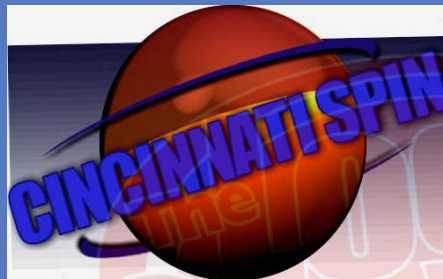


Calculating ROI on the Intangible



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Kevin Schneider – Brief Biography

- Senior PM – Compuware Corp
- 26 Year IT Experience
- B.S. in Mathematics and Computer Science
- Die-hard capitalist

Gartner Survey: Priorities and Challenges for IT

	To what extent is each of the following CIO actions a priority for you in 2005?	Rank 2005	Rank 2004	Rank 2003
1	Delivering projects that enable business growth	1	▲ 18	**
2	Linking business and IT strategies and plans	2	▲ 4	6
3	Demonstrating the business value of IS/IT	3	▼ 2	2
4	Applying metrics to IS organization and services	4	▲ 14	**
5	Tightening security and privacy safeguards	5	▲ 6	10
7	Improving business continuity readiness	6	▲ 12	**
6	Improving the quality of IS service delivery	7	▼ 1	8
8	Consolidating the IS organization and operations	8	▼ 3	**
9	Developing leadership in the senior IS team	9	*	*
10	Improving IT governance	10	▲ 11	3



ROI and the CIO Priorities

1. Delivering projects that enable business growth
 2. Linking business and IT strategies and plans
 3. Demonstrating the business value of IS/IT
- Quantifying “business growth” often means quantifying an intangible value.
 - Special ROI calculations are necessary to decide if real growth is possible. The question to ask is:
 - “Will the system cost more to build than the expected business growth?”

ROI and the CIO Priorities

1. Delivering projects that enable business growth
 2. Linking business and IT strategies and plans
 3. Demonstrating the business value of IS/IT
- If the business has a plan that needs IT involvement and if the ROI does not exceed the cost of the system, should the business organization implement it?
 - If IT has a project with a large ROI, shouldn't it be part of the business strategy and plans?

ROI and the CIO Priorities

1. Delivering projects that enable business growth
 2. Linking business and IT strategies and plans
 3. Demonstrating the business value of IS/IT
- Too often IT is thought of as a necessary evil, a sink hole for cash, or nothing but a pure expense
 - IT should always be able to demonstrate the value of a project, even “perceived pure expenses” like equipment upgrades should have an ROI
 - After all, shouldn't the function of the CIO be to use the company's INFORMATION as a competitive weapon?

So what is ROI ?

What is ROI ?

- ROI = Return / Investment
- Return = the *expected value* of a benefit
- Investment – the expected cost to get that benefit
- The accuracy of ROI depends on the accuracy of the calculation of both the *Return* – and – the *Investment*

What is ROI ?

- Calculating the expected investment of an IT effort is a PM task for another day, and most teams have some confidence in their ability to do this
- Calculating *return* is usually the hard part and many organizations never do it
- Ask yourselves: "How good are we at calculating the Investment? the return?"

What is “Value Added” ?

ROI is not the same “Value Added”, but the two are closely interrelated

Value Added = Those systems that increase organizational effectiveness and demonstrate ROI

Ultimately the goal for IT should be to implement value-added systems, but even support systems should demonstrate ROI

What are the types of Returns?

- **Increased Revenues**
 - Identifiable Incremental Sales
 - New business activity (increasing market share)
 - Increased odds of closing a sale
- **Accelerated Revenue (time value of money)**
- **Reduced Cost**
 - Operating
 - Production
- **Increased Odds of a Quantifiable Gain**
- **Reduced Risk of a Quantifiable Loss**

Special Cases of Returns

Time Value of Money

$$PV = FV / (1+i)^n$$

Example:

The implementation of new software for an automated inventory control system will allow a robotics maker to complete construction and open a new factory.

If the plant will cost \$10,000,000 to build at completion, what is the return on investment if an outside vendor could provide the software that allows the plant to open this year instead of three years from now. Assume a cost of \$1M for the software and customization and 10% annual interest

To Buy Or Not ?

$$PV = 10M / (1+.1)^3$$
$$PV=7.5M$$

$$ROI = 2.5M / 1M \quad TVOM = 250 \%$$

... plus the value of all the new widgets you could make !

... which of course assumes you need to make more widgets this year

What are the classes of Returns ?

Certain Outcome

- Widgetmaker Inc. has a test assembly line in its factory. Test confirm that a change to its production line will let them make one new widget per hour. Each new widget is worth \$1 to the bottom line. What is the annual return on this change per year. Should they change the line?

Uncertain Outcome

- Widgetmaker Inc. is considering buying a new CRM system for the sales force. The VP of sales is sure that he can get more sales with the system. How do you as a business analyst help decide if this is a good idea?

Calculating The Intangible

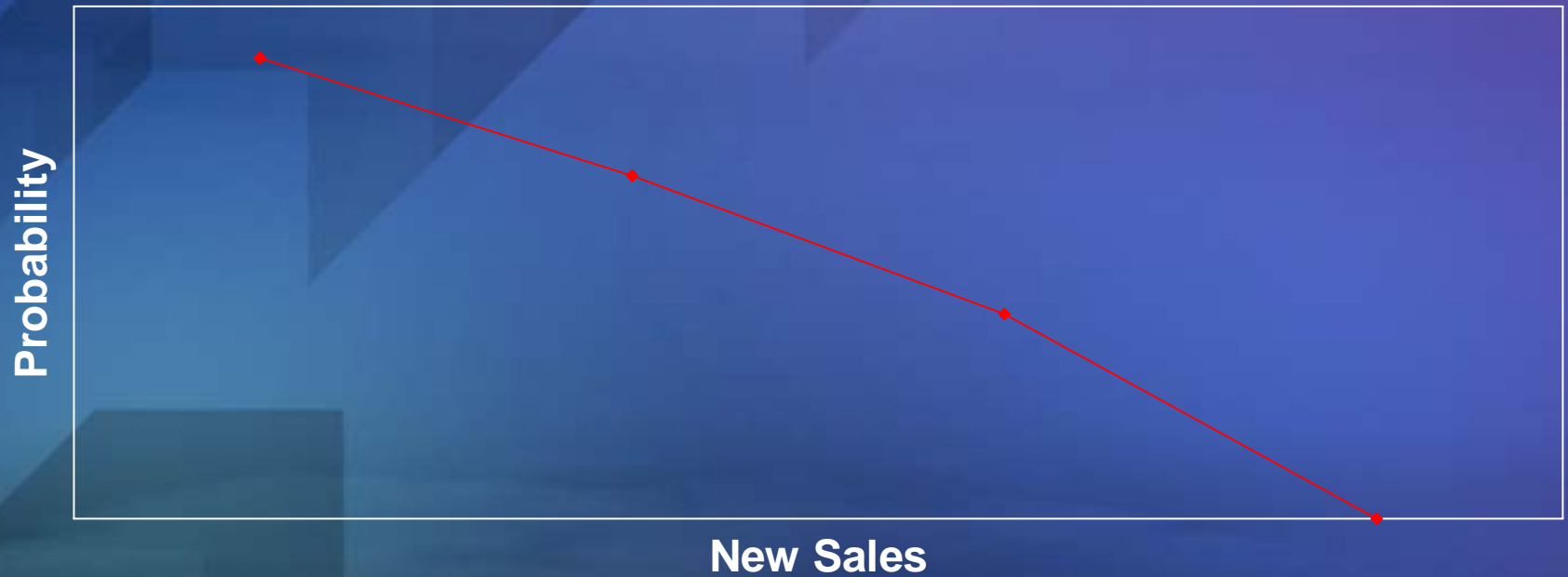
- The “intangible” is another way to express that we have an uncertain outcome
- Uncertain outcomes, in mathematics terminology, are called cumulative distribution of expected values
- To be useful this cumulative distribution must be converted to, what is mathematically know as, a discrete distribution

The easiest way to learn this is to see an example...

Example of Cumulative Distribution

- The sales manager is 90% confident that the new computer will help him sell at least 1000 more widgets
- He thinks there is a 2/3 chance that the new system will help him sell at least 2000 total additional widgets
- And he feel that there is about a 40% chance of selling at least 3000 total more widgets
- Each widget brings \$1 to the bottom line

Cumulative Distribution



Sample Expected Value Calculation

Cumulative Distribution

- 90% chance of at least \$1000
- 67% chance of at least \$2000
- 40% chance of at least \$3000

Discrete Distribution

- 10% chance of making \$0 - \$1000 (so we'll use \$0)
- 23% chance of \$1000-\$1999 or at least \$1000
- 27% chance of \$2000-\$2999 or at least \$2000
- \$40% chance of \$3000- ∞

Here's Another way to look at it...

Cumulative Distribution

- 40% chance of \$3000 or more
- 67% chance of \$2000 or more
- 90% chance of \$1000 or more

Discrete Distribution

- 40% chance of making \$3000 or more
- 27% chance of making \$2000-\$2999
- 23% chance of making \$1000-\$1999
- 10% chance of making \$0 - \$1000

$\Sigma[(\text{Probability of outcome}) \times (\text{Value of outcome})]$

Discrete Distribution

Expected Value

• .10 chance of \$0-\$1000 (to be conservative use \$0)	\$ 0
• .23 chance of \$1000-\$1999 (to be conservative use \$1000)	+ \$ 230
• .27 chance of \$2000-\$2999 (to be conservative use \$2000)	+ \$ 540
• .40 chance of \$3000 or more	<u>+ \$ 1,200</u>
	= \$ 1,970

Practice

- A hospital team feels like a new portal will give it an increased market share of outpatient lab business
- The Marketing team is totally confident that it can increase revenues by 15%, and they believe there is a 75% chance that the lab will see 20% more revenues
- What is the expected value of market share?

Distributed EV Calculation

- 0% chance of 0-15% increase
 - 25% chance of 15-20% increase
 - 75% chance of 20% + increase
-
- $.0 * 0 = 0\%$
 - $.25 * 15 = 3.75\%$
 - $.75 * 20 = \underline{15.00\%}$
- EV = 18.75%**

Let's do one more... just in case

- An IT consulting firm is looking to setup a new online product presentation and lead generation system
- The VP of sales conservatively estimates that the improvements to the lead process give him a 95% chance of getting one new project a year and a 50% chance of at least 2 new engagements
- Even his small projects are worth \$200K

Distributed EV Calculation

- 5% chance of 0-1 new projects
- 45% chance of 1-2 new projects
- 50% chance of 2 or more new projects
- $.05 * 0 = .00$
- $.45 * 1 = .45$
- $.50 * 2 = \underline{1.00}$

EV = 1.45 New Projects
or \$290K / Year

Graduation Exercise

- You are on the IT staff of a bank that is considering the implementation of a new consumer loan application system. The system will interface with your existing banking portal as well as to the banking officers at your local branches via the internet.
- Consumers can go online, get their credit score, and pre-qualify for a loan. The system will then transfer the customers contact info immediately to the loan officer at their closest branch.

Graduation Exercise - continued

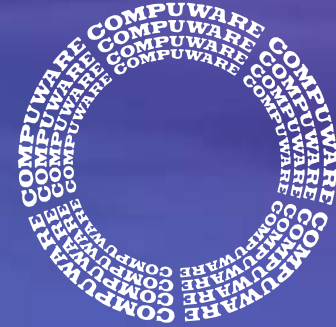
- The Loan Officer automatically receives an intranet notification that there is a loan request. She is given the pre-screen information and contact info for the customer. She can then call and complete the customer contact, filling in the rest of the required info while talking to the customer.
- If the application meets the bank's requirements the paperwork immediately prints. Nothing will happen until the required info is in order.

Graduation Exercise - continued

- Your mission, should you choose to accept it is to:
- Break up into teams
- Identify the possible kinds of “returns” for this scenario (remember all 5 categories !)
- Classify them as certain or uncertain outcomes
- Decide who would be the highest ranking stakeholder that you would interview to get information for the expected values of each return
- Conduct a mock “interview” with a member of the group acting as a stakeholder for two or three of these returns
- Calculate the expected value of each return
- Calculate an “Investment Cost” for the software (hint: Pull this out of thin air !!)
- Calculate the ROI

Summary

- Today's presentation was a quick introduction to ROI calculations
- Many factors influence a decision to implement, but ROI should be the leading factor in choosing to engage in an effort
- Pick the highest ranking stake holder, closest to the executive sponsor, as an information source and cite them in the proposal
- The real challenge in this process is becoming experienced in finding new kinds of "returns" and rolling up the number... only experience helps here!
- Questions ?



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Thank you for your time !!