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Decision Sciences

[Big]-Data Analytics for Businesses

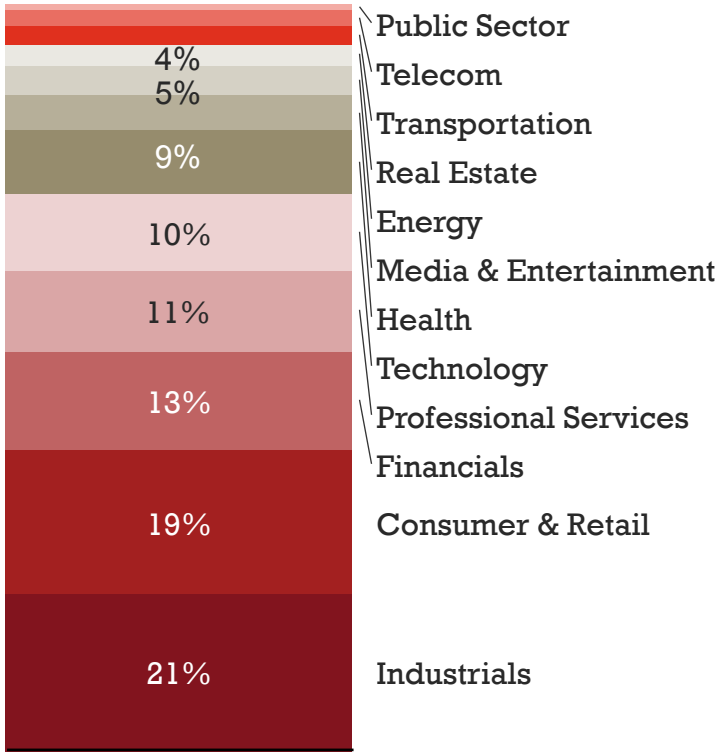
SESSION 1

Five Key Takeaways

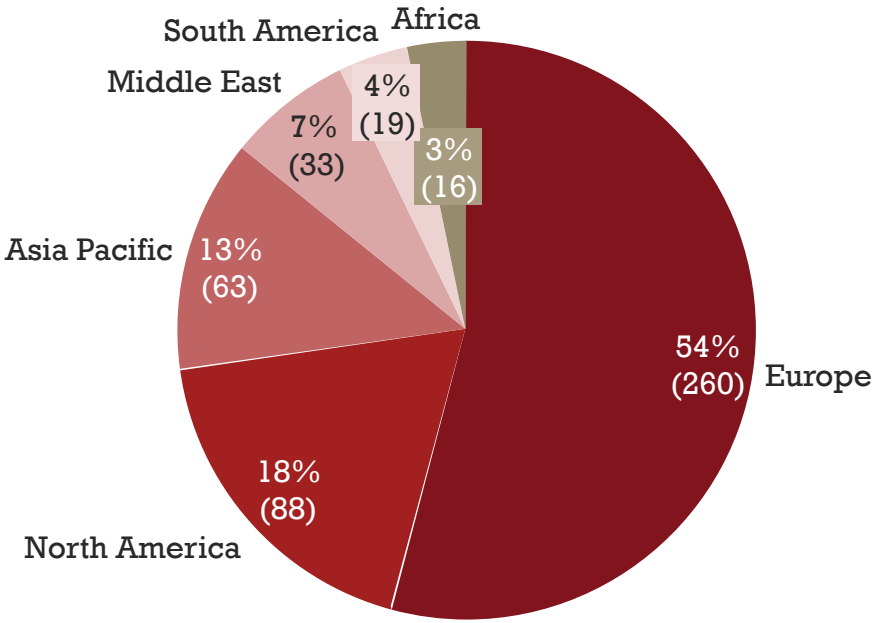
1. It is now possible to make **evidence based**, data driven decisions in increasingly more areas
2. Analytics **does create value**, in multiple dimensions
3. There is more value in combining **diverse data**
4. Key Business Performance (KPI) **Measurement** facilitates coordination and change
5. **Technology = Change**

Respondents to our survey are from a wide range of industries and from all regions in the world…

Respondents per Industry
n = 479



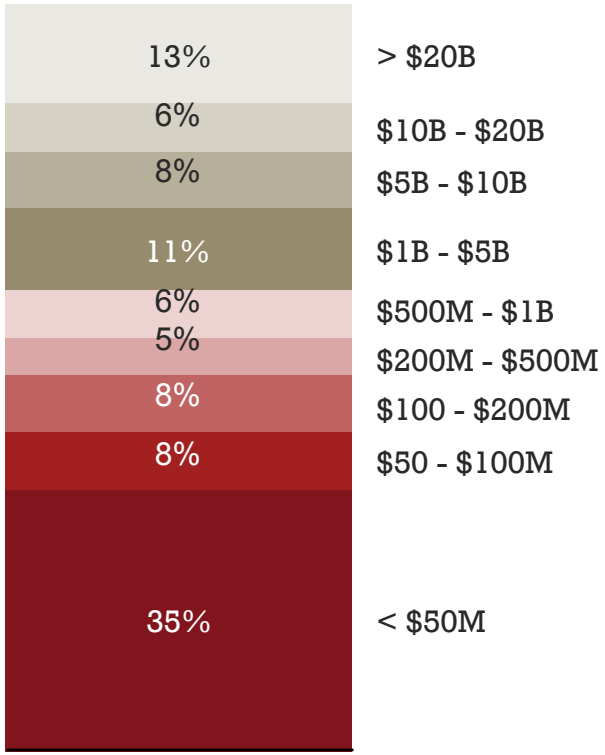
Region of Company's Headquarter
n = 479



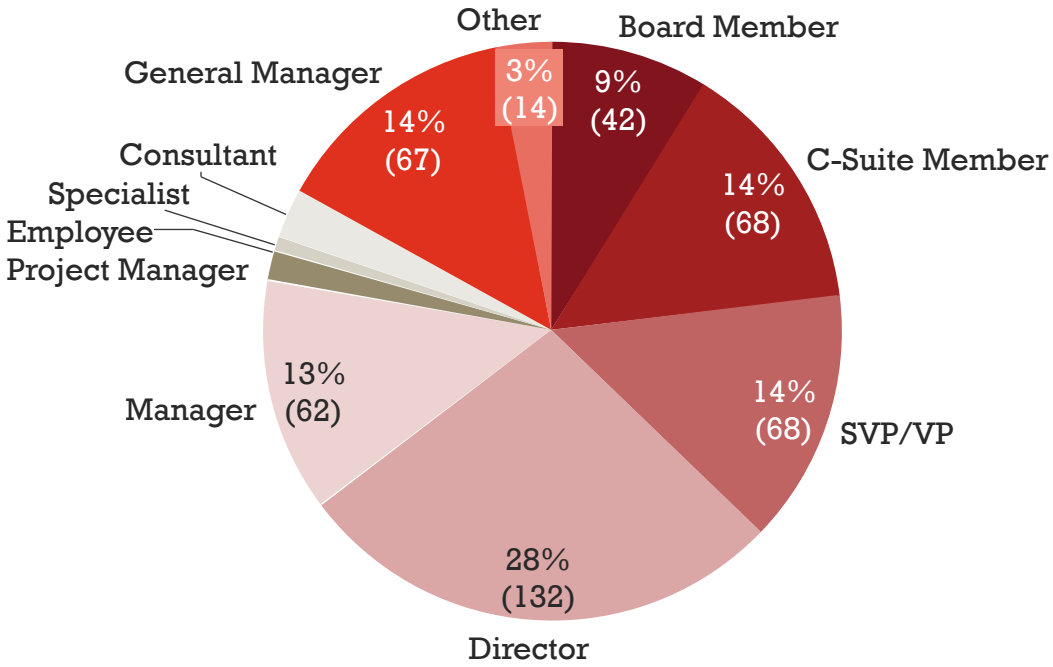
Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

… representing companies from <$50 million to >$20 billion, and are primarily occupying an executive role

Company Size (Revenue)
n = 479

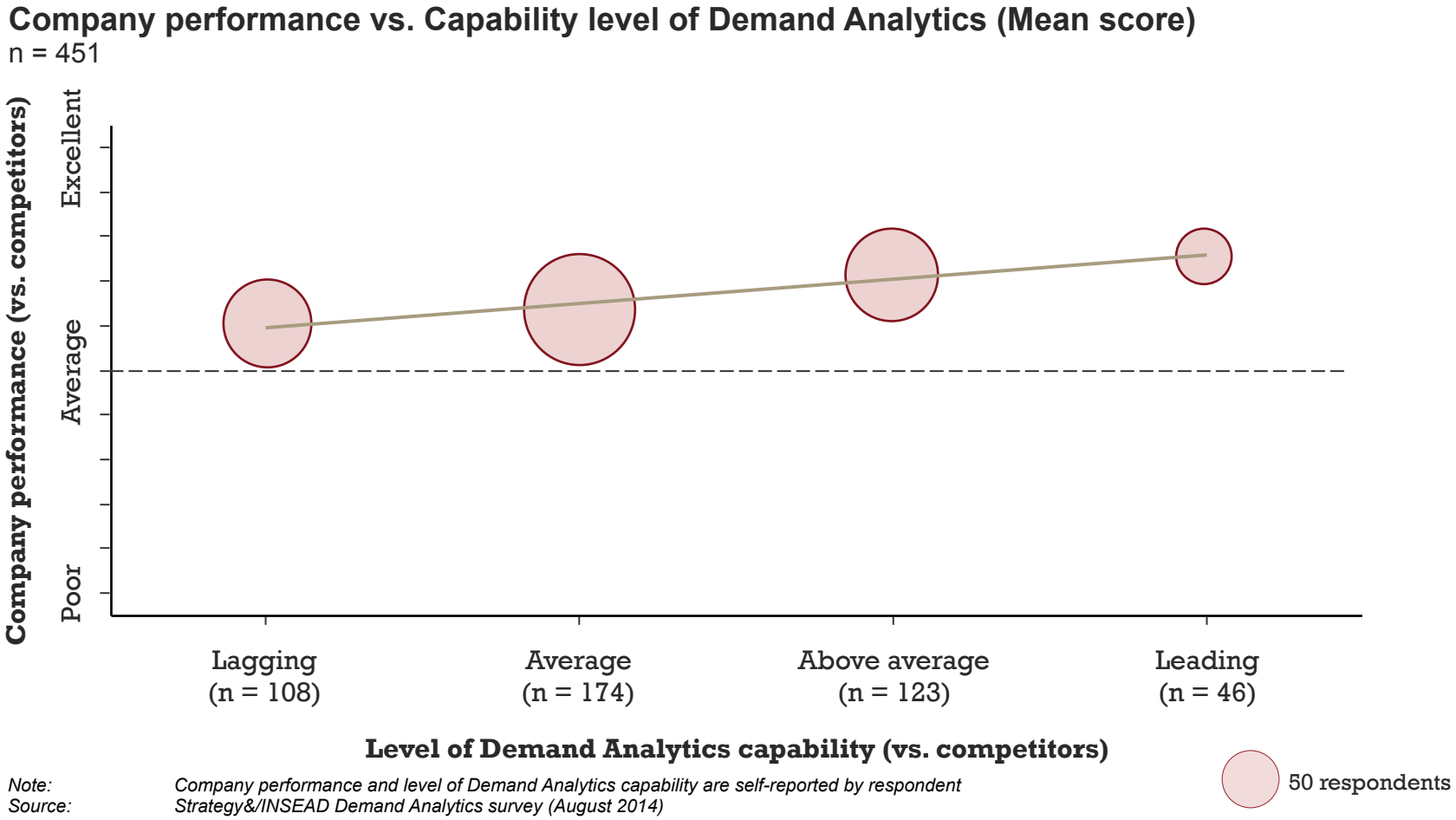


Respondents per Role
n = 479



Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

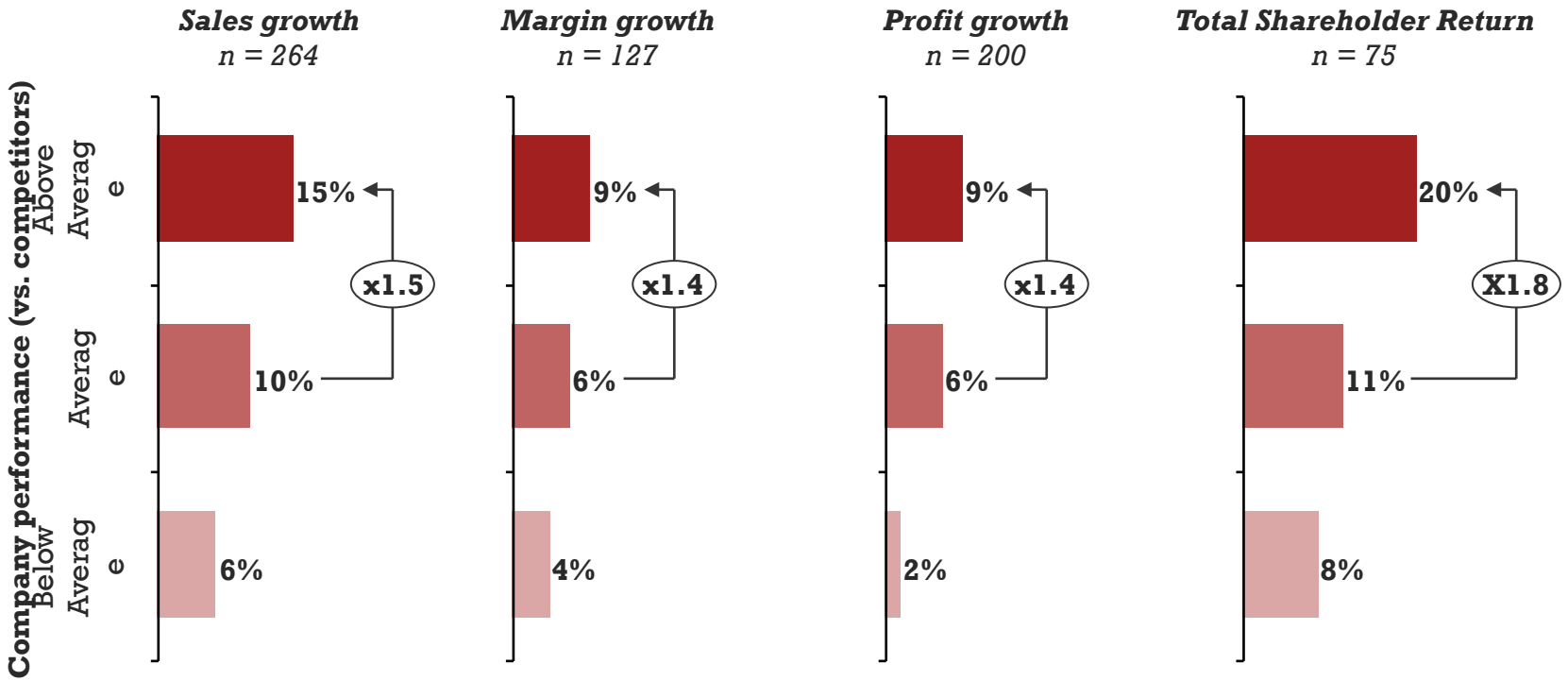
Companies with a leading Analytics capability are demonstrating statistically higher performance levels



Note: *Company performance and level of Demand Analytics capability are self-reported by respondent*
Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

Above average DA performers typically outperform their
average peers by ~1.5x on sales, margin, profit & TSR

Average company performance levels in past three years



Note: *Company performance is self-reported by respondent*
Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

Within each of these five categories, on average two to three different types of analysis are performed by leading companies

Most used

Least used

Digital Analytics		Customer Analytics		Marketing Analytics		Sales Analytics		Consumer Analytics	
Average no. of analysis	3	Average no. of analysis	3	Average no. of analysis	2	Average no. of analysis	2	Average no. of analysis	3
Product and service bundling & offer optimization	*48%*	**Customer profitability & lifetime value modeling**	*46%*	**Demand forecasting**	*46%*	**Pricing elasticity modeling & discounting optimization**	*41%*	**Survey & questionnaire design**	*48%*
Digital pathway analysis & website optimization	*46%*	**Cross-sell, upsell & next-best-offer modeling**	*46%*	**Market mix modeling & media budget optimization**	*33%*	**Price laddering & category management**	*39%*	**Customer experience research & modeling**	*43%*
Email campaign optimization	*43%*	**Customer acquisition and activation optimization**	*41%*	**Market structure, brand portfolio & architecture optimization**	*30%*	**Sales agent & commission analytics**	*30%*	**Customer satisfaction & customer advocacy modeling**	*41%*
Social media, mobile & text analytics	*43%*	Customer loyalty analytics & optimization	*41%*	Contact center analytics & cost optimization	*28%*	Assortment planning & analytics	*24%*	Needs-based segment. & development of value propositions	*37%*
Behavioral segmentation & profiling	*39%*	Response & purchase propensity modeling	*33%*	Marketing attribution models	*22%*	Assortment planning & analytics	*20%*	Qualitative research, ethnography & social listening	*35%*
Content testing & user experience optimization	*39%*	Churn modeling & attrition prevention optimization	*28%*	MROI of paid, owned, & earned media channels	*20%*	Sales territory design	*20%*	Price–product architecture models	*28%*
E-commerce optimization	*28%*	Advanced micro segmentation & profiling	*24%*	Contact agent analytics	*17%*	SKU rationalization & product delisting	*20%*	Identification of unmet needs/white space	*24%*
Design of recommendation engines	*26%*	Win-back modeling & offer optimization	*22%*			Retail site selection	*7%*	Conjoint & discrete choice modeling	*20%*
		Affinity analysis & market basket optimization	*17%*						

Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

Visualization is key: Business Sphere

Mobility Models of Malaria in East Africa

How do human mobility patterns affect the spread of malaria? Aggregating longitudinal movement data from 15M mobile phones in East Africa, it may be possible to gain a better understanding of the implications of human movement on the spread of disease. - *N. FERGUSON, D. HOLLINGSWORTH, N. EAGLE*

Generative Models of the Nairobi Slums

Over one billion people - or nearly one in every three urban residents - live in informal settlements and slums. Coupling mobile phone data with mathematical models and statistical inference, we hope to better understand the dynamics of these establishments and ultimately develop predictive models to better serve this underrepresented population. - *A. WESOLOWSKI, N. EAGLE*

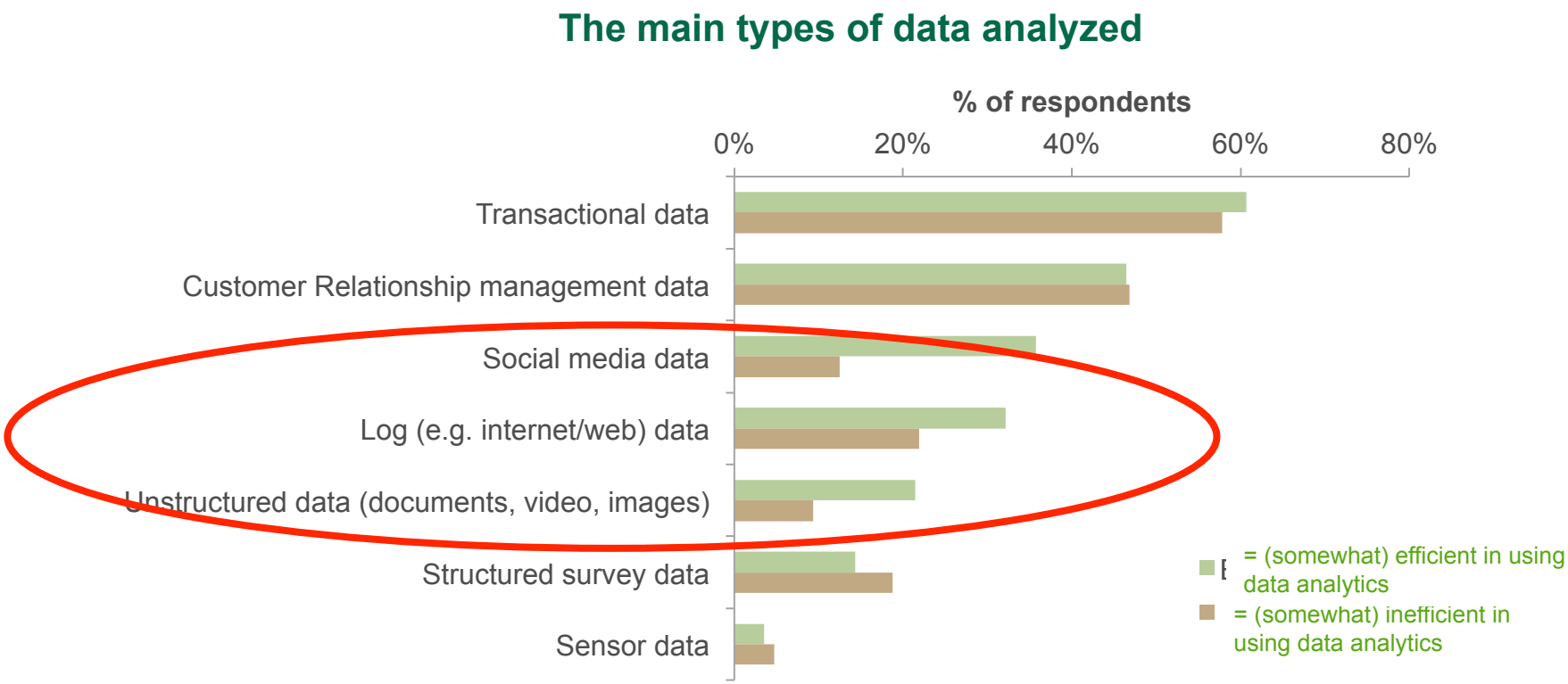
Computational Transport Planning and Modeling in Kigali

Kigali's cities planners are inundated with data about how urban infrastructure in Rwanda's capital is being utilized. Generative models are needed to better inform decisions ranging from broad transport planning questions to the minutia such as the optimal placement of the next public latrines. - *A. VACCARI, N. EAGLE*

Modeling the Dynamics of Urbanization on Social Support Networks

What is attracting migrants to urban areas within the developing world? Using 4 years of movement and communication data, it is possible to model the reinforcing social mechanisms that could

There is a big potential in combining diverse data…



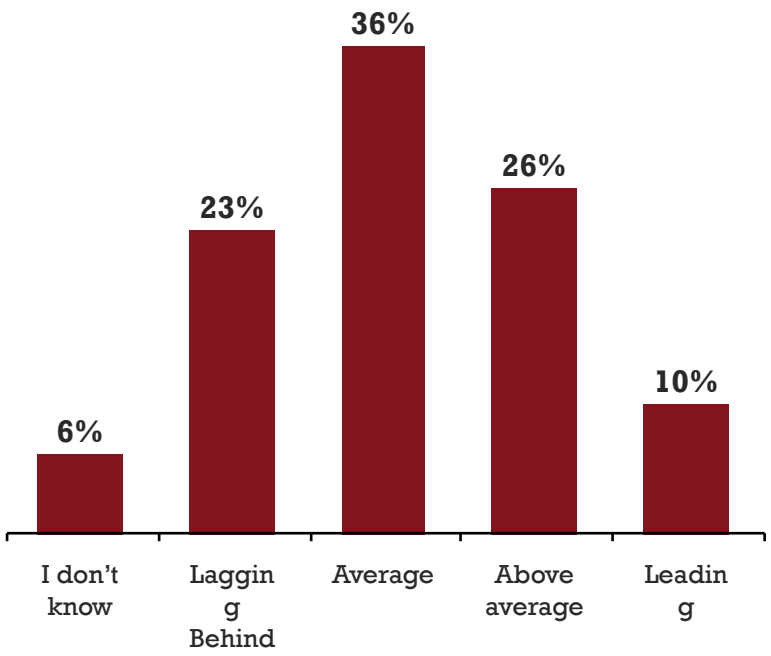
BUT

- 30% analysed data from just ONE source
- Over 50% analysed data from TWO source's
- Less than 20% analysed data from MORE THAN TWO source's

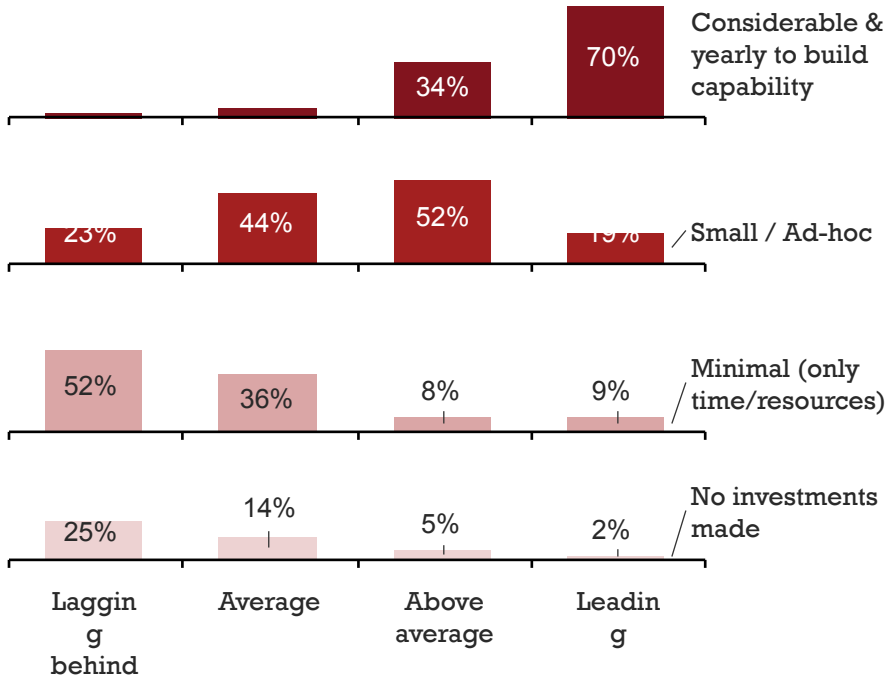
Do you harvest multiple (unconnected so far) data sources?

Bringing the capability above average typically requires considerable & yearly investments to build the capability

What is your current Demand Analytics capability level (vs. competition)?
n = 479



Investments made in developing DA capabilities over the past three years?
n = 434



Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

PERFORMANCE METRICS

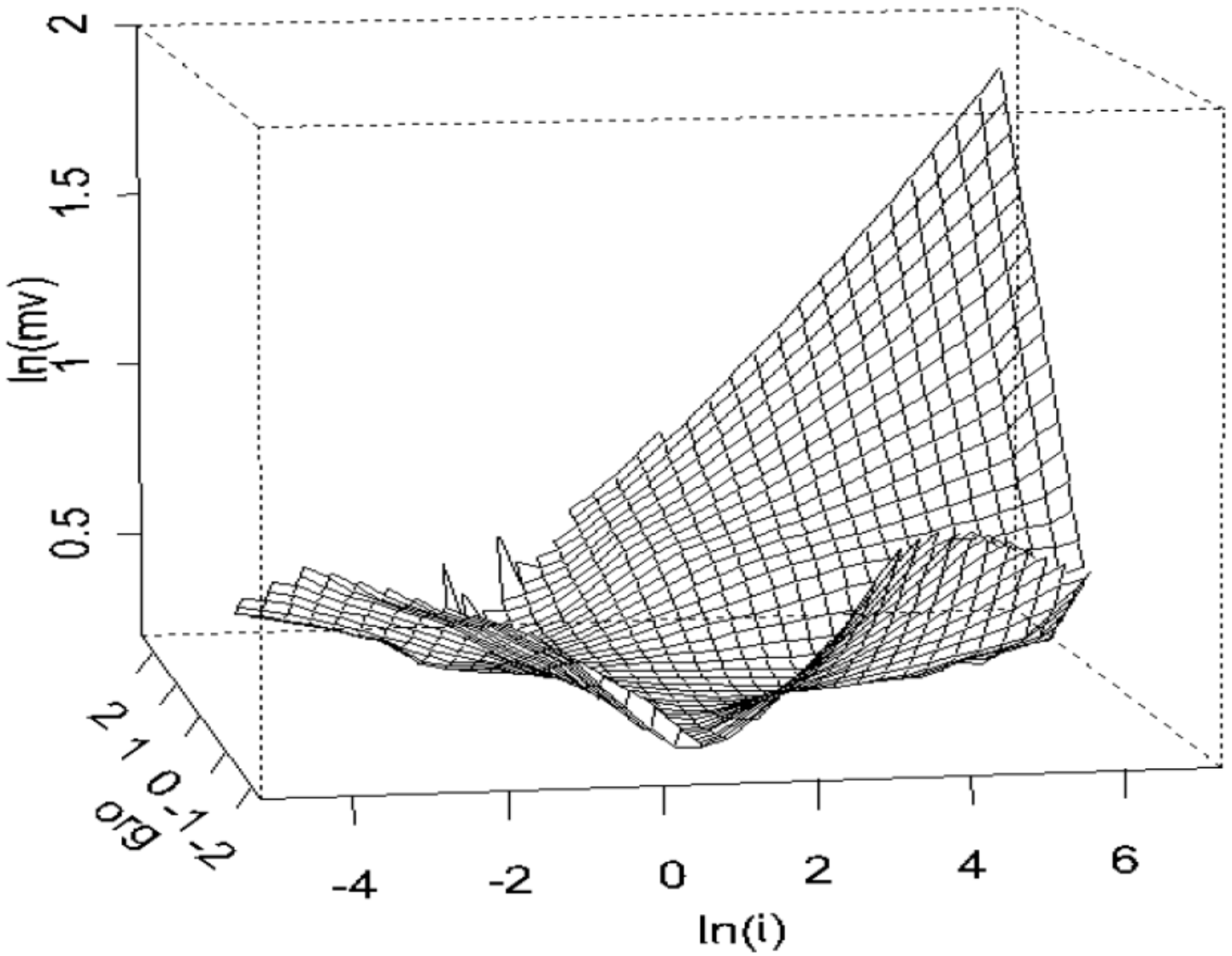
Greg Linden at Amazon created a prototype to show personalized **recommendations** based on items in the shopping cart.

While the prototype looked promising, "a **marketing senior vice-president** was dead set against it," claiming it will distract people from checking out. Greg was "**forbidden to work on this any further**."

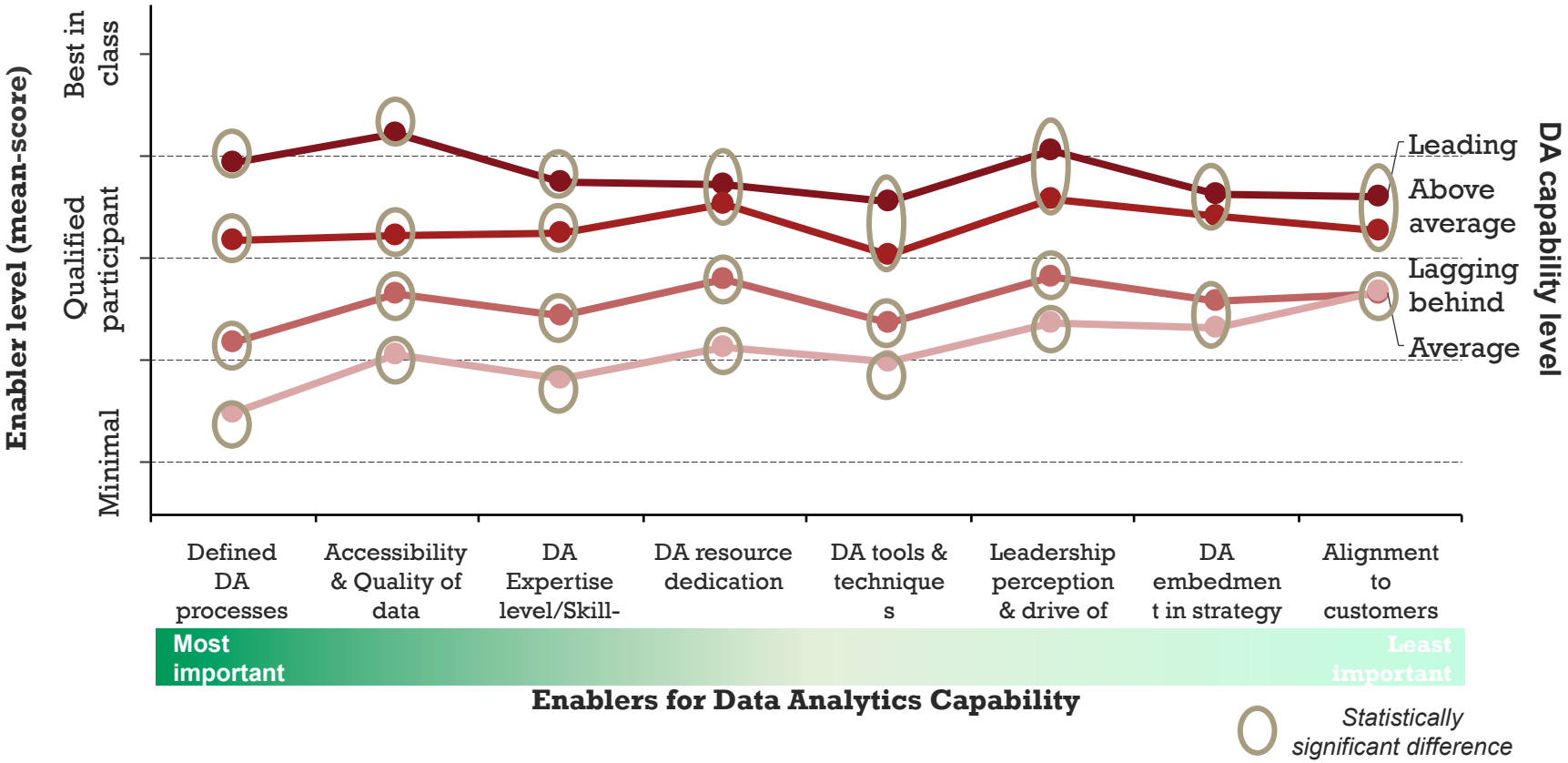
Nonetheless, Greg ran a **controlled experiment**, and the "feature won by such a wide margin that not having it live was costing Amazon a noticeable chunk of change. With new urgency, **shopping cart recommendations launched**."

What performance metrics do you use?

A Common Trap: IT + OO = EOO



Firms with these leading Analytics capabilities have put distinct enablers in place – processes, data and expertise are key



Source: *Strategy&/INSEAD Demand Analytics survey (August 2014)*

Digital Maturity: Standardization

1. We have reached an efficient level of technology standardization and infrastructure sharing across our organization;
2. We have effectively standardized administrative processes (e.g., HR, finance, purchasing) across our organization;
3. We have effectively standardized core operational processes (e.g., supply chain, manufacturing, operations, sales, customer service) across our organization;
4. We are effective at sharing standardized data (e.g., product, customer, partner) internally – i.e., among individuals within different parts of the organization; and
5. We are effective at sharing standardized data (e.g., product, customer, partner) externally – i.e., with key partners (e.g. suppliers, customers, other partners).

Digital Maturity: Integration

Internal data integration

Our information systems allow us integrated access to . . .

1. . . . all customer-related data (e.g., service contracts, feedback)
2. . . . all order-related data (e.g., order status, handling requirements)
3. . . . all production-related data (e.g., resource availability, quality)
4. . . . all market-related data (e.g., promotion details, future forecasts)

External data integration

1. Data are entered only once to be retrieved by most applications of our channel partners.
2. We can easily share our data with our channel partners.
3. We have successfully integrated most of our software applications with the systems of our channel partners.
4. Most of our software applications work seamlessly across our channel partners.

Roberts and Grover, 2012