How to Measure Business Impact

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Objectives

- How do I make the business case for an analytic project
- How do you measure the improvement that business transformation initiatives can bring
- How do you estimate incremental:
  - cost reduction
  - revenue increases
  - other business improvements

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Why measure ROI?

What gets measured gets done – DuPont Corporation

If you can't put a number on it, you don't know very much about it - Francis Bacon

Not everything that can be counted counts, and not everything that counts can be counted - Albert Einstein

In G-d we trust; all others bring data - W. Edwards Deming

Ranges are for cattle… give me a number! - Lyndon Johnson

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Context – why ROI matters

- Strategic factors/ forces:
  - Globalization
  - Constant change
- This presentation focuses on ROI estimates for transformation projects
- Projects are often first of a kind; breaking new ground.
- Benefits are often extrapolated; there's no precedent

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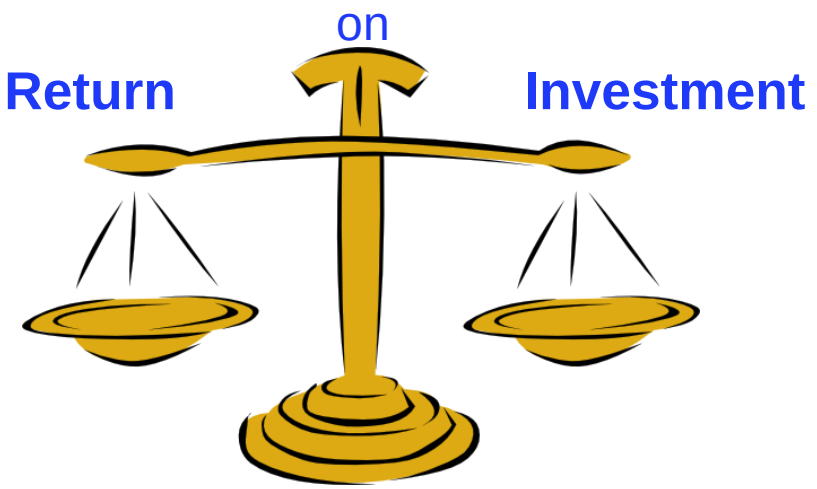
ROI is not only about a number; it's about understanding a project's ongoing costs and benefits



Benefits	
Monetary benefits	Nonmonetary benefits

Costs	
Initial costs	On-going costs

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What is ROI

To calculate ROI:

Actual or projected net benefits over a 3-year period

divided by project costs

expressed as a percentage

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Initial project brainstorming

- To ensure success, all projects should have a business case
- Key question to ask at an early point: *What business value are we are creating here?*
- You'll usually need to creatively come up with your own estimates, then track and measure over time
- In the special case of analytic projects, business benefit is often to *add a decision-making capability that leads to a better decision*
- ROI challenges becomes: how to measure the incremental benefit of a better decision

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A quick win

- The best ROI calculations come from projects with clear goals and objectives
- Business challenges then need to be reframed into a quantitative format
- One way to do so is to fill in the blanks in the following statement:

  [increase/decrease] the [target KPI] by [scope] [percent/value] in the next [timeframe]

<u>Examples:</u>

- Decrease time to resolve Severity 1 incident duration by 40% in the next 6 months
- Increase productivity (requests per staff-hour) within the delivery team by 15% in the next quarter

This approach can help clarify goals

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Any project or initiative can be reduced to an ROI expression

- It takes…
  …a can-do mindset
  …willingness to experiment
  …attitude of extrapolation
  …communication with stakeholders

- Initial requirement: Identify committed project stakeholders

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Business value = ROI

Two kinds of ROI calculations:

- Explicit
  - Most facts are available and quantifiable
  - Often straight line projections

- Implicit
  - Based on assumptions and extrapolations

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Common tangible and intangible value drivers

Tangible Drivers

- Cost Reduction
  - Waste reduction
  - IT Infrastructure
  - Resource load balancing
  - Return on assets
  - Customer support
  - Contract negotiation
  - Procurement
  - Distribution
  - Printing & paper
  - Marketing campaign cost
  - Shrinkage
  - Inventory optimization
- Revenue Enhancement
  - Customer profitability
  - New deal wins
  - Cross-sell, up-sell
  - Optimized pricing
  - Defects & returns
  - Out-of-Stock decreases
  - Fraud Detection
  - Reduced write-offs
  - New revenue streams
  - Increased profit generation
  - Validated lead revenue
  - Risk avoidance
  - Customer satisfaction – if translatable to revenue or profit
  - Customer engagement -- if translatable to revenue or profit
  - Resource cost savings
  - Hardware and software cost savings
  - Productivity gain / resource optimization
  - Process improvements

Intangible Drivers

- Internal
  - Faster decisions
  - Timely access to information
  - Right-time data to right people
  - Data accuracy and integration
  - Trending & predictive analysis
  - Collaboration
  - Employee productivity
- External
  - Customer retention
  - Customer acquisition
  - Customer satisfaction
  - Sales effectiveness
  - Compliance
  - Sustainability
  - Company Image
  - Improved customer service
  - Improved accuracy of Information
  - Improved supplier relationships
  - Reduced total cost of ownership
  - Improvements to IBM brand value
  - Competitive advantage
  - Time to market
  - Reduced risk
  - Employee engagement
  - increased efficiency

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Case study -- intangible value driver example

Tangible Drivers

- Cost Reduction
  - Waste reduction
  - IT Infrastructure
  - Resource load balancing
  - Return on assets
  - Customer support
  - Contracts negotiation
  - Procurement
  - Distribution
  - Printing & paper
  - Marketing campaign cost
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Intangible Drivers

- Internal
  - Faster decisions
  - Timely access to information
  - **Right-time data to right people**
  - Data accuracy and integration
  - Trending & predictive analysis
  - Collaboration
  - Employee productivity
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  - increased efficiency

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How to translate Right-time data to right people into a tangible benefit - 1

Enterprise scenario:

Your cognitive project uses Watson Natural Language Understanding API to analyze various social media, to provide better insights for cash collection timing to your Delinquent Account Collection team

The team is tasked with reducing DSO, or Days Sales Outstanding. The system identifies when a target company might be flush with cash, and more willing to pay down their accounts payable (debt)

Every day, the average collector brings in approximately $500,000 in delinquent, overdue accounts receivable

Analytic project premise: NLU insights make the collectors more efficient and save time

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How to translate Right-time data to right people into a tangible benefit - 2

1. Use your project's Journey map to identify the target beneficiary
2. Calculate the value of one minute of business time for your beneficiary
   a. 40 hours/week x 52 weeks/year = 2080 hours/year
   b. 2080 hours x 60 minutes/hour = 124,800 minutes/year
   c. $100K loaded salary per year
   d. Cost per minute = $0.80
3. Next, make an assumption about the value of information to your target role-model
   a. Minutes per working day = 8 hours x 60 minutes / hour = 480
4. Value of one minute of Collector's time = $500,000 day / 480 minutes / day = $1042 per minute
5. Next, apply conservative reduction factors:
   a. Conservative: 10% of $1042 = $104
   b. Moderate: 30% of $1042 = $313
   c. Aggressive: 50% of $1042 = $521
6. Make a series of informed assumptions: how much time-enhanced insights stemming from your project might save a single Collector, per day
   a. Conservative: 1 minute per day
   b. Moderate: 5 minutes per day
   c. Aggressive: 10 minutes per day
7. Number of Collectors in your pilot = 10

8. Put all the factors together to approximate the benefit:
   a. # Collectors in pilot
   b. x minutes saved per day per collector
   c. x dollar value of minutes saved
   d. x # days per working year
9. Create a sensitivity matrix that crosses the two reduction factors: value of collections and minutes saved per day
10. Project to years two and three, and sum
11. Remember to also calculate project costs, to use as the denominator

	ROI estimation template			
	Fundamentals			Formula
A	Hours/week	40	A	
B	Weeks/year	52	B	
C	Hours/year	2080	C	A x B
D	Minutes/hour	60	D	
E	Minutes/year	124,800	E	C x D
F	Average loaded salary	$ 100,000	F	
G	Cost per minute	$ 0.80	G	F / E
H	Hours / work day	8	H	
D	Minutes/hour	60	D	
I	Minutes per work day	480	I	D * H
J	Work days per week	5	J	
K	Work days per year	260	K	J * B
L	Vacation days per year	10	L	
M	Net work days per year	250	M	K - L
N	Average collections per day / Collector	$ 500,000	N	
O	Average collection value / minute	$ 1,042	O	N / I
P	Numbers of Collectors in pilot	10	P	
	Assumptions			
Q	Conservative reduction factor	10%	Q	
R	Moderate reduction factor	30%	R	
S	Aggressive reduction factor	50%	S	
T	Value of collections per minute - conservative reduction	$ 104	T	Q x O
U	Value of collections per minute - moderate reduction	$ 313	U	R x O
V	Value of collections per minute - aggressive reduction	$ 521	V	S x O
	# minutes saved / day / Collector due to Cognitive-enhanced information			
W	Conservative	1	W	
X	Moderate	5	X	
Y	Aggressive	10	Y	
Z	Estimated benefit =		Z	
	# collectors in pilot	P		
	x minutes saved per day per collector	W, X or Y		
	x dollar value of minutes saved	T or U or V		
	x # days per working year	M		

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How to translate Right-time data to right people into a tangible benefit - 3

1. Put all the factors together to approximate the benefit:
   a. # Collectors in pilot
   b. x minutes saved per day per collector
   c. x dollar value of minutes saved
   d. x # days per working year
2. Create a sensitivity matrix that crosses the two reduction factors: value of collections and minutes saved per day
3. Project to years two and three, and sum
4. Remember to also calculate project costs, to use as the denominator
   a. Initial costs
   b. Ongoing costs – which may reduce over time

Year 1 value of Cognitive insights - sensitivity analysis

		Reduction factors		
		Conservative	Moderate	Aggressive
Minutes saved / day	Conservative	$ 260,417	$ 781,250	$ 1,302,083
	Moderate	$ 1,302,083	$ 3,906,250	$ 6,510,417
	Aggressive	$ 2,604,167	$ 7,812,500	$13,020,833

Year 2 value of Cognitive insights - sensitivity analysis

		Reduction factors		
		Conservative	Moderate	Aggressive
Minutes saved / day	Conservative	$ 260,417	$ 781,250	$ 1,302,083
	Moderate	$ 1,302,083	$ 3,906,250	$ 6,510,417
	Aggressive	$ 2,604,167	$ 7,812,500	$13,020,833

Year 3 value of Cognitive insights - sensitivity analysis

		Reduction factors		
		Conservative	Moderate	Aggressive
Minutes saved / day	Conservative	$ 260,417	$ 781,250	$ 1,302,083
	Moderate	$ 1,302,083	$ 3,906,250	$ 6,510,417
	Aggressive	$ 2,604,167	$ 7,812,500	$13,020,833

Three-year projected value of Cognitive insights

		Reduction factors		
		Conservative	Moderate	Aggressive
Minutes saved / day	Conservative	$ 781,250	$ 2,343,750	$ 3,906,250
	Moderate	$ 3,906,250	$11,718,750	$19,531,250
	Aggressive	$ 7,812,500	$23,437,500	$39,062,500

Initial project costs	$ 1,000,000
Ongoing costs - year 1	$ 25,000
Ongoing costs - year 2	$ 20,000
Ongoing costs - year 3	$ 15,000
Total project costs	$ 1,060,000

ROI:

		Reduction factors		
		Conservative	Moderate	Aggressive
Minutes saved / day	Conservative	74%	221%	369%
	Moderate	369%	1106%	1843%
	Aggressive	737%	2211%	3685%

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ROI notes

Deliverables

- Projection and benefit statements need to be validated and approved by the business manager expected to receive the benefits
- This approval likely needs to be in the form of a confirmatory email from the specific executive

Timeframe

- Project managers may need to add target dates to their project timelines showing when benefits will be realized and can be measured

The Scientific method

- Set up a pilot. Embed metrics into the pilot design
- Use the scientific method to establish test and control scenarios
- Measure pilot results
  - Run retrospective evaluations to identify areas for improvement, to prepare for a rollout

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