REanalyze℠
Supply Chain, Inventory Management and Analytics Consulting

Big Data for the Little Guy:
What's in it for the rest of us?

Rob Ende

Founder and President, REanalyze Inc.

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Big Data for the Little Guy:
What's in it for the rest of us?

- Not every company deals with "big" data.

- But every company can use data and analytics to make better decisions and transform your business

- There's no "magic" solution
  - The answer won't just "pop out" of a Business Intelligence tool

- How do you get started?

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Ask a few key questions

1   What business questions are you trying to answer?

2   What data do you need to answer the questions?

3   How can you visualize the data to gain insight?

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(1) **What business questions are you trying to answer?**

(2) What data do you need to answer the questions?

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What business questions are you trying to answer?

- If we only knew _____ , we could _____

- The more specific and actionable the better

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A few examples of reframed questions

High Level Questions	Reframed	Specific and Actionable Business Questions
• Are our marketing efforts paying off?	• If we knew the **impact of previous campaigns on sales**, we could retarget future campaigns for the highest ROI.	• Which marketing campaigns have created the *greatest % lift in sales*?
• How much should we invest in customer acquisition versus customer retention?	• If we knew the **respective costs and profits**, we could determine how much to invest in acquisition versus retention.	• What is the true *cost to acquire* a new customer? • What is the true annual *cost to retain* a customer? • What is the average *lifetime profitability* of a customer?

• Should we invest in:
  – A new piece of equipment?
  – A new facility?
  – An acquisition?
	• If we knew the **likelihood and the payoff of future scenarios**, we could evaluate the financial return on investment.	• What are the possible future scenarios?
		• What is the *probability of each scenario* occurring?
		• What are the *future payoffs* (cash flows) for each scenario?

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Client Example: Inventory Management

- Objective of the process
    - Determine how much inventory we want on the shelf…
    - … to meet <u>customer service requirements</u> (limit backorders)…
    - … with a <u>reasonable investment</u> (don't buy too much)

- The issue?
    - Client did not measure customer service levels (fill rates)
    - Client did not measure inventory turnover or holding cost

- Reframe with a data-driven approach:
    - If we knew <u>our current and target fill rate and inventory turns</u> by category, we could reallocate inventory to optimize cost and service
    - What are our <u>current</u> customer service and inventory turns by category?
    - What are our customer service and inventory <u>targets</u> by category?
    - Where are we over-invested? Where are we under-invested?

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Ask a few key questions

1 What business questions are you trying to answer?

**2** **What data do you need to answer the questions?**

3 How can you visualize the data to gain insight?

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What data do you need to answer the questions?

- What type of data?
  - Sales?
  - Costs?
  - Supplier information?
  - Market information?

- Do you have the data in your systems?
  - Don't wait for "perfect" data

- If not, how can you get it?
  - Start tracking it internally
  - Find an external source

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Continuing our previous examples…

Business Questions	Data Required	Possible Sources

• Which marketing campaigns have created the *greatest % lift in sales*?	• Historical campaigns
	  – Type, Date, Items, Channel
	• Historical sales
	  – Item, Date, Quantity
		• Marketing database
		• Transaction history

• What is the true *cost to acquire* a new customer? • What is the true annual *cost to retain* a customer? • What is the average *lifetime profitability* of a customer?	• Total acquisition costs • Total retention costs • # new customers per period • # existing customers • Lifetime profitability data	• CRM system • Marketing database • Financial system(s)

• What are the possible future scenarios?
• What is the *probability of each scenario* occurring?
• What are the *future payoffs* (cash flows) for each scenario?
	• Range of possible outcomes
	  – Investment required
	  – Cash flows & timing
	• Estimated probabilities of each outcome
		• External market research
		• Expert opinion
		• Financial system(s)

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Client Example (continued)

Business Questions	Data Required	Possible Sources

Business Questions

- **What are our current customer service and inventory turns by category?**

- What are our customer service and inventory targets by category?

- How should we reallocate inventory to meet those targets?

Data Required

- Transaction history
  - Item
  - Requested ship date
  - Available inventory

- Historical sales data
  - Item
  - Quantity
  - Date
  - Cost of Sales

- Inventory data
  - Item
  - Quantity on hand

- Item categories

Possible Sources

- **New** transaction snapshots for fill rate data

- ERP / sales history

- **New** inventory snapshots

- Web site database

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Ask a few key questions

1   What business questions are you trying to answer?

2   What data do you need to answer the questions?

3   **How can you visualize the data to gain insight?**

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How can you visualize the data to gain insight?

- What are the key dimensions that matter?

- How can the data be categorized or segmented?

- What type of visualization will help you see relevant patterns?

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Which is more useful? More efficient?

Region	2002 Sales ($M)	2007 Sales ($M)	2012 Sales ($M)	2017 Proj. ($M)
North America	8.0	10.6	12.4	13.0
Latin America	0.1	1.2	3.8	6.0
Europe	8.5	7.3	6.7	4.0
Asia	1.3	4.5	7.7	16.0
Total	**17.9**	**23.6**	**30.6**	**39.0**

2007 Sales ($M)

- North America
- Latin America
- Europe
- Asia

4.5 · 10.6 · 7.3 · 1.2

2012 Sales ($M)

- North America
- Latin America
- Europe
- Asia

7.7 · 12.4 · 6.7 · 3.8

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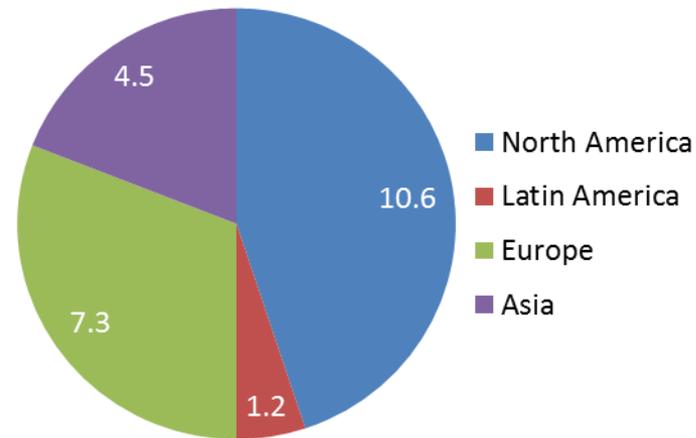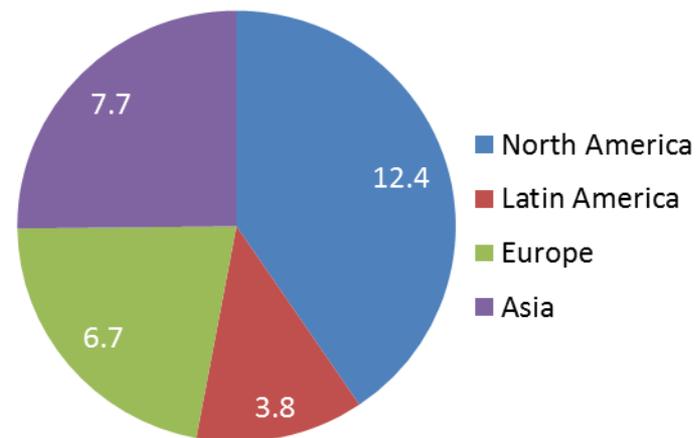
Which is more useful? More efficient?

2007 Sales ($M)

- North America
- Latin America
- Europe
- Asia

2012 Sales ($M)

- North America
- Latin America
- Europe
- Asia
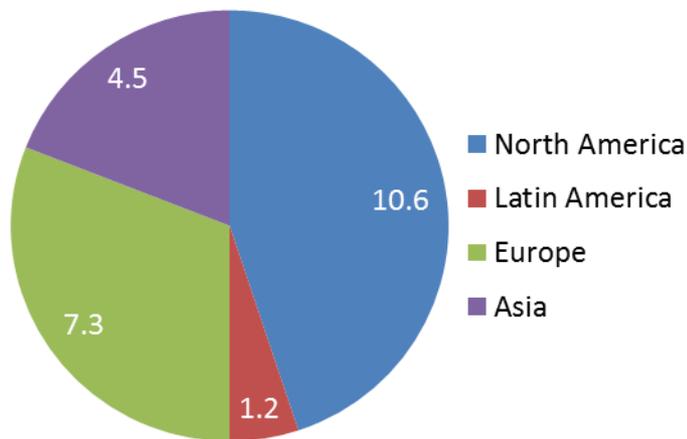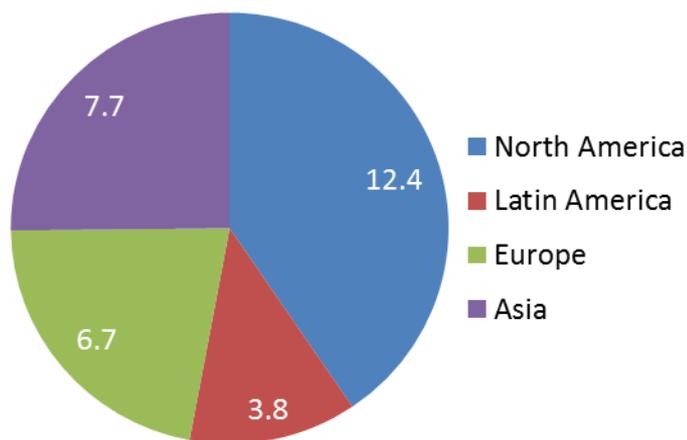
Sales Growth Rate

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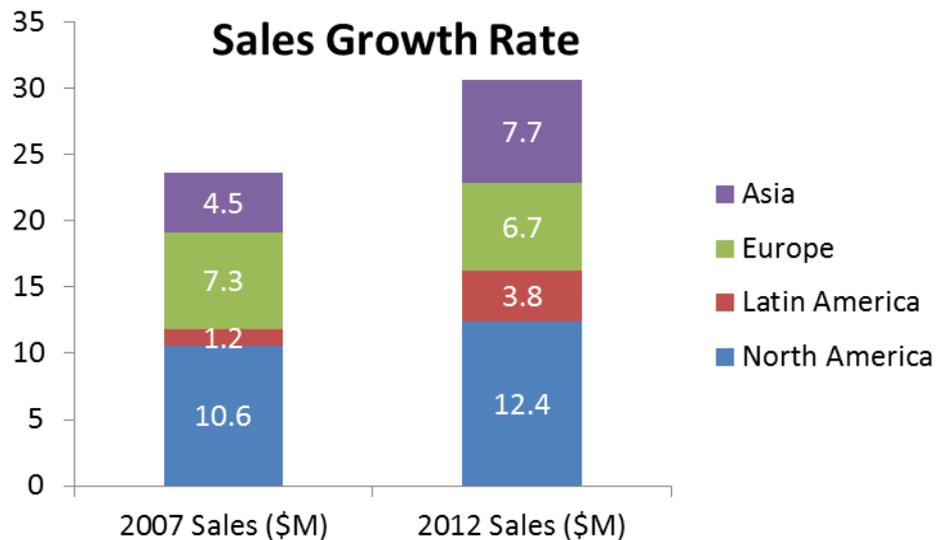
How about now?
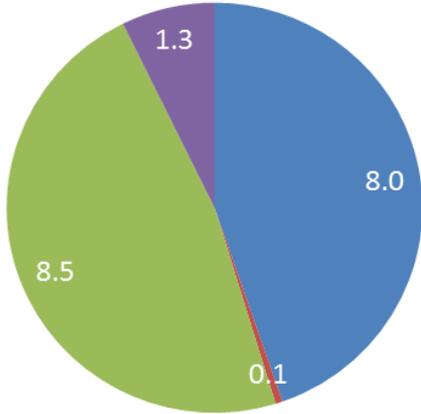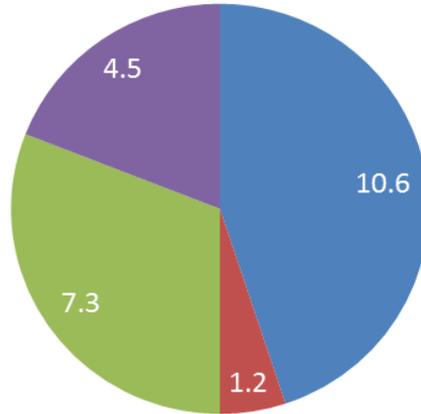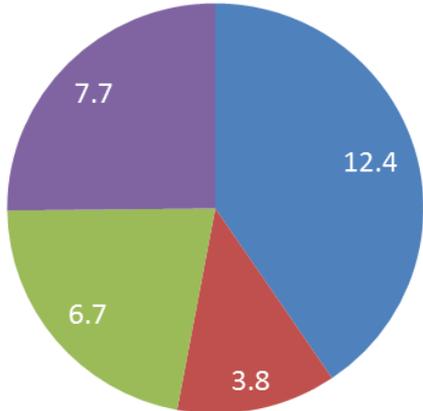
2002 Sales ($M) · 2007 Sales ($M) · 2012 Sales ($M) · 2017 Proj. ($M)
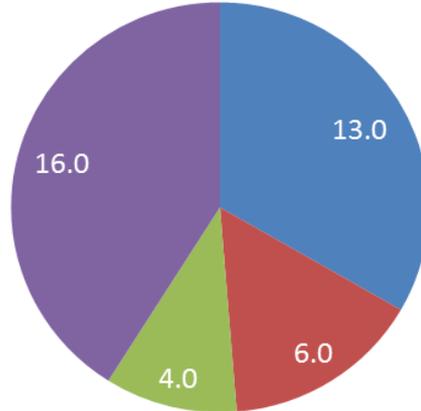
Sales Growth Rate
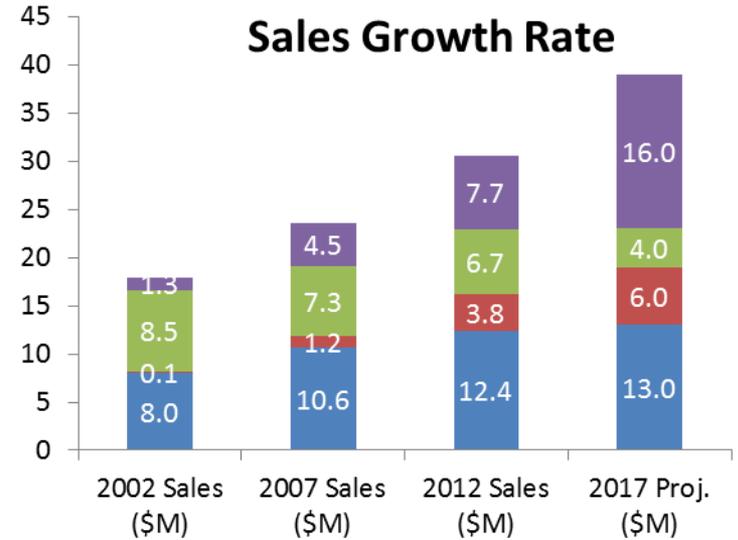
Asia · Europe · Latin America · North America

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Client Example:
Service versus Inventory by Category
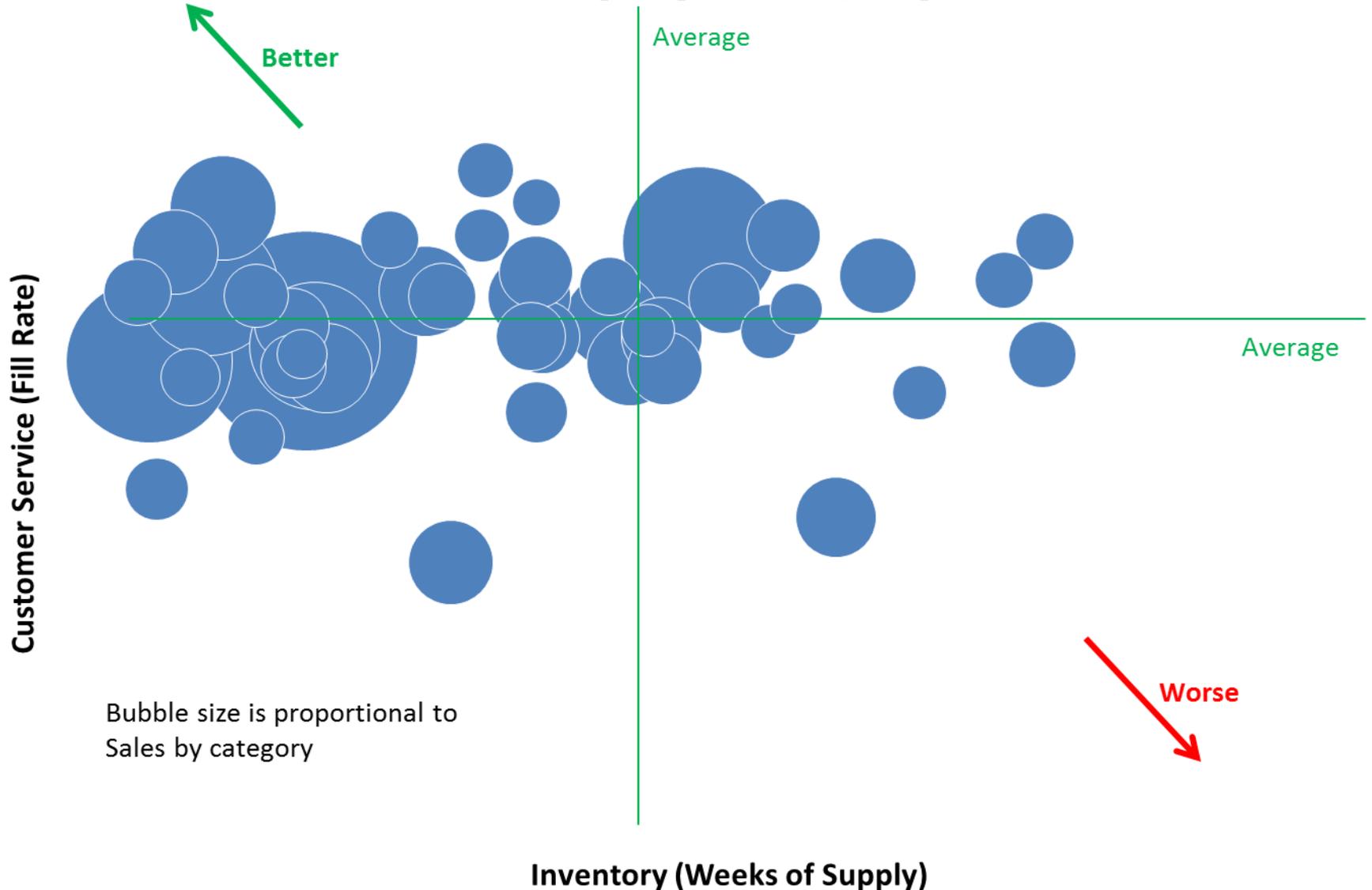
In closing…

- Data without analysis is nothing…

- Analysis without insight is nothing…

- Insight is everything

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Recommended Reading

***COMPETING ON ANALYTICS***
The New Science of Winning
Thomas H. Davenport, Jeanne G. Harris, 2007
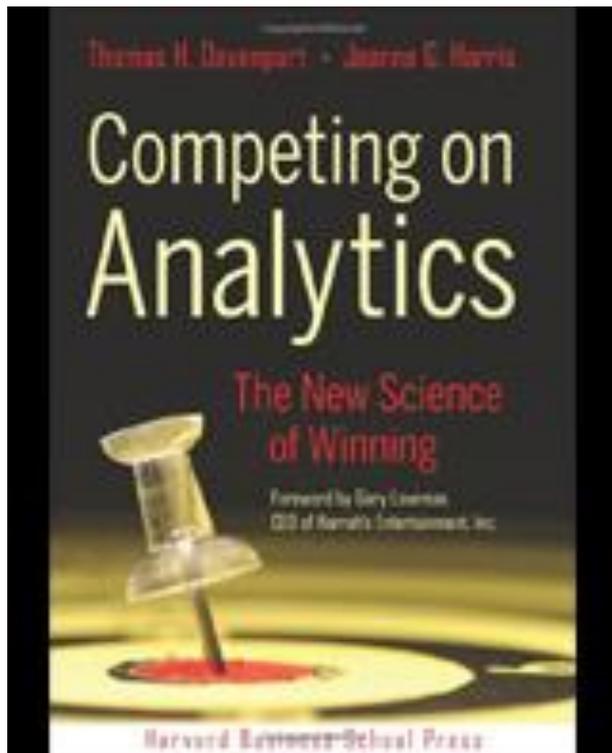
ANALYTICS AT WORK
Smarter Decisions. Better Results.
Thomas H. Davenport, Jeanne G. Harris, Robert Morison, 2010
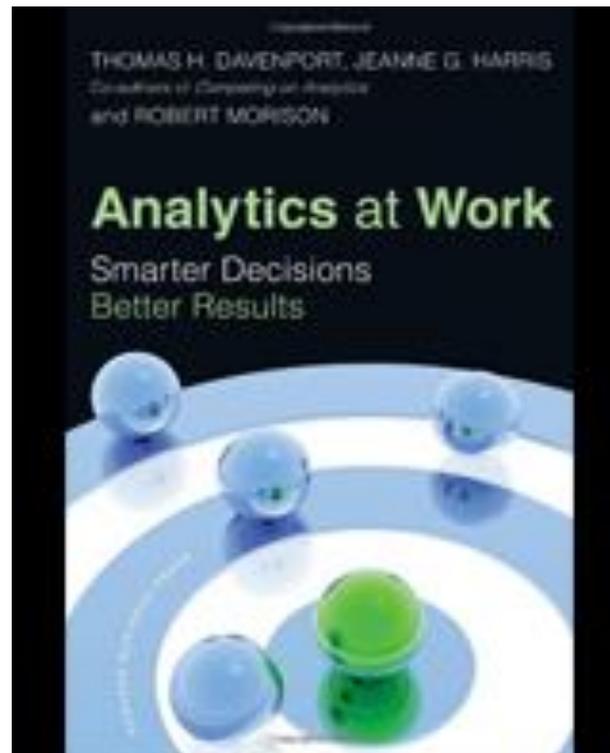
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Thank you!

Rob Ende

Founder and President, REanalyze Inc.

631-807-2339

rende@reanalyzeinc.com

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