Good strategy to ensure analytics is both **feasible** and **valuable**.

But, note a frequent and recurring tension:

- Shifting decision-making to a data-driven approach is often difficult, given that business decision-makers are: 1) not trained in data and feel ill-equipped and 2) often fearful that algorithms are intended to replace them
- To generate acceptance of analytics, it’s a good idea to go for small wins, showing decision-makers how analytics can help
- But with distributed retail structure, small wins can be “localized,” and not benefit enterprise as a whole. Must consider how “small wins” fit into bigger picture.
- Example: if a single store’s promotion on detergent yields a bump in sales, does that cannibalize other store / online sales?

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Centralized

- Cohesion among data scientists / engineers create scale and scope efficiencies
- Important insights can be shared more easily and with a more coherent strategy
- A single large group may be able to more effectively create community, share best / new practices, push each other, experiment with new tools
- Easier to maintain job continuity, can re-assign teams to account for absences, turnover
- Helps ensure value. If finance needs 2 high-value projects, better to take them on than 1 finance and 1 low-value operations project

Decentralized

- Ensures closeness to business unit and business needs
- Can build trust with business unit
- Can more effectively integrate intelligence within business unit due to better understanding of unit-specific culture.
- Can be more responsive to business unit need

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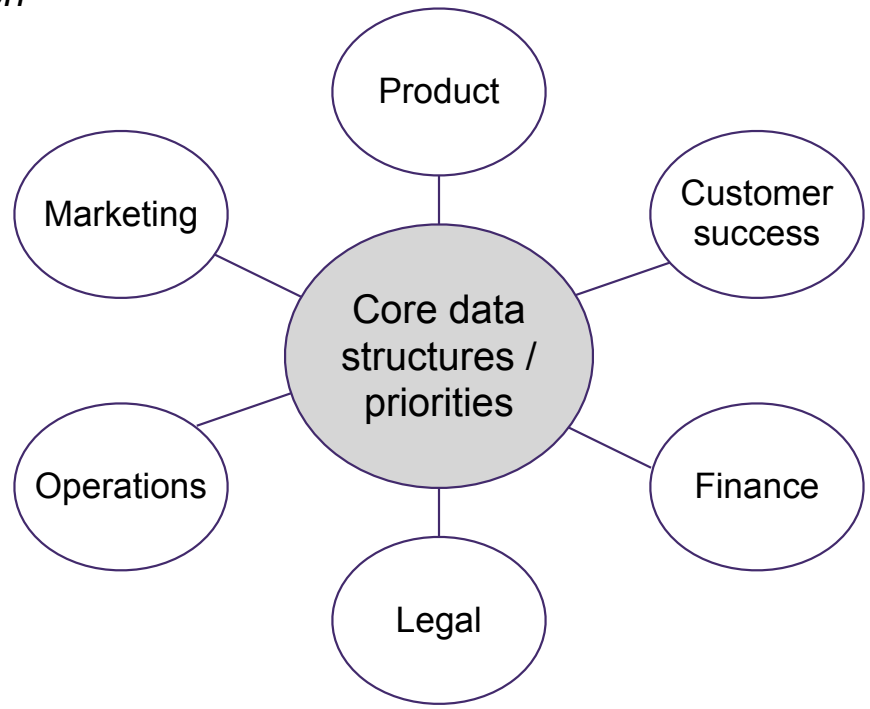
"Hub and Spoke" gaining traction



TAKEAWAY

Going deep with data can make sense if 5 things are present:

- Economic Opportunity
- Data
- Systems (IT and people)
- Expertise
- Leadership